IUCN Environmental Law Centre

Wetlands, Water and the Law

Using law to advance wetland conservation and wise use

Clare Shine and Cyrille de Klemm

IUCN Environmental Policy and Law Paper No. 38

IUCN
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Dedication
to Past and Future Generations

To Cyrille de Klemm, for his unique insight, inspiration and friendship

And to Louis, Julian and Eleanor, for whom - and despite whom - this book was written

Table of Contents

Foreword

The idea for *Wetlands, Water and the Law* grew out of the Conference on Legal Aspects of the Conservation of Wetlands in Lyon, 1987, which was organised by the IUCN Environmental Law Centre. Since that time, there have been radical changes in international and national environmental policy and law. The Earth Summit at Rio has come and gone; concepts such as 'sustainable development' have entered daily language. We have seen the adoption of the Convention on Biological Diversity and other instruments that extend conservation and sustainable use measures to all natural systems and components and address social, economic and cultural considerations.

These developments have shaped wetland policy and law in far-reaching ways. The Ramsar Convention celebrated its twenty-fifth anniversary in 1996 with a set of comprehensive and forward-looking tools. While keeping its special relationship with waterbirds and nature conservation, Ramsar has expanded its focus to cover other species, sectors, actors and issues. It has drawn public and political attention to the contribution wetlands make to sustainable management of limited freshwater resources and thus to regional stability. This is one of the most critical issues facing our planet as we move into the next millennium.

Wetland conservation and wise use depends on a series of important relationships between:

- wetlands, people and human institutions;
- land and water use within and beyond national boundaries;
- different economic sectors;
- public and private actors, including non-governmental organisations;
- scientific, economic and legal disciplines;
- legal instruments at international, national and local level; and
- regulatory and incentive-based approaches to wetland management.

Wetlands, Water and the Law provides a structured framework for considering these complex relationships. It sets wetlands in their scientific, economic and legal context, before describing the main legal issues involved in implementing the Ramsar Convention. Parts 3-6 take an increasingly broad focus, dealing respectively with site-specific and bioregional approaches to wetland management, generally-applicable techniques for managing damaging processes and activities and, lastly, regional and international frameworks for cooperation. These mechanisms overlap and interlock and should be mutually reinforcing.

The book complements the recent work of scientists and economists by describing how laws and institutions can work for (or against) wetland conservation and wise use. Each chapter makes the link between international legal obligations and national or local mechanisms for delivering implementation. Drawing on national practice around the world, the book illustrates how different legal approaches and techniques can be adapted to widely-varying national conditions and capabilities. Key components for legal and institutional frameworks suited to the challenge of wise use implementation are set out in the conclusion.

For nearly a decade, Clare Shine and Cyrille de Klemm have worked together on biological diversity issues and have produced several important reports and publications for the IUCN Envi-

ronmental Law Programme. But this book is special. Not only was it prepared over a number of years during which both Clare and Cyrille attempted to synthesise the results of extensive research, observations and practice in the field of wetlands law. The book was also prepared at a time when Cyrille gradually lost his physical strength. It was finalised by Clare shortly after his death in April of 1999.

Wetlands, Water and the Law is thus the first monument to Cyrille's memory, and to his long collaboration with Clare. Without Clare's dedication to the task, and friendship with Cyrille, this book simply would not have been completed.

All those who recognized in Cyrille de Klemm a visionary in the environmental conservation law field will be grateful to him for making his last thoughts on the subject available to us. They will also be grateful to Clare, not only for her own expert contribution, but for carrying his torch.

Françoise Burhenne-Guilmin
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Bonn, Germany

Acknowledgements and Editorial Note

Hearty thanks are due to Francçise Burhenne-Guilmin, Lyle Glowka and other staff of the IUCN Environmental Law Centre in Bonn, for their help, support and extraordinary patience throughout this book's long gestation.

I would also like to thank all participants in the Technical Consultation on Designing Methodologies to Review Laws and Institutions Relevant to Wetlands which took place at IUCN Headquarters in Gland, Switzerland in July 1998. Grethel Aguilar, Gordana Beltram, Stéphane Doumbé-Billé, Jens Enemark, John Ntambirweki, Devaki Panini, Bill Phillips, Dave Pritchard, Clay Rubec and Pedro Solano provided useful perspectives into the practical or theoretical implications of wise use - and some visionary insights as to future developments. They also demonstrated regional cooperation in action, huddling around the cafe television to watch the World Cup football matches and sharing defeats or victories in the true spirit of Ramsar solidarity.

On a more serious note, it should be emphasised that references in this book to individual laws or countries were often made on the basis of availability. This does not imply that other countries or regions have not developed similar or better legal instruments, or that one national precedent is necessarily appropriate to other countries. Wherever possible, illustrations have been provided from all biogeographica! regions of the world. Given the rate of change in wetland lawmaking, it is possible that some laws and regulations referred to in this book have subsequently been amended: in many cases, it was not possible to obtain fully updated details of legislation. Any errors are of course the responsibility of the authors alone.

Lastly, with regard to use of terms, 'regional' has been used in an international sense to refer to a group of countries in one continent or one biogeographic region. In countries which have a federal or decentralised structure, references to national implementation should be taken as necessary to include subnational implementation by a province, *Land*, canton, state or autonomous community as appropriate.

Clare Shine
Paris, France
3 May 1999

PART I

WETLANDS: A SCIENTIFIC AND LEGAL PROFILE

Chapter 1
What are Wetlands and Why Do They Matter?

1.1 Defining Wetlands

Wetlands are areas where dry land meets or is saturated by water and are characterised by the presence of water-dependent species of plants and animals. As an integral part of the water cycle, wetlands are amongst the most productive ecosystems on earth and are of great economic and cultural importance to mankind.

The term "wetland" is a relatively new coinage[1] that covers a broad range of distinctive habitat types which do not fit neatly into aquatic/terrestrial classification systems. Wetlands commonly occupy a transitional zone between wet and generally dry environments and share characteristics of both: collectively, they range from permanently or intermittently wet land to shallow water and land-water margins.[2] Whilst they have traditionally been associated with areas of shallow water, such as marshes, swamps and peatbogs, there is no scientific reason to restrict their definition to freshwater habitat types. On the other hand, a line must be drawn when delimiting coastal and marine wetlands to avoid extending such a definition to all water surfaces of the world, including oceans and seas.

A common frame of reference is now provided by the Convention on Wetlands of International Importance especially as Waterfowl Habitat, concluded in Ramsar, Iran on 2 February 1971.[3] Its internationally agreed definition describes wetlands very broadly as

> areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.[4]

This represents the first attempt by the international community to develop a coordinating concept for a specific group of ecosystems and provides a useful starting point for wetland identification and management. However, the definition is not free of difficulty: some have considered that it makes the description of wetlands and their uses and threats more complex.[5] It does not mention open coasts and coral reefs, although it is clearly applicable to shallow marine and coastal ecosystems, including estuaries, dunes, mangrove swamps and seagrass beds.[6]

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1 Smart, M. 1997. *Sehumed: Boletin de la Sedepara el Estudio de los Humedales Mediterraneos,* Vol. 1/1, March 1997.

2 Rubec, C. *et al.* 1999. *A Framework for Developing and Implementing National Wetland Policies.*

3 Now generally referred to as the Ramsar Convention and/or the Convention on Wetlands, a practice followed in this book.

4 Article 1.1.

5 OECD 1996b. *Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropical and Sub-Tropical Wetlands. Guidelines on Aid and Environment,* No. 9. OECD, Paris at p. 9.

6 However, Article 2.1 does specifically provide that wetlands which are included in the List of Wetlands of International lmportance established under the Convention "may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands".

Similarly, the definition does not refer to hydrological systems even though it covers the components of natural inland water systems, such as lakes, rivers, floodplains, water meadows and other wetland types.[7] It does explicitly include manmade wetlands, such as canals, reservoirs and aquaculture ponds.

The Ramsar definition, adopted in 1971, predates many of the recent conceptual and legal developments related to integrated management of inland and coastal water systems. The Convention does not use the terminology of river basins, catchments and watersheds that has now become common currency in environmental policy instruments, nor does it reflect the interlinkages between coastal waters, inshore marine and intertidal areas and landward areas necessary to maintain important ecological processes.[8] On the other hand, the sheer breadth of the Ramsar definition makes it possible for countries to adapt or 'flesh out' the definition in line with their particular biogeographic conditions and to develop more detailed classification systems as a basis for domestic legislation and wetland programmes.

National practice varies widely, as discussed later in this book.[9] Some countries which have ratified the Ramsar Convention have no legally-backed definition of wetlands, whilst at the other extreme countries like Spain and Uganda have incorporated the Ramsar definition into national legislation without any modification. Costa Rica has recently tailored the Ramsar definition to reflect the predominance of coastal wetlands and mangrove ecosystems. Countries such as Canada and the United States have retained their own long-standing wetland definitions, which are enshrined in legislation and wetland policy. Such definitions are generally compatible with the broad Ramsar definition, but may vary in respect of the full scope of what is included as a wetland, particularly with regard to coastal and marine systems. Whilst national variations in wetland definitions and classifications are an important element of Ramsar's flexibility,[10] this should not detract from the comprehensive treatment of water-based ecosystems which was clearly intended by the Convention's negotiators.

Unless otherwise indicated, all references to wetlands in this book are based on the broad definition of the Ramsar Convention, as the international reference point in this area for nearly three decades.

1.2 Classification of Wetland Types[11]

Wetlands vary in size from micro-wetlands, possibly housing rare endemic species, to the vast water system of Lake Victoria and the Nile which has an estimated catchment area of 2.9 million square km, one tenth of the area of Africa. They are dynamic systems, continually undergoing natural change due to flooding, subsidence, drought, sea-level rise or infilling with sediment or organic material. Lake Chad in the Sahel, for example, is rarely more than 7m deep but its area varies from 25,000 km^2 to less than 10,000 km^2 in times of drought. Many wetlands are only

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7 Even though Art. 5 promotes international cooperation where a "water system" is shared by Contracting Parties (see Chapters 3.1 and 22 below).

8 Report of Technical Session A, Proceedings of the Sixth Meeting of the Conference of the Parties to the Ramsar Convention (Brisbane 1996), Vol. 10/12 at p. 2.

9 For a more detailed discussion of wetland definitions and inventories, see Chapters 7.3 and 7.4 below.

10 Rubec, C. *supra*, n. 2.

11 See generally Dugan 1990, OECD 1996b and Barbier, Acreman and Knowler 1997, *Economic Valuation of Wetlands: A Guide for Policy Makers and Planners.*

temporary features of the landscape and will change and eventually disappear, whilst new wetlands are naturally created elsewhere.

Wetlands also vary widely in type, with significant differences from one region to another. The grassland floodplains in Africa and South America may be contrasted with Sudan's huge swamps, the enormous mangrove forests in parts of Asia, coral reefs in the tropics and the high concentration of peatlands around the margins of the South China Sea. Some categories of wetland are very well known whilst others, such as karstic and subterranean wetlands, may be near-invisible to the general public, legislators and land managers.

Box 1 sets out a scientific classification system that covers the range of wetland habitat types:[12]

Box 1. The Range of Wetland Habitat Types

Marine and coastal wetlands

Wetland landscape units that are influenced by river flows include:

- **estuaries and tidal flats,** where rivers meet the sea and salinity is intermediate between salt and freshwater. Habitat types include deltas, mudflats and salt marshes. These areas support a food web that permits rapid growth of young fish in estuarine nursery areas.
- **mangroves and other tidal forests.** These very productive plant communities adapted to living in dynamic estuarine and coastal conditions are found only in the tropics and sub-tropics: mangroves are the only woody plants tolerant of salt waters.

Wetland units not influenced by river flows include:

- **marine and open coasts.** Where the coastal energy from waves and currents is low, coastal zones may contain a complex of habitat types, including open shores, coastal lagoons and mangrove areas interspersed with mudflats and sandbanks.
- **coral reefs.** These are the physical structures created by the growth of the reef community, especially corals, which are colonial animals producing a calcium carbonate structure. They come within the definition of wetlands as they start from very shallow intertidal waters (less then six metres deep) but also extend far out to sea to great depths.

Inland wetlands

Within this category, distinctions can be drawn between habitat types that are seasonally or permanently covered by water and between those with significant or negligible water flow.

- **Riverine wetlands** include floodplains, deltas, water meadows, flooded forests and oxbow lakes which may have small areas of permanent water during the dry season but which are periodically inundated as a result of seasonal rainfall or meltwaters from mountain snow. The annual cycle of inundation and dessication of major floodplains, such

continuedonthenextpage

[12] Adapted from OECD 1996b at pp. 37-40. See also OECD DAC 1996a. *Guidelines on Global and Regional Aspects of the Development and Protection of the Marine and Coastal Environment.*

Box 1. The Range of Wetland Habitat Types

continued from the preceding page

as the Inner Niger Delta (Mali) and the Pantanal of the Paraguay River, make them particularly productive both as wetlands and agricultural areas.

- **Palustrine wetlands** have more or less permanent water, fed by groundwater, surface springs, streams or run-off, and tend to be dominated by herbaceous plants such as grasses, sedges and rushes. They are among the most widespread and important wetland types and include papyrus swamps, marshes and fens.
- **Swamp forests and peatbogs** also tend to form in areas of still water, often in association with marsh and swamp around lake margins and in floodplains and coastal regions.
- **Lacustrine wetlands** are areas of permanent water with little flow, such as ponds, kettle lakes and volcanic crater lakes. Lakes and ponds occur in many different types resulting from geological processes, such as the faulting in the Earth's crust, or impeded flow in rivers, such as alluvial fan lakes. Margins of large lakes may house other wetland types, such as marshes and swamps, whereas the open waters may resemble inland seas and house important lake fisheries.

Some of the world's most spectacular wetlands are found in arid zones fed by major rivers, such as the Colorado, Darling, Indus, Nile, Okavango and Volga, which end in inland wetlands or reach the sea in deltas. Upwellings of groundwater in arid countries can form springs, salt lakes, oases or wadis that play an essential role in the water cycle for large human and animal populations. Large lakes are found in the arid parts of Australia, India, South America and South Africa, for example, whilst Mongolia, an arid country, has 3500 lakes larger than 0.1 hectares.[13]

1.2.1 Artificial Wetlands

Human made wetlands include irrigated lands, ponds for agriculture and livestock, aquaculture installations, rivers and reservoirs which have been dammed for water supply, irrigation or hydro-electric power generation, flooded excavations, certain wastewater treatment facilities and salt pans (salines). In some cases, the construction of an artificial wetland directly involves the destruction or degradation of a natural wetland, for example where mangrove ecosystems are converted to aquaculture ponds or where floodplains are drained and subsequently irrigated for intensive arable cultivation. Under some laws, the grant of planning permission to develop natural wetlands may be conditional on the developer funding the creation of new wetlands.[14]

The common characteristic of artificial wetlands is that they are usually designed for a specific purpose and seldom have the full range of wetland functions and values provided by a natural wetland, even where they are of similar size. Whilst there is broad consensus that newly created or restored and rehabilitated wetlands cannot replace natural ecosystems,[15] wetland creation and

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13 Kingsford, R.T. 1997. *Wetlands of the World's Arid Zones* (report submitted by the Ramsar Convention Bureau to the First Session of the COP to the UN Convention to Combat Desertification).

14 For a discussion of wetland compensation and mitigation banks, see Chapter 18.3 below.

15 See for example *Biological Diversity of Inland Waters*, Note by the Executive Secretary to the Convention on Biological Diversity, UNEP/CBD/SBSTTA/3/2, 30 June 1997.

restoration are becoming an increasing priority in industrialised countries where wetland integrity has been seriously degraded over decades. The creation and restoration of wetlands is becoming technically and ecologically feasible for a limited range of habitat types, including freshwater marshes and tidal marshes on low energy coasts.[16]

1.3 Ecological and Economic Importance of Wetlands

Wetlands have been famously described as "biological supermarkets" because of the extensive food webs and rich biodiversity they support and as "kidneys of the landscape" because of the functions they perform in the hydrological and chemical cycles.[17] In addition to these products and ecological services, wetlands may be appreciated for their mere existence (attributes).[18] These groups of benefits are briefly discussed below.

1.3.1 Wetland Products

Wetland products include fish and timber; wildlife which may be directly harvested or used indirectly for ecotourism, scientific research or film purposes; housing materials such as reeds for thatching; medicinal plants; the provision of fertile land for agriculture; water supply for domestic, arable, pastoral or industrial purposes; and peat for fuel or commercial applications, especially in horticulture. These products have direct and immediate benefits for local communities and indigenous peoples living in or close to wetlands, particularly in the tropics.

By supporting diverse human activities, large wetlands play a particularly important role in the subsistence and development of millions of people.[19] The Hadejia-Jama'are wetlands in Nigeria provide a floodplain fishery harvest of 4,000-5,000 tonnes per year, whilst the reeds of the freshwater lakes of Bo Hu (north-west China) support a major paper industry. Even arid wetlands provide important products for local communities, such as river red gum trees harvested from Australian flood plains and wetland plants used for food by Aboriginal communities. Wetlands thus enable communities to maintain traditional forms of animal and plant resource exploitation and provide essential communication links through water transport.

The high productivity of wetlands mentioned above and the cycling of nutrients means that there are ample food supplies to maintain complex food chains in wetlands. Healthy wetlands are able to provide fertile habitat and spawning/nursery grounds for many wild species of commercial importance, including game, shellfish and fish. The shallow waters trap silt and organic matter on which large numbers of small creatures feed, subsequently providing food for juvenile fish. Whilst some fish remain within the wetland, many more move away, particularly from estuaries, deltas and mangroves. This export of biomass from wetlands thus supports marine fisheries far out to sea: it has been estimated that two-thirds of the world's fisheries depend on fish that have breeding or

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16 OECD 1996b, *supra* n. 5, at p. 21.

17 Mitsch, W.J and Gosselink, J.G. 1993. *Wetlands* (2nd edition). Van Nostrand Reinhold, New York. See also generally Skinner, J. and Zalewski, S. 1995. *Functions and Values of Mediterranean Wetlands,* Tour du Valat.

18 See Barbier, Acreman and Knowler 1997 *supra*, n. 11 at pp. 110-116.

19 The huge African floodplains support very large populations through fisheries, cattle herding and recession culture farming on the wet nutrient-rich riverbanks. The middle valley of the Senegal (5,000km^2) and the inner delta of the Niger in Mali (30,000 km^2) each support over 550,000 people (Braahekke and Marchand 1987. *Wetlands: the Community's Wealth* at pp. 10-11).

nursery grounds in wetlands. Without the protection and food supply available in wetlands, many fisheries might collapse.[20]

1.3.2 Wetland Functions

Wetlands provide the mechanisms for hydrological balance. Depending on the specific conditions of an individual wetland, it may perform one or more of the following functions:

- storage of water supply and regulation of the water table through maintenance and recharge of surface and underground water supply. Water resource security is obviously a critical issue in arid countries and of importance for regional stability in several parts of the world;

- discharge of groundwater, whereby excess water is drained away into rivers and streams and prevents waterlogging of land;

- storage of flood waters in flood plains, which enable surplus waters to spread out during peak levels and thus reduce the force of the flooding. Retention of wetlands for flood control is now becoming a recognised management tool.

Wetland vegetation makes an important contribution to erosion control. Coastal wetlands, particularly mangrove forests, contribute to shoreline stabilisation and storm protection, at much lower cost than engineered structures, by helping to dissipate the force and lessen the damage of wind and wave action in many low-lying areas. They can therefore play an economically important role in natural hazard management. In the Ganges-Brahmaputra Delta of India and Bangladesh, for example, the extent of cyclone damage behind the Sundarbans mangrove swamps (the largest in the world) has historically been less than that behind non-mangrove coasts.[21] Inland, riparian vegetation and forest cover in watersheds helps to reduce erosion of agricultural and other land.

Both natural and manmade wetlands can have water purification functions. These are of great importance since organic (sewage) and toxic (chemical and industrial) sediments are usually the major pollutants in many river basins. Papyrus swamps often include sediment-settling areas in which the presence of reeds and grasses slows down river flow, thereby increasing the opportunities for settling. Certain pollutants such as heavy metals may adhere to suspended sediment and are retained simultaneously with that sediment. Wetlands also contribute actively to nutrient retention by storing nitrogen and phosphorus in vegetation or accumulating them in the sub-soil: this helps to reduce eutrophication of downstream lakes and other wetlands.

Wetlands also contribute to climate stability. At micro-climatic level, localised evaporation from wetlands or transpiration from wetland forests maintains local humidity and rainfall levels. Destruction of such wetlands decreases local rainfall with adverse effects on local crop yields. At macro-climatic level, peatlands in particular are now thought to perform important carbon sequestration functions. These 'carbon sinks' absorb carbon dioxide from the atmosphere and incorporate the carbon into the stored organic material. Although peatlands may therefore contribute directly to global programmes to reduce global warming, their value to greenhouse gas regulation has often been neglected.[22]

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20 *Ibid*, at p. 9; OECD 1996b, *supra* n. 5, at p. 41.

21 Bender, S.O. 1995. *Protected Areas as a Protection against Natural Hazards* at p. 119.

22 *The Key Role of Wetlands in Addressing the Global Water Crisis* (Diplomatic notification dated 19 February 1998 to Ramsar Contracting Parties; paper presented to the International Conference on Water and Sustainable Development, Paris 19-21 March 1998) at p. 3; OECD 1996b, *supra* n. 5, at p. 42.

1.3.3 Wetland Attributes

Many wetlands house a very high degree of biological diversity, the umbrella term used to denote diversity within species (genetic diversity), between species and between ecosystems. They provide essential natural habitat for many groups of species, not only waterfowl[23] and fish but also reptiles,[24] amphibians, invertebrates, mammals and plants. Wetland-dependent species are often rare, threatened or found only in a very restricted geographical area (endemics). Freshwater lakes and rivers contain just 0.008% of the world's available water but are of great importance for biological diversity as they contain 12% of all animal species and 41 % of all known fish:[25] lakes known to house exceptional biodiversity include Lake Baikal in Asia and the African Lakes Malawi, Tangyanika and Victoria. Arid wetlands may also be biodiversity 'hotspots': examples include the prairie potholes of North America for waterbirds and the Okavango Delta for its significant fauna populations and many bird species.

The interdependence of species on other species and theirrole in essential ecological processes is a vast subject about which relatively little is yet known. It is nevertheless becoming clear that invertebrates and microorganisms, in particular, perform critical functions within natural ecosystems, including water purification functions for wetlands. It has been estimated that the mussels *Dreissena polymorpha* in the Dutch Ijsselmeer (which covers 180,000 hectares) pump all of the lake's water through their gills every 2 years, purifying it of much organic waste.[26]

Wetlands also provide an important reservoir of genetic material. Genetic resources derived from wetlands may be used in agricultural research and product development (for example, for disease-resistant varieties of rice), aquaculture and the pharmaceutical industry. Biological processes occurring in wild species may be very important for human medicine. By way of example, certain small fish from the deserts of North America (genus Cyprinodon, or pup-fish) are adapted to particularly extreme conditions of temperature and salinity as they live in water twice as salty as the sea. These fish provide biological models for medical research on how the kidney works and on adaptation to very high temperatures. However, these endemic species are restricted to small water-bodies in desert areas and are mostly endangered.[27]

Finally, there is a rich cultural heritage closely associated with wetlands. Humans have been building civilisations around wetlands for thousands of years and many traditional cultures have been shaped by their proximity to and dependence on wetlands, the Marsh Arabs of Southern Iraq being but one example. Such communities have often developed low-impact technologies for

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23 The abundance of food, especially in tidal areas, means that wetlands may hold up to 100 times as many birds as the open seas. Their relative inaccessibility also makes them ideal places for wintering, nesting and moulting. Because the number of suitable wetlands is limited, the bird populations in certain sites may be gigantic (the Mauritanian Banc d'Arguin supports up to 2 million birds, the Wadden Sea in Europe 3 million in autumn (Braekekke and Marchand *supra* n. 19).

24 The dependence of reptiles on wetlands varies from one species to another. Tortoises *(Emys* and *Mauremys)* are completely dependent on wetland habitats, whereas fish- and amphibian-eating snakes *(Matrix)* are only partially dependent. Sea turtles need special nesting beaches: one well-known example is the loggerhead turtle *Caretta caretta* which nests on the Greek island of Zakynthos.

25 *Biological Diversity ofInland Waters, supra* n. 15.

26 Braahekke and Marchand 1987. *supra* n. 19.

27 De Klemm, C. and Shine, C. 1998. *International Environmental Law: Biological Diversity* at p. 7.

sustainable use of wetland resources, some of which may be relevant to wetland management on a wider scale.[28]

The supply of the products, functions and attributes described above is directly affected by wetland conversion. Loss or impairment of wetland values is generally associated with a (possibly hidden) economic cost and, in many cases, with a reduction in opportunities for sustainable development.[29] Conversely, maintenance of wetland products, functions and attributes is likely to have economic benefits. Whilst these are notoriously difficult to quantify, studies have shown that retention of natural wetland function can significantly outweigh the economic benefits of conversion.[30]

A starting point for assessing the economic importance of wetlands can be to assess use, non-use and option values. 'Use values' involve some form of human interaction with the wetland resource. Direct use values include recreation, transport and research as well as the consumptive or extractive use of wetland products.[31] Indirect use values attach to wetland functions which support or protect economic activities with directly measurable values: for example, storm protection and shoreline stabilization functions can reduce property damage, whilst floodplains recharge groundwater which supplies water to wells at some distance.[32] 'Non-use values' denote current or future values linked simply to the continued existence of the resource and are by definition subjective in character: they seek to reflect individual or collective willingness to pay for the continued existence of high biodiversity and/or for safeguarding options for future generations.[33] Thirdly, option values may be attributed where an individual is uncertain about his or her future need for a resource and/or its availability in the wetland in the future (for example, where farmers see wetlands as a kind of insurance policy in the event of a drought).[34]

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28 As emphasized in Ramsar's *Additional Guidance for the Implementation of the Wise Use Concept* (Annex to Resolution 5.6 (Kushiro 1993)).

29 Moser, M., Prentice, C. and Frazier, S. 1996. *A Global Overview of Wetland Loss and Degradation*, Proceedings of Ramsar COP6 (Brisbane 1996), Vol. 10/12, Technical Session B, pp. 21-31.

30 See generally Barbier, Acreman and Knowler 1997, *supra* n. 11, and Dugan, P.J. and Maltby, E. 1995, *Protected Areas and the Hydrological Cycle.*

31 The economic benefits from mangrove-linked fisheries can form a huge proportion of a country's export earnings: in Guinea-Bissau they account for about 30% of the total, more than three times the earnings derived from forestry (Braahekke, *supra* n. 19, pp. 10-11).

32 The economic implications of modifying the water regime may be huge. In an interesting example from the 19th century, the shortening of the Rhine by 100km between Basel and Mainz (1815-1874) caused an increase in stream velocity of 30%, an annual drop in the water level of 4cm leading to navigation problems, and the lowering of the ground water table by 3 metres near Basel and by up to 24m at some other places. The economic damage was estimated at US$139 million for agriculture (in the South-Baden valley alone, due to dessication), $24 million for forestry, and $8 million for fisheries *{ibid.).*

33 For this reason, such values may also be referred to as existence values, passive values or intrinsic values. They are sometimes calculated by reference to the amount that individuals (often in industrialised biodiversity-poor countries) say they would be prepared to pay for natural goods that they will never use and probably never see.

34 Filion. F. 1995. *Vers la création d'un groupe d'experts au sein de "Wetlands International", chargé de l'évaluation économique des zones humides.* Paper presented at the International Conference on Wetlands and Development, Selangor, Malaysia, 10 October 1995, p. 7.

Environmental economics is a young discipline and it is only recently that sustained efforts have been made to develop wetland valuation techniques, notably under the auspices of the Ramsar Convention.[35] Unless and until the inherent benefits of wetland ecosystems are factored into environmental planning and are weighed in the same balance as the more tangible costs and benefits of sectoral development projects, it will often be hard to argue convincingly in favour of maintenance rather than conversion. This is of particular concern, given the scale of wetland loss and degradation outlined in the next chapter.

[35] See Barbier, Acreman and Knowler 1997, *supra* n. 11.

Chapter 2
Wetland Loss and Degradation: Extent and Causes

2.1 Estimates of Wetland Loss

Wetlands are dynamic ecosystems that are in continual change through ongoing processes of subsidence, flooding, sea level rise, drought, erosion and siltation. Whilst certain pressures on wetlands arise from natural causes (such as droughts which affect community migration patterns), it is human activities that have significantly altered the rate and nature of wetland change particularly over the last century. Many parts of the world have now experienced wetland loss or degradation on a huge scale, reducing the ability of wetlands to provide goods and services for human and environmental needs.

The terms "loss" and "degradation" should first be clarified. Wetland loss may be defined as "the loss of wetland area, due to the conversion of wetland to non-wetland areas, as a result of human activity", whereas wetland degradation is "the impairment of wetland functions as a result of human activity".[36] Wetland loss usually entails degradation, as destruction of even part of a wetland tends to impair wetland function in the remaining area. Conversely, it should be emphasized that wetland functions are frequently impaired without the wetland actually being destroyed, as where upstream activities reduce the quantity or quality of water supply to a particular site.

Estimates of wetland loss worldwide should ideally be reached by comparing the total area of wetlands at a given date in the past to the area now remaining. However, establishing a past baseline presents considerable difficulties where there are no established criteria, definitions or techniques for the standard measurement of wetlands. When does a wetland start and finish? How often does an area need to be flooded in order to be classified as a wetland?[37] The data that is available varies significantly between different regions of the world. It tends to be most complete in regions where the greatest losses have occurred and/or industrialised countries that have more resources available to undertake such studies. There are also wide variations in the date at which systematic wetland monitoring programmes began.[38]

Wetlands are currently estimated to occupy around 8.6 million km^2 (6.4%) of the Earth's land surface, about 4.8 million km^2 of which are found in the tropics and sub-tropics. The greatest proportion is made up of bogs (30%), fens (26%), swamps (20%) and floodplains (15%). This total is thought to be about half of the total wetland area that existed in 1900. Around 50% of the world's wetlands have therefore been lost in one century, primarily through drainage for agriculture and urban development and water system regulation.[39]

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36 Moser, M., Prentice, C. and Frazier, S. 1996. *A Global Overview of Wetland Loss and Degradation,* Proceedings of Ramsar COP6 (Brisbane 1996), Vol. 10/12, Technical Session B at p. 21.

37 *ibid.* at p. 23.

38 Monitoring began in France in 1900 but not until 1950 in the Netherlands and Germany (Commission of the European Communities, 1995. *Wise Use and Conservation of Wetlands.* Communication from the Commission to the Council and the European Parliament).

39 OECD 1996b, *Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropical and Sub-Tropical Wetlands* at pp. 9-11; *The Key Role of Wetlands in Addressing the Global Water Crisis* (Diplomatic notification dated 19 February 1998 to Ramsar Contracting Parties; paper presented to the International Conference on Water and Sustainable Development, Paris 19-21 March 1998) at p. 4.

Losses were concentrated in northern industrialised countries up until 1950. The United States, which has an unusually complete database in the form of its National Wetland Inventory, was estimated to have lost 87 million hectares (54%) of its original wetlands by 1984,[40] more than 80% of such losses being attributed to agricultural production. In 1995, the European Commission estimated that an average of 61% of wetlands had been lost in six countries (The Netherlands, France, Germany, Spain, Italy and Greece) since monitoring began in the respective countries.[41] Since the 1950s, tropical and sub-tropical wetlands have come under increasing pressure for conversion to alternative land use. By 1985, the drainage of available wetlands for intensive agriculture was estimated at 27% for Asia, 6% for South America and 2% for Africa. In Asia, where wetlands have of course been used for rice cultivation for thousands of years, there has been a total conversion of some natural floodplains, including the Red River Delta in Vietnam and the Sylhet Basin in Bangladesh, affecting many millions of hectares. Very little natural vegetation has survived in the central lowland plains of India, Thailand or Myanmar.[42]

Indicators of wetland loss can be measured by reference to particular habitat types. It has been estimated, for example, that some 300,000 hectares (67%) of mangrove forests were lost in the Philippines between 1920 and 1980.[43] Alluvial forests, which were once widespread in Europe, are now limited to a few areas of France and Italy: the Rheinland forest in Alsace is estimated to have decreased by 50% in the last 50 years. Peatlands are another wetland type that has been drastically reduced. In the Netherlands only 3.6% of the original raised bogs now remain. In Ireland, 225,000 hectares (approximately 51%) were lost to forestry and peat mining between 1957 and 1987.[44] In 1997 a global survey showed that 95% of the world's coral reefs have been damaged by over-fishing, dynamiting and poison used to catch coral reef fauna, pollution and ship's anchors.[45] Indicators may also be linked to wetland-dependent species: over 20% of the world's freshwater fish are thought to be endangered, vulnerable or recently extinct, mostly due to degradation of their physical habitat.[46]

Statistics of wetland loss at any given time are no more than a snapshot. Certain forms of damage, particularly pollution-induced change, are often latent and do not result in obvious physical changes in the short term. This makes it likely that many existing estimates of wetland loss rates undervalue the true rate of ongoing degradation because they are limited to the observation of physical changes.[47]

Whatever the precise statistics, it is clear that wetland loss or degradation is taking place at a possibly irreversible rate in many parts of the world. A high proportion even of wetlands

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40 Tiner, R.W. 1984, *Wetlands of the United States: Current Status and Trends,* U.S. Fish and Wildlife Service, Washington D.C.

41 Commission of the European Communities, 1995. *supra* n. 3.

42 Scott, D.A. 1993. *Wetland Inventories and the Assessment of Wetland Loss: A Global Overview,* cited by Moser, Prentice and Frazier 1996 *supra* n. 1 at p. 26.

43 Zamora, P.M. 1984. *Philippine Mangroves: Assessment Status, Environmental Problems, Conservation and Management Strategies.* In Soepadmo, E., Rao, A.N., Macintosh, D.J.(eds). Asian Symposium on Mangrove Environment: Research and Management. Kuala Lumpur, Malaysia.

44 Braahekke and Marchand 1987. *Wetlands: the Community's Wealth.*

45 Wells, S. (ed.) 1998. *Coral Reefs of the World,* UNEP/IUCN.

46 *Biological Diversity of Inland Waters,* Note by the Executive Secretary to the Convention on Biological Diversity, UNEP/CBD/SBSTTA/3/2, 30 June 1997.

47 Turner, K. and Jones, T. (Eds.). 1991. *Wetlands: Market and Intervention Failures* at p. 17.

acknowledged to be of international importance[48] are threatened by human activities or human-generated processes occurring around the wetland or further afield in the relevant river basin, catchment or coastal area. The conversion of wetlands to intensive agricultural, industrial or residential uses has far outstripped the creation of artificial wetlands such as reservoirs, canals and water storage areas. Techniques and programmes to create or to restore or rehabilitate wetlands are gaining currency, mainly in industrialised countries, but are expensive and, as mentioned above, can rarely restore or compensate for the full range of wetland functions.

Why then, given growing recognition of the essential products and functions provided by wetlands, does wetland loss or degradation continue on this scale? The answer lies partly in the traditional image of "wetlands as wastelands", which depicts wetlands as unproductive, unhealthy and uninhabitable places where malaria and other diseases fester and which perpetuates ignorance or misunderstanding of the importance of wetland goods and services. Despite advances in scientific knowledge, political, institutional and socio-economic priorities are often still conditioned by this stubborn perception. In the legitimate quest for economic growth, wetlands may be seen as dispensable whereas they actually form an essential component of the natural infrastructure needed for sustainable development.

More specific factors contributing directly or indirectly to wetland loss and destruction are discussed in the following sections.

2.2 Direct Causes: Damaging Processes and Activities

A potentially damaging process may be understood as any phenomenon liable to have an adverse effect on the conservation status of a species or ecosystem. Some processes occur naturally, but those of greatest concern in the context of wetlands are generated, directly or indirectly, by categories of human activities or the absence of such activities. The main processes that impact on wetlands may be loosely grouped into five main categories: loss of wetland area, changes to the water regime, changes in water quality, overexploitation of wetland products and introductions of alien species.[49] Such processes cause damage to wetlands where, individually or cumulatively, they lead to the modification of the ecological conditions essential to the existence of a particular habitat type or the survival of a wetland-dependent species.

Processes result from, but are not the same as, the activities that generate them. In certain circumstances, a single activity can contribute to several processes: for example, the application of fertilizer can simultaneously contribute to species loss by modifying soil acidity and reduce water quality by contributing to eutrophication of ponds. Conversely, different activities can generate the same process. Drainage and excessive groundwater abstraction can both generate lowering of the groundwater table which has knock-on effects for habitat types (drying out of wet meadows) and species (disappearance of their characteristic flora and fauna). This interconnectedness is perhaps the hardest issue for legal systems to address comprehensively.

Processes may be generated by categories of human activities conducted in or at some distance from the wetland concerned. Certain types of activity, by their very nature, always generate processes damaging to wetlands: wetland drainage and conversion inevitably involves loss of wetland area, whilst the discharge of toxic substances directly reduces water quality. Other

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[48] It has been estimated that the ecological character of about 84% of listed Ramsar sites is currently or potentially under threat (Dugan, P.J. and Jones, T.A., 1993. *Ecological Change in Wetlands: A Global Overview)*. For a summary of research into wetland loss, see generally Moser, Prentice and Frazier *supra* n. 1 at pp. 23-29.

[49] IWRB 1993. *Conclusions of a Workshop on Measuring Ecological Change in Wetlands* (Symposium held in St. Petersburg, Florida, November 1992).

activities generate these adverse effects only if collectively they exceed an appropriate threshold for the ecosystem concerned: examples include certain types of fishing, agriculture, recreation and tourism. In such cases, it is not the activity itself that is "damaging" but the scale on which it is carried out or the methods that are employed.

2.2.1 Loss of Wetland Area

In many parts of the world, wetlands are seen as the land most easily available for development and may be quite lawfully drained and reclaimed for urban, coastal or infrastructure development, to increase the land available for forestry and farming or as part of public health and sanitation policy. Once built on, wetlands are permanently destroyed and lose any potential for future rehabilitation. In addition, wetland reclamation is often carried out illegally, particularly in some developing countries where the influx of sizeable rural populations leads to a shortage of land in and around cities and greatly increases the risk of urban encroachment and squatting in marginal wetland areas.[50] Wetland acreage is also lost through official or illegal dumping of waste. Problems of this type are directly linked to fundamental problems of poverty, population growth and other issues discussed in Chapter 2.3 below.

Wetland area may also be reduced or artificialised by actions ranging from the construction of marinas and water-based recreational or residential facilities, such as canal estates, to the conversion of natural ponds or salines for aquaculture.[51] The dimensions of natural waterbodies may be modified through different types of hydraulic engineering projects. Wetland area may also be lost through indirect actions, often carried out upstream in a catchment area, which impact on the quantity or quality of water supply to the site (see further below).

The loss or artificialisation of wetlands and water systems directly affects species diversity. In the context of river basins, the excavation or cementing of beds and banks not only damages riparian vegetation but also animal species that live for parts of their life cycle in sediment or embedded in the sand and pebbles.[52] The construction of dams without adequate fish passes can prevent migratory fish from reaching their breeding or nursery grounds and thus lead to the fragmentation of fish populations. In extreme cases, it may become impossible to guarantee genetic exchange and to maintain populations of rare species above a necessary minimum level.[53]

2.2.2 Changes to the Water Regime

Hydrological and other wetland functions are closely linked to the maintenance of surface and ground water flows and sediment flows at their natural level (which may of course be seasonally variable). Surface waters infiltrate and recharge groundwater supply whilst groundwater can discharge as springs and seeps into surface waters. These exchanges occur naturally in all water systems but may be significantly altered by human intervention (construction of drainage systems,

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50 For example around Bombay and Kampala: see respectively Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India* and Ntambirweki, J. 1998b. *The Evolution of Policy and Legislation on Wetlands in Uganda.*

51 Salt pans are one of the oldest types of artificial wetlands and, due to restrictive laws governing salt production, are often of high ecological quality, providing abundant food (small crustaceans) to numerous species of birds.

52 E.g. species such as the Sand Martin *Riparia riparia* and the Kingfisher *Alcedo atthis* which nest in colonies dug along riverbanks.

53 Ferri, M. 1991.*I passaggi per I pesci in Tutela e gestione degli ambienti fluviali.* WWF, Serie Atti e Studi 8: 105-121.

water abstraction and so on). Careless management of ground water or surface water levels frequently damages areas of particular ecological value. Significant alterations to the water table or sedimentation can have serious, even irreversible, consequences for certain wetland types: for instance it is virtually impossible to reconstitute peatland that has dried out.

Demands on precious freshwater resources - for human consumption, agriculture, energy generation, electrical cooling and industrial processing - have risen inexorably in the course of this century. Abstraction of freshwater is estimated to have increased by a factor of over six between 1900 and 1995, more than double the rate of population growth.[54] Countries with low rainfall have relied particularly heavily on water redistribution programmes involving dams, weirs and channels to divert and use water supplies for public water supply, farming, hydroelectricity, navigation and controlled waste transport and disposal. Indirect actions affecting water regimes include extraction of oil, gas, other minerals and groundwater, which can lead to subsidence.

Decreased water input over a prolonged period may cause a wetland to dry out and shrink (thus generating loss of wetland area). Inland wetlands at the ends of rivers are particularly vulnerable to this type of impact, usually caused by water diversion upstream. Extraction of groundwater is another action that threatens salt lakes and springs in many areas: in the well-known case of the Aral Sea (Kazakhstan and Uzbekistan), the water level has dropped by 13 metres over 27 years, leading to a decrease in its area of 40%, an increase in salinity, the loss of 24 endemic fish species and enormous economic and social repercussions. In coastal areas, lowering of the water table can lead to serious salt-water intrusion in coastal wetlands.

Increasing water input beyond the level appropriate to a particular site may also have adverse impacts. In arid areas, inappropriate forms of irrigation can generate increased evaporation from soils, leaving behind salts in the topsoil and standing waters. This process of salinisation reduces the productivity of the soil or wetland and may render it unusable as a source of water supply.

The velocity of water flow is affected by deforestation of upland wetlands and catchments (causing soil erosion and reduced water retention), river straightening for navigation purposes and dam construction for water supply, flood control or energy generation. Where river waters are no longer slowed by meanders, the increased speed of the current may destroy benthic organisms, impede the diffusion of many species of fish and destroy native vegetation on river banks and dunes, leading to erosion and increased siltation downstream. In times of flood, such rivers are more likely to cause sudden and destructive inundations with major economic consequences. The release of excess waters from dams or other types of barricades can bring about sudden changes of water levels in a few hours which can submerge the nests and eggs of waterfowl and adversely affect other wetland resources. In addition, pollutants may be more concentrated in waters whose flow has been artificially reduced by such barriers, restricting the uses of such water downstream.

Changes to the water regime may also result from climate change predicted to occur as a result of increased concentrations of greenhouse gases[55] in the high strata of the atmosphere. One estimate has calculated the average increase in global temperature as 1°C by 2030 and 3°C by around 2100,[56] which could significantly affect temperature and precipitation and thus influence

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54 *Biological Diversity of Inland Waters, supra* n. 11 at p. 4, citing UN Secretary General's Report on Comprehensive Assessment of Freshwater Resources of the World (ECN. 17/1997/9), 1997.

55 Carbon dioxide, methane, CFCs, nitrous oxide and tropospheric ozone.

56 Houghton, J.T., Jenkins, J.G. and Ephramus, J.J (Eds). 1990. *Climate Change: the IPCC Assessment.* University of Cambridge Press, Cambridge, UK. There are of course many competing theories and calculations in this complex area: it is beyond the scope of this book to discuss this subject in further detail.

geographical distribution of wetlands. Coastal wetlands would be directly affected by a rise in sea level of perhaps 20cm by 2030, possibly rising to 65cm by 2070. Vulnerable habitat types include saltwater marshes, mangrove forests, coral atolls and river deltas, as well as low-lying floodplains whose functioning could be drastically modified by changes in flooding patterns. Many of these habitat types are located in areas of high population density and rises in sea level could have major negative effects on freshwater supplies, biodiversity, tourism and fisheries.[57] In many parts of the world, the ability of coastal ecosystems to adapt naturally to anticipated climate change has already been reduced because of widespread artificialisation caused by the combined impacts of urban, tourist, industrial, mining and transportation activities.[58]

2.2.3 Changes in Water Quality

The quality of water flowing into wetlands may be impaired indirectly, by alterations to the water regime, or directly by many different types of polluting activities. Whilst the scale and nature of the problem varies from one country to another, it is generally accepted that deterioration of surface and ground water is a growing problem throughout the world.

Pollution of inland waters is generated mainly by discharges from domestic sewage, industrial wastewaters and forestry and agriculture operations.[59] In overcrowded cities lacking basic civic amenities, there may be widespread pollution of waterbodies. Water quality can also be impaired by temperature increases caused by the operation of thermoelectric power stations (sometimes in or adjacent to wetlands) or the construction of large reservoirs and dams along watercourses, which slows normal water flow. Atmospheric pollution from industrial activities, energy generation and transport can damage upland wetlands and dependent flora and fauna: acid rain (precipitation generated by the release of sulphates or nitrates in the atmosphere) has led to the deposition of toxic substances in upland wetlands.[60] Toxic substances also enter wetlands through recreational activities: the use of lead pellets in waterfowl hunting and lead weights in angling leads to saturnism (lead poisoning) when these are ingested by the target species.

Land-based activities on land are estimated to be responsible for around 80% of marine pollution and degradation. Polluting substances and energy enter the marine environment by run-off from land, rivers and discharge outlets as well as through the atmosphere. Conversely, marine pollution caused by oil spills from ships, oil, gas or other resource extraction or the dumping of solid or liquid waste is carried by tidal flows into coastal ecosystems: the disastrous consequences of major oil spills for waterfowl are only too well-known. Coastal wetlands are therefore vulnerable

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57 Coastal lagoons are biologically zoned according to different concentrations or levels of salinity, acidity and temperature, each of which affects the distribution of nutrients, nitrites, phosphates and nitrates. Fish, molluscs and crustaceans are acutely sensitive to small changes in these environmental parameters: the migration of sea fish into coastal lagoons for reproduction is closely linked to salinity levels. If the rise in sea level reduced the sandy barriers between sea and coastal lagoons and salinity increased as a result of ground water penetration, the chemical, physical and biotic conditions of coastal wetlands would be modified, probably to the detriment of trophic chains, vegetation and fauna (see generally Bardi, A.(ed.). 1996. *Wetlands in Italy).*

58 See generally Lum, K. 1997. *Wetlands and Climate Change: a Report on Kyoto.* Communication from Ramsar Convention Bureau, 23 December 1997.

59 Certain derivatives of pesticides, notably DDT and other organo-clorathes phosphates, are extremely toxic to waterfowl, leading to reduced reproductive capacity and damaging internal organs and tissues.

60 Turner and Jones, *supra* n. 12.

to impacts generated by both marine and terrestrial activities, which makes their conservation and sustainable use particularly complex.[61]

Pollution can be classified as "point source" (emanating from an identifiable plant, installation or other source) or "nonpoint source" pollution (emanating from diffuse, non-identifiable sources). Whereas point source pollution can be subjected to appropriate forms of treatment, albeit at a cost, the control of nonpoint source pollution presents greater technical and legal difficulties. Activities that generate diffuse pollution to surface and ground water include *inter alia* underground and surface mining operations, timber production and agricultural operations involving the application of pesticides, herbicides and fertilisers, as well as run-off from roads and human settlements. The effects of such contamination are cumulative and can adversely affect wetlands even at some distance. For example, wetland biodiversity is seriously threatened in some regions by eutrophication (algal bloom)[62] which results from overenrichment of nutrients derived from human sewage and fertilisers.

2.2.4 Overexploitation of Wetland Products

The extraordinary productivity of water-based ecosystems means that many different groups of users and stakeholders may seek access to and use of wetland biological resources. Pressure on such resources has increased in many areas with the expansion of human settlements located around fertile wetlands and attention from external sectoral interests. There may be competition between mutually exclusive uses of the same resources: mangrove forests may for example be retained for timber and fisheries purposes or converted to aquaculture or salt extraction.

Overexploitation in wetlands may take several different forms. Direct harvesting of wetland products becomes unsustainable when it involves intensive cropping and woodfelling, overgrazing, overfishing and excess hunting pressure. In coastal wetlands, species are frequently over-exploited not only because they are a source of human food but also because of their value in the aquarium trade (coral reef fishes), shell collection (corals and sea shells) or industrial process (giant clams in the production of tiles.[63] In some cases, global trading patterns have altered the balance of production leading to the loss of natural wetlands: a well-known example is the worldwide demand for high-priced shellfish from aquaculture ponds.[64]

Overexploitation also involves indirect taking (bycatch) of non-targeted species. This is well known in the context of driftnet fishing (where cetaceans and other species become entangled in the nets and drown) but can also be a problem in coastal wetlands. By way of example, sodium cyanide, used in some coral reef fisheries to stun target species, results in the death of many non-targeted species.[65] Thirdly, overfishing can deplete essential food resources for non-targeted species that depend on wetlands and seriously disrupt whole marine ecosystems. Research has

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61 See further Chapter 15 below.

62 Enrichment causes excessive growth of algae, microorganisms, small planktonic and benthic animals, to the point where oxygen consumption outstrips oxygen supply and results in anoxia (the absence of dissolved oxygen). Anoxia in freshwater systems often kills fish, causes odour and can also foster the growth of pathogenic micro-organisms.

63 See further Almada-Villela P., McAlister D. *et al.,* 1996, *Report of Coral Fish Specialist Group,* IUCN Species Survival Commission Newsletter, n°26-27, June-December 1996, p. 63; and Salamanca A.M. and Pajaro M.G., 1996. *The Utilization of Seashells in the Philippines* 16 *TRAFFIC Bulletin,* pp. 61-72.

64 *The Key Role of Wetlands in Addressing the Global Water Crisis, supra* n. 4.

65 Almada-Villela and McAlister, *supra* n. 28 at p. 62.

shown that the over-fishing of sandeels in the North Sea adversely affects the sea bird populations in that area and that the crash of the Norwegian puffin population, *Fratercula arctica*, in the 1990s was caused by the over-exploitation of its primary source of food, the Norwegian spring-spawning herring.[66]

The cumulative effects of extractive and other activities often threaten wetland biodiversity. Peatbogs, for instance, host important plant diversity, such as the so-called carnivorous plants *Pinguicola spp., dosera intermedia* and characteristic vegetation associations such as *Sphagnetum*. However, they are threatened not only by peat extraction but also by drainage, artificial reforestation and eutrophication.[67] Fish stocks may suffer from the destruction of nursery and breeding habitats, soil erosion which reduce protection for juvenile fish species and overharvesting by large-scale commercial fisheries. Changes to the species mix of a wetland can have direct economic repercussions as stocks of commercially attractive species are reduced.

Lastly, overexploitation can also be non-consumptive, where it takes the form of species disturbance. The presence of boats, recreational activities and even intrusive bird watchers and photographers may impact on other wetland products, for example causing migratory waterfowl to abandon a site. Over the long term, this will have economic impacts if possibilities for regional ecotourism are reduced.

2.2.5 Introductions of Alien Species

Over centuries, there have been many deliberate introductions of non-indigenous species to provide new or additional food resources for human consumption, to increase target species available for hunting or angling and even for recreational or aesthetic purposes. More recently, pathways for accidental introductions have multiplied as transport links have expanded around the world. Alien species may enter the aquatic environment in a number of ways (discharge of 'foreign' ballast water from ships, releases from aquaculture facilities, engineering projects involving interbasin transfers of water and simple escapes).

There are many documented cases in which the deliberate or accidental introduction of alien species has seriously disturbed the ecological balance of the recipient ecosystem. Without the usual biological controls on their populations, alien species may become invasive and endanger or wipe out indigenous species through predation, competition for the same resource and the spread of disease, becoming a self-regenerating form of biological pollution. Certain introductions of fish species for food purposes have had dramatic ecological and economic impacts on wetlands, as in the well-known cases of the Nile Perch in Lake Victoria and trout in the lakes of British Columbia. Introductions carried out for sport fishing have also caused problems because the fish are often thrown back after being caught, leading to even faster repopulation of the waters concerned.[68] Aquaculture and mariculture not only present problems associated with pollution and habitat destruction but also, if inadequately regulated and monitored, can carry a significant risk of species introduction.[69] In Europe, for example, the native eel *Anguilla anguilla* has been infected by

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66 Tucker T.M., and Heath M.F. 1994. *Birds in Europe: Their Conservation Status*, BirdLife International (BirdLife Conservation Series n°3), Cambridge at p. 308.

67 See generally Finlayson CM. 1992. *Management and Conservation of Peatbogs, Flood-Plains and Fish Ponds in Central and Eastern Europe.*

68 The aggressive *Siluris glanis*, introduced in northern Italy, can reach 100 kg in weight and has caused serious problems to populations of fish, amphibians, birds and small mammals (Bardi, A.(ed.). 1996. *supra* n. 22 at p. 18).

69 Problems may be caused not only by the introduced species and accompanying pathogens, parasites and commensals but also by lost bait.

Anguillicolosi, a disease caused by a Nematode parasite found in exotic eels of the *Anguilla japonica* and *Anguilla autralis* species imported into Europe. Native eels are now in sharp decline throughout their distribution area.[70]

Alien species can variously cause problems for wetland habitats and for genetic diversity. The amphibious coypu *Myocastor coypus* was introduced long ago from South America into Europe for fur farming.: it has now escaped to the wild in France, the Netherlands, Germany, Scandinavia, the United Kingdom and Switzerland. In excessive numbers, coypu can create serious problems for the wetland vegetation on which they feed. Turning to waterfowl, the American ruddy-headed duck *Oxyurajamaicensis* was introduced from America into the United Kingdom in the 1950s and has now spread throughout Europe. It is very similar to the White-headed duck *Oxyura leucocephala* which is one of the most threatened species in the world, with fewer than 250 pairs remaining in Europe. The White-headed duck's genetic identity is now thought to be threatened by hybridisation, following competition for food, reproduction sites and females.

Invasive plants may seriously threaten native wetland vegetation and plant diversity. The notorious *Caulerpa taxifolia*, a marine alga first detected in the waters off Monaco, has now spread throughout the Mediterranean. Many Italian wetlands have been colonised by the climbing *Syccios angulatus* that covers banks and even trees, as well as the Amorpha fruticosa that competes with native trees. Many Asian wetlands are colonised by water hyacinth *Eichhornia crassipes*, a highly invasive aquatic plant which may have escaped from aquaculture ponds and which can require regular and very expensive clearance operations.[71]

The scale of the potential risk presented by invasive plant species is well illustrated by the Cajeput or paperbark tree *Melaleuca quinquenervia*, a native of Australia, New Guinea and New Caledonia. Specimens were imported into the United States as early as 1906 for use as an agricultural windbreak, soil stabiliser and ornamental tree. It is now estimated to cover at least 9% of southern Florida, is concentrated in freshwater wetlands where it uses water at four times the rate of native sawgrass and, at densities of over 4000 per hectare, has been classified as a "federal noxious weed". The invasion has had disastrous consequences for wetland diversity, water table levels, fire risks and public health (allergy-related problems). Eradication, if technically possible, would cost an estimated $370 - $2000 per hectare.[72]

2.3 Underlying Causes

2.3.1 Market and Policy Failures

One of the dominant factors underlying wetland loss is population growth, which imposes great pressure on water resources and undeveloped land areas for settlements, higher agricultural and industrial production and infrastructure expansion. At a deeper level, however, wetlands are destroyed because their products, functions and attributes are not adequately recognised or valued by human institutions and policies and because of "fundamental economic forces".[73]

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70 Bardi, *supra* n. 22 at pp. 15-16.

71 Note however that local communities have developed techniques to use this plant as a fibre for making baskets and similar items or, in dried form, as fuel.

72 Maltby, E. *A Tale of Two Melaleucas* pp. 8-9. Interestingly, the article also describes how *Melaleuca* is being used by local communities in the Mekong Delta of Vietnam for a range of purposes with economic benefits.

73 The phrase is taken from *Promotion of Cooperation on the Economic Valuation of Wetlands* (Sixth meeting of the Conference of the Parties, Rec. 6.10, Brisbane 1996).

The economically inefficient (unsustainable) use of wetland resources may be considered to result from a combination of information failures, market failures and policy or intervention failures.[74] These types of failure are interrelated to different degrees, with the emphasis varying widely from one country to another.

Information failures denote the widespread lack of appreciation of the economic value of conserved wetlands. Awareness may be particularly poor with regard to the inherent benefits of wetland functions in river basins and coastal areas and concerning the environment's own needs for water allocation. The patchy quality of public information and awareness underlies or contributes to market and policy failures in a large number of countries.

A very common type of market failure is the 'externality problem', whereby wetlands are damaged by economic activities which are not required to meet the direct and consequential costs of such degradation. Pollution is probably the best-known externality, threatening all wetlands to a varying extent. Markets acting in isolation do not make the polluter pay for the environmental costs generated by the product or service s/he provides. A supportive legislative framework is needed to incorporate the polluter pays principle into sectoral policies and to ensure that polluters and users have meaningful incentives to avoid or minimise pollution.

Market failures also occur where there is no mechanism to attribute appropriate values to the 'public goods' provided by wetlands, ranging from water supply to flood protection, water recharge and purification functions and non-use values such as biodiversity conservation. Clothing wetland functions and values in economic invisibility has arguably reinforced the wetlands-as-wastelands cliche. It is now widely acknowledged that appropriate water charging systems are necessary to discourage uncontrolled water abstraction, deter unsustainable land-use practices and develop a user-pays culture based on a better understanding of long-term environmental costs and benefits. In tandem, incentives need to be designed to support wetland owners and managers who use wetland resources sustainably and thus contribute directly to maintaining the supply of wider societal benefits. For both purposes, enabling legislation is essential.

Where market systems fail to produce socially optimal uses of water and wetland resources, this can restrict or destroy opportunities for future generations to benefit from wetland services. It may therefore be necessary to use government intervention (through appropriate policies, legislation and taxes) to correct the market's inefficiencies and achieve an optimal allocation of resources.[75]

Policy or intervention failures occur where government programmes, policies and expenditures directly or indirectly contribute to wetland loss or degradation. This is a complex area as there is obviously a fragile balance between technology, economics and environmental considerations on the road to sustainable development: interventions which have positive outcomes in the short-term can lead in the longer term to wetland destruction.[76] In the agricultural sector, the intensive cultivation of certain crops at the expense of wetlands may be supported by high commodity support payments or by the provision of tax incentives, low interest loans or subsidies that support unsustainable irrigation or other practices. By way of example, the intensive sugarcane exploitation and strawberry farming that respectively damaged the nationally important wetland parks of the Everglades (Florida) and Doñana (Spain) were both supported by public subsidies.[77] Other

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74 See generally Turner and Jones. 1991. *supra* n. 12, pp. 14-18.

75 Butler, L.L. 1990. *Environmental Water Rights: An Evolving Concept of Public Property* at p. 358.

76 Mermet, L. *France*, in Turner and Jones *supra* n. 12 at p. 124.

77 Braahekke and Marchand, *supra* n. 9.

examples include the construction of publicly funded infrastructure or engineering projects that lead to the destruction of wetlands, including dams, transportation links and harbour development, and broader land-use policies that ignore the multiple functions of wetlands.

Whilst some of these projects or policy objectives may indeed be in the overriding public interest, existing decision-making processes often fail to take adequate account of wetland functions and values or consider available alternatives for achieving the desired outcomes without destroying wetlands in the process. This structural weakness is commonly aggravated by the existence of inconsistent, incomplete, ill-adapted or poorly enforced laws and regulations applicable to the natural environment.

Most policy, planning and development decisions are made at least partly on economic grounds. It is therefore necessary to find a way of evaluating wetland benefits if conservation is to be chosen over alternative uses of the wetland or the water supply that feeds the wetland. However, most national accounting systems do not yet systematically incorporate environmental accounting techniques, which means that the real cost of lost wetland function and area is rarely quantified and does not show up as a capital loss for the country concerned.[78]

2.3.2 The Gap Between Law and Science

Law and legal traditions have played their part in failing to check wetland loss and degradation. The main purpose of law is to govern relations between people, not between people and nature, and conventional legal systems were not designed to take account of ecological parameters and processes. It is only quite recently that efforts have been made to bridge the gap between law and science ... or between lawyers and scientists!

The components of the natural environment have traditionally been ignored by the law unless they are capable of being the subject of property rights or user rights. The concept of communal responsibility for natural resources tended to be restricted to traditional societies, which enforced strict customary rules on taking for subsistence purposes. In many parts of the world, as these closed systems have gradually opened up, been suppressed or failed to adapt to changing socio-economic circumstances, concepts of shared responsibility have tended to be replaced by what is effectively a legal vacuum.

2.3.2.1 Wetland Flora and Fauna

Wild animals have since Roman Law been considered as *res nullius* (belonging to no one), which anyone could appropriate by taking them into possession. The legislation of some countries now provides that wild fauna is the property of the State. Although this is more satisfactory in principle, in practice State property is only too likely to be perceived as the property of everyone (i.e. no one). The result has often been to weaken or destroy any sense of collective or communal responsibility for wild animals.

Since wild plants are attached to the land, their legal status depends on the tenure of that land: they can be public or private property. However, it is customary in almost all countries for the collection of wild plants to be free, except for plants of commercial value, such as trees, and those that are now legally protected because of their rarity. In practice, most species of wild plants effectively have the status of *res nullius*.

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78 Filion. F. 1995. *Vers la création d'un groupe d'experts au sein de "Wetlands International", chargé de l'évaluation économique des zones humides.* Paper presented at the International Conference on Wetlands and Development, Selangor, Malaysia, 10 October 1995.

2.3.2.2 Wetland Habitat Types

Ecosystems and natural habitats have never been accorded a particular status by the law: they consequently come under the regime of immovable property in the country concerned. However, wetland units present much greater problems of delimitation than, say, forests, because of their often seasonal character and their functional connection to water systems within the hydrological cycle. In addition, the historic treatment of wetlands as marginal areas or wastelands has in many cases left a legacy of a confused or unclear legal status.

2.3.2.3 Wetland Functions

Ecological relationships and processes are scientific abstractions that have traditionally been ignored by the law: they cannot be owned and they are often difficult to define. It is only recently that a few laws have attempted to incorporate a holistic approach by conferring a special status or rules on the areas, activities or techniques that ensure the continuation of such processes. The application of special land use controls to watersheds and floodplains is a relatively new legal technique for safeguarding soil stability, water supply and flood absorption functions.

2.3.2.4 Legal Treatment of Water[79]

The common characteristic of wetlands is the presence of water, at least for part of the year. If the quality, quantity or periodicity of this water supply changes, the wetland too will change, possibly irreversibly. Historically, however, legal regimes have not reflected the interconnectedness of water resources (ground, inland surface, near coastal, open ocean and atmospheric waters) nor the relationship between water quality and quantity.

Virtually all societies use regulatory (police) powers to ensure water quality by means of pollution control instruments, although the degree to which measures are implemented and enforced is highly variable. This is a highly technical area of law, crowded with different instruments relating to discharge consents and quality standards for drinking and bathing waters. At regional level, for example, the European Union has several directives specifying maximum concentrations of certain pollutants discharged into water, whilst the United States and Canada have long had bilateral agreements in force regulating the discharges to the Great Lakes.[80] Cooperative measures to ensure water quality can be taken even if the neighbouring or riparian States have wholly dissimilar regimes of water ownership.

The legal treatment of water quantity and flow varies much more widely around the world. As water is continually circulating in changing physical states, it is virtually impossible to apply conventional concepts of ownership to water resources: instead law deals with the allocation of rights to use water. National regimes are highly complex, but a very broad distinction may be drawn between systems based on private property rights to water,[81] those that classify water resources as

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79 It is beyond the scope of this book to describe water law systems in great detail: this is a highly specialised subject in its own right. The aim of this book is instead to clarify the interface between water law and the types of legal provisions that are necessary to promote wise use of wetlands on a long-term basis. See further Chapters 14 and 22.

80 Water pollution is not discussed further in this book, with the exception of certain forms of pollution with a particular bearing on wetlands (see Chapter 19 below).

81 This category includes riparian systems, where ownership of adjacent land carries with it the right to use water under certain conditions, and systems of 'prior appropriation' where use rights in a given watercourse are prioritised in accordance with the date on which they were first acquired or asserted.

part of the State's public domain[82] and those under which water has the legal status of *res communis.*

For decades if not centuries, the primary purpose of such regimes has been to avoid or resolve conflicts involving competing claims to human (consumptive) uses of water. Although the environment's own needs for water are now beginning to be understood, it is a very slow process to adapt legal systems to take account of public non-consumptive interests in water as well as private consumptive water interests. This is an issue of great sensitivity and legal complexity, particularly as pressure on global water resources is rising inexorably. Adapting or interpreting legislation to secure minimum water flows (instream uses) in river basins can be highly controversial, with wetlands being seen as 'rivals' for scarce resources. Particularly in private property water regimes, instream uses may be seen as inherently wasteful because they undermine long-established rights to withdraw available water for human purposes.[83]

In this respect, there seems to be an artificial dichotomy between the legal treatment of water quality and quantity. Whereas water pollution is accepted as a nuisance-like activity which may legitimately be regulated or otherwise controlled, the right of individuals to reduce water quantity through diversion or abstraction is not regulated at all by some legal regimes. From the standpoint of wetland ecology, this can be quite illogical. As one commentator has put it, it is "no more reasonable for an appropriator to expect the same amount of withdrawals in perpetuity than it is for a polluter to expect to be able to discharge the same loadings in perpetuity, or the fisher to forever expect the same allowable harvests".[84] This partially explains why modern water legislation tends to move from fragmented private rights systems towards public-interest based water regimes which make it possible for the competent authority to consider all claims to water resources and to allocate water rights on the basis of concessions or comparable systems.

Turning from water resources to waterways, law has traditionally treated the components of water systems in a fragmented way that works against rational management of ecological units. The 'container' (river or lake bed and banks) has a separate legal status from its 'contents' or constituent parts (water, wetland vegetation and other wetland-dependent species). Moreover, different constituent parts may come under separate legal regimes. This separation impedes the unitary management of rivers that takes account not only of the river's length and width but also its depth, including groundwater systems. However, the position is slowly changing: modern precedents for an integrated approach are discussed in Chapter 14 below.

At the end of the twentieth century, the importance of efficient, sustainable and equitable management of water resources is recognized as a global priority for human wellbeing, regional stability and a healthy environment. There are already one billion people who do not have clean water and 1.7 billion without proper sanitation. Wetlands, because of their role within the hydrological cycle, need to be seen as "a key part of the cure to the problem" of the global water crisis.[85] Whilst wetland management has in the past exemplified unsustainable development, their conservation now provides one of the most tangible opportunities for sustainable development.[86] The following chapters of this book seek to show how well-designed legal and institutional frameworks - backed by political will and public awareness programmes - can provide essential mechanisms to prevent or minimize wetland destruction, balance competing claims to wetland resources and limit damaging activities and uses.

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82 As, for example, in New Zealand and now in South Africa.

83 Butler, *supra* n. 40 at p. 329.

84 Blumm, M.C. 1989. *Public Property and the Demacratiztion of Western Water Rights: A Modern View of the Public Trust Doctrine* at p. 603.

85 The key role of wetlands in addressing the global water crisis, *supra* n. 4.

86 Huggett D. 1997. *Developing a No Net Loss Policy for Coastal Wetlands* at p. 7.

Chapter 3
The Emergence of Legal Responses at International Level

Concern at global environmental degradation, including wetland destruction, has grown rapidly over the last forty years. From mainly scientific origins, it has spread through many sectors to involve geographers, planners, lawyers, economists and decision-makers at all administrative levels as well as individuals and interest groups. Cooperation between States has been recognised as essential where species and ecosystems cross the boundaries between States and where a resource, activity or environmental problem (such as atmospheric pollution) is international in character.

In the legal arena, a series of global or regional instruments and programmes have been developed to promote conservation and management of particular species, ecosystems and resources and to address specific categories of environmental threats. This chapter provides an overview of the development of international principles and obligations related to wetlands before considering issues related to national implementation.

3.1 Ramsar Convention on Wetlands (1971)

The Convention on Wetlands of International Importance especially as Waterfowl Habitat was adopted in Ramsar (Iran) on 2 February 1971. It was the first globally applicable environmental convention and, nearly three decades on, is still the only treaty to address the specific requirements of one type of ecosystem.

3.1.1 Background[87]

The impetus for international action on wetlands began with the launch of Project MAR[88] in the late 1950s. The project was intended to increase awareness of the importance of wetlands to humanity and contribute to their conservation. It was a joint initiative by three non-governmental organizations: the International Union for Conservation of Nature and Natural Resources (now IUCN-The World Conservation Union), the International Waterfowl Research Bureau (IWRB)[89] and the International Council for Bird Preservation (ICBP). An international conference was convened under the auspices of Project MAR in November 1962[90] and concluded that an international convention on wetlands was urgently needed. As a preliminary measure, it was decided to compile a list of wetlands of international importance in Europe and North Africa ("the MAR List"). In parallel, lists of peatbogs and other aquatic sites were drawn up as part of two existing wetland projects (the TELMA and AQUA Projects).

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87 See generally de Klemm, C. and Créteaux, I. 1995. *The Legal Development of the Ramsar Convention.*

88 MAR stands for the first three letters of the word used in four languages to refer to this type of habitat: marsh, marisma, marais and maremma.

89 Subsequently renamed the International Waterfowl and Wetlands Research Bureau. In 1996, IWRB was integrated with two other non-governmental organizations, the Asian Wetland Bureau and Wetlands for the Americas, to form Wetlands International.

90 In Saintes-Maries-de-la-Mer, France.

The proposal for a wetland convention was endorsed by the First European Conference on the Conservation of Wildfowl in 1963,[91] which recommended that a European network of places of safety for wild birds should be established and coordinated under such a treaty. The IWRB prepared a preliminary draft for a convention, which was considered by a further conference in 1966.[92] A second draft was then prepared by the Dutch Government and revised to take account of observations made by the IWRB in 1967. International support for a wetland convention was affirmed by the International Conference on the Conservation of Waterfowl and their Resources in 1968.[93] A final draft, submitted to a technical meeting of experts in Espoo, Finland, in March 1970, served as the basis for the negotiations of the International Conference on the Conservation of Wetlands and Waterfowl in Ramsar, which closed on 2 February 1971 with the adoption of the Convention.[94]

The Ramsar Convention entered into force on 21 December 1975. Since that date, it has been amended on two occasions to remedy omissions in its procedural clauses that hampered its early development.[95] An extraordinary meeting of the Parties (Paris, 3 December 1982) adopted a protocol to insert an amendment procedure into the Convention provisions and to make the French version of the text an authentic version.[96] The Paris Protocol entered into force in October 1986. It provided the legal basis for convening a further extraordinary meeting (Regina, 1987) at which the administrative arrangements established under Article 6 of the Convention were amended. These amendments provide for the formal establishment of the Conference of the Parties as an institution of the Convention.[97]

3.1.2 Objectives, Obligations and Mechanisms[98]

Although the Convention's title emphasizes one aspect of wetlands (as waterfowl habitat), its Preamble shows clearly that negotiators were concerned with the full range of wetland benefits. The Preamble recognizes the "fundamental ecological functions of wetlands as regulators of water

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91 Organised by IWRB in St. Andrews, Scotland.

92 The Second European Conference on the Conservation of Wildfowl, organised by IWRB and the Dutch Government in Noordwijk, The Netherlands.

93 Held in Leningrad, former USSR. 1968 was also significant as the year in which UNESCO organised a major conference on the scientific basis for wise use and conservation of biosphere resources, which led to the establishment of the Man and Biosphere (MAB) programme, administered by UNESCO. Theme 8 of the MAB Programme highlighted the importance of the conservation of natural areas and the genetic resources they contain.

94 In December 1974, an International Conference on Wetlands and Waterfowl was held in Heiligenhafen (Germany) partly to review progress in the ratification of the Convention. Organised jointly by IWRB and the Federal Republic of Germany, it was the last in this series of non-governmental conferences on wetland conservation. This role was taken over by the Conference of the Parties to the Convention after its entry into force.

95 Timoshenko, A. 1991. *Protection Of Wetlands In International Law in IUCN 1991. Legal Aspects of the Conservation of Wetlands*, pp. 27-33 at p. 29.

96 The Convention negotiators at Ramsar had considered that only an authentic version in English was necessary, which prevented France from acceding.

97 The original text of the Convention provided only for optional meetings of the Conference of the Parties with a purely consultative role.

98 For a more detailed analysis, see *The Ramsar Convention Manual: a Guide to the Convention on Wetlands* (1997).

regimes and as habitats supporting a characteristic flora and fauna, especially waterfowl". The ambitious aim of the Convention is "to stem the progressive encroachment on and loss of wetlands now and in the future" and to support wetland conservation "by combining far-sighted national policies with co-ordinated international action".

Contracting Parties are bound by three main groups of obligations which, consistently with Ramsar's very broad definition of wetlands,[99] apply equally to inland and coastal wetlands and water systems:

- **Site-specific measures:** To designate one or more suitable wetlands of international importance for inclusion in the List of Wetlands of International Importance (Art. 2), to promote the conservation of listed wetlands (Art. 3.1) and to establish nature reserves on wetlands and provide adequately for their wardening (Art. 4.1);

- **Non-site-specific** (generally applicable) measures: To formulate and implement their planning so as to promote, as far as possible, the "wise use" of wetlands in their territory (Art. 3.1);

- **International cooperation:** To consult with other Parties about implementing obligations arising under the Convention in respect of transboundary wetlands, shared watercourses and coordinated conservation of wetland flora and fauna (Art. 5).

Article 4 generally requires Parties to encourage wetland research, to endeavour to increase waterfowl populations on wetlands and to promote the training of personnel.

This combination of localised, general and international measures is of particular interest. Whereas area-based conservation mechanisms were already well established in international and national law, the open-ended concepts of wise use and multi-faceted transboundary cooperation were more pioneering. The Ramsar Convention was concluded right at the start of the twenty-year period that saw the emergence and crystallisation of fundamental principles and concepts framing international environmental law, including the now familiar concepts of "sustainable use" and "sustainable development".[100] It did not define "wise use"[101] or establish requirements for its implementation, nor did it require Parties to ensure that activities carried out on their territory or in areas under their jurisdiction do not cause damage to the environment in other States.[102] In contrast to modern environmental instruments, which set out comprehensive definitions, principles and measures, Ramsar's substantive obligations are very general in character and lack legal precision.

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99 See Chapter 1.1 above.

100 The Ramsar Convention was signed nearly two years before the United Nations World Conference on the Human Environment (Stockholm), which adopted the 1972 Declaration of Principles for the Preservation and Enhancement of the Human Environment; 11 years before the adoption by the United Nations of the World Charter for Nature; and 21 years before the adoption of the Convention on Biological Diversity and other environmental instruments at the UNCED in Rio de Janeiro in 1992.

101 This term was defined by the COP in 1987 as the *"sustainable use ofwetlandsfor the benefit of mankind in a way that is compatible with maintaining the natural properties of the ecosystem"* (Recommendation 3.3, Regina, 1987): see generally Chapter 4 *et seq.* below.

102 It has since been accepted as a rule of customary international law, reflected in more modern treaties, that States are under an obligation to ensure that such activities do not cause significant environmental damage beyond their own boundaries: see further Chapter 3.3.

Possibly for this reason, Ramsar was for a long time exclusively associated with the conservation of important wetlands and implementation by many Contracting Parties tended to be concentrated on a few flagship sites. However, as described above, wetlands are exceptionally vulnerable to changes in the quantity or quality of their water supply generated by activities at considerable distances. Whilst site-specific mechanisms are of great importance and can act as a catalyst for wetland conservation on a wider scale, they are rarely designed to safeguard individual wetlands against harmful impacts of external activities. Site-specific mechanisms should thus be seen as a component, albeit an essential one, of generally applicable policies and practical measures for wetland conservation and wise use.

International cooperation on wetland-related issues is another key component of wise use. A shared water system or transboundary wetland cannot be rationally managed as a functional ecological unit without co-operation between neighbouring States. If a wetland's feed-waters come from a neighbouring country where their quality or quantity is adversely affected, the country on whose territory the wetland is located will be unable to prevent the destruction of its wetland unless its neighbour agrees to stop or alleviate the damage. Article 5 provides a clear legal basis for bilateral or multilateral cooperation to promote compatible approaches to management of shared water resources consistently with the wise use obligation.[103] It also supports rationalised approaches to species conservation across political boundaries. Waterfowl and some other migratory species are biologically dependent on the maintenance of wetland habitats along their migration routes. As they migrate, they come successively under the sovereignty or jurisdiction of each State situated along these routes. If just one State fails to take adequate conservation measures or destroys an important migration staging post, the conservation and management efforts of the other States involved may be seriously undermined. It follows that migratory species cannot be rationally managed by one country in isolation.[104]

The interpretation and implementation of Ramsar's obligations is supported by the following institutions established under the Convention:[105]

- The **Conference of the Parties (COP)** meets at least every three years. It has broad powers to review and take decisions relating to the Convention's implementation, including on financial matters. It approves the Convention's budget, which is financed by mandatory contributions from Contracting Parties, according to a scale of contributions based on the United Nations scale. Six meetings have been held to date: Cagliari, Italy (1980); Groningen, the Netherlands (1984), Regina, Canada (1987), Montreux, Switzerland (1990), Kushiro, Japan (1993) and Brisbane, Australia (1996). The Seventh Meeting of the COP will be held in Costa Rica in May 1999.

- Between meetings of the COP, the Convention's activities are governed by a nine-member **Standing Committee** (established in 1987) which includes representatives from each of the seven regions of the world and carries out such interim activities as may be necessary.

- The day-to-day work of implementation and the preparation of meetings of the COP are carried out by a small secretariat known as the **Ramsar Bureau.** The Bureau was initially provided by IUCN-The World Conservation Union but became an autonomous body in 1987 with its operations completely financed by the Parties. The Bureau is still co-located with the IUCN headquarters in Gland, Switzerland.[106]

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[103] For a more detailed discussion of this subject, see Chapters 22 and 23 below.

[104] See further Chapter 24 below.

[105] As amended by the above-mentioned Paris and Regina Protocols.

[106] UNESCO provides the official depositary for the Convention (Art. 9.3).

- A permanent **Scientific and Technical Review Panel** (established in 1993) is composed of seven experts[107] appointed by the COP who act in their individual capacity rather than as national representatives. The Panel provides advice to the Conference, the Standing Committee and the Bureau and meets at least once a year. It now works closely with the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) established under the 1992 Convention on Biological Diversity and with scientific bodies advising other environmental conventions.[108]

The Convention itself does not establish a financial mechanism to assist Parties to implement its obligations.[109] Moves to remedy this weakness were taken as early as 1980,[110] when the COP recommended that Parties should give financial and technical assistance to developing countries for the purposes of wetland conservation. However, it was not until 1990 that the COP established the Wetland Conservation Fund to support activities that improve the management of listed sites or promote the wise use of wetlands.[111] The Ramsar Small Grants Fund for Wetland Conservation and Wise Use (as it was renamed in 1996) is financed by a small amount from the Convention budget and by voluntary contributions. Any developing country seeking to accede to the Convention may apply for a grant to support activities necessary for the identification, delineation and mapping of a site to be included in the Ramsar List. All countries on the List of Aid Recipients established by the Development Assistance Committee of the OECD are eligible to receive assistance from the Fund.[112]

3.1.3 Evolution of the Convention and Current Status

The Ramsar Convention now enjoys considerable success, measured in terms of the increasing number of Parties and the growth in the number and surface area of the wetlands included in the List. By April 1999, there were 114 Contracting Parties and 965 Ramsar sites world-wide, covering 70,471,806 hectares (this compares favourably to 1991, when there were only 538 listed sites covering about 33 million hectares). The largest Ramsar site is currently the Okavango Delta in Botswana, which covers around 6.8 million hectares.

Despite this progress, there are still many States that have not yet ratified the Convention and many existing Parties have only designated one or very few wetlands. Many wetlands of international importance thus remain unprotected, whilst around 84% of sites which have been listed are thought to be under some form of threat.[113] More far-reachingly, no Party has yet applied the Ramsar Convention to the fullest extent and it would be misleading to claim that any Party has managed to achieve wise use of all its wetlands.

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[107] One from each region i.e. Africa, Asia, Eastern Europe, Neotropics, North America, Oceania and Western Europe.

[108] In accordance with Resolution VI.7 (Brisbane, 1996).

[109] cf. the 1972 World Heritage Convention which provided for the establishment of a World Heritage Fund and the 1992 Convention on Biological Diversity which provides for a financial mechanism and makes compliance by developing country Parties conditional upon the provision by developed country Parties of additional financial resources.

[110] Recommendations 1.2 and 1.6 (Cagliari, 1980).

[111] Resolution 4.3 (Montreux, 1990).

[112] Resolution VI.6 (Brisbane, 1996).

[113] Dugan and Jones. 1993, cited in Chapter 2 at n.13.

The Ramsar institutions have worked hard with Contracting Parties to develop a range of strategic tools[114] to promote more comprehensive implementation of all key provisions of the Convention. This incremental approach has made it possible to respond over time to developments in environmental science, international law and institutional processes. The range of such tools, discussed in detail in the appropriate sections of this book, is briefly summarised here.

The Convention's original emphasis on wetlands as waterfowl habitat has been systematically broadened by the COP. A more holistic approach to wetland classification has been developed which takes account of other species (including fish) and the ecological functions of wetlands within water systems, as well as the role of wetland restoration in improved water management. Several decisions have focused on the central role of local communities, indigenous peoples, wetland users and other stakeholders in wise use and the importance of participative approaches to wetland management planning (the theme chosen for the Seventh Meeting of the COP in 1999 is *Wetlands and people - the vital link).* The scope of international cooperation under Article 5 has also been broadly interpreted to include development assistance affecting wetlands.

The concept of wise (sustainable) use has been promoted as the unifying theme for Ramsar's future development and the COP has adopted a series of detailed guidelines to assist Parties towards more effective implementation.[116] Special emphasis is now placed on the development and implementation of national wetland policies, or the incorporation of wetland conservation requirements into National Environmental Action Plans or equivalent policy instruments, as a mechanism for delivering wise use. A sizeable minority of Parties have now initiated or completed wetland policy-making and planning processes.

The Ramsar Convention's Strategic Plan 1997-2002, adopted by the COP in 1996,[117] provides a clear conceptual framework and ordered structure for the next phase of implementation. Its Mission Statement for the Convention - "the conservation and wise use of wetlands by national action and international cooperation as a means to achieving sustainable development throughout the world" - is intended to anchor Ramsar firmly within the body of more modern environmental instruments founded on the concept of sustainable development.

The Strategic Plan lays down a series of general and operational objectives that are supported by specific actions to translate the treaty's broad goals into practice. Responsibility for carrying out each suite of actions is assigned to the Parties, Ramsar institutions or partner (non-governmental) organizations, as appropriate. The eight General Objectives are as follows:

- To progress towards universal membership of the Convention (at least 120 Contracting Parties by 2002).
- To achieve the wise use of wetlands by implementing and further developing the Ramsar Wise Use Guidelines.
- To raise awareness of wetland values and functions throughout the world and at all levels.

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114 i.e. detailed guidance contained in a series of non-binding Recommendations and Resolutions adopted by the Conference of the Parties.

115 Recommendation 4.13 (Montreux, 1990) advocates a full recognition of wetland values and functions by multilateral and bilateral development agencies and multilateral corporations. See further Chapter 25.2 below.

116 The three key texts adopted prior to COP7 in 1999 were *Guidelines on the Wise Use of Wetlands* (Annex to Recommendation 3.3, 1987); *Guidelines for the Implementation of the Wise Use Concept* (Annex to Recommendation 4.10,1990); and *Additional Guidance for the Implementation of the Wise Use Concept* (Annex to Resolution 5.6,1993). See Chapter4.2 *et seq.* below.

117 Resolution VI. 14 (Brisbane, 1996).

- To reinforce the capacity of institutions in each Contracting Party to achieve conservation and wise use of wetlands.
- To ensure the conservation of all sites included in the List of Wetlands of International Importance (Ramsar List).
- To designate for the Ramsar List those wetlands which meet the Convention's criteria, especially wetland types still under-represented in the List and transfrontier wetlands.
- To mobilise international cooperation and financial assistance for wetland conservation and wise use in collaboration with other conventions and agencies, both governmental and non-governmental.
- To provide the Convention with the required institutional mechanisms and resources.

It is clear from this list that Ramsar's goals continue to be ambitious, nearly thirty years after its conclusion. Whilst the Convention has undoubtedly served as a catalyst for international recognition of wetlands as reservoirs of biological diversity and economically valuable components of inland and coastal water systems, much remains to be done. The achievement of wise use is acknowledged to be highly complex, requiring new combinations of policies, mechanisms and actors at all levels of implementation to address issues of political and public sensitivity.

The following sections consider the extent to which more recent environmental treaties and institutional processes provide a legal basis for national action for wetland conservation and wise use.

3.2 Development of Other International Instruments Relevant to Wetlands

The principles that underpin the Ramsar Convention received broad political consensus in 1972, when the United Nations World Conference on the Human Environment (Stockholm) adopted the non-binding Declaration of Principles for the Preservation and Enhancement of the Human Environment. For the first time in a text adopted by almost all States of the world, an inclusive approach to ecosystems and biological resources was recognized as fundamentally important for mankind. The Declaration affirmed that the natural resources of the earth, including air, water, land, flora and fauna and especially representative samples of natural ecosystems, "must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate"; that the capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved; and that in view of man's special responsibility to wisely manage the heritage of wildlife and its habitat, nature conservation "must receive importance in planning for economic development". [119]

Since Stockholm, the conceptual basis for international environmental policy has been extended by many other non-binding instruments that have contributed to the reinforcement of existing legal principles and the recognition of emerging international customary law rules.

The World Charter for Nature, adopted and solemnly proclaimed by the UN General Assembly on 28 October 1982, declared that essential ecological processes must not be impaired and the genetic viability of the earth not be compromised. "Ecosystems and organisms, as well as the land, marine and atmospheric resources that are utilized by man, shall be managed to achieve and maintain optimum sustainable productivity, but without endangering the integrity of those other ecosystems or species with which they coexist". [120] Nature conservation should be integrated

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[118] As well as an Action Plan comprising 109 Recommendations.

[119] Principles 2-4.

[120] Principle 4.

into the planning and implementation of social and economic development activities, taking into consideration the long-term capacity of natural systems to ensure the subsistence and settlement of human populations. [121]

The 1992 Rio Declaration on Environment and Development adopted a much more anthropocentric approach to these issues. It proclaims that individuals and communities are at the centre of concerns for sustainable development and affirms the need equitably to meet developmental and environmental needs of present and future generations.[123] States must cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem, with developed countries bearing particular responsibility for sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command. The Declaration affirms *inter alia* the importance of public access to environmental information and participation in decision-making processes, the need to enact effective environmental legislation and the need for States to recognise and support the vital role of indigenous people and other local communities in environmental management and development.[125]

The binding environmental instruments adopted since the Stockholm Conference can be loosely grouped into 'generations' which may be considered as mutually reinforcing.

Treaties adopted during the 1970s were essentially concerned with the regulation of environmental sectors: oceans, inland waters, air, soil and wildlife. The three global conservation treaties concluded during this period dealt with very different issues: area-based protection of cultural and natural heritage of global significance, which can include wetlands; the control of international trade in endangered animal and plant species, which potentially provides a mechanism for regulating commercial exploitation in wetland-dependent species such as corals, crocodiles and fish;[127] and legal mechanisms to conserve migratory species and their habitats, which have since been implemented at regional level for different groups of wetland-dependent species. [128]

In the 1980s, international lawmaking focussed more systematically on potential sources of environmental harm, addressing the impacts of human activities and products across all sectors. "Transsectoral" or "transversal" regulatory frameworks were developed during this period *inter alia* for toxic or dangerous products and wastes, radioactivity, nuclear wastes and hazardous activities. However, regulatory regimes established during this period tend not to be inclusive: in other words, processes, activities, habitats and species do not benefit from management or conservation measures unless specifically covered by applicable legal frameworks.

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121 Principles 7-8.

122 The intergovernmental declaration of 27 principles adopted at the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, 16 June 1992.

123 Principles 1 and 3.

124 Principle 7.

125 Principles 10, 11 and 22.

126 Convention for the Protection of the World Cultural and Natural Heritage, adopted in Paris, 16 November 1972 (see further Chapter 8.2).

127 Convention on International Trade in Endangered Species of Wild Fauna and Flora, adopted in Washington on 3 March 1973 and universally referred to as CITES.

128 Convention on the Conservation of Migratory Species of Wild Animals, adopted in Bonn on 23 June 1979 (see further Chapter 24).

129 See generally Kiss, A. 1989. *Droit international de l'environnement.*

A notable exception is the 1985 Agreement on the Conservation of Nature and Natural Resources, concluded between the six states of the Association of South-East Asian Nations.[130] The ASEAN Agreement is probably the most complete conservation instrument in existence. It aims to achieve comprehensive environmental protection through the implementation of specific measures on air, water, soil, plant cover, forests, fauna, flora and ecological processes. The Agreement specifically addresses the need to prevent, reduce and control environmental degradation and reduce pollution and establishes requirements for land planning and land use, impact studies and transboundary cooperation. Regrettably, this Agreement has still not entered into force: moreover, it is of limited geographical scope, given the size and population of the Asian continent.

The most recent phase of legal development has been characterised by the adoption of comprehensive global mechanisms to address planet-wide problems such as the depletion of the ozone layer, global warming, desertification and loss of biological diversity. These modern instruments generally take the form of framework conventions that lay down general principles and obligations and also provide for the adoption of detailed protocols or annexes where considered necessary in the light of new scientific evidence and technical and technological developments.

At regional or subregional level, a large number of environmental agreements have been concluded between States or under the auspices of regional economic integration organizations such as the European Union. Regional processes make it possible to tailor the implementation of environmental objectives to the particular characteristics and capacities of a given region and to build on commonalities between a relatively small group of countries. In the context of wetlands, verifiable obligations related to conservation of migratory species and habitat types have been established *inter alia* under two important Directives adopted by the European Community.[131] From a global perspective, however, regional treaty coverage remains patchy. Some parts of the world, notably much of Asia, have no convention at all whilst others, including America and Africa, are covered by older treaties which do not provide for institutional mechanisms to review and facilitate national implementation.[132]

Legal regimes for the protection of inland waters have long been regional in character, dominated by treaties between countries sharing a river or a lake. Early water agreements concerned navigation, broadening slowly over time to address non-navigational economic uses related to transboundary water resources such as irrigation, pollution or dam building. The scope of such agreements has been extended significantly over the last decade, as international legal frameworks have sought to reflect the link between water resource development, drainage basin management and conservation of aquatic ecosystems, including wetlands. Modern treaties based on this type of integrated approach include the 1992 Convention on the Pollution and Use of Transboundary Watercourses and International Lakes'" and the 1997 Convention on the Law of

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[130] Signed in Kuala Lumpur on 9 July 1985 by Brunei, Indonesia, Malaysia, the Philippines, Singapore and Thailand.

[131] Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds, OJ L 103, 25 April 1979 as amended; Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora, OJ L 206, 22 July 1992 (discussed further in Chapter 8 *et seq.)*.

[132] Respectively the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (Washington, 12 October 1940; in force 1 May 1942) and the African Convention on the Conservation of Nature and Natural Resources (Algiers, 16 September 1968; in force 7 May 1969).

[133] Adopted in Helsinki on 17 March 1992; see further Chapter 22. Agenda 21, adopted at the UNCED during the same year, also identified wetland conservation as a priority in water resource management.

Non-Navigational Uses of International Watercourses.[134] The latter contains a series of globally applicable obligations for the protection, preservation and management of the ecosystems of international watercourses.

Legal regimes are also beginning to take better account of the interrelationship between terrestrial and maritime activities and the quality of the marine and coastal environment. A series of shipping disasters (notably involving the Torrey Canyon and Amoco Cadiz tankers) led to the development of a treaty regime for the prevention of pollution from ships. The 1982 United Nations Convention on the Law of the Sea (UNCLOS)[135] requires States *inter alia* to preserve and protect the marine environment; to prevent, reduce and control pollution from land-based sources, including rivers, estuaries, pipelines and outfall structures; and to protect "rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life". A legal framework for regional marine and coastal conservation has been developed under the Regional Seas Programme, established in 1974 by the United Nations Environment Programme. Action Plans have been prepared for thirteen regional seas, with more than 80 coastal States and territories participating.

Finally, two other processes damaging to wetlands - sea level rise and desertification - are addressed more or less directly by two recent treaties of global application.

The 1992 United Nations Framework Convention on Climate Change[138] establishes commitments to stabilise greenhouse gas concentrations in the atmosphere at a safe level, over the long term, and to limit emissions of greenhouse gases by developed countries in accordance with non-binding targets and timetables. Implementation programmes in different countries have *inter alia* included measures to promote energy efficiency and to develop renewable (non-carbon emitting) energy sources. The promotion of renewables could in the long term be beneficial for certain wetlands, such as mangrove forests, which are often deforested in areas where local communities have no alternative fuel sources. Scientific research suggests that wetlands, especially peatbogs, may play a positive role in combating climate change by functioning as natural carbon sinks. If such functions are confirmed, this could provide a powerful incentive for large-scale expansion of wetland creation, restoration and protection programmes. Cooperative research and planning between the Ramsar Convention and the treaty secretariats dealing with climate change and biological diversity is currently under consideration.

The 1994 Convention on Desertification is directly relevant to wetlands in arid zones. Five of the thirty-five wetland types included in the Ramsar Classification System for Wetland Types

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134 Adopted by the General Assembly of the United Nations in New York on 21 May 1997 (not yet in force).

135 Adopted in Montego Bay, Jamaica on 10 December 1982; in force since 16 November 1994.

136 Articles 192, 207 and 194.5 respectively.

137 The Mediterranean, Kuwait, West and Central Africa, Caribbean, East Asia, South-East Pacific, Red Sea and Gulf of Aden, South Pacific, Eastern Africa, South Asian Seas, North-West Pacific and Black Sea. An Action Plan for the South-West Atlantic is currently being prepared. For a fuller discussion of coastal wetland protection under regional seas conventions, see Chapter 8.2 and 23 below.

138 Signed in New York, 9 May 1992 and in force since 24 March 1994.

139 Lum, K. 1997. *Wetlands and Climate Change: a Report on Kyoto*. Communication from Ramsar Convention Bureau, 23 December 1997.

140 The United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa was adopted on 12 September 1994 and entered into force on 26 December 1996.

are frequently found in inland arid zones and are recorded in over a third of Ramsar sites. These sites are severely threatened by processes that reduce water supply as well as overgrazing, erosion and pollution through agricultural runoff.

The Desertification Convention applies to arid, semi-arid and dry sub-humid countries of the world and promotes integrated action at all levels to achieve sustainable development in affected areas. It promotes sustainable water resource management, *inter alia* through the development of integrated strategies for the rehabilitation, conservation and sustainable management of land and water resources and the promotion of cooperation among affected country Parties for environmental protection and the conservation of land and water resources.[143] Parties undertake to strengthen existing legislation or enact new laws and establish long-term policies and action programmes.[144] The Convention covers the identification and management of damaging processes, the development of sustainable irrigation programmes and the development of integrated approaches to physical, biological and socio-economic problems. In an innovative example of a global treaty combining general principles and obligations with region-specific guidelines and measures, the Desertification Convention establishes four regional implementation annexes for Africa, Asia, Latin America and the Caribbean, and the Northern Mediterranean. A Memorandum of Cooperation was signed on 5 December 1998 between its Secretariat and the Ramsar Convention Bureau.[146]

3.3 Convention on Biological Diversity (1992)

Whereas the Ramsar Convention deals exclusively with wetlands, the Convention on Biological Diversity (CBD) adopts an inclusive approach to all ecosystems and biological resources. It breaks new ground in international conservation law by going beyond a focus on special areas and species to require the identification, regulation or management of processes and categories of activities which may adversely affect biodiversity and the establishment of legal regimes for access to genetic resources and sharing of benefits arising from their utilisation.[147]

The CBD was opened for signature on 5 June 1992 in Rio de Janeiro and entered into force on 29 December 1993, only 18 months after its signature. By February 1999, it had been ratified by 174 States and the European Community. This means that nearly all Contracting Parties to the Ramsar Convention are also Parties to the CBD. States that are party only to the CBD are bound by many wetland-related obligations which are compatible - and arguably further-reaching - than those under Ramsar.

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141 Kingsford, R.T. 1997. *Wetlands of the World's Arid Zones* (report submitted by the Ramsar Convention Bureau to the First Session of the COP to the UN Convention to Combat Desertification).

142 Art. 2.

143 Art. 4.

144 Art. 5.

145 Arts. 4 and 10.

146 For a more detailed discussion of institutional coordination on wetland issues, see Chapter 25.1.

147 For a comprehensive analysis of the Convention, see in particular Glowka *et al*, 1994. *A Guide to the Convention on Biological Diversity*.

The CBD's three objectives are set out in Article 1:

- the conservation of biological diversity, defined as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems";[148]

- the sustainable use of components of biological diversity, namely "in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations"; and

- fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.[149]

The CBD goes beyond Ramsar by laying down, for the first time in a binding environmental instrument of global application, the customary law rule that national sovereignty over natural resources is qualified by the obligation not to cause transboundary environmental harm.[150] Article 3 provides that "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction". This principle is of fundamental importance to wetlands and water systems because more than 200 major river basins and many groundwater aquifers cross national boundaries: damaging activities upstream frequently degrade the inland or coastal waters of downstream states. The principle is rendered more explicit by Article 4, which specifies that the CBD's provisions apply not only to components of biological diversity within the limits of each Party's jurisdiction but also to processes and activities under a Party's jurisdiction or control, *wherever the effects of such processes and activities occur* (emphasis added).

In a provision reminiscent of Ramsar's Article 5, Article 5 of the CBD requires Parties, "as far as possible and as appropriate", to cooperate for the conservation and sustainable use of biodiversity in respect of areas beyond national jurisdiction and on other matters of mutual interest. Such cooperation may be conducted directly with other Contracting Parties or indirectly through competent international organizations.[151]

Under the CBD, each Party must develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity, in accordance with its particular conditions and capabilities, and integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies (Article 6). Integrated planning of this kind is fully consistent with the wise use obligation laid down by Article 3.1 of Ramsar. In the context of wetland ecosystems, the term "relevant" calls for a particularly wide interpretation: it should encompass all sectors that directly or indirectly affect levels of wetland biodiversity. The

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148 The definitions cited are taken from Article 2.

149 It is beyond the scope of this book to explore this complex issue: for a comprehensive guide to the subject, see Glowka, L. 1998. *A Guide to Designing Legal Frameworks to Determine Access to Genetic Resources.*

150 First laid down in the Trail Smelter Arbitration ((United States v. Canada) 16 April 1938, 11 March 1941 (3 *R.I.A.A.* 1907 (1941)) and expanded by Principle 21 of the 1972 Stockholm Declaration of Principles for the Preservation and Enhancement of the Human Environment.

151 See further Chapter 25.1.

CBD expressly requires that national decision-making should include consideration of the conservation and sustainable use of biological resources (Article 10).

Article 7 supports the establishment of a scientific knowledge base in order to prioritise technical and financial measures for the conservation and sustainable use of biodiversity. Parties are required to identify and monitor the components of biodiversity important for conservation and sustainable use, having regard to the indicative list of categories set down in Annex I for ecosystems and habitats,[152] species and communities[153] and within species.[154] They should also identify processes and categories of activities which are likely to have significant adverse impacts on the conservation and sustainable use of biodiversity, monitor their effects through sampling and other techniques and, in accordance with Article 8(1)), regulate or manage processes or categories of activities determined to have such impacts. Properly implemented, this obligation could have far-reaching benefits for wetlands in view of the numerous processes that threaten wetland biodiversity, generated by activities as diverse as the clearance of wetland vegetation, intensive agricultural practices and the dynamiting of coral reefs.[155] This obligation is reinforced by Article 10, which requires that measures be adopted to avoid or minimise adverse impacts on biological diversity from the use of biological resources.[156]

Article 8 places strong emphasis on the importance of *in situ* conservation. In contrast to Ramsar's very general approach, the CBD specifies detailed measures that Parties should implement for this purpose, which include establishing systems of protected areas or areas managed for conservation; regulating or managing biological resources important for the conservation of biological diversity, wherever these occur; restoring degraded ecosystems and promoting the recovery of threatened species; controlling the release of living modified organisms resulting from biotechnology and preventing the introduction of alien species which threaten ecosystems, habitats or species; and, subject to national legislation, measures to preserve knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles. More broadly, Article 10 requires Parties to protect and encourage customary use of biological resources in accordance with traditional cultural practices if compatible with sustainable use requirements, " to support remedial action by local populations in areas of reduced biodiversity,

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152 Those containing high diversity; large numbers of endemic or threatened species, or wilderness; required by migratory species; of social economic, cultural or scientific importance; or, which are representative, unique or associated with key evolutionary or other biological processes.

153 Those which are: threatened; wild relatives of domesticated or cultivated species; of medicinal, agricultural or other economic value; or social, scientific or cultural importance; or of importance to research into the conservation and sustainable use of biological diversity, such as indicator species.

154 Described genomes and genes of social, scientific and economic importance.

155 See further Chapter 16 *et seq*.

156 This very broad provision establishes a legal basis not only for regulating over-exploitation of target species but also for incidental taking of non-target species.

157 Defined as "conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties" (Article 2). Measures for *ex situ* conservation of components of biological diversity outside their natural habitats are listed in Article 9.

158 See further Chapter 19.3.

159 This would apply for example to activities such as small-scale and artisanal fisheries or medicinal plant collection.

and to encourage cooperation between Government and private sectors in developing methods for sustainable use of biological resources.

These provisions, like certain decisions adopted by the COP to the Ramsar Convention, legitimise the preservation of sustainable customary uses and the role of local communities in the management of natural ecosystems. They also affirm the importance of cooperation and partnership with the private sector (usually the main actor in agriculture, fishery, industry, tourism and sometimes in water resource management) as a prerequisite for long-term biodiversity conservation. This inclusive approach is reinforced by Article 11 of the CBD, which requires Parties to adopt incentives for the conservation and sustainable use of components of biological diversity, which are economically and socially sound.

Other important provisions of the CBD, which will not be dealt with in detail here, relate to environmental impact assessments (Art. 14);[160] access to genetic resources, benefit-sharing and technology transfer (Arts.15, 16 and 19); research and training (Article 12); public education and awareness (Article 13); exchange of publicly available information (Article 17); and technical and scientific cooperation facilitated through a clearing-house mechanism (Article 18).

The institutional arrangements established under the CBD include a Conference of the Parties, a Secretariat (provided by the United Nations Environment Programme and located in Montreal), and the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA). The latter is a multidisciplinary body which provides scientific and technical assessments of the status of biological diversity and advises on the effects of measures taken pursuant to the Convention: as mentioned above, it works closely with Ramsar's Scientific and Technical Review Panel. The CBD also provides for a financial mechanism under the guidance of and accountable to the Conference of the Parties, to provide financial resources to developing country Parties on a grant or concessional basis (Article 21). This mechanism has been operated by the Global Environment Facility (GEF) since the CBD entered into force.

As the preceding summary shows, there are many areas of complementarity between Ramsar and the CBD. Close working relations have already been established between the two conventions, pursuant to a Memorandum of Cooperation signed on 19 January 1996. The COP to the Convention on Biological Diversity has taken formal note of the Ramsar Strategic Plan and has invited the Ramsar Convention to cooperate as a lead partner in the implementation of wetland-related activities under the CBD.[161] A Joint Work Plan has been developed.under this Memorandum and was formally approved at the fourth meeting of the COP in 1998.[162]

The COP has adopted several key decisions, with particularly strong support being given to developing integrated approaches to the management of inland water and coastal ecosystems:

- Under the Jakarta Mandate on Marine and Coastal Biological Diversity, coastal and marine ecosystems are the first major ecosystems to be systematically addressed by the CBD. The Mandate calls for the establishment and/or reinforcement of institutional, administrative and legislative arrangements for integrated management of these ecosystems, plans and strategies for marine and coastal areas, and their integration within national development plans. A work programme was adopted by the COP in 1998.[164]

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160 See further Chapter 17.

161 Decision III/21 (Buenos Aires, 1996).

162 Decision IV/15 (Bratislava, 1998).

163 Decision II/10 (Jakarta, 1995). A 15-member Experts Group met in March 1997 to draw up a global work plan on agreed themes.

164 Annex to Decision IV/5 (Bratislava, 1998). See further Chapter 15.

> A work programme on the biological diversity of inland water ecosystems (and associated issues related to identification and monitoring, assessment methodology and taxonomy) has been formulated by the SBSTTA in cooperation with the Ramsar Convention. Adopted by the COP in 1998, the Programme is designed to address the linkages that run within catchment areas downstream to the sea and that connect freshwater ecosystems to forests, farmlands and other neighbouring systems.[165]

Finally, the COP has also identified certain crosscutting (inter-sectoral) issues on which guidance will be developed by the SBSTTA.[166] Those of direct relevance to wetlands include the ecosystem approach (for which a workable definition is to be developed), environmental impact assessments and the prevention and mitigation of impacts caused by the introduction of alien species. A work programme on agricultural biological diversity is currently under way, which aims to mitigate the negative impacts of certain agricultural practices (high consumption of freshwater, high chemical inputs) and to promote positive agricultural practices.

3.4 Action on the Ground: the Challenge of National Implementation

As this chapter has shown, wetlands have not been neglected by international law: indeed there is now a relatively extensive treaty framework relating directly or indirectly to conservation and sustainable use of wetlands and wetland biodiversity. This is of course no more than a beginning. Conventions and international institutions provide political solidarity and technical and financial assistance which are essential for creating a favourable climate for action on wetlands. In the long term, however, if countries do not act within and across their boundaries to implement their obligations to safeguard wetland functions and values, treaty institutions can do little more than apply moral and political pressure.[168]

A common characteristic of conservation treaties is that their provisions are deliberately very broad in order to accommodate diversity of national conditions, legal systems and institutional and technical capacity. In addition, their provisions are frequently tempered by 'best endeavours' formulae along the lines of "as far as possible and as appropriate", which leave their Parties considerable latitude in how to implement their international undertakings: such aspirational formulae are often a necessary precondition to reaching agreement amongst treaty negotiators. The combined result of these two factors is that most conservation treaties lack commonly-understood standards and norms and many key provisions are too imprecise to be capable of legal verification.

In recent years, the decision-making bodies established under certain treaties have taken a more proactive stance towards improving standards of implementation and strengthening national reporting requirements. Ramsar's Conference of the Parties has issued prolific policy and technical guidance to flesh out the treaty's general provisions and has established support mechanisms ranging from the site management guidance procedure to regional coordinators who ensure regular contact with and between Parties in each biogeographic region. The emphasis on practical 'tools' for implementing the Convention represents a welcome innovation in the realm of international conservation law.

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165 Annex to Decision IV/4 (Bratislava, 1998). See further Chapter 14.

166 Decisions IV/1 and IV/10 (Bratislava, 1998).

167 Pursuant to Decision III/l 1 (Buenos Aires, 1996)

168 Issues of compliance and enforcement are discussed further in Chapter 21.

In choosing to become party to a treaty, a state commits itself to take the necessary measures appropriate to its legal and institutional system to implement its treaty obligations in domestic law.[169] The actions necessary for this purpose vary according to the nature of the treaty, the level of precision of its obligations and the constitutional requirements or legal traditions of individual States. Certain States deem treaty obligations to be 'self-executing' or 'self-implementing': in other words, once the treaty has been duly ratified, its obligations must be applied in domestic law and may be enforced by domestic courts or agencies without the need for legislation, executive decree or other implementing measure. Many other States adopt the approach that specific legislative action must be taken to incorporate or transpose treaty obligations into domestic law.

Because of their very general character, it is extremely difficult to consider conservation treaty obligations as self-executing: moreover, they do not lend themselves to simple transposition into national law. For example, the commitment to promote wise use is likely to remain largely rhetorical or operationally ineffective unless each country translates this broad concept into detailed and coordinated legislative and policy instruments adapted to its traditions and conditions. Such instruments need to be backed by clear lines of institutional responsibility at national and/or subnational level, with adequate powers being conferred on those institutions to ensure proper monitoring and enforcement of applicable legislation. This is far from being the case in most countries.

Recalling the range of damaging processes and activities outlined in Chapter 2.2 above, legal measures to support wetland conservation and wise use need to be comprehensive and multi-sectoral. There has been dramatic progress in extending the scope and techniques of environmental protection legislation in recent years, but many of these legal and institutional changes have still to be digested and translated into workable systems on the ground. Moreover, environmental issues still tend to be addressed within a sectoral framework which prevents wetland issues from being 'mainstreamed' (integrated) into sectors whose activities may adversely affect wetlands (including agriculture, forestry and fisheries; energy generation, mining and industrial development; terrestrial and maritime transport links and facilities, including ports and marinas; and residential, tourism and leisure development). Policy coordination and consistency in implementing international commitments can be particularly complex in countries with decentralised or federated structures.

The interface between national implementation and transboundary cooperation also needs to be strengthened and seen in a broader context.[170] As indicated above, international cooperation between Parties (and where appropriate regional economic integration organizations) is required under both the Ramsar Convention and the CBD. Such obligations are not restricted to transboundary management issues but extend to international assistance for wetland-related programmes and projects. States should also support improved coordination between treaty institutions competent in areas related to wetlands and water resource management, in order to avoid duplication or inconsistency between parallel or overlapping processes.

The central question for this book is how countries can adapt or develop legal tools and institutional frameworks to circumscribe actions and policies that contribute to wetland loss or degradation and to promote a broadly-based culture of public support for and participation in sustainable land and water use.

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[169] In accordance with the long-established principle *pacta sunt servanda*. See generally Ntambirweki, J. 1998a. *Modalities for the Implementation of the Ramsar Convention through National Legislation in Africa.*

[170] See generally Chapter 25 below.

PART II

NATIONAL PLANNING FOR WETLAND CONSERVATION AND WISE USE

Part I of this book showed how the complex issues associated with wetland loss cannot be adequately addressed through short-term, sectoral or reactive measures. All modern treaties now emphasize the importance of strategic planning that supports integrated approaches to wetland management at international, national and local levels. Integration needs to be substantive (coordination and consistency of legislative and other measures) and organisational (involving public and private sectors, local communities and interested parties). This would represent a significant departure from the compartmentalised law systems and institutional hierarchy that form part of every country's heritage.

Part II considers the nature of the wise use obligation, the constraints that commonly obstruct its implementation and the ways in which legal and institutional frameworks can be designed to contribute positively to its achievement.

Chapter 4
Scope and Implementation of the Wise Use Concept

Reflecting global recognition of the need to integrate conservation and development, the Ramsar institutions have given increasing prominence to wise use as the cornerstone of the Convention. Wise use concept encompasses and goes beyond specific provisions on conservation of listed sites, reserve creation and international cooperation. It provides a firm legal basis for the Conference of the Parties (COP) to address broader concerns related to sustainable development, biodiversity conservation and water resource management.

4.1 Interpreting Wise Use

The Ramsar Convention requires Contracting Parties "to formulate and implement their planning so as to promote, as far as possible, the wise use of wetlands in their territory" (Article 3.1). This provision constitutes an obligation of result, leaving each Party free to choose the most appropriate means to achieve this objective.

As mentioned in Chapter 3, the term "wise use" was not interpreted by the COP until 1987,[1] the year of the publication of the World Commission on Environment and Development's Report, *Our Common Future*. The COP adopted the following definitions:

- Wise use means the "sustainable use of wetlands for the benefit of mankind in a way that is compatible with maintaining the natural properties of the ecosystem".

- Sustainable use means "human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations".

- The "natural properties of the ecosystem" include the physical, biological or chemical elements, such as soil, water, flora, fauna and nutrients, as well as the inter-actions between these elements.

This definition marks an important stage in the evolution of Ramsar because it acknowledges the central importance of wetlands for mankind as well as for waterbirds. It also reflects emerging concepts of intergenerational equity by providing that ecological and socio-economic values of wetlands should be maintained and transferred to future generations as non-declining resources.

The interpretation of "wise use" was further clarified in 1996, when the COP considered the relationship between the Ramsar concept and the terminology used in the 1992 Convention on Biological Diversity. The COP recognized that the concept of wise use enshrined in the treaty had been developed substantially and "is considered to be synonymous with "sustainable use".[2] The Ramsar Strategic Plan is even more explicit: it affirms that through the wise use concept, the Convention has always emphasized that human usage on a sustainable basis is entirely compatible

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1 Recommendation 3.3 (Regina).

2 Ramsar 25th Anniversary Statement. "Sustainable use" is defined by the CBD as "the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (Art. 2).

with Ramsar listing and wetland conservation in general.[3] Wise use is thus presented as an objective closer to reality, which is that most wetlands are used for multiple purposes and by many different actors.

These statements illustrate Ramsar's responsiveness to changes in the legal landscape brought about by the UNCED process, particularly the CBD which incorporates socio-economic and cultural perspectives and is not confined to special areas or species. Ramsar's shift can also be seen as part of a general trend in conservation policy to remove traces of a preservationist ethos that appeared to place selected species and habitats above human needs.

This evolution has interesting implications for Ramsar's future development. By linking wise use to the principle of ecological integrity[4] and affirming that conservation includes sustainable human usage, the COP has blurred the distinction between the two concepts that underpin Ramsar's dual focus on listed and other wetlands.[5] Logically, this makes it possible to view Ramsar's provisions not as parallel or alternative regimes but as a gradient. The basic aim, so far as possible, should be to tackle patterns of unsustainable land and water use wherever these occur. Moving up the gradient towards wetlands of ecological importance (at local, national or international level), resource management measures should be progressively tightened to a point where nature conservation is prioritised or formally weighted above other competing objectives. At any point along the gradient, it should be possible to categorise applicable legal measures by questions of degree, rather than differences in kind.

This paradigm is appealing for several reasons. It reflects the continuum of the hydrological cycle and the impossibility of managing wetlands rationally without managing external activities and processes. It responds to the criticism that the distinction between listed and unlisted wetlands is a distraction when the real problem is the unsustainable society that is developing almost everywhere.[6] It could make it easier to explain and build support for wetland-related policies. Terminology is an important issue in this respect. Whilst it can sound artificial or unrealistic to talk about 'conserving' larger wetlands or water systems subject to multiple use, such terminology may be more palatable in limited geographic areas and representative samples of ecosystems and habitat types.

Ideally, any definition should provide a clear reference point against which general policies and specific management decisions can be tested. From a legal point of view, the Ramsar interpretation of wise use is not without difficulty. The criterion of "maintaining natural properties" does not lend itself to developing simple rules of interpretation: at what point in time should the naturalness of properties be assessed? Most wetlands have been subject to some form of exploitation for centuries and past and current human uses have shaped their "natural" properties. Where these uses do not adversely affect wetland function or area, they should logically be continued in order to maintain the natural properties of such wetlands: in other words, human use is an integral part of wise use in certain wetlands. Conversely, where human utilisation is of a type or intensity that damages or destroys wetlands, this undermines the wetland's potential to meet the needs and aspirations of future generations: wise use in such cases will depend on careful planning, management or prohibition of certain activities. In certain cases, for example in relatively pristine wetlands, it may be necessary to accept that wise use should mean "no use".

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3 General Objective 2, introductory paragraph.

4 Human uses are "wise" only if they maintain "the natural properties of the ecosystem".

5 In this context, it is interesting to note that for the purposes of Recommendation 6.3 *Involving Local and Indigenous People in the Management of Ramsar Wetlands* (Brisbane, 1996), "management" is stated to encompass conservation and wise use.

6 Lambers, C. 1989. *Wetlands: the (Im)possibilities of Law?*

These reflections are a reminder that there is no blueprint for achieving or measuring wise use: it has been aptly said that unwise use is much easier to identify than wise use is to implement![7] Constraints and possible solutions will vary between countries depending on socio-economic conditions, cultural traditions, legal and institutional systems and available resources. Nevertheless, the concept provides a useful common denominator that can facilitate consultation, cooperation and planning between countries which often have very different legal and administrative structures.[8]

4.2 Guidance Adopted by the Ramsar Conference of the Parties

The essential basis of wise use implementation is the development of comprehensive national wetland policies. Although the RAMSAR COP first recommended the establishment of such policies in 1980,[9] it was not until 1987 that formal guidance on the implementation of this provision was adopted by the Conference. Since that year, the COP has approved three key texts providing practical guidance to assist Parties to implement the wise use obligation:

- *Guidelines on the Wise Use of Wetlands* (Annex to Recommendation 3.3, Regina 1987) ("the 1987 Guidelines");
- *Guidelines for the Implementation of the Wise Use Concept* (Annex to Recommendation 4.10, Montreux 1990) ("the 1990 Guidelines"); and
- *Additional Guidance for the Implementation of the Wise Use Concept* (Annex to Resolution 5.6, Kushiro 1993) ("the 1993 Additional Guidance").

Through these decisions, the COP has emphasized that the wise use provision applies to all wetlands and their support systems and that wetland policies combined with wise use of specific wetlands are integral parts of sustainable development.

The 1987 Guidelines outline the need for national action to: (1) improve institutional and organizational arrangements; (2) address legislative and policy needs; (3) increase knowledge and awareness of wetland values; (4) inventory and monitor the status of wetlands; and (5) identify programme priorities and develop action plans for specific sites as components of a National Wetland Policy. At the same meeting, the COP also called for the establishment of a Working Group on Criteria and Wise Use, with the aim of improving the worldwide application of the Convention.

The 1990 Guidelines were adopted on the basis of this Working Group's report. They urge Parties to formulate comprehensive National Wetland Policies in the long term in a manner appropriate to their national institutions. Highlighting the importance of non-site-specific measures, they recommend that such policies should address all activities liable to affect wetlands within a national context through institutional, legislative and scientific measures, including the execution of a national inventory of wetlands.

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7 World Wide Fund for Nature. 1993. *Promoting Wise Use of Wetlands.*

8 See generally Ramsar Convention Bureau. 1997. *The Ramsar Convention Manual: a Guide to the Convention on Wetlands.*

9 At its first meeting in Cagliari, Italy: this recommendation was endorsed by Recommendation 2.3 (Groningen, 1984).

At its Montreux meeting, the COP also requested the Working Group to develop the Guidelines to apply to a diversity of wetland types, regions, resources and uses, based on case studies demonstrating applications of the wise use concept in different ecological and socio-economic situations throughout the world. The Group's work led to the adoption of the 1993 Additional Guidance which is intended to provide further assistance to officials responsible for implementing the Convention. In adopting this Guidance, the COP specifically called on Parties to implement the wise use guidelines "in a more systematic and effective manner, and at international, national and local levels".[10]

The 1993 Additional Guidance is prefaced by six conclusions drawn from these case studies:[11]

(1) Social and economic factors are the main reason for wetland loss and therefore need to be of central concern in wise use programmes;
(2) Special attention should be given to local populations, the primary beneficiaries of improved management of wetland sites, and to the values that indigenous people can bring to all aspects of wise use;
(3) Wise use programmes should seek to involve all public and private institutions in addition to the wetland conservation agency where such institutions have expertise relevant to effective long-term management;
(4) Site-specific projects may often demonstrate the need for more general institutional requirements for the wise use of wetlands;
(5) Wise use should take account of surrounding coastal zones or catchments where wetlands form an integral part thereof;
(6) Activities affecting wetlands should be governed by the precautionary principle where knowledge of ecological constraints of a wetland system is not available.

The Guidance identifies common obstacles to developing national wetland policies[12] and makes fairly detailed recommendations for the establishment of national wetland policies; institutional and organisational arrangements (notably the development of cooperative approaches to the management of transboundary water systems and wetlands); general wise use legislation; knowledge of wetlands and their values; and action at particular wetland sites. These site-specific recommendations are not restricted to Ramsar sites but also apply to ecologically sensitive areas, areas with a high degree of biodiversity, sites containing endemic species or wetland nature reserves.

The Strategic Plan 1997-2002 has continued this progressive extension by indicating the need for future implementation to focus on wetlands in the context of land-use planning, water resource management and other decisions affecting wetlands. It lays down eight operational objectives to promote wise use,[13] under which Contracting Parties, the Bureau or partner organisations (as appropriate) should:

- review legislation, institutions and practices to ensure that the Wise Use Guidelines are applied;

- integrate conservation and wise use of wetlands in all Parties into relevant sectoral planning and decision-making and all other environmental planning and management;

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10 Resolution 5.6, Kushiro 1993.

11 The case studies are reprinted in Davis, T.J. (ed.). 1993. *Towards the Wise Use of Wetlands*.

12 See Chapter 5 below.

13 Under General Objective 2 of the Plan, which seeks to achieve wise use of wetlands by implementing and further developing the Ramsar Wise Use Guidelines.

- expand the Guidelines and Additional Guidance to address specific issues, such as oil spill prevention and clean-up, agricultural runoff, and urban/industrial discharges, and provide examples of best current practice;
- provide economic evaluations of wetland benefits and functions for environmental planning purposes;
- carry out environmental impact assessments at both project-specific and strategic level;
- identify wetlands in need of restoration and rehabilitation and to implement the necessary measures;
- encourage active and informed participation of local communities, including indigenous people, and in particular women, in wetland conservation and wise use;
- encourage involvement of the private sector in wetland conservation and wise use.

In 1998, the Wise Use Resource Centre was established within the Ramsar Bureau to provide advice and assistance on wetland management issues to practitioners, planners, legislators and interested parties at all levels of government and in local communities. The Centre comprises a Wetland Experts Database, the Wise Use Resource Library and the Catalogue of Training Opportunities for wetland managers around the world. The electronic Ramsar Forum, established in 1997, facilitates the exchange of views and information on the conservation and sustainable use of wetland resources in general and the Ramsar Convention in particular.

Because wise use depends on people, it can only be achieved by raising awareness of wetland values and functions throughout the world and at all levels. General Objective 3 of the Strategic Plan affirms that public support is essential to generate political and legislative action, to obtain financial resources, and to ensure the successful implementation of wetland legislation and management. The wetland policy-making process plays a critical role in increasing information about, and understanding of, wetlands and the benefits they provide to individuals and to society as a whole.

4.3 The Importance of Wetland Policies[14]

Wetlands and water resources are exposed to claims from many different categories of users. Competition for ownership of or access to wetlands and their products - or to the land on which wetlands are located-arises between different individuals, sectoral interests or administrations and across political boundaries. It is therefore necessary to develop scientifically based, objective and equitable ways to analyse existing and projected uses and to balance short-term demands with safeguards for wetland functions and values in the long term.

National wetland policies (NWPs) provide a mechanism for delivering this complex objective and, ideally, for enhancing the perception of wise use as a legitimate public priority. A well-designed policy-making process should make it possible for the needs, interests and duties of local populations, user groups, all levels of government and non-governmental organisations to be articulated, compared and examined for compatibility with wetland conservation and sustainable use objectives. It should also serve to identify and address possible conflicts between local

[14] For reasons of space, this section only gives a brief overview of the issues involved. See further Rubec, C. *et al.* 1999. *A Framework for Developing and Implementing National Wetland Policies* (Draft Resolution for consideration by Ramsar COP7, Document 15.6) which was prepared pursuant to Recommendation 6.9 (Brisbane, 1996).

priorities, national considerations and international obligations.[15] NWPs can be used to express principles, to show what choices have been made about strategic directions and why, to make commitments and set targets, to facilitate consultation and to make roles and responsibilities clear. Adoption and implementation may be facilitated if the NWP is seen to deliver treaty commitments under Ramsar or other conventions.[16]

Conversely, the absence of clear policies may be characterised by the lack of clearly defined objectives, coordinated measures or awareness of wetland issues even amongst decision-makers. This can be aggravated by institutional weakness ranging from administrative overlaps to an operational vacuum. In such cases, popular support for wise use and conservation is likely to be patchy or non-existent. Implementation and enforcement of any wetland-related measures can be seriously undermined.

International environmental law now provides a firm basis for multisectoral planning. The CBD requires each Party, in accordance with its particular conditions and capabilities, to prepare national biodiversity strategies, plans or programmes for the conservation and sustainable use of biodiversity or to adapt existing strategies, plans and programmes for this purpose. These objectives must also be integrated, as far as possible and as appropriate, into "relevant sectoral or cross-sectoral plans, programmes and policies".[17] National decision-making should include consideration of the conservation and sustainable use of biological resources and measures relating to the use of such resources should be adopted to avoid or minimise adverse impacts on biological diversity.[18] In its turn, the 1994 Convention to Combat Desertification provides for the preparation of national and local integrated development programmes: efforts should be made to harmonise these programmes with national wetland policies/strategies developed under Ramsar.[19]

Recent non-binding environmental instruments have also endorsed and developed such cross-sectoral approaches. By way of example, Action Theme 2 of the 1995 Pan-European Biological and Landscape Diversity Strategy (PEBLDS)[20] is devoted to the integration of biological and landscape diversity considerations into sectors: this is specifically is intended as a mechanism to facilitate European implementation of Article 6 of the CBD. Work to date has included approval of a twin-track political and technical approach that fosters international and national consultation between decision-makers in the various sectors as well as sector-by-sector cooperation with the socio-economic circles concerned.[21]

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15 Ntambirweki, J. 1998a. *Implementation of the Ramsar Convention through National Legislation in Africa* at p. 10.

16 See generally Pritchard, D. 1997. *Implementation of the Ramsar Convention in Trinidad & Tobago.*

17 Article 6, Convention on Biological Diversity.

18 Article 10.

19 This is specifically provided for under the Memorandum of Cooperation signed between the CCD and Ramsar Secretariats on 5 December 1998.

20 This comprehensive programme was endorsed by the environment ministers of 55 countries at the Pan-European Conference in Sofia in 1995. Its long-term objective is to conserve and enhance nature and landscape throughout Europe and its regions within a framework of sustainable development. It aims in particular to substantially reduce or eliminate current threats to European biological and landscape diversity, and increase the resilience of this diversity, strengthen the ecological coherence of Europe as a whole and substantially increase public involvement and awareness. It is to be implemented through a series of action plans structured around eleven Action Themes.

21 Strategy Bulletin no. 4, August 1997, p. 3.

The Ramsar COP has identified two approaches to wetland policy-making. NWPs may be developed as stand-alone instruments or as clearly identifiable components of other national conservation planning initiatives, such as National Environment Action Plans, National Biodiversity Strategies or National Conservation Strategies. The Ramsar Strategic Plan makes clear that both approaches are equally legitimate. A few observations may be made about the two options:

- Specific wetland policies arguably raise the public profile of wetlands: a national wetland policy can be the best way of getting wetlands onto the national development agenda.[22] They can be useful in conferring accountability for the delivery of wetland objectives and in increasing the commitment of those responsible for wetlands. On the other hand, they may encourage 'pigeonholing' of wetland issues. The appropriate choice will depend on each country's policy-making traditions and norms, what it already has in place and, more specifically, whether it has the capacity to fund and administer a series of different policy-making initiatives.[23]

- Integration of wetland policy into broader conservation planning initiatives has different advantages. Since pressures on wetlands are so often the result of external factors and actions, wise use can be best promoted through general environmental protection or sustainable development policies.[24] If this approach is taken, however, it is important that issues of concern to Ramsar are comprehensively addressed and 'flagged'. One possibility would be to develop a general strategy as an umbrella or framework, under which more specific instruments may be established. The linkages between these 'sub-policies' need to be clearly indicated and coordinated.[25]

The COP has also called for economic valuation of wetland goods and services to be developed as an essential national and international instrument in countering negative impacts on wetlands: its results should be applied to national wetland and environmental policies.[26] Building wetlands into spatial and economic development planning is a complex challenge and needs to be seen as a long-term process.

During the last decade, many countries have begun or completed national wetland policies or have included wetland issues in national development planning. A non-exhaustive list of countries that had developed some form of policy instrument by 1999 includes:

- Australia (New South Wales Wetlands Policy; Wetlands Policy of the Commonwealth Government, 1997; Biodiversity Strategy for Victoria, which incorporates a specific section on wetlands; and Wetlands Conservation Policy for Western Australia, 1997);[27]

- Bulgaria (National Action Plan for the Conservation of the Most Important Wetlands in Bulgaria, 1995);

- Cambodia (draft Wetlands Action Plan for the Kingdom of Cambodia, 1995);

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22 OECD Development Assistance Committee 1996b.

23 Pritchard, *supra* n. 16 at p. 14.

24 Technical Session A, Sixth Meeting of the COP (Brisbane, 1996) recorded a preference for incorporating NWPs into national development strategies with multisectoral integration, rather than developing separate policies less well integrated into the policies of other sectors.

25 Pritchard, *supra* n. 16, refers to a "nested hierarchy" of policy instruments at p. 14.

26 Recommendation 6.10 (Brisbane, 1996).

27 Policies are currently being prepared in Northern Territory, Queensland, South Australia and Tasmania.

- Canada (Federal Policy on Wetland Conservation, 1991);
- Costa Rica *(Estrategia Nacional de Conservation y Desarrollo Sostenible de los Humedales en Costa Rica (Borrador));*
- France *(Plan d'action pour les zones humides,* 1995);
- Indonesia (National Strategy and Action Plan for the Management of Indonesian Wetlands);
- Jordan (National Environmental Strategy for Jordan, 1991);
- The Netherlands (Nature Policy Plan of the Netherlands, 1991, which has a special focus on wetlands);
- Peru *(Estrategia Nacional para la Conservation de Humedales en El Peru,* 1996);
- The Philippines (A National Wetland Action Plan for the Republic of the Philippines);
- Romania (Strategy and Action Plan concerning the Conservation of Wetland Biodiversity in Romania (chapter of the Biodiversity Strategy), 1995) ;
- Trinidad and Tobago (National Policy on Wetland Conservation (final draft), Trinidad and Tobago, 1996);
- Uganda (National Policy for the Conservation and Management of Wetland Resources, The Republic of Uganda, 1995);
- United Kingdom (UK Targets for the Ramsar Convention Strategic Plan, 1998);
- Vietnam (Vietnam National Wetland Conservation and Management Strategy, 1996).

As the titles on this list suggest, there is considerable diversity in approaches taken to wetland policy development. One interesting element is that the policy-making process has been initiated and led by non-governmental organisations in several countries, including Bulgaria (BirdLife International), Cambodia (Wetlands International) and Jordan and Vietnam (IUCN). In Peru, the planning process was coordinated by a consortium of non-governmental, government and academic bodies known as the Programme of Conservation and Sustainable Development of Wetlands, but has been primarily a private initiative.[28] In India, wetland scientists, activists and NGOs have initiated preliminary work as part of the Capacity 21 project organised by the Indira Gandhi Institute of Development Research.[29]

A few examples of different approaches are briefly summarised below.

Uganda established the National Wetlands Conservation and Management Programme in 1989, under which a multi-disciplinary policy team conducted a legislative review and oversaw the preparation of a wetland inventory. The National Policy for Conservation and Management of Wetlands Resources was adopted by Cabinet in 1995. During the same period, several other policy

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28 Solano, P. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Peru.* The members of the Programme are the Institute of Natural Resources (Instituto de Recursos Naturales - INRENA), La Molina Agrarian National University (Universidad Nacional Agraria La Molina), Pro Naturaleza, Wetlands International and World Wide Fund for Nature - WWF

29 Panini,D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

review processes were initiated. The broad-based National Environment Management Policy, adopted in 1994, expressly incorporates the principles of the NWP in order to maximise consistency between the instruments. On the basis of both Policies, new framework environmental legislation was enacted (the National Environment Statute No.4 of 1995) which contains general environmental provisions applicable to wetlands as well as specific measures applicable to wetland habitat types. Over the same period, the Directorate of Water Development developed the Water Action Plan in 1994, which led to the enactment of modern legislation.[30]

Costa Rica has developed a series of incremental policies, starting with the 1990 Conservation and Sustainable Development Strategy and the 1994-1998 National Development Plan. The Strategy declares wetlands to be one of the principal sources of subsistence for rural communities, affirms their conservation and wise use to be of national economic importance and prioritises civilian participation in the search for sustainable uses of biodiversity.[31] Since 1994, the Environment and Energy Ministry has been developing a National Wetland Conservation Strategy with the technical support of IUCN's Regional Office for Mesoamerica. Special wetland legislation has been drafted and is due to enter into force in 1999.[32]

In France, a programme to evaluate the impact of public policies on wetlands was initiated in 1993 at the request of the Environment Ministry.[33] The team included biologists, lawyers, economists and engineers; representatives of user or interests groups including local government, hunting and farming organisations and conservation associations; and representatives of six key government departments (although the programme was exclusively funded by the Environment Ministry). It found that 85% of French wetlands were degraded, primarily by sectoral policies related to agriculture and infrastructure development. The report led to the development of the French Wetland Action Plan 1995-2005 which was approved by the Council of Ministers and applies to all branches of the French administration. It is structured around four main themes: compilation of wetland inventories and reinforcement of monitoring and assessment mechanisms, particularly for Ramsar sites and other important wetlands; coordination of public policies; wetland restoration; and information and awareness building.[34] It was only in 1997 that a coordinating committee was established to oversee the implementation and monitoring of the Plan. More recently, specialised sub-committees have been created to improve accountability and clarify institutional responsibility for different elements of the Plan.

Policy-making can be politically complex in countries with decentralised or federated structures, depending on the allocation of jurisdiction over nature conservation between federal and federated administrations. In Australia, the Commonwealth Government's wetland policy includes amongst its six strategies, *Working in Partnership with State/Territory and Local Governments.* The Commonwealth Government has actively worked with the Australian States to support the adoption of state wetland policies complementary to that of the national government: funds from the Natural Heritage Trust have been made available to accelerate the policy development

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30 Water Statute 1995, National Water and Sewerage Corporation Statute 1996. See generally Ntambirweki, J. 1998b.*The Evolution of Policy and Legislation on Wetlands in Uganda.* Several provisions of this 1995 National Environmental Statute are discussed later in this book.

31 Under the maxim *Salvar Conocery Usar* (Save, Know and Use).

32 See generally Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica.*

33 Commissariat général du plan. 1 June 1994. *Politiques publiques enmatière de zones humides: rapport de l'Instance d'évaluation.*

34 Barnaud, G. 1996. Implementation of the French Wetland Action Plan. IUCN Wetlands Programme Newsletter No. 13, Summer 1996:2. The French Water Law of 1992 is discussed further in Chapter 14.

process. The task force responsible for Ramsar implementation in Australia promotes an agreed national approach to policy development.[35]

Although the Convention and Strategic Plan do not contain measurable goals, many national wetland policies include quantifiable targets. Perhaps the best known goal or organising principle in current use is that of "no net loss", first derived from North America. A working definition is that "wetland losses must be offset by wetland gains".[36] An area-based approach of this type aims to maintain wetland acreage within a country or region by seeking to reduce losses and to increase gains through restoration or recreation. In its simplest form, the principle implies that wetlands are expendable and may be converted, subject to appropriate compensation. However, as discussed in Part I, replacement wetlands rarely have equivalent functions and values to the areas destroyed: preservation of existing wetlands is always preferable.[37]

Several policies have therefore sought to develop or adapt this policy principle to support wise use more effectively. This is a complex matter as it is generally acknowledged to be easier to apply no net loss policies to area than to functions or values: valuation techniques for known wetland values are in their relative infancy, whilst new values may still remain to be identified. There is also uncertainty as to which wetland functions are most important for the sustainability of wetland ecosystems (less well documented than values beneficial to human interests).[38] Nevertheless some recent policies do incorporate some measure of wetland extent or quality and/or specify criteria by which the no net loss principle is to be applied. Two examples are given below.

The Federal Policy on Wetland Conservation for Canada (1991) has three goals: maintenance of the functions and values derived from wetlands throughout Canada; no net loss of wetland functions on all federal lands and waters; and enhancement and rehabilitation of wetlands in areas where the continuing loss or degradation of wetlands or their functions have reached critical levels.

The wetland policy of the European Union[39] sets out four principles which, taken together, comprehensively support no net loss of area and function:

- *No further loss of wetlands* - any further losses may exceptionally only be admitted for imperative reasons of public interest and must, in any case, be compensated by the restoration of former wetlands or the creation of new wetlands of at least the same surface and at least performing the same functions and providing the same ecological values;

- *No further wetland degradation* - current wetlands must at least continue to perform their present functions and to provide their present ecological values. Where functions and values cannot be maintained at the present level, compensation has to be provided as far as possible on the same wetland type, either in the wetland concerned or through the improvement, restoration or creation of adjacent or nearby wetlands;

- *Wise use of wetlands* - wetlands must be used in a sustainable way, not exploiting their resources beyond their capacity to regenerate;

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35 Phillips, B. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Australia* at p. 8.

36 US Wetlands Action Plan, US Fish and Wildlife Service 1990.

37 OECD 1996b at p. 21. See generally Huggett D. 1997. *Developing a No Net Loss Policy for Coastal Wetlands.*

38 See for example Ramsar Forum communication dated 12 May 1998 from Earle Cummings, California Department of Water Resources.

39 Commission of the European Communities. 1995. *Communication from the Commission to the Council and European Parliament on the Wise Use and Conservation of Wetlands.* Com(95) 189 Final, Brussels 29 July 1995.

- *Wetland improvement and restoration* - existing wetlands should be improved and former wetlands restored as far as is feasible with a view to providing the best level of wetland function and value. Restoration should have priority over creation.

The no net loss principle can be applied and measured at different scales, which will affect the interpretation of successful implementation. In Canada, for example, compliance is assessed mainly by reference to the nation's overall wetland resource base, reflecting the reality that wetland losses cannot be stopped completely.[40] However, the principle should also inform decision-making on a case by case basis to ensure policy consistency and prioritisation of ecologically important wetlands.[41]

Once a country or province has defined its wetland policy, the critical question is that of implementation. Whilst education, public awareness programmes and technical capacity-building all play an essential role, policy objectives can only be delivered on a long-term basis through appropriate legal measures and institutional structures.

4.4 Relationship Between Policy and Law

Policy, the generalised expression of a State's broad objectives and plans, functions as the highest level in a hierarchy. It can move ahead of law to build popular consensus around particular issues and to secure broad agreement on an appropriate balance of rights and duties between public and private actors. Public policy sets the context for other types of action but to have practical effects, its findings must be expressed in appropriate legislative, economic and other measures.[42]

In the shorter term, the law can move ahead of policy development to support priority actions and plug gaps in existing policy frameworks. The 1990 Wise Use Guidelines state, for example, that without prejudice to longer-term initiatives, "priority actions at national level" should include the development of new laws or the amendment of existing legislation to facilitate the preparation and implementation of the national wetland policy. In Uganda, for example, a legislative ban on large-scale drainage was imposed in 1986 as a stopgap measure, prior to the establishment of the wetland policy process in 1989.

For long-term effectiveness and coherence, legislation needs to be located within a consistent policy framework. It should translate national policy on the promotion or control of defined activities, create an administrative framework, powers and procedures for managing such activities, authorise the collection and evaluation of relevant information and provide for decision-making based on specific criteria. Legislation forms a bridge between international and local contexts by translating treaty commitments into measures appropriate to national systems and, usually through secondary legislation, into detailed provisions applicable at local level.

A precondition for wise use is the systematic removal of obstacles, whether political, technical or other, to the sustainable management of wetlands and water systems. It is implicit in the policy-making process that such barriers should be identified and strategies developed to remove or overcome them. Law, for its part, can only support wise use if the components of a country's legal system (statutes and regulations, case law and possibly customary law) work for, not against this objective. The review process advocated by the Ramsar Wise Use Guidelines is therefore an essential component of wetland policy-making, as discussed in the following chapter.

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40 Huggett, *supra* n. 35 at p. 1.

41 The application of the principle to individual planning proposals is discussed in Chapter 18 below.

42 Pritchard, *supra* n. 16 at p. 16.

Chapter 5
Reviewing Law and Institutions Relevant to Wetlands

5.1 Review Purpose and Criteria

Conservation treaties tend to be aspirational, establishing broad obligations without reference to possible constraints or obstacles to implementation at national or subnational level. The Ramsar COP's emphasis upon legal and institutional reviews as part of wetland policy development is quite innovative and marks an important step towards improved standards of compliance.

The 1990 Guidelines call on Parties periodically to review existing legislation and policies that affect wetland conservation and, where necessary, to amend such legislation to ensure compatibility with the wise use obligation. The 1993 Additional Guidance recommends that particular attention should be paid to "legislation regarding mandatory wetland destruction or to that which encourages such destruction through tax benefits and subsidies". The Strategic Plan extended this recommendation by calling for the review of national or supra-national legislation, institutions and practices to ensure that the Wise Use Guidelines are applied. Methodological guidelines to assist Parties in conducting such a review will be considered by the Seventh Meeting of the COP in Costa Rica (May 1999).[43]

Every review should have two basic objectives:

- to identify possible legal and institutional constraints on wise use and support their progressive elimination; and
- to promote positive mechanisms to support wise use.

The review process should cover statutory, customary and case law applicable to wetland conservation and wise use and sectoral activities which directly or indirectly impact on wetlands. It should also take account of the practical effects of such law. By way of example, natural resource legislation often gives a public authority general powers to issue permits or give financial assistance to certain activities or projects which may be benign (e.g., incentives for environmentally sensitive agriculture) or potentially harmful (e.g., wetland drainage, watershed deforestation). The compatibility of such legislation with the wise use obligation will depend on the permits actually granted, any use of mitigation/compensation conditions and the use of monitoring and enforcement procedures by administrative authorities.

Rationalising legal and institutional frameworks depends on the identification of possible overlaps, inconsistencies, weaknesses or loopholes across the legal spectrum. Provisions and procedures that are found to be incompatible with wise use should be designated for modification or repeal as soon as feasible (bearing in mind that such streamlining is likely to be the subject of intense rivalry by competing interests within the Government system).[44]

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43 See Ramsar COP7 DOC 15.7, Draft Resolution on *Guidelines for Reviewing Laws and Institutions to Promote the Conservation and Wise Use of Wetlands* and the accompanying background paper. The draft Resolution was prepared on the basis of detailed case studies and papers presented at a Technical Consultation on *Designing Methodologies to Review Laws and Institutions relevant to Wetlands.* Gland, Switzerland, 3-4 July 1998.

44 See generally Pritchard, D. 1997. *Implementation of the Ramsar Convention in Trinidad & Tobago.*

On the positive side, much progress can often be made by identifying opportunities for institutional strengthening and cross-sectoral coordination.[45] It may not be necessary or even desirable to propose the development of specific wetland legislation, particularly as the enactment of new laws is politically cumbersome and time-consuming. Wherever possible, existing legal mechanisms can be amended or used in new combinations to target measures, habitat types or incentives more effectively.

The review of legal, fiscal and institutional measures is now established practice in a few countries. The United States has gone the furthest in this respect, with legally backed criteria for the review of Federal policies that may impact on wetlands. Reporting requirements laid down by the 1986 Emergency Wetland Resources Act[46] include an analysis of:

- factors responsible for wetland destruction, degradation, protection and enhancement;
- Federal statutory and regulatory mechanisms, including expenditures, financial assistance and tax provisions, which either induce wetlands destruction or degradation or protect or enhance wetlands;
- Federal expenditure resulting from wetland destruction, degradation, protection and enhancement;
- public and private patterns of wetland ownership; and
- the environmental and economic impact of eliminating or restricting Federal expenditure or financial assistance, direct or indirect, which encourage wetland destruction or protection of wetlands or of failing to restrict such expenditures.[47]

The competent authorities are then required to draw up recommendations for conserving wetland resources based on a comparison of all management alternatives, including combinations of Federal, State and local actions and initiatives by private organizations and individuals.

France and Australia both used their national policy-making processes to activate a legislative review. In Australia, for example, the review was directed at any legal, policy, financial or programmatic action for which the Commonwealth Government is responsible and which potentially impacts on wetlands. Issues covered include the management of Commonwealth areas (including significant wetlands); all relevant legislation and policy instruments; the expenditures under all relevant Commonwealth funding programmes, including those to provincial and local governments and the community; a review of economic policy instruments which could be having either positive or negative impacts on wetlands; cooperative relations with the provincial and local administrations; wetland research and monitoring; Australia's international aid programme; international trade in wetland-derived products; and foreign investment in Australia.[48] This is a (daunting) reminder of the number of sectors and issues encompassed by the wise use obligation.

It should be underlined, particularly for Parties that have acceded to the Ramsar Convention relatively recently, that policy-making and legislative change are a long-term process. Peru, for example, ratified the Convention in 1991 and many public authorities as well as private individuals involved with wetlands are only now becoming familiar with its provisions. Resolutions and recommendations adopted by the COP are not widely known nor are they perceived as directives

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45 See Chapter 6 below.

46 Act (99-645) of 10 November 1986.

47 For example, public works expenditures, assistance programmes related to price support, commodity loans or purchase and disaster assistance, soil conservation programmes and certain income tax provisions.

48 Phillips, B. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Australia.*

to guide domestic policies or legal rules at a national level.[49] Comprehensive implementation of the Wise Use Guidelines consequently needs to be set in a realistic time frame.

5.2 Identifying Possible Constraints on Wise Use

The 1993 Additional Guidance lists some of the most common obstacles to wise use. These include the lack of institutional mechanisms to encourage involvement of both public and private sectors at local, regional and national level; insufficient coordination among public agencies; policies that discourage conservation and wise use objectives; inadequate policy research programmes; and lack of cooperative arrangements with neighbouring countries for joint management of shared wetlands or wetland species. The following sections discuss the form that such constraints may take, bearing in mind that the situation will obviously differ from one country to another.

5.2.1 Conflicting Sectoral Policies, Laws and Taxes

Wetlands are vulnerable to sectoral activities ranging from marine transportation and port and harbour construction through agriculture, fisheries and forestry to domestic and foreign industry, trade and investment. Side effects of non-wetland activities typically include hydrological changes from water abstraction or watercourse regulation and water-borne pollution from agriculture, industry or urban centres. Each of these sectors is generally subject to specialised legislation and administered by government departments and agencies that have no mandate for wetland conservation or wise use *per se*. This typically leads to complex overlapping legal and institutional frameworks with a high risk of intersectoral policy inconsistency.[50] States with a federal system of government may have particular difficulties in harmonising resource use policies if there is confusion over the division of powers between national and provincial governments.

The great majority of countries have quite separate legal regimes for water resource management and wetlands/nature conservation. Water law is often still grouped with other extractive resource legislation, although far-reaching legal reforms have been made in some countries.[51] As mentioned in Chapter 2.4, this type of functional separation can be poorly-adapted to the ecological specificity of wetlands: in particular, it may impede the development of legislation for the management of environmental water flows and catchments. The problem is compounded where the management regime for water involves several organisations with different objectives and remits. In Peru, for example, the Ministries of Agriculture, Health, Energy and Mining and Fisheries, the municipalities and associations for the administration of irrigation systems coincide in this area. The treatment of water can become chaotic if there is no procedure for evaluating and ranking possible uses and priorities of use or criteria for environmental and land-use planning.[52]52

In some cases, constraints on wise use are direct and easily identifiable, amounting to incentives for wetland destruction. By way of example, some laws still make it mandatory to drain and fill wetlands for agricultural, urban or infrastructure development or public health purposes. Alternatively, legislation may provide for subsidies or tax incentives for drainage, infilling or conversion.

Constraints on wise use can also be indirect. 'Perverse' incentives are those instituted for reasons unconnected to wetlands which can have the effect of encouraging wetland destruction or

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49 Solano, P. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Peru* at p. 6.

50 See generally Turner, K. and Jones, T. (Eds.). 1991. *Wetlands: Market and Intervention Failures.*

51 See Chapter 14 below.

52 Solano, *supra* n. 7.

degradation. Examples may include subsidies or tax incentives for irrigation, flood insurance, intensive forestry and agriculture or for the construction of highways, housing or recreational facilities in wetlands. Another less obvious example concerns the imposition of higher tax rates on undeveloped property or fallow land which is not in agricultural production. All these provisions are not specific to wetlands but may have a disproportionate effect on such marginal areas. In extreme cases of policy inconsistency, the intended benefits of one set of subsidies can be entirely *cancelled* out 6y *the* cost *of damage* to *another sector.*[53] *Unless legislation requires the user,* developer or polluter to compensate wetland loss or degradation in some way, such costs have to be met either by the taxpayer (publicly funded restoration programmes) or, more commonly, by the environment and future generations.

Wise use can also be undermined by categories of projects deemed to be of public interest that are exempted from routine planning controls or environmental impact assessment requirements. In the hierarchy of political and popular priorities, wetland conservation usually comes well behind infrastructure development, river engineering schemes and economic development programmes in sensitive coastal areas. Unless a country's system of administrative law enables individuals or non-governmental organizations to seek judicial review of actions by public authorities or agencies, it can be virtually impossible for sanctions to be taken against public bodies which unlawfully destroy wetlands in the course of their operations.[54]

Constraints on wise use are not always apparent from primary legislation, which often takes the form of a general enabling instrument. For reasons of administrative efficiency, most countries use secondary legislation (implementing regulations or statutory instruments) to establish detailed operational criteria, thresholds, permitted categories of development or exemptions for the implementation of the relevant Act. It may be only at this level of detail that the adequacy or inadequacy of permit systems becomes clear and the cumulative impact of activities exempt from the permit requirement can be assessed.

Where there is a multiplicity of management responsibilities and a general lack of legislative coordination, the likely result is administrative confusion[55] and reduced effectiveness of wise use measures. Systematic institutional coordination is clearly needed but is impeded in most countries, though for differing reasons. Developing countries may have limited capacity and resources for such coordination. Countries with economies in transition have often undergone dramatic changes in resource management and land ownership systems and there may be confusion over new institutional mandates. Institutional resistance to new approaches can be particularly entrenched in developed countries which have many-tiered administrative structures established over decades.[56]

5.2.2 Weakness of Wetland-related Laws and Institutions

In many countries, wetland-related legislation and planning is the result of a combination of tradition, historical policies, deliberate action, institutional and cultural possibilities and *ad hoc* initiatives.[57] In Uganda, for example, the totality of law relating to wetlands is derived from the

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53 See for example Barbier, Acreman and Knowler. 1997. *Economic Valuation of Wetlands: A Guide for Policy Makers and Planners* at p. 30 (this cites *inter alia* the relationship between agricultural subsidies and environmental incentives in Canada).

54 See further Chapter 21.

55 Turner and Jones, *supra* n. 8 at pp. 157-160.

56 See generally Miller K.R and Lanou, S.M. 1995. *National Biodiversity Planning: Guidelines based on Early Experiences round the World.*

57 Enemark, J. 1998. *Wetlands-related Legislation and Institutions in the Wadden Sea Countries.*

constitution, common law and customary law as well as modern statutes.[58] Under India's federal structure of government, wetlands are variously covered by central laws, state laws, municipal laws and customary laws.[59] Jamaica, for instance, has several statutes that are relevant to wetland conservation but conservation measures have tended to be piecemeal in the absence of an appropriate policy framework and have not prevented wetland loss.[60]

The effectiveness of legislation varies greatly between countries. Legislation may be fragmented, incomplete or outdated; implementing regulations may be issued late (or not at all) or establish techniques and standards which do not respond to actual threats; and, as is often the case, enforcement may be weak or non-existent. Exclusive reliance on regulatory approaches can present logistical problems for enforcement and leave little incentive for stewardship by communities or individuals. Statutory law may fail to take account of customary law and practices on access to/use of wetlands and wetland resources.

To the extent that wetlands are protected by law, it is often in an incremental way involving 'bolt-on' provisions to different texts. Progressive amendments to nature conservation or planning legislation have gradually extended protection to certain habitat types or modified planning criteria to take account of certain landscape components. Valuable as these changes are, wetlands *per se* can still remain fairly invisible if they are not specifically defined or otherwise given legal identity under existing legislation. The majority of countries do not expressly mention wetlands, even in site protection legislation,[61] which fosters uncertainty amongst wetland owners, users and implementing agencies. This problem is mirrored in institutional frameworks that fail to allocate specific responsibility and powers for wetlands. Instead, responsibility is scattered amongst several bodies such as wildlife, forestry and fisheries departments. In an extreme example, the Wadden Sea (shared by Denmark, the Netherlands and Germany) once had more than 80 governmental institutions at different levels involved in its protection and management![62]

Some of the most common weaknesses or gaps in the legal framework relate to:

- coverage of wetland resources (e.g., migratory birds may receive more comprehensive treatment than their critical wetland habitats);
- measures for sustainable use (e.g., coverage of hunting but not overexploitation of or trade in wetland products such as fish, medicinal plants, peat or coral);
- the level of protection given to non-consumptive uses of wetlands and the absence of positive incentives for private landowners or tenants to maintain and improve wetlands and watersheds;[63]
- the range of damaging activities covered (e.g., water abstraction is regulated less systematically than pollution);
- the absence of legal measures for environmental management of water quantity and quality; or

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58 Ntambirweki, J. 1998b. *The Evolution of Policy and Legislation on Wetlands in Uganda.*

59 Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

60 Gordon, C. and McKenzie, A. 1996. *Towards a Policy and Regulations for Jamaica's Wetlands.* Proceedings of the 6th Meeting of the COP (Brisbane 1996). Vol 10/12A: pp. 53-55.

61 *Compte-rendu de l'atelier 2: Aspects institutionnels et réglementaires*, Proceedings of the Ramsar Seminar on Wetland Conservation in the Caribbean Region, Cayenne-Sinnamary, French Guyana, 26 April-2 May 1993, pp. 169-172.

62 Lambers, C. 1989. *Wetlands: the (Im)possibilities of Law?* at p. 374. See Chapter 23 on the trilateral cooperation framework now established for the Wadden Sea.

63 See further Chapter 20.

- the absence of effective monitoring and enforcement procedures, meaningful sanctions and adequate remedies.

Viewed as a whole, wetland-related legislation may be too narrow to be consistent with the concept of wise use promoted by Ramsar. The objectives of conservation and sustainable use and development have only recently been included in modern environmental laws and, even then, are often not weighted or ranked to facilitate their implementation. Many existing laws adopt a minimalist approach to promote a concept of conservation that excludes multiple use.[64] This is perhaps because wetlands have traditionally been perceived in environmental terms rather than as economic assets. The first generation of nature protection policies, at least in most developed countries, tended to focus on areas and natural resources largely outside the economic system. The current focus on wetland ecosystems and their economic importance has shown the need to bring wetland instruments to the forefront of economic development, but at least in the shorter term this may mean that wetland issues are dealt with in an adversarial context.[65] There are clearly limits to how far wise use can be advanced under older or narrowly-based nature conservation laws.

Many comprehensive environmental laws still do not provide a complete rationalisation of measures for nature conservation and protected areas or make practical linkages with other sectors. Time and resources are needed to translate modern enabling legislation into appropriate subsidiary regulations backed up with proper implementation and enforcement procedures. This can present logistical difficulties: in Peru, for example, nearly 90% of environmental legislation currently in force has been adopted since 1990.[66]

Wise use is often hampered by the operational weakness of competent authorities. General institutional constraints include the lack of adequate training, resources, equipment and enforcement personnel for wetland managers, all of which contributes to poor enforcement of legislation, low prosecution rates and penalties. An authority's mandate may be too narrow to encompass all aspects of conservation and wise use, particularly where wetlands are entrusted to a government department whose mandate is basically restricted to species protection. Wetlands tend either to be pigeonholed into a weak or under-resourced part of government (too commonly these are young environment ministries) or bundled into a broader ministry such as agriculture which has much greater status but which was created for different and sometimes conflicting objectives.[67]

Even where a country entrusts a specific body with national implementation of Ramsar, this is not a panacea. Factors that weaken such a body's effectiveness could include: a short-term mandate; working in isolation from national focal points of other treaties to which the country is party; absence of regular communication with relevant public, private and technical sectors; and absence of liaison procedures with neighbouring countries over shared wetlands, water systems or wetland species. Although many countries have now established Ramsar coordination bodies, these may be informal arrangements without the legal muscle to push for wise use objectives and criteria against powerful sectoral opposition.

5.2.3 Poorly-adapted Legal Regimes for Land Tenure and Resource Use

Inappropriate legal regimes for land tenure and resource use contribute to wetland loss or degradation in many parts of the world. Uncertainty over title and user rights to land, water and

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64 Panini, *supra* n. 17, citing protected area legislation that excludes traditional human uses in Keoladeo National Park, India.

65 Mermet, L. *France,* in Turner and Jones, *supra* n. 8 at p. 118 and 133.

66 Solano, *supra* n. 7.

67 See for example Pritchard, *supra* n. 2 at p. 15.

natural resources often removes the incentive or financial capability to invest in sustainable management practices. Such insecurity, aggravated by population growth, may in the long-term increase the risk of resource-based conflict, whether internally or across political boundaries. The following section therefore outlines some issues related to wetland ownership and tenure systems and the changing relationship between statutory and customary legal regimes.

In many countries, wetlands and their resources are classified as State property. There is wide variation in the extent to which exploitation of public resources is controlled. Whilst legal regimes to regulate hunting are often quite developed, rules of access to common resources such as forests, fish, plants and wildlife may be inappropriate or non-existent. Over time, a vacuum in the management of many wetlands under the public property regime has left the way clear for informal community management or for alienation of the area for private agriculture or aquaculture.[68] Many of these community-based systems are structured around sustainable land and water use practices that are of great importance in a regional context and require a minimum of centralised management. However, national legal systems often fail to provide security of tenure and access for local or indigenous peoples, even in areas where traditional land management have shaped and conserved high levels of biodiversity.[69] Well-designed incentives can play an important contribution but are rarely available at present.

Too frequently, the absence of defined property rights or management responsibility in wetlands has undermined a sense of stewardship or collective responsibility. Particularly in areas of high population density, wetland ecosystems that are freely accessible or under common ownership may be at serious risk of overexploitation of extractive resources or, at the least, of degradation through negligence or non-management. Defining communal or reserved property rights over such ecosystems can be problematic for practical as well as legal reasons: it may be too difficult to control access to wetland services or the value of such services may be less than the cost of controlling access.[70]

Uganda illustrates fairly typical fluctuations in the legal status of wetlands prior to the establishment of modern legislation. Wetlands, originally *res nullius*, were alienated to the Crown when Uganda became a British colony and after independence became the nominal property of the Government of Uganda. In reality they remained as the property of nobody: wetlands were perceived as free land and their resources remained accessible to everybody. Unless wetlands fell within specific protected areas (forest or game reserves and national parks), they did not receive the special protection of the state. Wetlands were the first target in areas of rapid population growth: the grant of 99 year-leaseholds over wetlands made it possible for farmers to drain them and convert them into dairy farms, particularly in south-west Uganda. The effect of this ownership and tenure

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68 Renard, Y. 1993. *Responsabilite locale et co-gestion des zones humides*. In Peru, it is generally accepted that areas traditionally recognized as wetlands (marine-coastal areas and rivers, lakes, lagoons and swamps) do not admit private property rights because they are part of the national heritage. The Organic Law on the Sustainable Exploitation of Natural Resources (Law 26821, 25 June 1997) provides that that only the fruits and products of natural resources can be the subject of private rights granted by the state. There is, however, a growing trend in the country to privatize bodies of water, especially those that are useful for agriculture (Solano, *supra* n. 7).

69 It is beyond the scope of this book to explore the implications for wise use of recent legal developments in Canada and Australia that provide for recognition of land claims by indigenous peoples: these include the Commonwealth Native Title Act in Australia that enables Aboriginal people to seek recognition of Native Title (traditional ownership of lands and waters that have always belonging to Aboriginal people according to their traditions, laws and customs).

70 Filion, F.L. 1995. *Vers la création d'un groupe d'experts au sein de Wetlands International, chargé de l'évaluation économique des zones humides.*

regime was not only the loss or degradation of wetlands, but also the denial of wetland benefits to local populations. Wetlands still tend to be seen as the land most easily available for industrial development, partly because of the uncertain character of the ownership of these areas, hanging halfway between an estate owned by government and a terra nullius.[71]

In a broader context, leases and concessions to coastal and inland wetlands have historically been granted to third parties for commercial or recreational purposes ranging from mineral extraction to tourism. Many such instruments predate the enactment of stringent land-use controls or environmental protection legislation. It is often extremely difficult under national legal systems to cancel or refuse to renew existing wetland leases, to evict unlawful users of wetlands or to require restoration of previously drained or modified wetlands: the implications for compensation can be enormous.

Where the wetland owner is different from its users, there may be a divergence of private and social benefits, since the owner may have no interest in maintaining a wetland where the benefits go to others. The response is often indifference or drainage for other uses perceived to be more productive, unless the owner wishes to maintain the wetland for other benefits such as hunting.[72] Conversely, difficulties may arise where the wetland owner acts to strengthen the management regime, generating resistance amongst wetland users to the loss of long-held privileges. In North America, for example, the heritage of free use of wildlands for hunting, fishing, timber and grazing without the responsibilities of ownership took years to disappear: ranchers continued to fight the closing of free range, despite the terrible depletion caused by uncontrolled grazing.[73]

Sensitive handling of change is particularly important where public agencies take over informal community management systems for wetlands, in order not to alienate local populations. If customary users are evicted from wetlands without viable alternatives being provided, this is likely to increase pressure on marginal land and degrade the wetland in question. As mentioned earlier, security of tenure and access are of great importance for wise use in a long-term context. This should be supported by appropriate incentives and access to institutional credit for investment in wetland management.

The replacement of public regimes by private property rights, often as part of a land privatisation programme, can also have significant impacts on wetlands. The impetus to maximise individual profits may lead to intensified production and increased pressure on natural resources, for example through additional inputs of agricultural chemicals and extra head of livestock. Such patterns, compounded by fragmentation of landholdings, can generate damaging processes in the form of soil erosion and degradation of basic productivity sources. Once again, positive incentives are a necessary counterpart to public education and awareness programmes. If private landowners derive no advantages from maintaining wetland functions and values for the wider community, then there is little incentive for them to use wetland resources sustainably.

Consideration also needs to be given to the consistency between statutory, traditional and religious laws in some countries. In many regions, the management of wetland resources, especially fisheries, was long governed by customary or traditional law applicable within local communities. These rules were generally ecologically sound and, probably for centuries, provided a reasonable safety-net to prevent over-exploitation of the resource as they could be adapted in response to changing social, economic and political conditions.[74] Faced with increasing develop-

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71 Ntambirweki, J. 1998b. *supra* n. 16.

72 OECD Development Assistance Committee. 1996b. *Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropical and Sub-Tropical Wetlands* at p. 56.

73 Satterlund, D.R. 1972. *Wildland Watershed Management* at p. 319.

74 Mukasa, F. 1995. *The Legal Conservation of Swamps in Uganda*. Masters Thesis submitted to Faculty of Law, Makerere University, June 1995.

ment pressures, some customary systems have lost their capacity to adapt or have become neglected in their application and enforcement.[75]

Statute-based systems aimed at providing more effective legislative protection have now been established throughout the world. In many cases, legislative regimes for resource ownership and management have been superimposed on customary legal systems without prior consultation or rationalisation. At least the first generation of such laws focused primarily on command-and-control approaches based on the exercise of police powers located outside rather than within the community. Parallel statutory and customary legal systems are often a legacy of former colonisation, as in Morocco, India and Uganda. For example, the 1902 Uganda Order in Council provided that English statutes, common law and principles of equity were to be the legal regime governing the lives of the people in the protectorate, but that African customary law could still apply provided that it was not "repugnant to morality and natural justice".[76]

5.2.4 Jurisdictional and Institutional Barriers to Integrated Ecosystem Management

Legal measures to advance wetland conservation and wise use need to be ecologically coherent if they are to have lasting results and be cost-effective. The resource management rules that each country lays down should therefore apply to entire ecosystems and to entire populations of animals and plants. Isolated pockets of investment and enthusiasm cannot compensate in the long-term for diametrically opposed policies and priorities everywhere else.

The fragmentation of jurisdictional and administrative powers in most countries makes it impossible for the law to take a holistic view of ecological phenomena, particularly in wetlands. This is recognized by the 1993 Additional Guidance, which specifically calls on Parties to review jurisdiction among government agencies to identify legal or administrative constraints that prevent management at the correct scale with a view to developing appropriate solutions to jurisdictional problems.[77] Such barriers may be *territorial,* relating to the geographic boundaries of administrative competence, *or functional,* relating to the subject matter over which the administrative body concerned has jurisdiction.

5.2.4.1 Jurisdictional Barriers in Inland Water Systems

Wise use of wetlands throughout national territory requires the maintenance of the feedwater regime throughout the ecological units formed by watersheds, catchments or river basins.[78] Catchment should be broadly interpreted to include upstream water supply, downstream hydrological connections between flood plains and rivers and groundwater flows.

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75 Soemarna, K. and Giesen.W. 1993. *Developing a Model to Combine Exploitation and Conservation in Danau Sentarum Wildlife Reserve, West Kalimantan, Indonesia.* Asian Wetlands Bureau.

76 Ntambirweki, J. 1998b. *supra* n. 16.

77 For the purposes of the following discussion, "correct scale" is interpreted as the catchment or river basin for inland water systems and as an area across the land-sea divide for coastal wetlands (so that both terrestrial and marine side of the land-sea interface can be taken into account). Planning for inland water systems and coastal areas is discussed in Chapters 14 and 15 below.

78 Whilst the *Additional Guidance* just uses the term "catchment", these three terms are used in Decision IV/4 *{Biodiversity of Inland Waters)* adopted in 1998 by the COP to the CBD. Where the term "catchment" is used in this book, it should be understood to include watersheds and river basins as appropriate.

Catchment boundaries are not the same as political boundaries. A watercourse may flow through several jurisdictional units such as districts, autonomous provinces or sovereign States, with each unit usually having its own rights and duties in respect of territorial planning and water resource management. The position tends to be particularly complicated in federal countries where jurisdiction over wetlands and resource management is divided between national and subnational governments. India, for example, has a Central Ministry of Environment and Forests but under the Constitution States have competence over land and thus have primary responsibility for implementation of wetland-related measures.[79] Even greater problems are posed in respect of international river basins: whilst coordination may be initiated on a relatively informal basis, even the lowest level of integrated management necessarily requires the conclusion of an international agreement and the setting up of an international management body.[80]

Because of these serious constraints, national legislation rarely provides a basis for a comprehensive approach to catchment-scale planning and integrated management. Examples of institutional reform in this area are discussed further in Chapter 14.

5.2.4.2 Jurisdictional Barriers in Coastal Areas

Administrative obstacles are even more complicated in respect of the coastal zone. The marine/terrestrial jurisdictional split is deeply embedded in policy and administrative tradition and practice, although there is rarely any basis for this under national constitutions.

With regard to territorial jurisdiction, the high tide limit of the shoreline in nearly all countries forms a daunting legal barrier separating the public maritime domain (PMD) from the land. The PMD almost invariably comes under the control of the national Government, whilst provincial or local authorities have differing degrees of responsibility for managing other parts of the coastal zone. In federal or regionalised states, internal waters and territorial sea tend to come under the jurisdiction of the federated entities whilst the exclusive economic zone is likely to be administered by the federal or central government. The resulting divisions can be illustrated by two examples:

- the powers of land-use planning authorities (local government) usually stop at the intertidal zone, whilst planning responsibilities at sea, for example for hydrocarbon exploitation below low water, comes under separate sectoral ministries;

- different authorities within a single country may have successive responsibility for migratory marine species and birds. In South Africa, seabirds come under national legislation whilst at sea or in the PMD but are subject to provincial legislation further inland. In the United States, responsibility for the conservation of sea turtles is shared between the US Fish and Wildlife Service (on land) and the National Marine Fisheries Service (at sea).[81] In this type of situation, rational species management obviously depends on systematic institutional coordination.

Each side of the land-sea divide is usually governed by separate legislation and there is rarely any coordination between the administrations concerned. Unless a coastal State has special legislation, it has to apply ordinary planning, conservation or fisheries laws in the coastal zone. By definition, these sectoral laws were not developed to regulate or manage other types of activity. In the absence of procedures for institutional and legislative coordination, it is therefore very difficult to develop integrated management of coastal areas, promote wise use of the land-sea interface or

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79 Panini, *supra* n. 17.

80 See further Chapter 22 below.

81 See generally de Klemm, C. 1999. *Fisheries Conservation and Management and the Conservation of Marine Biological Diversity.*

achieve rational management of marine and coastal resources. Special legislation will be necessary to establish mixed protected areas covering both terrestrial and marine parts of the coastline.[82]

Turning to functional constraints, separate legislation usually applies to land (nature conservation) and sea (fisheries) and there is rarely effective coordination between the two administrations. Barriers in the coastal zone are partly the result of stubborn opposition between 'conservation' and 'exploitation'. At national level, most fishery departments were established long ago to regulate fisheries without reference to non-target species, marine protected species or critical nursery and spawning habitats. Whilst objectives and mechanisms have evolved in some countries in recent years, fisheries legislation in many parts of the world is still focused on extractive considerations and competent officials may not consider that commitments under conventions such as Ramsar, CITES or the CBD apply to their sector. This creates a legislative vacuum: marine species and habitats protected by treaty go unprotected in national legislation because the conservation department does not have jurisdiction over marine species and areas and the fisheries department does not see such issues as their priority/sphere of interest.[83]

Even in countries where conservation authorities have undisputed jurisdiction over marine species and habitats, their powers are often exercised very restrictively because of this institutional rivalry. Protection measures are limited to a relatively small number of marine species ('charismatic megafauna' such as cetaceans and sea turtles) whose protection is embedded in international law, recognised as important by public opinion and accepted as a fully legitimate conservation objective. Exceptionally, a few countries, notably Slovenia and Sri Lanka, have now included relatively large number of marine species in their species conservation legislation.

Legal confusion can obviously arise where the fisheries department and the nature conservation authority both chose to assert jurisdiction over certain marine species. Species dependent on marine and coastal wetlands can then find themselves 'protected' under two conflicting sets of rules. In Costa Rica, the green turtle *Chelonia mydas* is fully protected under the Wildlife Conservation Act of 1992 and no permits for the taking of the species may be granted except for scientific or conservation purposes. Despite this, the Department of Fisheries is currently issuing permits for the commercial exploitation of this species in a national park.[84] This type of problem is avoidable if legislation provides clear jurisdictional rules relating to marine species. In Finland, for example, the Nature Conservation Act of 20 December 1996 excludes commercial fish from the scope of the Act except CITES-listed species and the species protected under the EC Habitats Directive. The Nature Conservation Decree of 7 February 1997, which implements the Act, lists the fish species covered by the Act: most are fresh-water species but there are a few coastal marine or brackish-water fish as well.

Coastal wetlands suffer from narrow institutional remits that fail to take account of the complex functions and values of certain habitat types. Mangrove forest ecosystems, in particular, are known to have multiple functions of great economic importance which include timber production, coastal flood protection and provision of fish spawning and nursery areas. However, administrative responsibility for mangroves is generally entrusted to forestry authorities without

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82 See de Klemm, C. in collaboration with Shine, C. 1993. *Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems,* Part II, Chapter IX, and Chapter 9.2 below.

83 This paradox is illustrated by some of the protected area protocols to the regional seas conventions, which have lists of protected species that are almost entirely terrestrial and whose provisions do not cover fisheries. In Malaysia, national legislation adopted for the implementation of CITES simply omits many CITES-listed marine species in particular sea turtles, fish and invertebrates. See further de Klemm, C. 1999. *supra* n. 39.

84 Opay P. 1998. *Hunting of green turtles at Tortuguero, Costa Rica.* 32 *Oryx,* pp. 10-12.

any statutory duty for such authorities to consider fisheries values when exercising their functions. In many parts of the world, mangroves have been seriously over-exploited or converted for aquaculture, often with economically disastrous consequences for the fisheries sector and local communities dependent on fisheries resources.

In conclusion, many of the constraints on wise use discussed in this chapter persist because of outdated sector-specific approaches to public administration and financing. Most branches of government are structured around the advancement of single purposes, which fits uncomfortably with modern unifying concepts linked to conservation and sustainable use of biodiversity and biological resources. Efforts to develop integrated and comprehensive policies for wise use are almost universally seen as encroaching on the territory of different administrations, local authorities and many other vested interests. This deeply rooted reticence needs time to change and much investment in education of decision-makers as well as the general public. Shaping new approaches to institutions and legislation is a necessity but one that can only be achieved with sustained political will, beyond the term of most electoral mandates.

Chapter 6
Building Institutional Coordination and Awareness

The need for "integration" and "coordination" is to be mentioned - in this book and elsewhere — with monotonous regularity. Major changes are needed in political and administrative culture before wetlands are systematically considered in all areas of policy-making and at all levels of decision-making. This process is underway in only a tiny number of countries. Institutional reform is closely linked to awareness building. Change on a larger scale will only be brought about when politicians, administrators, business and the general public fully accept conservation and wise use as legitimate objectives. For this, it must be emphasized that wetlands are directly relevant to the well-being of present generations and that failure to support appropriate actions will almost certainly have economic costs in the relatively short term.

The Ramsar COP has repeatedly stressed the importance of appropriate institutional and organisational arrangements. The Strategic Plan calls for the development of institutional capacity in Contracting Parties, particularly in developing countries, to achieve conservation and wise use of wetlands.[85] In addition to conducting a legal and institutional review, as described in Chapter 5, Parties will need to identify and, as necessary, implement measures to increase cooperation and synergy between institutions, promote the effective operation of such institutions and provide for appropriately trained and resourced staff in adequate numbers.

The 1990 Guidelines call on Parties to establish institutional mechanisms and procedures for incorporating an integrated multidisciplinary approach into planning and executing projects concerning wetlands and their support systems. The Strategic Plan develops this theme of coordinated planning by recommending that Parties integrate conservation and wise use into national, provincial and local planning and decision-making on land use, groundwater management, catchment/river basin and coastal zone planning, and all other environmental planning and management.

Because so many institutional competencies intersect in wetlands, these ambitious goals can only be promoted through institutional structures that emphasize coordination and collaboration.[86] Coordination needs to operate in four different dimensions: it should not only be horizontal and vertical, as discussed below, but also spatial (between neighbouring administrative territories) and temporal (objectives and priorities must be harmonised and followed through at the same time by all the parties involved).[87]

6.1 Horizontal Coordination

Wetlands have an unusually high number of users and uses and thus cross various government departmental and institutional functions. The 1993 Additional Guidance supports the establishment of national cross.-sectoral bodies that might take the form of inter-ministerial boards or commissions, national wetland committees or other bodies to oversee coordination and cooperation for wetland management. Such bodies should provide for wide sectoral representation, based on a catchment approach, of government agencies dealing with environment, nature conservation,

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85 Action 4.1.2.

86 Ntambirweki, J. 1998a. *Modalities for the Implementation of the Ramsar Convention through National Legislation in Africa.*

87 Prieur, M. 1997. *Model Law on Sustainable Management of Coastal Zones (Article 26, Draft 3).*

agriculture, forestry, aquaculture, hunting, fishing, shipping, tourism, mining, industry, health, development assistance and other relevant subjects; they should also include interested governmental and non-governmental conservation organisations. The Strategic Plan endorses the creation of National Ramsar Committees to provide the opportunity for input from, and representation of, governmental and non-governmental organizations, key stakeholders, indigenous people, the private sector and interest groups, and land use planning and management authorities.[88]

These recommendations explicitly acknowledge that wise use lies beyond the traditional remit of nature conservation agencies. Whilst such agencies are well-equipped to promote conservation of waterfowl and a limited number of designated wetlands, the demands of wise use can often only be met by establishing a high-level cross-sectoral authority.

It should first be emphasized that institutional coordination can precede the making of a national wetland policy: indeed it may sometimes be a necessary first step for building political commitment to the policy-making process. India does not have a wetland policy at national or state level. However, the Ministry of Environment and Forests has now constituted a National Committee on Wetlands, Mangroves and Forests with cross-sectoral representation and members drawn from NGOs and academic institutions. The Committee, which meets twice a year to review wetland-related activity, has been divided into two: the Wetlands/Lakes Committee and the Mangroves/Coral Reefs Committee. Several wetland committees at state level have also been recently established.[89]

In countries that have adopted modern environmental legislation creating environment agencies with broadly based powers, it may be logical to locate the specialised wetland committee within that ministry. Wetland policy and management can then be clearly linked to general environmental policy and management and to other departments responsible for natural resource management. However, specialised environmental administrations do not exist in all countries or have only been recently established: either way, they are often perceived as the 'poor relation' amongst state administrative departments. Depending on a country's circumstances, an alternative approach may therefore be to locate the wetlands coordinating unit within a higher profile ministry.

In Kenya, the National Environment Secretariat of the Ministry of Environment and Natural Resources is the government department charged with coordinating all matters pertaining to the environment. It has sponsored the development of an Environmental Management and Coordination Bill, which should receive parliamentary approval in 1999. Pending its adoption, an Inter-ministerial Committee on Environment has been established, chaired by the Permanent Secretary of the above Ministry and composed of members from government departments, NGOs, the private sector and universities. A wetlands subcommittee with broad membership including major stakeholders has been established under this Inter-ministerial Committee and oversees the implementation of Ramsar in Kenya.[90]

Ramsar committees or equivalent bodies need to be backed by political will and to have some form of legislative mandate and adequate funding. Without this, they will be unlikely to have the credibility and status to promote effective joint planning with 'non-environment' ministries or prevent the sidelining of many wetlands. Consideration should therefore be given to amending the

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88 Action 8.1.9.

89 Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

90 Onyango, J. *National Initiatives to Promote Industrialization Within the Concept of Sustainable Development in Kenya.* 1998 Special Issue No. 3, Bulletin of Environmental Law, UNEP, pp. 56-58.

statutory duties (missions) of key sectoral ministries to include an express duty to take account of wetland conservation and wise use in the exercise of their functions. This type of provision is very useful for two reasons. Firstly, it helps to build institutional and technical awareness of wetland functions and values and, over time, to embed these considerations into institutional culture. Secondly, if the ministry concerned fails to have due consideration to wetlands in reaching a particular decision, this may be actionable under the public (administrative) law of the country concerned through proceedings for judicial review.

The statutory basis for inter-agency coordination should also apply at operational level. In the United States, for example, federal agencies must consult with the Fish and Wildlife Service (FWS) before undertaking or issuing permits for construction projects affecting rivers, lakes or other waterways. The FWS prepares recommendations designed to mitigate damage or enhance wildlife resources: these must be takenjnto consideration by the federal agency in planning the project, although they are not binding..[91]

An interesting approach has been used in Trinidad and Tobago. Under the National Environment Plan, most arms of Government have signed Memoranda of Understanding with the Environmental Management Authority, which oversees implementation of the Plan. In some sectors, more detailed Supplemental Agreements have been concluded to provide for specific intersectoral linkages.[92] However, these agreements are purely administrative in character and can not be considered as legally binding on the public department concerned.

Some countries have restructured their ministerial competencies in ways that facilitate rationalised approaches to environmental management. In Australia, the State of New South Wales has established a Department of Land and Water Conservation, which is the principal government agency responsible for the management of the State's natural resources (soil, water, vegetation and coastline).[93] This Department has pioneered a coordinated approach to wetlands and water systems known as "total catchment management". In the Northern Territory, the 1992 Water Act is administered by the Department of Lands, Planning and Environment.[94]

Cross-sectoral initiatives should not lead to institutional duplication, but this can be hard to avoid during a transitional phase. Uganda, as noted above, has played a pioneering role in wetland policy-making. However, the legacy of its years of environmental reforms is that the temporary institutional arrangements established in 1989 to support the National Wetland Conservation Programme are still in place, despite the more recent establishment of the National Environment Management Authority pursuant to the National Environment Statute. The result is that there are now two coordinating units charged with the same functions, one *de jure* and the other *de facto.*[95] Costa Rica, which has also invested considerable effort and resources in policy development has experienced significant problems in clarifying the responsibilities of different institutions.[96]

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91 Fish and Wildlife Coordination Act 16 U.S.C. §§ 661-668 (1982)

92 Pritchard, D. 1997. *Implementation of the Ramsar Convention in Trinidad & Tobago* at p. 16.

93 Other agencies involved include the Environment Protection Authority, National Parks and Wildlife Service and the territory's Fisheries and Agriculture Ministries.

94 Discussed further in Chapter 14.

95 Ntambirweki, J. 1998b. *The Evolution of Policy and Legislation on Wetlands in Uganda.*

96 These are described in graphic detail by Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica.*

6.2 Vertical Coordination

Vertical coordination concerns the different tiers of government that are involved in planning and decision-making affecting wetlands. Before listing specific options, it should be remembered that the Ramsar Convention itself contains a binding obligation for internal institutional coordination, which is significant in its own right and remains an innovation in international conservation law:

> Contracting Parties shall ensure that those responsible at all levels for wetlands management shall be informed of, and take into consideration, recommendations of [the Conference of the Parties] concerning the conservation, management and wise use of wetlands and their flora and fauna (Article 6.3).

The Additional Guidance suggests some types of international, national and local mechanisms that may promote institutional coordination. At international level, Parties should seek to develop cooperative arrangements for water systems shared between two or more countries to achieve wise use, as required by Article 5 of the Convention. Such arrangements should incorporate relevant elements of the Additional Guidance and be pursued in coordination with or through existing treaties such as the 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals and the 1991 Espoo Convention on Environmental Impact Assessment in an Transboundary Context. Institutions such as cross-boundary water commissions established under existing watercourse agreements could provide an appropriate framework for international cooperation in respect of shared water systems. Vertical coordination could also be structured around a regional sea, as initiated by the Mediterranean Wetland Committee, established in conjunction with the MedWet initiative.[97]

Within each country, the structure of government varies significantly with regard to levels of institutional decision-making (the levels at which legislative and implementation powers are respectively exercised). Treaty commitments are of course accepted by national governments. However, in many parts of the world, there is growing pressure to decentralise powers to subnational level and to confer greater operational freedom on provincial governments. A balance therefore needs to be struck between State and decentralised entities to ensure due implementation of conservation and wise use obligations. The more that powers are decentralised, the greater is the risk of discrepancy in interpreting and applying already vague terms like wise use. To the extent possible under a country's legal system, national legislation should therefore lay down clear objectives and norms in unambiguous language, which can be used as a framework to promote consistency in subnational legislation.[98]

In countries with predominantly decentralised forms of government, the central or federal authorities generally have limited or no legislative or implementation powers for wetland protection. In Germany, for example, the federal Nature Conservation Act sets out a broad legislative framework for the adoption of complementary legal provisions by the various *Länder*. the federal government has almost no implementation powers. Similarly, in the United States, most legislative authority for nature conservation lies with the States (except for federal lands). Under the Spanish Constitution, most matters relating to nature conservation (particularly the protection of natural areas other than natural parks) have been transferred to regional political entities called Autonomous Communities. The latter are free to adopt additional legislation as necessary to ensure

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97 See generally Part VI of this book on Legal Frameworks for Regional and International Cooperation.

98 Lambers, C. 1989. *Wetlands: the (Im)possibilities of Law?* at p. 379.

the effective protection of wetlands under their regional jurisdiction.[99] In India, land is designated as a state subject under the Constitution which means that primary responsibility for subject decision-making over wetlands ("which are often equated to land") lies with various state government agencies.[100]

In Canada, recent legislation relevant to coastal wetlands provides expressly for "collaboration" between all tiers of government. The competent minister, together with ministers, boards and agencies of the national Government, provincial and territorial governments, affected aboriginal organizations, coastal communities and others is required to "lead and facilitate" the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coastal waters and marine waters under Canadian sovereignty or jurisdiction.[101]

Each level of government that exercises legislative or implementation functions for wetlands must be equipped with proper institutions for this purpose. The competent government body should be endowed with sufficient authority and means to fulfil the law's purposes and implement its provisions by taking appropriate actions. Depending on the country's legal tradition, it may have broad or narrow delegated authority to enact specific regulations on a wide variety of matters. As a minimum, institutional powers should include the authority to issue regulations to establish procedures, requirements and standards; to undertake monitoring and require the submission of information; to restrict or otherwise control certain damaging activities; to communicate with other levels of government and other sectors on wetland-related issues; and generally to carry out and ensure compliance with the law.

Going further down the administrative hierarchy, local authorities play an increasingly important role in the implementation of many aspects of environmental policy, including in some cases the making of conservation orders and the provision of conservation incentives. Interestingly, under centralized systems of government as well as decentralized ones, local authorities have important powers with regard to land-use planning controls.[102] Whilst local administrations are or should be most in touch with community needs and priorities, it may be difficult and even unrealistic to expect wetland issues to be put first if there is severe pressure on local resources or other economic hardship. The powers of local governments to implement planning controls and other measures should therefore not go unchecked. Their decision-making powers should be made in accordance with strategic guidelines adopted at regional or national level and should be balanced by supervisory powers of higher authorities. Whereas local governments are too close to local interests to have a final say in development and conservation matters, central authorities are too far from local concerns to be able always to take decisions single-handedly. "In between these extremes is the golden rule - thinking nationally, acting locally, supervising regionally!".[103]

Uganda has established a firm legal basis for local government to take primary responsibility for wetlands. The National Wetland Policy adopted in 1995 was prepared in close consultation with District Development Committees. Under the Local Governments Act 1997,[104] responsibility for wetland management in accordance with the provisions of the National Wetland Policy has been

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99 See generally Burhenne-Guilmin, F. and Burhenne, W. 1991. *Competent Authorities and Levels of Decision-Making in Wetland Protection.*

100 Panini, *supra* n. 5.

101 Art. 31, 1996 Oceans Law.

102 See Chapter 13 below.

103 Burhenne-Guilmin and Burhenne, *supra* n. 15 at p. 54-55.

104 Second Schedule, Part 2.

formally conferred on the Districts. In Peru, by contrast, the institutional position is much more uncertain. Regional governments and municipalities have minimal responsibilities for wetlands (or any other natural resources) and although municipalities have a duty to regulate water and sewage, this is only with regard to the provision of public services for inhabited centres. Other responsibility over inland and coastal waters and wetlands are assumed to continue under the responsibility of the central government.[105]

6.3 Strengthening Linkages With Local Communities and the Private Sector

Over the last twenty years, a consensus has gradually evolved that long-term conservation depends on understanding and support from those closely connected to wetlands and their resources. All stakeholders, from policy makers to local communities, need to understand the endowment and value of the water resources they rely on and learn how to manage human needs without jeopardizing biological diversity. Economic, legal and policy measures cannot be effective without wider public support which should strengthen the will and ability of civil society to act.[106]

Recent treaties have established a clear legal basis for involving communities and the private sector in environmental management. Parties to the Convention on Biological Diversity are required, as far as possible and as appropriate, to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities relevant to the conservation and sustainable use of biological diversity; to support remedial action by local populations in areas of reduced biodiversity; to promote the maintenance of customary uses; and to encourage cooperation between Government and private sectors in developing methods for sustainable use of biological resources.[107] The Ramsar Strategic Plan endorses this approach, urging Parties to encourage the active and informed participation of local communities, including indigenous people and particularly women, in the conservation and wise use of wetlands. The private sector should be encouraged to give increased recognition to wetland attributes, functions and values and to apply the Wise Use Guidelines when carrying out projects affecting wetlands; to work in partnership with site managers to monitor the ecological character of wetlands; and to be involved in the management of wetlands through participation in wetland management committees.[108] In the European Union, the most recent Environmental Action Programmes has moved from a top-down legislative approach towards an ethos of partnership and shared responsibility.[109]

The 1993 Additional Guidance suggests that at local level, countries might establish procedures to guarantee that local populations are involved in the decision-making process related to wetland use and to provide local populations with sufficient knowledge of planned activities to assure their meaningful participation in this decision-making process. It also recommends that working groups or advisory boards be established representing users, NGOs and local authorities. Existing legal and administrative systems rarely provide comprehensive support for this level of community involvement.

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105 Solano, P. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Peru.*

106 *Biological Diversity of Inland Waters*, Note by the Executive Secretary to the Convention on Biological Diversity, UNEP/CBD/SBSTTA/3/2, 30 June 1997, paras. 64-66.

107 Art. 8(j), Art. 10(c-e).

108 Operational Objective 2.8, Actions 2.8.1-3.

109 Fifth Environmental Action Programme (1992-7), *Towards Sustainability*, OJ No.C 138, 16.5.93.

In a few countries, the local government process may provide a mechanism for participation of local communities through the formation of local committees. Ugandan law provides for the creation of village committees under which local environment committees can be formed as subcommittees:[110] these LECs could therefore be specifically created to address wetland management. Other types of locally based structures that may be established in other countries, especially at rural level, include Village Action Groups, Area Action Groups and District Development Committees. However, many countries have no clearly defined institutional structures to guide the management of natural resources on communal land or to articulate the views of the local community.

By way of exception, the innovative CAMPFIRE programme pioneered in Zimbabwe provides for local management structures, community tenure of wildlife or other wetland resources and equitable distribution of benefits. This type of change will almost always require special legislation as it involves changes in ownership patterns and management responsibilities for wildlife on communal lands. However, there may be political unwillingness to devolve competence for resource management to local communities because of declines in existing and anticipated government revenues.

Site-specific consultation can often provide a useful catalyst for wider local involvement: it allows public debate on the issues to be stimulated and different interest groups to be heard and if necessary confronted (a process of consensus-building which is difficult and time-consuming if done properly).[111] The case study of the Kafue Flats and Bangweulu Swamps in Zambia shows how natural resource management strategies can be implemented through community-based structures to maintain or enhance natural productivity for the benefit of local inhabitants and the nation as a whole. Two kinds of decentralized and autonomous bodies have been formed to represent the interests of local communities in negotiations with national interests for a more equitable share of benefits from sustainable management of natural resources. These are respectively the Community Development Units, mainly essentially on traditional chiefdoms and generally headed by the chiefs themselves, and the Wetlands Management Authorities established for each of the two National Parks within the Flats, on which the CDU chairmen are represented along with other local officials and representatives. The Project was initiated by a non-governmental organisation (WWF) and is formally supported by the National Parks and Wildlife Service, which provides support staff for Game Management Areas.[112]

Open-ended linkages with local communities and, increasingly, with the private sector are only likely to develop in a supportive legal climate. It is implicit in these cooperative and inclusive strategies that emphasis will be placed as far as possible on non-regulatory approaches to broaden involvement, build public-private partnerships and encourage best practice. Properly designed mechanisms can strengthen the legitimacy of wetland conservation and wise use. NGOs may play a particularly constructive role in this process: in some cases they provide a bridge to articulate local concerns within national policy processes. The private sector, through appropriate land management procedures, conservation investments or sponsorship, may also make a significant contribu-

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110 Under combined provisions of the 1995 National Environment Statute and the 1997 Local Government Act.

111 Salathé, T. 1992. *Les programmes de la Commission des Communautés européennes (Direction générale XI) relatifs aux zones humides*, in Proceedings of a Seminar on *Restauration et gestion des zones humides*, Office national de la Chasse (Marais Vernier, France, 2-5 novembre 1992), pp. 33-41.

112 See Jeffery, R.C. 1993. *Zambia: Wise Use of Floodplain Wetlands in the Kafue Flats, in Towards the Wise Use of Wetlands*, Ramsar Convention Bureau at pp. 145-152.

tion. To give just one example, a network of Closed Sea Deltas has been established under the auspices of the Danone-Evian/FFEM Sponsorship Programme to fund and facilitate technical exchanges and site visits between managers from the deltas of the Rhone, Volga, Ebro, Danube and other European rivers.[113]

[113] See generally Chapter 20 on non-regulatory mechanisms and, for a more detailed study, Shine, C, 1996, *Private or Voluntary Systems of Natural Habitat Protection and Management.*

Chapter 7
Developing Legal Frameworks for Wise Use

The Ramsar COP has recognized that appropriate legislative tools are amongst the main instruments that Governments can use to promote wise use: the Additional Guidance lists suggested components for general wise use legislation and for site-specific legal protection. However, the Convention itself does not generate specific legal obligations regarding the use of wetlands and there are few commonly understood standards and norms to work towards. In addition, there is no process by which the COP or Ramsar Bureau can scrutinize the adequacy of a Party's domestic legal machinery to implement its obligations under the Convention.[114]

National legislation must therefore go forward in this respect and take advantage of this room for innovation. As this book seeks to show, the range of legal options is enormous. Just as national systems of government vary significantly, so too do the legal mechanisms and techniques used to conserve wetlands. Some countries, including France and many other continental European countries, have deeply-rooted traditions of public intervention, whereas Australia, the Netherlands, the United Kingdom and the United States have long supported private and voluntary approaches to the management of natural habitats and landscapes. It should again be emphasized that there is no model to be followed: law must be adapted to national characteristics and traditions if it is to be workable and accepted in practice.

7.1 What Kind of Law for Wetlands?

Nature conservation laws have tended to evolve along similar lines around the world although with variations of emphasis and to very different stages of advancement.[115] Their scope and objectives generally involve progression through the following stages:

- regulation of hunting and fishing;
- creation of protected areas and protection of threatened species;
- more generalised protection of certain groups of animals, firstly mammals and birds (excepting game and harmful species), then amphibians and reptiles and some species of invertebrates and plants;
- preservation of certain types of natural habitat;
- integration of conservation of the natural environment within regional development and land-use legislation; and
- identification, regulation and management of processes which adversely affect biological diversity.

This list reveals a general trend to move from site-specific and species-specific controls towards generally applicable planning and other measures that try to address causes of environmental damage. This is a slow process and many countries are still at the early stages of this evolution, namely the listing of protected species (often fairly ineffectual) and the creation of protected areas (such as national parks and nature reserves). In their conventional form, such tools operate in a fairly fragmented way, are not integrated into physical planning and are not designed to take adequate

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[114] Pritchard, D. 1997. *Implementation of the Ramsar Convention in Trinidad & Tobago* at p. 16.

[115] The following discussion is necessarily brief. See further de Klemm, C. and Shine, C. 1996. *Legal Measures for the Conservation of Natural Areas* and de Klemm, C. in collaboration with Shine, C, 1993. *Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems.*

account of human utilisation of wetlands. Several other countries combine species- and area-based instruments with parallel sectoral regimes for the control of certain activities. Only a few States (notably the Netherlands and some Scandinavian countries) have reached the stage of systematic integration of environmental elements in spatial planning instruments. Whilst the rate of development of more integrated legislation has accelerated noticeably over the last decade, legislation to safeguard ecological processes within the hydrological cycle is in its relative infancy.[116] Except under the most advanced laws, much remains to be done to improve implementation on the ground and to integrate wetland measures into relevant spatial and sectoral planning.

The main laws dealing with wetlands are nature conservation or general environmental legislation (by default if these laws do not specifically mention wetlands) or, more rarely, special primary legislation. A few countries, including Spain, also have water resource legislation providing for the conservation of wetland habitat types. It will be recalled that many other laws will contain provisions relevant to wetlands.

Framework environmental legislation tends to be comprehensive in scope, empowering the competent authority to make detailed regulations on air, soil and water pollution and exploitation of and trade in wild flora and fauna. Modern laws of this type provide a useful legal basis for making wetland-specific subsidiary regulations but it must be emphasized that unless such regulations are actually issued and enforced, these very broad laws are not sufficient to control or manage wetland loss and degradation. African countries that already have laws suitable for this purpose include Senegal, Gambia, Ghana, Nigeria, Zambia, Malawi, Tanzania and Uganda.[117]

Some, but by no means all modern laws, contain a specific definition of wetlands and extend protection to wetlands as distinct ecosystems. Others usually contain a definition of environment comprehensive enough to cover wetlands and related ecological processes. In India, for example, the Environment (Protection) Act of 1986 defines environment to include water, air and land and the interrelationship which exists between water, air and land and human beings and other living creatures, plants and micro-organisms and property.[118]

Specific wetland legislation is comparatively rare. In Costa Rica, the decision to enact special wetland legislation grew directly out of the legal and institutional review conducted by the Government in accordance with the Ramsar Guidelines. The review revealed inconsistencies between the definition of wetlands for the purposes of different laws and a high level of institutional confusion with regard to the issue of permits in different wetland areas and the criteria on which these should be issued. The review took specific account of the customs of local communities around wetland zones, uses of those wetlands, the level to which applicable law and permit systems was actually understood on the ground and the relationship between existing legislation and the private sector's current practices in wetlands. As a result of these findings, it was decided to prepare special wetland legislation in order to establish legal certainty, unambiguous institutional competencies and mechanisms suited to wetland conservation on both public and private land.

The draft Wetlands Act *(Proyecto de Ley de Humedales)* was developed under the auspices of a multidisciplinary Commission comprised of representatives from the Ministry for the Environment and Energy and the National Fisheries Institute, with the technical assistance of IUCN-The World Conservation Union and experts in biology, environmental law, forestry engineers, sociologists and economists. The first draft was put out to consultation with the different sectors of society already involved in consultations for the National Wetlands Strategy and a series

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116 See generally Parts IV and V below.

117 Ntambirweki, J. 1998a. *Modalities for the Implementation of the Ramsar Convention through National Legislation in Africa.*

118 See further Part IV below.

of workshops was held to present the proposed Bill. There were eventually eleven drafts of the Bill, a reminder that efforts to shape a lasting consensus must be viewed as a long-term investment. Once in force, the new law will extend protection to all wetlands as a management category. Institutional responsibility for the conservation and wise use of all wetlands within the continental-insular area, not just natural protected areas, will be located within the Ministry of the Environment and Energy department that handles the National System of Conservation Areas (SINAC-MINAE).

Well-designed and comprehensive national legislation on wetlands may have several advantages. It can increase the visibility of wetlands, build awareness of their values and vulnerability and, through a suite of measures, incentives and planning techniques adapted to the specificity of wetlands and water systems, can accelerate change in people's attitudes and behaviour in order to promote wise use more effectively. It may also be designed to provide a solid legal basis for the establishment of regional and international cooperation with regard to shared water systems, wetlands and migratory species.

In countries with advanced conservation law systems and high levels of public support for environmental objectives, however, new legislation may not be necessary or even desirable. Existing legal mechanisms may already be sufficient, subject to institutional rationalisation and proper targeting and enforcement of measures. In two riparian countries of the Wadden Sea, Denmark and the Netherlands, it is recognized that although legislation has played a major role, it is only one of the important elements of conserving and wisely using wetlands. This stance is justified for four reasons. There is already extensive legislation and planning; coherency can best be developed in conjunction with overall policy development which attempts to integrate various instruments; users can be better committed to conservation and wise use through a process of co-management which can confer legal responsibilities to the user groups concerned; and awareness of the ecological importance of wetlands is essential to support or alter behaviour.[119]

Turning to the content of wetland-related legislation, there are two main conceptual approaches to using law to advance conservation and wise use. These approaches, which are in no way mutually exclusive, are:

- legal systems focused on wetland areas (on a scale ranging from site-specific to bioregional);
- legal systems focused on the control or management of activities that may affect wetlands (by generating damaging processes).

It is of course politically and practically impossible to apply protection measures to all wetlands. Legal systems should be flexible enough to make it possible to adapt plans, techniques and standards to ecological and socio-economic characteristics and priorities in particular areas. Area/activity based measures need not be applied uniformly throughout national territory but nor should they be designed so restrictively that they are effectively limited to tiny pockets of land.

7.1.1 Legal Systems Focused on Wetland Areas

The first category of area-based mechanisms includes "site-specific" legal instruments that confer special status on individual wetlands.[120] Such mechanisms include protected area instruments ranging from strictly protected reserves and national parks to protected landscapes and nature parks managed for multiple use. There are also many site-specific approaches that do not involve the creation of protected areas. These include conservation orders applicable to individual wetlands and even river stretches: the competent authority (at whatever level) is authorised by legislation to

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[119] Enemark, J. 1998. *Wetlands-related Legislation and Institutions in the Wadden Sea Countries.*

[120] See generally Part III.

designate wetland areas within a defined ecological category for protection and to issue regulations delimiting their boundaries and controlling specified activities therein. A third approach is where nature conservation legislation provides for the identification of natural areas of ecological interest (the name varies in different countries: they are called Sites of Special Scientific Interest in the United Kingdom). Once these areas have been notified to the owner or occupier concerned, targeted restrictions, stricter planning controls and in some cases incentives can be applied.

Site-specific mechanisms can therefore provide tailored protection regimes for important wetlands. However, they place heavy demands in terms of technical assistance, negotiation and enforcement on nature conservation personnel and resources. Where restrictive regulatory controls are imposed without adequate compensation, this is likely to be perceived as illegitimate by the landowner or populations concerned. Unless enabling legislation is in place, it will not be possible to use contracts, conservation payment schemes or other incentives to promote positive management of the wetlands concerned.

The second category of area-based mechanisms is "non-site-specific": in other words, they apply generally to qualifying wetlands throughout national or provincial territory.[121] At one level, legislation may single out certain areas for protection on the basis of ecological category or habitat type: habitat-type measures have now been established under several national laws for the conservation of all wetlands within a defined category and/or above a specified threshold. At another level, physical planning legislation may authorise or require local authorities to designate certain wetlands (and possibly buffer zones, protection strips and even ecological corridors as well) in the most protected zones of local planning documents. This degree of spatial integration tends to be reached only when there is political commitment to wise use and nature conservation authorities are closely involved in the planning process and with local authorities. At yet another level, special legislation may confer safeguards on wetland areas by providing for integrated planning and management of river basins and/or coastal areas.

Within integrated perspectives of this kind, protected areas and other site-specific mechanisms form part of a continuum or mosaic of area-based conservation measures. They effectively function as the most restrictive form of land-use planning, located at the higher end of the wise use gradient.[122] This gradient can also accommodate the designation of larger areas for specific management practices. One example would be the Environmentally Sensitive Areas in the United Kingdom in which incentives are paid for environmentally sensitive land management practices of direct benefit to wetlands.[123]

It should be emphasized that non-site-specific systems may become site-specific under implementing regulations. Legislation needs to be explicit on this point but often is not. What can appear generally applicable may turn out to be site-specific in its implementation (a wetland will only be protected under the Act when it has been specifically designated by decree as a protected wetland) or dependent on further action by Government departments. In practice, habitat-type conservation may and often will be implemented by means of site-specific designations: this is the position under the EC Habitats Directive, for instance, which provides for the establishment of Special Areas of Conservation.

One of the most important factors to take into consideration in selecting and developing area-based techniques is the question of land ownership.

In countries where wetlands are deemed to come under State ownership, there is theoretically no obstacle to instituting prescriptive management regimes. However, public property regimes are

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121 See generally Part IV.

122 The concept of a gradient is discussed at Chapter 4.1 above.

123 See Chapter 20 below.

often characterised by a management vacuum that gets filled by various forms of community management or *ad hoc* unofficial privatisation. Superimposing strict protection regimes on larger wetlands (as opposed to small reserves) will almost invariably arouse stiff opposition from existing users and residents and in some cases lead to the termination of human activities that were essential to the maintenance of the wetland's ecological character. It may therefore be necessary to adapt older laws to make it possible to promote multiple uses of larger wetlands consistently with safeguarding the site's functions and values. Unless mechanisms reflect the cultural and socio-economic dimension of wetlands, significant expansion of the protected area estate will be controversial if not impossible.[124]

Where wetlands are found on both private and public land, legal techniques need to be broad enough to promote wise use and conservation irrespective of ownership. In the United States, around one third of all land is owned by the Federal government and the Congress has also granted powers to the federal administration to acquire land under several specific programmes, such the National Wildlife Refuge System. Outside federally-owned lands, however, the Constitution severely restricts the powers of the Federal Government to matters related to constitutional commerce or navigation clauses. Federal regulation of activities affecting privately-owned wetlands has therefore had to be developed (somewhat tortuously) through the vehicle of the Federal Water Pollution Control Act.[125] This is now implemented in combination with legislation adopted by the States, which have direct competence for such issues.[126]

In many situations, public acquisition is seen as a necessary step to securing adequate levels of control over sufficiently large areas to ensure ecological coherence and cost-effective management. The legislation of certain countries gives public authorities a right of preemption (right of first refusal) when certain categories of land come up for sale, notably in or around protected areas. In France, for example, the *départements*[127] may exercise this right over land which has been specifically designated for that purpose by Government order: in addition, the *Conservatoire du Littoral et des Espaces Lacustres* (a public body) has specific powers to acquire land along coasts and lake shores. Alternatively, public acquisition may be necessary where the law provides that certain designations (e.g. national parks) are reserved for land in public ownership. However, public ownership models, whilst very useful for strict conservation objectives, are necessarily limited in their application. Few conservation authorities (or governments) have the economic resources to buy or - in the last resort - proceed to the compulsory purchase (expropriation) of a significant number of wetlands. In this respect, fiscal and property law instruments can make an important contribution by providing incentives for landowners to dedicate wetlands for long-term conservation, performance to be monitored and guaranteed by an approved conservation NGO or a public agency.[128] These approaches have been mainly pioneered in North America and are almost non-existent in continental Europe.

Many wetlands are and will remain in private ownership. One of the most interesting challenges is to find effective techniques for the conservation and wise use of 'ordinary' land. Recourse to restrictive mechanisms, particularly those that are site-specific in character, is always a politically sensitive matter. However, it should be emphasized that acceptance of wetland controls is linked to education and public awareness. For example, tolerance levels are higher in

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[124] See further Chapters 8-10.

[125] Section 404 of this Act has been interpreted to apply *inter alia* to all wetlands that are adjacent to watercourses.

[126] See generally Burhenne-Guilmin, F. and Burhenne, W. 1991. *Competent Authorities and Levels of Decision-Making in Wetland Protection* at p. 48; see also Chapter 12 below.

[127] Decentralised administrative units that have their own administration and budget.

[128] See Chapter 11.3-4 below.

countries with broadly based support for wetland conservation, such as Denmark, but this is partly because attitudes and expectations have been shaped by several generations or refinements to generally applicable nature conservation legislation. The same is true in the Netherlands, which has long placed emphasis on integration of wetlands into the general physical planning system. All countries, but particularly those lacking such traditions, should give consideration to using partnerships and incentive measures as a catalyst to strengthen voluntary conservation and to provide rewards for positive management of wetland areas.

7.1.2 Legal Systems Focused on the Management of Activities that May Affect Wetlands[129]

A focus on damaging processes and activities supports a major conceptual shift from treating wetlands as fragmented sites to managing them as connected water-based ecosystems. This holistic approach, consistent with measures laid down by the Convention on Biological Diversity, requires a much fuller integration of science and law than most countries currently enjoy. It consists of three basic steps: identifying processes damaging to wetland biodiversity; tracing these back to the activity or activities responsible; and developing effective legal techniques for their regulation or management. A well-designed strategy of this kind should provide the key to checking destruction and degradation of wetland units throughout national territory.

Process-based legal techniques are one of the most innovative legal concepts to have emerged in recent years in response to the complex demands of biodiversity conservation. One variant consists of controlling categories of activities on the basis of their "adverse impact" or damaging effect on the natural environment and ecological processes. Activities deemed to fall into such categories are subject to permit requirements. This concept (known as *Eingriff* in the German legislation that introduced this concept) is reflected in the 1994 Protocol on Nature Protection and Landscape Conservation to the 1991 Alpine Convention.[130]

The concept is highly flexible. It can be targeted at very specific types of activity producing measurable damage to wetlands and species, as with the use of lead shot in hunting or lead weights in angling. It also encompasses the relatively new concept of biosecurity, which relates to the potentially damaging processes of introducing genetically modified organisms and alien species into the natural environment. Process-based approaches may also be progressively incorporated into sector-specific legislation on fisheries, forestry and fanning, which have traditionally put productivity before conservation of the resource base. The application of permit systems to these sectoral activities is, however, a politically and economically sensitive issue. The effectiveness of activity-based controls will depend on the range and thresholds of activities and operations covered. It is extremely difficult under all legal systems to assess and address the cumulative impacts of permitted activities. A particularly serious factor in the context of wetlands is that in most countries, agricultural and forestry operations are generally exempt from permit requirements or normal planning controls.

Such techniques may also be used to support the conservation of wetland-dependent species by regulating activities that may adversely affect the conservation status of a given species. Activities that directly affect species may include hunting, harvesting, domestic and international trade and the accidental or intentional introduction of alien species. Indirectly, however, there are numerous other activities that degrade the essential habitats or ecological processes on which individual species depend: these are very often linked to intensive agricultural practices. The legal

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[129] See Chapter 16 *et seq.* below.

[130] Convention on the Protection of the Alps (Salzburg, 7 November 1991); the Protocol was concluded in Chambéry, France on 20 December 1994.

concept of protecting critical habitats provides a basis for controlling or managing any activity that may modify the physical, biological and ecological conditions of designated critical habitats. Protection of complete sets of critical habitats is a more powerful legal tool for conserving biodiversity than protection of the species *per se*.

Whatever the nature of the enabling legislation, wetland-related legal frameworks should have four major components:[131]

- an **organizational structure** that defines and implements policy, is vested with sufficient authority and powers to control wetland-related activities and coordinates related management efforts;

- the requirement to establish a **knowledge base** that can be used to collect, interpret and disseminate information. This would include the compilation of wetland inventories, which can be used to establish priorities for conservation and financial assistance and to increase public awareness of wetland values and functions;[132]

- establishment of **prevention, restoration and incentive measures** to support wetland conservation and wise use throughout national territory. Basic elements should include provisions to control development in wetland areas; to identify, assess and control environmentally adverse or unsustainable actions that may generate damaging processes; to eliminate perverse incentives and subsidies that encourage wetland destruction; and to provide for the restoration of degraded wetlands.[133] Legislation should also provide for a nature conservation scheme that makes it possible to confer special status on certain areas, species and resources and to create strict nature reserves for representative samples of wetlands; promote the integration of wetlands and water systems into spatial planning instruments; and support the introduction of positive measures to encourage voluntary conservation by individuals and associations;

- establishment of a **compliance scheme** to monitor, enforce and promote observance of legislative provisions. This should *inter alia* set penalties for illegal practices, establish procedures and criteria for the restoration of degraded wetlands, provide for independent judicial review of actions that may be in breach of treaty obligations, and provide remedies for environmental harm in the form of civil actions, damages, restitution and compensation.[134]

7.2 Principles for Legislation

As mentioned in Part I, several legal principles have evolved over the last twenty-five years and are now widely accepted as principles of international environmental law. The precise nature and legal status of certain principles continues to be debated by lawyers,[135] but a detailed discussion of this topic is beyond the scope of this book.

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131 This four-part structure is adapted from United Nations Environment Programme. 1995. *Legislating Chemicals: An Overview*. Joint Publication by the Environmental Law and Institutions Programme Activity Centre and the International Register of Potentially Toxic Chemicals Programme Activity Centre.

132 See Chapter 7.4 below.

133 See Chapter 7.5 below.

134 See Chapters 18 *et seq.* below.

135 See generally Sands, P. 1995. *Principles of International Environmental Law: Volume I (Frameworks, Standards and Implementation)*, particularly at pp. 181-237.

Principles that are becoming accepted under international environmental law, in addition to that of State sovereignty, include international cooperation, preservation and protection of the environment, prevention of environmental deterioration,[136] the precautionary principle, the polluter-pays principle, information and assistance in environmental emergencies, information and consultation in relation to activities which may have significant transboundary adverse effects and, with regard to individuals, equality of access to procedures and non-discrimination in environmental matters. Others, endorsed for example by the non-binding Pan-European Biological and Landscape Diversity Strategy of 1995, include the principles of compensation, ecological integrity, best available technology and best environmental practice, and public participation and public access to information.[137] Incorporating such principles into domestic law and ensuring that they inform domestic decision-making is a long-term prospect.

Whilst the Ramsar Convention predated these advances, the 1993 Additional Guidance has clarified the position with regard to the precautionary principle. One of the conclusions to the case studies from which the Guidance is drawn provides as follows:

> While comprehensive understanding of the ecological constraints of a wetland system should be sought, activities affecting wetlands need to be governed by the 'precautionary principle' when such knowledge is not available. In other words, if the impact of specific actions is not clearly understood, then these actions should be prohibited even if there is insufficient evidence to prove a direct link between the activities and resulting wetland degradation.[138]

This statement is directly relevant to the implementation of wetland-related legislation at national or subnational level. Most legal techniques described in this book require the competent planning, water basin or conservation authority to exercise its discretion in deciding whether to approve, reject or attach conditions to an environmental impact assessment, planning proposal, permit application relating to a protected habitat-type or licensing application for water abstraction or discharges. The enabling legislation often lists a series of different objectives to be taken into account, without indicating how such interests should be prioritised or decisions reached. It is precisely in such situations that the precautionary approach should guide decision-making relating to wetlands: despite this, it is very few laws establish appropriate guidance and supportive technical criteria.[139] This makes it particularly significant that the Ramsar COP has explicitly endorsed the application of the precautionary principle to wetland decision-making on a case by case basis.[140]

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136 The principle of prevention, defined in the preamble to the CBD and also incorporated into European Union environmental policy, provides that "damage to biological diversity is to be anticipated, attacked and prevented at source".

137 The Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, developed under the auspices of the UN Economic Commission for Europe, was signed in Aarhus at the Fourth Ministerial Conference *Environment for Europe*, 23-25 June 1998.

138 Annex to Resolution 5.6, Kushiro 1993 (Additional guidance for the implementation of the wise use concept).

139 See for example the discussion about permit systems in Chapter 18 below.

140 The principle has been incorporated into many recent treaties: a non-exhaustive list includes the Preamble to the Biodiversity Convention; the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona, 1976, as amended in 1995) and the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (The Hague, 15 August 1995).

The polluter-pays principle, pioneered *inter alia* by the Organisation for Economic Cooperation and Development (OECD), seeks to allocate economic obligations in relation to environmentally damaging activities. The 1972 OECD Council Recommendation on Guiding Principles Concerning the International Economic Aspects of Environmental Policies[141] states that the cost of measures decided by public authorities to protect the environment should be reflected in the cost of goods and services which cause pollution in production and/or consumption. Moreover, as a general rule, OECD Member countries "should not assist the polluters in bearing the costs of pollution control whether by means of subsidies, tax advantages or other measures". The principle also forms part of the European Union's environmental policy and has been incorporated into the 1995 Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (the amended Barcelona Convention first adopted in 1976).

Economic instruments of this type are already in place in many national systems and can frequently provide an important incentive to the development of cleaner technologies and better environmental practices. Many countries have already instituted charging systems for discharges to water that are based on the polluter pays principle. This principle may be extended by analogy to internalise costs generated by other types of environmentally damaging activities. Restoration, mitigation or compensation requirements imposed on wetland developers may loosely be classified under the heading of the 'developer pays principle'. The application of a meaningful level of water charges for agricultural irrigation or for other categories of abstraction is one of the ways in which countries may institute a 'user pays' methodology. There is clearly considerable scope to develop such instruments to deter unsustainable patterns of land and water use and to produce generalised benefits for wetlands and water systems.

7.3 Definitions and the Need for Legal Certainty

Whatever legal measures are used to promote wetland conservation and wise use, it is essential to ensure that there is legal certainty concerning the scope, requirements and procedures established by the law. Where measures for the preservation of wetlands are not site-specific, they apply in principle to all wetlands or to all wetlands in certain categories. It is therefore most important that all persons affected or otherwise concerned by such measures should know precisely to which areas the measures apply.

Wetland owners and users need to know whether or not their land is covered by relevant legislation and if and when to apply for permits if they intend to modify their land use or undertake activities that will alter or destroy those wetlands. Prospective buyers of wetland areas must be able to ascertain the scope of any legal restrictions that have been imposed on the property in question. In a wider context, the same is true for those who carry out activities that may be classified under applicable legislation as damaging to wetlands.

Enforcement authorities have to know what areas or activities to monitor for possible violations of the law. Where wetlands are or may be protected by local land-use restrictions, municipalities must know to which areas these restrictions should apply: physical planning documents should therefore clearly show or explain provisions or restrictions that are applicable to wetlands. Authorities that administer incentive programmes for wetland conservation should of course have full knowledge of the areas in which such measures are available. Finally, the law should be clear as to the technical criteria that apply to decision-making and the circumstances in which environmental impact assessments will be required.

This certainty can be achieved by incorporating precise definitions and criteria into legislation, by making detailed inventories supported by accurate maps or any combination of these methods.

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[141] Annex, para. A.4.

A key factor is that the definition of wetlands should be consistent, based on scientific rather than political criteria, in order to facilitate consistency in policy implementation.[142] In the absence of unambiguous definitions or adequate maps, wetland owners and users effectively have to decide for themselves whether a particular wetland is covered by the relevant legislation. This increases the likelihood that differences of opinion between landowners and enforcement agencies will arise and that litigation may follow.

It is therefore essential to establish a precise definition of the wetlands to which a given law applies, so that all parties concerned are well informed of their rights and obligations and disputes over the scope of these obligations are minimised as much as possible.

Notwithstanding the above, many laws are not very informative about the exact nature of the wetlands they purport to cover. In India, wetlands are not defined at all under national environmental legislation. Some laws merely refer to "wetlands" without further definition. Others lay down a general definition, often based on that provided by the Ramsar Convention, which is not sufficiently detailed for practical application in the field. Others list specified types of wetlands without adequate definition. Whilst distinctive habitat types such as mangroves or peatbogs do not seem to require additional definition, broad references to "rivers" or "lakes" may need to be expanded. It may not be easy to determine whether a small brook or pond counts as a river or lake under the applicable law unless the latter clearly establishes size thresholds. Terms such as "marsh", "fen", "bog" and "swamp", which appear in several legal texts, may be too imprecise for interested parties to decide if the law covers particular wetland sites. This is particularly true of areas such as temporary marshes or ponds or vernal pools, where water is only present during part of the year and which are not generally identified as wetlands by the layman. Even for scientists, confusion can arise over the classification of terrestrial and aquatic ecosystems where the former are periodically waterlogged or submerged[143].

Many countries have therefore developed more detailed classification systems as a basis for national wetland legislation and management programmes. Where the selected definition is narrower than the broad scope of the Ramsar Convention, care should be taken that appropriate measures are taken under other legal and institutional frameworks to ensure consistency with the Ramsar obligations.

Some examples of criteria developed to assist in wetland definition[144] relate *inter alia* to water depth limits for wetland systems: whereas Ramsar uses a seaward limit of six metres, some nations limit shallow water wetlands, especially in marine zones, to two metres at low tide. Another possibility is to specify minimum time limits for defining water presence on an annual basis, namely the number of days per year when water is present at the surface of a wetland (some countries specifically require 7,14 or an unspecified but measurable number of days per year when free water of a minimum depth can be observed). In certain countries where peatlands are present, the criteria may relate to depth of organic material in defining peatlands.

Classification systems adopted at federal and state level in the United States have generally defined wetlands on the basis of soil, hydrological or vegetation characteristics or a combination of these factors. The Inland Wetlands Act of the American State of Connecticut uses a definition entirely based on soils. In order to qualify as a wetland, an area must have soils that are "poorly

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142 Huggett D. 1997. *Developing a No Net Loss Policy for Coastal Wetlands.*

143 Gopal Brij. 1991. *Biodiversity in Inland Aquatic Ecosystems in India: an Overview*, International Journal of Ecology and Environmental Sciences 23: 305-313.

144 See further Rubec, C. *et al.* 1999. *A Framework for Developing and Implementing National Wetland Policies.*

drained" or "very poorly drained" or must be alluvial or flood plain as defined by the National Soil Survey. Hydrological criteria are used under the legislation of the State of Massachusetts, which defines freshwater wetlands as including areas "where groundwater, flowing or standing surface water or ice provide a significant substrata for a plant community for at least five months of the year". Similarly, the law of Rhode Island defines swamps as places "where ground water shall be near or at the surface of the ground for a significant part of the growing season or where runoff water from surface drainage shall collect frequently".

The Natural Resources Act of Zimbabwe uses a combination of hydrological and soil morphology factors to define wetlands. Wetlands are lands 150 mm or less from the surface, which are saturated for the major part of a rainfall season and which exhibit certain particular features in their soil profile: rust-like stains in root channels, clay topsoil horizons very rich in organic matter, or dark grey or black heavy clay showing considerable surface cracking when dry.

Soil characteristics are often difficult to determine and a soil scientist will usually be needed to identify wetland soils. The presence of water is easier to establish, except in those wetlands that are dry during part of the year. Many laws therefore rely on the presence of indicator plant species, some of which will generally be present during the dry season and which are relatively easy to identify with a little experience. By way of example, the law of Rhode Island complements the above-mentioned hydrological factors with lists of indicator species found in peatbogs, marshes and swamps, whilst other laws rely exclusively on indicator species criteria. Examples include the laws of New York and New Hampshire on inland and coastal wetlands and those of Georgia, Delaware and Michigan on coastal wetlands.

In Europe, Danish nature conservation legislation contains few definitions of the various habitat types to which it has been progressively extended, but the Ministry of Environment has issued a circular with more detailed explanations. In Switzerland, legally protected habitats must be identified on the basis of lists of plant indicator species appended to the regulations implementing the habitat provisions of the Nature Protection Act. Protected species and species listed in government-recognized Red Data Lists are also considered to be indicator species. Lists of plant indicator species have now been made for several wetland types, including peatbogs, marshes, riparian vegetation, and alluvial habitats.

Some laws exclude certain wetlands from the habitat types to which they apply. This is sometimes done explicitly, as in the Austrian Land of Vorarlberg where the law excludes certain kinds of bog (reed). In other cases, exclusion may occur indirectly as a result of the definition of wetlands given by the law.

In Costa Rica, the term "wetlands" was first used in legislation in 1995 when the Wildlife Conservation Law listed wetlands as a natural asset to be protected, reproducing the Ramsar definition.[145] This definition was soon found to be too broad to cater for the specificity of tropical systems and a new definition was therefore substituted by Article 40 of the Organic Environmental Law. Wetlands are now defined as ecosystems with dependency on natural or artificial, permanent or temporary, benthic or lotic, fresh, brackish or saltwater aquatic regimes, "including the marine extensions to the outside limits of phanerogamous marine regimes or coral reefs or, in their absence, to six meters of depth at low tide". The draft Wetlands Act will, if enacted in its current form, exclude artificial wetlands that are not necessary for the support of productivity or biodiversity, in accordance with a series of technical criteria defined in the law: artificial wetlands meeting such criteria would thus be exempt from the Act's provisions.

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[145] Ley N.7317 published in La Gazeta N.235 on 7 December 1995.

7.4 Establishing a Knowledge Base: Inventories, Maps and Monitoring

The Ramsar Convention, unlike more modern conservation treaties, does not establish any requirement for the preparation of inventories. Whilst there is no express monitoring obligation, this is implicit in Article 3.2 which requires Parties to "arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as a result of technological developments, pollution or other human interference." This obligation is of course limited to listed Ramsar sites, which form a tiny proportion of wetlands of national territory. More generally, as one commentator has put it, the complexity and diversity of wetlands has been a serious constraint to the development of effective monitoring schemes and it is only after 25 years that the Convention has now begun to address this issuesystematically.[146]

The Ramsar COP has now emphasized the importance of compiling national scientific inventories of wetlands in collaboration with competent national and international bodies.[147] The 1993 Additional Guidance devotes a section to Knowledge Of Wetlands And Their Values. This sets out the objectives and possible applications of a national inventory of wetlands and also covers monitoring, research, training and education and public awareness. It emphasizes that adequate knowledge of wetland functioning and present and potential problems is essential to determine the necessary policy, legislative and technical responses. The Strategic Plan recognizes that inventories can also serve finely-tuned purposes: Operational Objective 2.6 recommends that Contracting Parties identify wetlands in need of restoration and rehabilitation by means of regional or national scientific inventories of wetlands, supported by ongoing monitoring processes.

As mentioned in Chapter 3.3, the Convention on Biological Diversity supports the establishment of a scientific knowledge base in order to prioritise technical and financial measures. Under Article 7, Parties are specifically required to identify the components of biodiversity important for its conservation and sustainable use, having regard to the indicative list of categories set down in Annex I, and to monitor those components, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use. Parties must also use sampling and other techniques to monitor the effects of processes and activities identified as likely to have significant adverse impacts on the conservation and sustainable use of biodiversity. Institutional support has been provided under the Convention for this purpose. The CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) has provided more detailed guidance for the elaboration of national inventories, whilst the Global Environmental Facility has been requested to provide financial resources to developing countries to address the need for capacity-building, including taxonomy.[148]

A wetland inventory programme makes it possible not only to locate and classify wetlands but also to measure the resource baseline. This is essential whether the goal is to maintain the ecological character of a particular site or to stop the loss and degradation of wetlands across the landscape as a whole. Once the baseline is known, it is then possible to measure performance against the baseline of the wetland resource in question and to monitor the effects of the conservation actions undertaken. Inventories therefore provide an essential tool for planning and management, enable

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146 Moser, M., Prentice, C. and Frazier, S. 1996. *A Global Overview of Wetland Loss and Degradation,* Proceedings of RamsarCOP6 (Brisbane 1996), Vol. 10/12, Technical Session B, at p. 29.

147 Recommendation 4.6 (Montreux, 1990).

148 Decision III/10.

comparisons to be made at national and international levels and provide information for awareness programmes. The information they provide can then be managed through a wetland database. However, at national level there is still a serious gap in the lack of quantitative information on the conservation status of wetlands or the trends in the rates of loss or degradation. Moreover, with the notable exception of the United States and a few other countries, inventory programmes are still poorly developed in most countries.[149]

In the United States, the federal Water Pollution Control Act did not itself define wetlands. A definition was instead provided under the Army Corps of Engineers Regulations, this Corps being the competent public service for controlling wetland filling (see further Chapter 12.3 below). The confusion surrounding the definitional issue made it imperative to draw up a National Wetlands Inventory, which was initiated by the Fish and Wildlife Service in 1975. This did not in fact put a stop to the confusion, as the Service at the time had its own definition criteria for wetlands that applied to areas that were not technically considered to be wetlands under the Corps Definition. As knowledge on wetlands increased, it soon became apparent that there was also a need for a uniform national wetland classification system. This was completed in 1979 and constitutes the basis for the current National Wetlands Inventory. All areas considered by the Fish and Wildlife Service to be high priority areas had been included in the Inventory by 1988.

Interestingly, there may be a circular relationship between inventories and wetland-related legislation. Whilst it is desirable for legislation to provide for the establishment of inventories, a legislative basis is not a necessary precondition for an inventory programme. In the United States, it was the alarming results of the wetland status and trends reporting (linked to the inventory preparation) that provided a catalyst for national action on wetlands. The availability of factual information on wetland area and trends was considered to be of great importance: "numbers replaced emotional rhetoric" and provided a lever to raise awareness amongst the general public and decision-makers of wetland values.[150] The American data was instrumental in the enactment of Federal laws such as the 1985 Food Security Act (containing the 'Swampbuster' and other conservation provisions[151] and the Emergency Wetlands Resources Act, the Tax Reform Act and the Water Resources Development Act, all adopted in 1986. Many American States then proceeded to enact specific wetland legislation adapted to the characteristics of the State concerned.

Many European countries have now established a legislative basis for the preparation of inventories. In Switzerland, both nationwide and local inventories of wetlands are being prepared, based primarily on indicator species. In Spain, the 1985 Water Act requires each hydrological basin authority to compile an inventory of wetlands in the area under its jurisdiction. The inventory should identify areas that can be restored as wetlands or where new wetlands may be created. The inventory must determine the boundaries of the wetlands, their characteristics (including the biological communities which occur in them, their conservation status and threats to their integrity), their present uses, conservation measures required and specific actions or works necessary for the preservation and use of the wetlands which are compatible with the sustainable utilization of the resources. At subnational level, the Wetland Protection Act of 28 June 1990 of the Autonomous Community of Madrid provides for the establishment of a list of wetlands on its territory. Inclusion of a wetland on the list has legal effects in terms of prohibitions and actions to be taken by the Community of Madrid Government.

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149 Moser, M. *supra* n. 33.

150 Dahl, T.E. 1991. *U.S.A. Case Study: Policy and Legislative Initiatives Resulting from Wetland Status and Trends Data*. Paper presented to the Wise Use Working Group, 1-3 October 1991, The Hague, Netherlands.

151 'Swampbuster' provided disincentives for the conversion of certain wetlands for agricultural purposes (see Chapter 20 below).

One of the central themes of the French Wetland Action Plan, initiated in 1995, is the compilation of wetland inventories and the strengthening of monitoring and assessment mechanisms. These tasks are undertaken by the National Wetland Observatory, which has been managed by the National Environmental Institute since 1997. The Observatory's core missions are to assess the state of wetlands, coordinate and improve monitoring of wetland trends and contribute to the development and monitoring of policies applied to wetlands. Information is collected by a network of experts under the auspices of the Environmental Institute, which also validates this data. The list of wetlands meeting the Ramsar criteria currently includes 150 wetlands, 39 of which are located in French overseas territories. In addition, a list of wetlands of national interest because of their ecological or functional characteristics is currently being compiled. A wetland atlas covering 61 nationally or internationally important wetlands was published in 1998.

Inventories are generally completed by means of the production of maps, which are a convenient way of delineating the boundaries of areas under protection in a clear and indisputable way. Mapping also requires clear criteria. The American National Wetlands Inventory is in fact simply a collection of maps, based on high altitude photography, which are widely disseminated to the persons concerned. High accuracy is obtained by a combination of field studies, photo-interpretation, use of existing information and inter-agency review of draft maps. However, as indicated above, there is no legal basis for the making of such maps, which have only an indicative value.

Inventories and maps are also produced - and often legally required - under a certain number of state wetland programmes. There is a significant risk of overlap with and discrepancies between the national and state inventories, especially if these use different criteria and/or definitions. In order to minimize the risk of inconsistency between the two sets of inventories, the Inland Wetland Acts of New Jersey and Maryland adopted the federal regulatory definition used by the Environmental Protection Agency and the Army Corps of Engineers for the implementation of section 404 of the federal Water Pollution Control Act. Wetland determinations in Maryland must be made in accordance with the Federal Manual for Identifying and Delimiting Jurisdictional Wetlands (the technical term for wetlands to which section 404 is applicable).

Some other American States have enacted provisions in their wetland legislation directing their Conservation Departments to produce wetland maps and to update them periodically. In a few States, such as New York and Minnesota, public hearings are held before the maps are finally approved.

In general, maps prepared by a Government agency have legal force and are binding upon landowners, although they are subject to review by the Courts in the event of a dispute. However, the law may explicitly state that new maps have only an indicative value. This approach was used in the Non-Tidal Wetlands Protection Act of 1989 of Maryland which specified that maps made under the Act are "non-regulatory guidance maps".

In rare cases, maps form an integral part of the legislative statute itself and cannot therefore be altered or deleted other than by Act of Parliament. One notable example was the American Federal Coastal Basin Resources Act of 1982, which removed federal subsidies in certain coastal areas. The maps of the areas concerned, together with the Act, were adopted by Congress. They were of course the result of a political compromise, and some important areas were excluded. On the other hand, once an area is listed in an Act together with its map, it may be much more securely protected than if listed merely by regulations

In conclusion, effective wetland management clearly requires decisions to be made on the basis of strategic and operational intelligence.[152] Strategic intelligence, or the long-term view,

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[152] Ntambirweki, J. 1998a. *supra* n. 4.

provides a scientific foundation for identifying and prioritizing wetlands within conservation and wise use strategies. It encompasses the making of inventories and maps, classification of wetlands according to agreed criteria, procedures for monitoring and support for the targeted application of regulatory controls or economic incentives. Operational intelligence relates to the immediate context in which actions shall be taken at a given place, the fundamental principle being to avoid or minimise adverse environmental impact on the wetland or water system in question. Global Information Systems (GIS) and technical databases are of great importance to regulators and managers in this respect.

At strategic level, environmental mapping, and inventorying should preferably be accompanied by legal mapping. This process seeks to identify all existing legal measures and ownership regimes applicable to wetlands under consideration. It may be used to show the delimitation of coastal zones and soil conservation zones; boundaries for preservation instruments for sites, monuments and landscapes; places where discharging into the natural environment (water, air, soil) is permitted; fauna and flora protection areas; and, more generally, all other environmental constraints. Administrative boundaries (between different local authorities or other territorially competent bodies) could be superimposed for further precision. Such mapping, combined with environmental mapping, should increase the accessibility and amount of information available to the decision-makers and make it easier for the various parties involved to choose between options both for planning purposes and when reaching specific decisions.[153]

7.5 The Issue of Wetland Restoration

The Ramsar Convention does not contain provisions for wetland restoration, although it does deal in a limited way with the issue of wetland compensation. Article 4.2 provides that

> where a Contracting Party, in its urgent national interest, deletes or restricts the boundaries of a wetland included in the List, it should as far as possible compensate for any loss of wetland resources and in particular it shall create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat.

The 1990 Guidelines call generally for the restoration of wetlands whose benefits and values have been degraded and the COP has specifically recognized the role of wetland restoration in improved water management.[154] The Strategic Plan deals more specifically with wetland restoration and rehabilitation. It urges Parties to identify appropriate wetlands by means of regional or national scientific inventories of wetlands or monitoring processes; to provide and implement methodologies for restoration and rehabilitation of lost or degraded wetlands; and to establish wetland rehabilitation/restoration programmes at destroyed or degraded wetlands, especially in association with major river systems or areas of high nature conservation value.[155]

The Convention on Biological Diversity also establishes a legal basis for restoration. Article 8 *(in situ* conservation) requires Parties, as far as possible and as appropriate, to restore degraded ecosystems and promote the recovery of threatened species. Article 10(d) contains a similar

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[153] e.g. Prieur, M. 1997. *Model Law on Sustainable Management of Coastal Zones (Draft 3),* Document prepared for the Bureau of the Committee for the Activities of the Council of Europe in the field of Biological and Landscape Diversity (PE-S-CO(97) 2).

[154] Recommendation 6.15 (Brisbane, 1996).

[155] Operational Objective 2.6 and Actions 2.6.1-3.

requirement to support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced. The non-binding Pan-European Biodiversity and Landscape Diversity Strategy devotes Action Theme 7 to the definition of guidelines for the rehabilitation of wetlands, the promotion of national and regional hydrological management plans and wetland conservation action plans and measures relating to peatbog conservation.

As mentioned in Part I, it is commonly agreed that restored, rehabilitated or newly created wetlands cannot replace natural ecosystems. Nevertheless, in line with new technical possibilities at least for certain habitat types, the potential for restoring degraded wetlands and watersheds and creating new wetlands has been given increasing consideration. This is particularly true of industrialised and/or densely populated countries which have seriously destroyed or degraded wetland function for years. In many poorer countries, on the other hand, wetlands tend to be in a much more natural state and the priority will be to use them wisely and sustainably for maximum human benefit.[156]

There are two main ways in which the law can support the restoration of degraded wetlands. The first is where legislation provides for the making of environmental restoration orders. This type of order may be imposed where individual wetlands are damaged or destroyed by the actions of a natural or legal person and, crucially, that damage is detected and the responsible party identified. Laws that provide for the use of such instruments include the Spanish Water Act of 1985, which specifies that the Government may make regulations to order the restoration of the wetlands concerned and Uganda's, 1995 National Environment Statute. Breach of these environmental restoration orders would presumably constitute a criminal offence subject to financial or other penalties.

The second approach is strategic in character and involves the integration of restoration policies and targets into national or subnational physical planning documents. Denmark and the Netherlands have probably gone furthest with this type of approach. The Dutch Nature Policy Plan, approved by Parliament in 1990, sets out the national nature policy for the next 25 years and contains many elements that overlap with the wise use principles. The Policy Plan is structured around the creation of a national ecological network, of which wetlands are an essential element. The creation of this network is to be achieved through the development of natural areas inter alia through restoration projects that involve the restoration of wetlands, the creation of new wetland areas and the creation of ecological corridors.[157] Spatial mechanisms of this kind are discussed further in Chapter 13.

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156 Smart, M. 1997. *Sehumed: Boletin de la Sede para el Estudio de los Humedales Mediterraneos,* Vol. 1/1, March 1997.

157 Enemark, J. *supra* n. 6.

PART III

MANAGING WETLAND AREAS THROUGH SITE-SPECIFIC MECHANISMS

Site-specific instruments, particularly those involving the designation of protected areas, are one of the best-known and longest-established components of nature conservation policy. For more than a hundred years, national laws have provided for the preservation of sites of scenic or ecological importance: there are many much older precedents for using law to protect areas for the conservation of particular natural resources, notably forests. Site-specific conservation mechanisms offer almost limitless flexibility for adaptation to national characteristics. They can encompass local nature reserves and representative habitat types as well as international 'flagship' designations with a high public profile, and provide a strategic framework within which legal measures can control damaging activities or promote adapted management practices.

Site-specific mechanisms are therefore an essential component of broader environmental policies: after all, conservation and wise use are ultimately determined by what happens 'on the ground'. Too often, however, their potential contribution is circumscribed for a variety of reasons. Their application may be constrained by outdated, narrow or overly restrictive legislation, which can generate fierce opposition within affected local communities, or by operational weakness of overstretched conservation authorities. More fundamentally still, many countries still rely almost exclusively on site-specific approaches and have not yet established policies to integrate such approaches into their physical planning policies or to promote a minimum of consistency between activities inside and outside protected areas. This structural weakness is particularly serious in the context of wetlands because it ignores the role of individual wetlands within the hydrological cycle.

The following chapters in Part III describe the legal basis for site-specific wetland conservation, explore some of the factors that determine effectiveness and popular legitimacy and provide examples of national approaches adapted to the specificity of wetlands, locally or in a bioregional context.[1]

[1] For a more detailed analysis of area-based mechanisms and conceptual approaches in international and national law, see generally de Klemm, C. in collaboration with Shine, C, 1993. *Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems.*

Chapter 8
Application of Site-specific Conservation Measures to Wetlands

At international level, the legal basis for designating individual wetlands for protection derives primarily from the Ramsar Convention, although many other conservation treaties contain area-based requirements that may be used to protect wetlands.

An international site-specific conservation system can have many advantages compared to a simple obligation to establish protected areas, provided that it fulfils certain minimum requirements relating to scientific designation criteria, integrity (maintenance of ecological character) and perennity (safeguards against delisting). Such systems enable international attention, as well as the efforts of the Parties concerned, to be focussed on the need to preserve particularly valuable ecosystems as a matter of international and national priority. Whilst internationally designated sites, the "crown jewels"[2] of site conservation, can only cover a small percentage of national territory, they may have a valuable multiplier effect on levels of awareness, support and action elsewhere in national territory.

8.1 Site-specific Obligations Under the Ramsar Convention

Ramsar's best-known requirement is for each Party, without prejudice to its sovereign rights, to designate "suitable wetlands within its territory" for inclusion in the List of Wetlands of International Importance: at least one wetland must be designated at the time it signs, ratifies or accedes to the Convention. Parties are also required to promote wetland conservation by establishing nature reserves in wetlands and providing adequately for their wardening.[3] These obligations are extremely general and leave Parties considerable discretion in the extent to which they implement their commitments.

8.1.1 Criteria for Selecting Wetlands

The designation of "suitable" wetlands for the Ramsar List is a unilateral procedure for each Party: the Ramsar COP does not have the power to approve listings and the Convention Bureau simply maintains the List.[4] The Convention gives only very broad guidance, specifying that "wetlands should be selected for the List on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology. In the first instance, wetlands of international importance to waterfowl at any season should be included".[5] The boundaries of a designated wetland must be delimited on a map and may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide within the wetlands, especially where these have importance as waterfowl habitat.

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2 Barborak, J.R. 1995. *Institutional Options for Managing Protected Areas* at p. 34.

3 Art. 4.1.

4 This contrasts with the position under the 1972 World Heritage Convention, whereby the World Heritage Committee must approve candidate sites proposed by individual Parties before they can be included in the World Heritage List (see Chapter 8.2 below).

5 Art. 2.2.

The Ramsar COP has developed increasingly detailed criteria for site listing, as explained below. From a strictly legal point of view, these criteria are no more than guidelines. Parties are in principle free to designate sites of their choice and, moreover, are not legally bound under the Convention to designate all sites meeting the current criteria. However, the clear policy of the Ramsar institutions is to maintain the quality of wetlands included in the Ramsar List by ensuring that proposed designations fulfil specific criteria or clusters of criteria. General Objective 6 of the Strategic Plan encourages more extensive listing by calling for the designation of those wetlands which meet the Convention's criteria, especially wetland types under-represented on the List and transfrontier wetlands

After the Convention's entry into force, the absence of clearer listing criteria was found to cause practical difficulties in the selection of appropriate sites. At its first meeting in 1980, the COP adopted more detailed criteria, still principally focused on waterfowl.[6] Since then, there has been increasing recognition, based on scientific research, that the presence of large numbers of waterfowl is far from being the only important criterion for listing. The COP has therefore reviewed and extended its listing criteria on several occasions to promote a more holistic approach to wetland functions and values.[7]

In 1990,[8] the Criteria were expanded to comprise three 'clusters', which respectively cover specific criteria based on waterfowl, general criteria based on plants and animals and criteria for representative or unique wetlands.[9] A wetland should be considered to be of international importance *inter alia* when it is a particularly good representative example of a natural or near-natural wetland; a wetland which plays a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system; supports an appreciable assemblage of rare, vulnerable or endangered plant or animal species; or is of special value for maintaining the genetic and ecological diversity of a region, as the habitat of plants or animals at a critical stage of their biological cycle (e.g., fish) or for one or more endemic plant or animal species or communities.

A fourth 'cluster' was added in 1996 when the COP adopted *Specific criteria based on fish for identifying wetlands of international importance and guidelines for their application.*[10] These criteria, which form an integral part of the Criteria adopted in Montreux, provide that a wetland should be considered internationally important if (a) it supports a significant proportion of indigenous fish subspecies, species or families, life history stages, species interaction and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity; or (b) it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend. They should therefore make it possible to identify important wetlands that fell outside the scope of the earlier criteria.

The Ramsar listing criteria have an importance that goes beyond the identification of individual sites. Waterfowl-based criteria have made it easier to bridge wetlands in different

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6 Recommendation 1.5 (Cagliari, 1980), based on proposals drawn up by the 1974 Heiligenhafen Conference before Ramsar's entry into force.

7 Beginning with Recommendation 3.1 (Regina, 1987). Each of these revisions of the Criteria has been adopted by ordinary Recommendation of the COP. Whilst such a Recommendation is not legally binding, it imposes at least a moral obligation on the Parties that approved it to adhere to the relevant Criteria.

8 Recommendation 4.2 (Montreux, 1990).

9 A wetland usually holding 20,000 waterfowl or 1% of the total population of a water bird species or sub-species should be considered to be of international importance.

10 Resolution VI.2, Brisbane, 1996.

continents by establishing flyway networks composed of important sites along migration routes.[11] Similarly, the criteria based on fish should over time facilitate the development of a whole catchment approach under the auspices of the Ramsar Convention.[12] This could be of great importance to the institution of more effective legal measures for the conservation and rational management of fish stocks.

The revisions to date show how Ramsar's original focus on waterfowl and wetland habitats has been systematically broadened. This progressive extension of the listing criteria is acknowledged to be a continuous process. The Strategic Plan calls for the Ramsar criteria to be reviewed and developed by the COP and the Scientific and Technical Review Panel (STRP).[13] Particular consideration should be given to the cultural values and/or benefits derived from wetlands and the feasibility of designating Ramsar sites on the basis of important natural hydrological functions, such as groundwater recharge or water quality improvement.[14] The COP has urged Parties to designate wetlands which meet the Convention's criteria, especially wetland types that are currently under-represented on the Ramsar List such as coral reefs, mangroves, sea-grass beds and peatlands,[15] transfrontier wetlands and subterranean karst wetlands.[16] In these respects, Ramsar's evolution reflects and contributes to international recognition of the ecological and socio-economic importance of wetlands and wetland biodiversity within the context of the hydrological cycle.

8.1.2 Legal Consequences of Listing

Once a Contracting Party has formally designated a wetland for the Ramsar List, it becomes bound by certain commitments under the Convention. However, it should be emphasized that whilst listing confers international recognition, it entails surprisingly little in terms of concrete legal requirements. Each Party basically undertakes three tasks:

- to formulate and implement its planning so as to promote the conservation of the wetlands included in the List;[17]
- to arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as a result of technological developments, pollution or other human interference and to notify the Bureau of this fact without delay;[18] and to
- consider its international responsibilities for the conservation, management and wise use of migratory stocks of waterfowl, both when designating entries for the List and when exercising its right to change entries in the List relating to wetlands within its territory.[19]

The first of these obligations is an *obligation of result.* Ramsar does not require listed sites to be designated as protected areas or lay down any particular rules relating to the kinds of protection

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11 See Chapter 23 below.

12 Technical Session E, COP6, Brisbane 1996, Vol. 10/12 at p. 3.

13 Operational Objective 6.3.

14 Resolution VI.3.

15 Strategic Plan, Action 6.2.3.

16 Resolution VI.5 (Brisbane).

17 Art. 3.1.

18 Art. 3.2.

19 Art. 2.6.

measures that Parties should take to meet their obligations. However, this should not be interpreted as weakening the requirement to conserve listed wetlands, which is a serious political comitment in front of the international community.[20] Whilst each Party is free to select the measures that it considers most appropriate, the common goal must be to ensure that the legal status conferred on Ramsar sites provides a clear, adequate and enforceable basis for regulating or otherwise managing activities in and threats to the wetlands concerned. Options will obviously vary depending on the legislative and institutional systems of the country concerned, the size, type and ownership of the Ramsar site, the intensity of existing uses and the priorities of local communities. The fact that perhaps 84% of Ramsar sites are under actual or potential threat[21] is a reminder that many of the legal regimes instituted to date are not appropriately designed or adequate in themselves to secure this common objective. The Strategic Plan reaffirms the need to ensure the conservation of all sites included in the Ramsar List as one of its eight General Objectives.

The essence of the Article 3 obligation is to maintain the "ecological character" of listed sites. Because the Convention did not define this term, there has been some confusion about the scope of this criterion. In 1996, the COP sought to clarify matters by adopting working definitions of "ecological character" and "change in ecological character":

The 'ecological character' is the structure and inter-relationships between the biological, chemical, and physical components of the wetland. These derive from the interactions of individual processes, functions, attributes and values of the ecosystem(s).

'Change in ecological character' of a wetland is the impairment or imbalance in any of those processes and functions which maintain the wetland and its products, attributes and values.[22]

Measures taken by" Parties should thus be designed to safeguard the interactions between ecological processes, functions, attributes and values of Ramsar sites. This can only be done by maintaining their hydrological character, which is directly influenced by management of water resources and land use upstream of the wetland in question.[23] Legal systems must strengthen the interface between Ramsar sites and their surroundings, particularly through linkages with physical planning instruments and water system management.

These working definitions raise important questions with regard to the management ethos for Ramsar sites. They do not refer to the effect of human utilisation on wetland character, even though in many cases the wetland was created or has been closely shaped by human intervention over centuries or at least decades.[24] To what extent should a listed wetland be strictly protected or its

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20 Smart, M. 1997. *Sehumed: Boletin de la Sede para el Estudio de los Humedales Mediterraneos*, Vol. 1/1, March 1997.

21 Moser, M., Prentice, C. and Frazier, S. 1996. *A Global Overview of Wetland Loss and Degradation,* COP6 (Brisbane 1996), Vol. 10/12, Technical Session B, pp. 21-31, cited in Chapter 1 above.

22 Resolution VI. 1. These definitions will be further considered by the Seventh Meeting of the COP (San Jose, Costa Rica, May 1999).

23 See Acreman, M., Howard, G. and Pirot, J-Y, *Reconciling Water Resources Management and Wetland Conservation: A Key Challenge for Ramsar in the 21st Century,* in *Themes for the Future: Special Interventions* (COP6, Brisbane 1996, Conference Proceedings Vol. 9/12, p. 4).

24 This subject stimulated active debate within the Ramsar Electronic Forum in March 1998. See for example communication by Max Finlayson, 28 March 1998: "the character of a wetland is affected by the utilisation of the wetland and, in some instances, is so intricately linked that it is difficult to address them separately".

uses restricted rather than being used for socio-economic benefit? This issue is of course of great sensitivity because, as Ramsar recognizes, few wetlands are not currently subject to some form of human use. Rural economies, particularly in developing countries, are heavily dependent on the productivity and hydrological resources of wetlands. If ecological management of flagship wetlands under the Ramsar Convention is exclusively associated with preservationism or reduction of the available resource base, this may engender popular opposition to site-specific conservation mechanisms. It may even deter other States from acceding to the Convention.

As mentioned in Chapter 4, the Strategic Plan emphasizes that human usage on a sustainable basis is entirely compatible with Ramsar listing and wetland conservation in general.[25] In practice, the question of permitted uses in Ramsar sites can only be assessed and determined on a case-by-case basis. Existing uses in one wetland may form an integral part of its existing ecological character, particularly if these involve traditional management practices. In other cases, existing uses may collectively lead to overexploitation and impairment of a Ramsar site, most probably in areas where rising local populations and diversified economic activities make increasing demands on wetlands. In the latter situation, the Party concerned is legally bound under the Convention to take steps to prevent such degradation and ensure the long-term ecological integrity of the Ramsar site. This is recognized by the COP which has developed specific tools to guide and assist Parties to address problems in threatened Ramsar sites (see section 8.3 below).

Once a Party has chosen to list and conserve a Ramsar site, it cannot delist that wetland without following a certain procedure. It is free to delete or restrict the boundaries of a listed wetland for reasons of "urgent national interest" but should inform the Convention Bureau of such changes.[26] It should also "as far as possible, compensate for any loss of wetland resources" resulting from such delisting. The suggested measures for such compensation are also site-specific: they include the creation of additional nature reserves for waterfowl and the protection, in the same area or elsewhere, of an adequate portion of the original habitat.[27] To date, no Party has ever deleted a wetland from the List.[28]

In 1993, the COP established a Review Procedure for removing ineligible sites from the Ramsar List. The Ramsar Bureau, in conjunction with the Scientific and Technical Review Panel, may review information submitted by a Contracting Party in order to identify sites that do not meet any of the Criteria. Where this is confirmed by consultations with the Party concerned, and there is no possibility of extending, enhancing or restoring the site's functions or values to justify its listing, the Party concerned must instruct the Bureau to remove the site from the List.[29]

8.1.3 Management Tools and Guidance

The COP has a general power to adopt Recommendations in respect of Ramsar sites in the territories of specific Contracting Parties. These may be framed to encourage improved management of a specific site or to discourage a proposed development liable to threaten the site in

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25 General Objective 2, introductory paragraph.

26 Art. 2.5.

27 Art. 4.2.

28 No Party has ever deleted a wetland from the List (a State that deleted all the wetlands it had included on the List would of course cease to be a Contracting Party). There was one case in Belgium where the surface area of a listed site was reduced but this was compensated, as the Convention requires, by a substantial increase in the area of another site.

29 Resolution 5.3 (Kushiro 1993).

question. Recommendations may also call on individual Parties to list additional wetlands on their territory, with particular reference to specific sites, geographic areas or wetland types. Such Recommendations are not binding. Nevertheless, by enhancing the visibility of an existing or potential site and formalising concern about incompatible uses or developments, they can have considerable persuasive force and play an extremely constructive role.[30]

The COP has adopted a series of guidelines and norms to improve the effectiveness of Ramsar site conservation, ensure that listed sites should be monitored for serious degradation of their conservation status and encourage the Parties concerned to take remedial action. These are technical tools which do not address the legal and institutional aspects of site conservation. They include a global classification of wetland types;[31] a standardized information sheet to facilitate the accurate and consistent recording of data for each wetland to be included in the List; and guidelines for describing and maintaining the ecological character of listed sites.[32] Parties should provide the Bureau with a map and a completed information sheet for each site designated for the Ramsar List and should update this information at least every six years for monitoring purposes.[33] The overarching purpose of these documents is to establish adequate baseline data at the time of listing against which possible changes in ecological character can be assessed. Such assessment should be linked to the Ramsar criterion/criteria fulfilled by the site at the time of designation: however, the COP has emphasized that "significant degradation of wetland functions and values might occur without any of the designated Ramsar criteria being contravened".[34]

Where a Ramsar site is known to be under threat, the COP has established two procedures to assist the Party concerned to remedy the situation.

The Montreux Record[35] was established in 1990 as Ramsar's main mechanism for identifying listed wetlands in need of urgent conservation attention and serves to guide the allocation of resources available under existing financial mechanisms. Inclusion of a site may be requested by the Party on whose territory the wetland is situated or be raised by partner organizations, international or national NGOs or other interested bodies: it is always subject to the approval of the

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30 E.g., Recommendation 1 (Ramsar, 1971) resulted in the listing of virtually the whole of the Wadden Sea by Germany, the Netherlands and Denmark. More recently, Recommendation 6.17 (Brisbane, 1996) listed congratulations, encouragement or strong exhortations to a whole series of countries with regard to individual sites. By way of example, the Government of South Africa was warmly congratulated (para. 10) for having taken steps to prohibit mining for heavy metals in the dune cordon of the Saint Lucia System Ramsar site that would have damaged the site's ecological character.

31 Classification system for wetland types approved under Recommendation 4.7, amended by Resolution VI.5.

32 Annex to Resolution VI. 1 (Brisbane, 1996).

33 Resolution VI. 13. Prior to COP6 in Brisbane, such data was used by Wetlands International to analyse threats to Ramsar sites in order to present a summary of the frequency and distribution of different categories of threat affecting the sites and to draw conclusions on the success or otherwise of Ramsar listing in reducing such threats.

34 Para. 2.5, Annex to Resolution VI. 1, (Brisbane, 1996) which also includes a Framework for designing an effective wetland monitoring programme.

35 Named after the Swiss city where it was adopted by the Fourth meeting of the COP. Its full title is *Record Of Ramsar Sites Where Changes In Ecological Character Have Occurred, Are Occurring, Or Are Likely To Occur.*

Party concerned. *Guidelines for operation of the Montreux Record* were adopted in 1996.[36] These include a standardised questionnaire for obtaining the necessary information to assess whether a listed site should be included in or removed from the Record. The Ramsar Bureau is responsible for maintaining the Record as part of the Ramsar database. By January 1999, sixty-two sites were listed in the Record[37]

The Management Guidance Procedure for sites of risk of degradation is designed to provide advice and assistance for sites on the Montreux Record.[38] Where the Bureau is informed that the ecological character of a wetland included in the List is changing as a result of technological developments, pollution or other human interference, it must propose to the Contracting Party concerned that the Management Guidance Procedure be implemented and shall, at the same time, request additional information on the status of the wetland concerned. The Procedure is thus designed to function as an early warning system to identify the sites most urgently in need of conservation measures. It usually involves a site visit by experts and members of the Secretariat, in order to find ways to reach an acceptable solution. This can provide a catalyst for getting more financial support and for implementing more rigourous legal procedures, notably with regard to environmental impact assessment of programmes and projects that may adversely affect the ecological character of the wetland concerned.[39] Once again, of course, institution of the Procedure and site visits are conditional upon the consent of the Party concerned.

The COP has also adopted Guidelines on Management Planning in Wetlands that support the development of integrated management planning for both Ramsar sites and other wetlands. These, together with the site-specific recommendations contained in the 1993 Additional Guidance, are discussed further in Chapter 10 below.

8.2 Status of Site Conservation Requirements Under Other International Instruments

Although the Ramsar Convention is the only treaty to focus exclusively on wetlands, most conservation treaties provide at least a general basis for the protection of individual wetlands. Some, like the 1979 EC Wild Birds Directive, are directly concerned with protecting wetlands as critical habitat for migratory birds; others, like the 1985 ASEAN Agreement, expressly call for areas of naturally high productivity, such as coastal zones and wetlands, to be taken into account in conservation planning. Others again, like the 1979 Bern Convention, include conservation measures for selected habitat types that include some categories of wetlands. An outstanding wetland site may benefit from several designations: by way of example, the Donana National Park (Spain) is a World Heritage Site, a Ramsar site and holds the European Diploma conferred by the Council of Europe, whilst the Danube Delta is a Biosphere Reserve and contains several Ramsar sites. The following section briefly reviews selected instruments.

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36 Part 3, Annex to Resolution VI.1.

37 In a striking example, three of India's six Ramsar sites are already on the Montreux Record (Keoladeo National Park, Chilika Lake and Loktak Lake), making it imperative to examine the legal and institutional aspects of wetlands management in the country (Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India).*

38 Recommendation 4.7 (Montreux, 1990). It was formerly called the *Monitoring Procedure.*

39 See generally Pritchard, D. 1997. *Implementation of the Ramsar Convention in Trinidad & Tobago.*

8.2.1 Global Instruments

Several wetlands have been designated as World Heritage Properties under the 1972 Convention for the Protection of the World Cultural and Natural Heritage.[40] These included the Great Barrier Reef (Australia), the Grand Canyon and Everglades National Park (United States), the Galapagos Islands (Ecuador), the Iguazu Falls (Argentina/Brazil), the Banc d'Arguin (Mauritania), the Aldabra Atoll (Seychelles), the Ichkeul National Park (Tunisia), the Tabbatata Reef Marine Park (Philippines), El Viscuino (Mexico, a major wintering area for the grey whale) and the Sundarbans (Bangladesh).

Under the Convention, the main duty of each Party is to ensure the identification, protection, conservation, presentation and transmission to future generations of cultural and natural heritage. The latter is defined to include natural sites, natural features, formations or sites, which are of outstanding universal value from the aesthetic, conservation or scientific point of view or which constitute the habitat of threatened species of outstanding universal value from the point of view of science or conservation.[41] Whenever a site meets those requirements, the Party on whose territory it is situated is under a duty to integrate the protection of that heritage into comprehensive planning programmes and to take the legal, scientific, technical, administrative and financial measures necessary to achieve these objectives.[42] Significantly, Parties also undertake not to take any deliberate measures that might directly or indirectly damage any heritage situated on the territory of other Parties.[43]

Each Party may submit inventories of their heritage properties to the World Heritage Committee,[44] which maintains the World Heritage List. Acceptance onto the List is contingent on approval by the Committee, which has defined Operational Guidelines for this purpose.[45] One of the main advantages of listing, in addition to enhanced prestige and visibility, is the possibility of obtaining financial assistance from the World Heritage Fund.[46] Where the Committee refuses to enter a site on the List, this may not be construed as meaning that the site ceases to have an outstanding universal value or to be part of World Heritage.[47] In other words, the Convention's obligations apply to sites identified by the State Party concerned, irrespective of inclusion in the List.

The Convention establishes an advanced system of international co-operation and assistance to facilitate implementation. The Committee publishes an annual List of World Heritage in Danger[48] setting out properties threatened by "serious and specific dangers". These include threats

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40 Signed in Paris under the auspices of UNESCO on 16 November 1972; in force since 17 December 1975.

41 Art. 2.

42 Articles 4- 5.

43 Article 6.

44 Established under Article 8 and comprising 21 members from the different regions and cultures of the world.

45 Article 11. The Guidelines also cover the allocation of funds from the World Heritage Fund and the delisting of sites.

46 Articles 15 and 16. The Fund is generated by compulsory and voluntary contributions from the Parties. Compulsory contributions may not exceed 1% of the contributions of UNESCO's member States to the regular budget of that organisation.

47 Article 12.

48 Article 11.

of disappearance caused by accelerated deterioration, large-scale public or private projects or rapid urban or tourist development projects; destruction caused by changes in the use or ownership of the land; abandonment; the outbreak or threat of armed conflict; calamities and cataclysms; serious fires, earthquakes, landslides; volcanic eruptions; changes in water level, floods and tidal waves. At the request of the Party concerned, urgent measures to protect listed properties directly threatened with deterioration or total destruction may be financed by the World Heritage Fund if the Committee so decides.

The Convention is silent on the question of delisting, but it is doubtful whether an individual Party may unilaterally delist a listed site and this has never yet happened. However, the Committee may delist any site that in its judgement has lost its World Heritage values, pursuant to the Operational Guidelines mentioned above. The mere possibility of delisting, inevitably accompanied by media coverage and public opposition, can act as a powerful incentive for States to halt harmful programmes or projects or take other necessary action to preserve the property in accordance with the Convention.

Interestingly, wetland heritage formed the subject of a landmark legal judgment on the status of the Convention in 1983. In the famous *Tasmanian Dams* case, the High Court of Australia[49] narrowly ruled that the Convention imposed a binding duty on a State Party to protect a listed World Heritage Site on its territory and not to abolish the protection status of such sites. The case arose out of a decision by Tasmania to authorise the construction of a hydroelectric dam that would have flooded a large part of an area nominated by the Commonwealth Government for inclusion in the World Heritage List. The Commonwealth Government therefore adopted the World Heritage Properties Conservation Act 1983 and secondary regulations, which made the construction of the dam unlawful on the basis *inter alia* that it was necessary to give effect to the provisions of the 1972 Convention. The validity of this Commonwealth legislation was challenged, unsuccessfully, by the State of Tasmania: a majority of the Court held that Articles 4 and 5 of the Convention did impose an international obligation upon Australia to take appropriate measures for the preservation of the world heritage area.

Also at global level, many outstanding wetlands have been designated for the World Network of Biosphere Reserves under the non-binding Man and Biosphere Programme, established in 1968 by UNESCO. Unlike World Heritage or Ramsar sites, which must each be of outstanding importance, biosphere reserves are intended to be representative of different ecosystem types in all biogeographical zones in the world and to demonstrate a balanced relationship between humans and the biosphere. The designation of sites is a voluntary matter for each State, but the MAB Coordination Council must approve proposals and unsuitable areas may be refused.

As discussed in Chapter 10 below, the biosphere reserve concept offers a useful model for wetland conservation and wise use because it embodies the principles of integration into broader regional planning and promotion of sustainable human uses. The World Network, which numbered over 350 reserves in 90 countries by early 1999, already includes wetlands as varied as the Uvs Nuur Basin Cluster (Mongolia) and the Middle Elbe Biosphere Reserve (Germany). Interestingly, many bilateral or trilateral wetland biosphere reserves[50] have been established, often incrementally: for instance, the Danube Delta Biosphere Reserve was designated in two stages (the Romanian part in 1979, the Ukrainian part in 1998). The concept can also make a positive contribution to integrated

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49 *Commonwealth of Australia v. State of Tasmania*, High Court of Australia (1983), 68 *I.L.R.* 266. For a fuller discussion of this case, see Sands, P. 1995. *Principles of International Environmental Law: Volume I (Frameworks, Standards and Implementation)* at pp. 447-449.

50 Mechanisms for transboundary wetlands and regional networks are discussed further in Chapter 23 below.

coastal zone management,[51] although jurisdictional barriers to coastal planning and conservation present problems in many countries.[52] One interesting example of a coastal biosphere reserve is Boloma-Bijagós Archipelago in Guinea-Bissau which was designated in 1996. It consists of 88 islands and islets and the surrounding marine area within the country's territorial sea, with a total area of 11.000 km" (of which 1.200 km" is land and 1.600 km" is intertidal areas).[53]

The 1992 Convention on Biological Diversity also contains area-based provisions that are not restricted to the establishment of protected areas. Under Article 8, Parties are required, as far as possible and as appropriate, to establish a system of protected areas "or areas in which special measures need to be taken to conserve biological diversity" and to develop guidelines for the selection, establishment and management of such areas. The same article supports the integration of protected areas into the surrounding landscape, possibly through buffer zone techniques, by requiring Parties to promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas. This closely supports the conceptual basis on which biosphere reserves have been developed.

For the marine environment, the 1982 United Nations Convention on the Law of the Sea also lays down globally applicable rules for the conservation of natural areas. As mentioned in Chapter 3.2, Article 194.5 sets out a general obligation to protect fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life. Regional protocols for protected marine and coastal areas have been developed on the basis of this provision: they are discussed at the end of the following section.

8.2.2 Regional Instruments

Many regional environmental instruments establish area-based conservation requirements that can be applied to wetlands. Terrestrial agreements include:

- the 1940 Western Hemisphere Convention (America) and in a subregional context, the 1994 Central American Forest Agreement, the Biodiversity Protection Agreement and the System for Protection of Priority Natural Areas in Central America;

- the 1968 Algiers Convention (Africa) and various sub-continental instruments, including the Convention establishing the Lake Chad Basin Commission[54] which lays down requirements for the establishment of protected areas to preserve the fragile ecosystems around Lake Chad;

- the 1976 Apia Convention (South Pacific) which aims to conserve representative samples of natural ecosystems, wildlife and their habitats, consistent with customary use of areas and species in accordance with traditional cultural practices. Along traditional lines, it provides for the creation of protected areas and the protection of species, lists of which are to be drawn up by each Contracting Party;

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51 See generally Brunckhorst D.J. (Ed). 1994. *Marine Protected Areas and Biosphere Reserves: Towards a New Paradigm*, Proceedings of the First International Workshop on Marine and Coastal Protected Areas, Australian Nature Conservation Agency, Canberra 1994.

52 As discussed in Chapters 5.2.4 above and 9.2 below.

53 Source: Biosphere reserves, Bulletin of the International Network, n°4, December 1996.

54 Adopted on 22 May 1964 by the four riparian States of Lake Chad (Cameroon, Chad, Niger and Nigeria). This Convention and other African regional agreements for cooperation over shared water systems are discussed further in Chapter 22 below.

- the 1985 ASEAN Agreement (South-East Asia, not yet in force) contains specific obligations related to the creation of protected areas, including coastal and marine areas. Unlike several of the above-mentioned treaties, it provides for the establishment of institutions (a Secretariat, national focal points and regular meetings of the Contracting Parties) to oversee and review implementation.

At pan-European level, the 1979 Convention on the Conservation of European Wildlife and Natural Habitats[55] (the Bern Convention) lays down area-based obligations without any reference to protected areas. Parties are required to take appropriate and necessary measures to ensure the conservation of habitats of wild flora and fauna species, especially those which are listed as fully protected in Appendices I and II to the Convention. In addition, they must take measures for the conservation of endangered European natural habitats, including wetland types such as peatlands and salt marshes, irrespective of the endangered species that these may contain.[56] Parties are free to use any legal instrument of their choice to fulfil these obligations. The Convention's decision-making body takes the form of a Standing Committee composed of representatives of all the Parties, which meets annually and which may address recommendations to individual Parties.[57]

Within the European Union, two Directives[58] contain specific provisions for the conservation of wetland areas.

The 1979 Wild Birds Directive[59] sets out a list of species in Annex I whose habitats require special conservation measures. Member States are required to establish *Special Protection Areas* for the conservation of these habitats and, for that purpose, must identify and protect the most suitable territories in number and size. This obligation also applies to the breeding, moulting and wintering areas and staging posts of regularly occurring migratory species not listed in Annex I. Parties must also pay particular attention to the protection of wetlands, especially to wetlands of international importance.

The 1992 Habitats Directive[60] is the most comprehensive instrument for nature conservation adopted to date in the European Union (unique in that it is a supra-national lawmaking body on which a series of treaties have conferred competence for subjects that now include environmental protection and nature conservation). The Directive reflects and contributes to the trend in many developed countries to focus on safeguarding remaining natural habitats and the habitats of endangered species. Its level of scientific and legal specificity is of particular interest, because precise verifiable obligations of the type described below begin to make it possible to identify and act upon cases of national non-compliance.

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55 Bern, 19 September 1979; in force 1 June 1982.

56 Art. 4.

57 This body has proved particularly vigilant in supervising compliance with treaty obligations and has opened "case files" relating to possible violations relating to European wetlands or wetland-dependent species (see Chapter 21 below).

58 Member States of the European Union (currently fifteen in number) are required to transpose requirements contained in Directives into their national legislation by a specified date. Directives generally establish obligations of result, leaving Member States free to select the most appropriate legal means to achieve the agreed objectives.

59 Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds, OJ L 103, 25 April 1979 as amended.

60 Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora. The following summary is necessarily only a brief overview.

The Directive provides for the development of a coherent ecological network known as Natura 2000 made up of listed endangered natural and semi-natural habitats, independently of the species which they may contain, as well as critical habitats of endangered species (including the otter *Lutra lutra* and various fish species).[61] Wetland habitat types make up about a third of these habitats of Community interest. Inland wetlands range from Mediterranean temporary ponds and Irish turloughs to active raised and blanket bogs, calcareous fens with *Cladium mariscus* and *Carex davalliana,* petrifying springs with tufa formation *(Cratoneurkm),* alpine pioneer formations of *Caricion bicoloris-atrofuscae* and bog woodland. Listed coastal habitat types include, to the marine side, sandbanks, *posidonia* beds, estuaries, mudflats and sandflats, lagoons, large shallow inlets and bays, reefs and marine columns in shallow water made by leaking gases. Terrestrial coastal habitats comprise vegetated sea cliffs, shingle and stony beaches, annual vegetation of drift lines, perennial vegetation of stony banks, salt marshes, salt meadows and dunes with natural vegetation.[62]

The Directive sets out a three-step procedure for the identification and designation of sites that will form part of Natura 2000.

Firstly, each Member State proposes a list of sites, based on scientific criteria,[63] indicating which listed habitat types and native species the sites host: this information must be transmitted to the Commission within a fixed period, together with information on the site which includes a map and specified data. Secondly, the Commission selects *Sites of Community Importance* from these national lists,[64] with the agreement of the Member State concerned, and draws up the *List of Sites of Community Importance.*[65] Sites may be of importance for the entire Community or for one of its five biogeographical regions (Alpine, Atlantic, Continental, Macaronesian and Mediterranean). Sites containing "priority natural habitat types" and "priority species"[66] (for which the Community has particular responsibility given the danger of such habitat types disappearing or the proportion of such species' natural range falling within the European territory of Member States) are automatically classified as Sites of Community Importance. Thirdly, Member States must designate the listed sites on their territory as *Special Areas of Conservation* (SAGs) within six years and enact appropriate conservation measures to maintain and/or restore such habitats and wild fauna and flora at favourable conservation status.[67]

Within SACs, Member States may choose any suitable method to avoid the deterioration of natural habitats and species' habitats as well as the disturbance of the species for which the areas have been designated. The Directive provides guidance on the range of appropriate legal tools. These may include "appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures

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61 Listed in Annexes I and II respectively.

62 The EU Habitats Committee adopted an Interpretation Manual in 1996.

63 Set out in Stage 1, Annex III.

64 Again according to scientific criteria, set out in Stage 2, Annex III.

65 In accordance with the procedure laid down in Article 21. The List must be established within six years of the notification of the Directive.

66 Indicated by an asterisk in Annexes I and II respectively.

67 Article 5 sets out a procedure to be followed in the event of any disagreement over listing between the Commission and Member States. It establishes a bilateral consultation procedure for cases where a Member State omits from its national list a site that the Commission considers essential for the maintenance of a priority habitat type or the survival of a priority species. If no agreement can be reached, the final decision on whether or not to list a site is taken by the Council, acting unanimously.

which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites".[68] Special obligations relating to the conduct of and criteria for environmental impact assessment of plans or projects that may have a significant effect on SACs are laid down.[69]

The detailed procedures described above shows that Member States have relatively little discretion in the choices they may make. Once a Site is recognised as being of Community Importance, it must be protected. Disputes may arise with regard to the characterisation of a site as being of "Community Importance", but not over the obligation to preserve the site if its importance is undisputed.

8.2.3 Wetland Conservation Under the Regional Seas Conventions

Protocols for the creation of marine and coastal protected areas have been adopted under four of the Regional Seas Conventions concluded to date. These respectively concern the Mediterranean (the 1995 Barcelona Protocol, which will replace the 1982 Geneva Specially Protected Areas Protocol),[70] the Caribbean (1990 Kingston Protocol),[71] Eastern Africa (the 1985 Nairobi Protocol)[72] and the South-East Pacific (the 1989 Paipa Protocol).[73] All but the Paipa Protocol contain measures for the protection of threatened or vulnerable species. However, none of them cover matters related to fisheries: there is also no provision for institutional coordination with the competent regional fisheries commissions.[74]

Each Protocol covers the terrestrial coastal zone as well as a defined marine area. The 1990 Kingston Protocol applies to the whole watershed of streams flowing into the Convention Area, whilst the 1995 Barcelona Protocol extends inland, in the case of watercourses, up to the freshwater

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68 Art. 6.1.

69 Art. 6.3-4: see Chapter 17 below. See also Chapter 23 for a discussion of regional wetland networks.

70 The Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (Barcelona, 9-10 June 1995, not yet in force) was concluded under the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (the new name for the Convention for the Protection of the Mediterranean Sea against Pollution, adopted in Barcelona, 16 February 1976 and amended on 9-10 June 1995.

71 The Protocol on Specially Protected Areas and Wildlife in the Wider Caribbean Region (Kingston, Jamaica, 18 January 1990) to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena de Indias, 1983).

72 Protocol on Protected Areas and on Wild Fauna and Flora in the East Africa Region (Nairobi, 21 June 1985) to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, (Nairobi, 21 June 1985, in force 30 May 1996).

73 Protocol for the Conservation and Management of Protected Marine and Coastal Areas of the South-East Pacific (Paipa, Colombia, 21 September 1989), adopted under the Convention for the Protection of the Marine Environment and Coastal Areas of the South-East Pacific (Lima, 1981).

74 For reasons of space, this discussion deals only with the protocols to the regional seas conventions. For a more detailed analysis that includes other relevant instruments, see generally de Klemm, C. 1999. *Fisheries Conservation and Management and the Conservation of Marine Biological Diversity*.

limit and specifically applies to terrestrial coastal areas, including wetlands, designated by the Parties. These two instruments thus provide a legal basis for ecological unit management and can be used to support a basin-wide integrated approach to the conservation or restoration of river and estuarine habitats and the management of species dependent on such habitats. Both of these Protocols provide for the establishment of criteria for the identification, selection, establishment, management and protection of marine and coastal protected areas. Nominations are made by the Party concerned, in accordance with guidelines and criteria adopted by Meetings of the Parties, and are subject to evaluation by a Scientific and Technical Advisory Committee before the protected area may be included in the List by the Meeting of the Parties. Delisting must follow the same procedure as listing. These conditions provide important safeguards for the quality and long-term conservation of protected areas included in the List.

The Protocols lay down substantive measures with regard to the management of protected areas.[75] The Paipa Protocol, for instance, contains an important obligation to prohibit activities relating to prospecting and mining of the soil and subsoil of protected areas, to regulate all scientific, archaeological or tourist activity in these areas and generally to prohibit any activity liable to have adverse effects on the species, ecosystems or biological processes they contain, or on their status as national scientific, ecological, economic, historical, cultural, archaeological or touristic assets.[76]

The 1995 Barcelona Protocol is unique in providing for two categories of protected areas.

Specially Protected Areas (SPAs) may be established in marine and coastal zones under a Party's sovereignty or jurisdiction, in order to safeguard representative types of coastal and marine ecosystems, threatened habitats, critical habitats for certain species or sites of particular scientific, aesthetic, cultural or educational interest. Protection measures to be taken relate to the dumping or discharge of waste or harmful substances; the passage, stopping or anchoring of ships; the introduction of alien species and genetically modified organisms; activities involving the exploration of the sea-bed; fishing and hunting; taking and destruction of and trade in wild animals and plants.[77] The Protocol also lays down a comprehensive series of planning and management measures for SPAs. These include the development and adoption of a management plan for each SPA, which should specify the legal and institutional framework and applicable management measures. Other requirements relate to monitoring, active involvement of local communities, financial mechanisms, permit procedures for activities compatible with the conservation objectives of the SPA, training and contingency plans. In an important and innovative provision, Parties must endeavour to ensure the coordination of the administration and management of the specially protected area as a whole where the SPA is a mixed land-sea area.[78]

The second category of protected areas is that *of Specially Protected Areas of Mediterranean Importance* (SPAMIs).[79] These may be established in marine and coastal zones subject to the sovereignty or jurisdiction of the Parties or, following a special procedure laid down by the Protocol, in zones partly or wholly on the high seas. The SPAMI List may include sites of

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75 The Protocols all specify that measures taken to protect marine areas must be in conformity with international law. The 1982 UNCLOS does not impose restrictions on the powers of a coastal state to adopt conservation measure in its internal waters or, subject to the right of innocent passage by foreign ships, in the territorial sea.

76 Art. V.

77 Art. 6.

78 Article 7.4.

79 Covered by Articles 8-13.

importance for conserving the components of biological diversity in the Mediterranean, those which contain ecosystems specific to the Mediterranean area or the habitats of endangered species, and those that are of special interest at the scientific, aesthetic, cultural or educational levels.[80] Inclusion of an area is subject to decision of the Meeting of the Parties. An area should only be listed if it meets these criteria and has a legal status guaranteeing its long-term protection, a management body endowed with sufficient powers, means and human resources to prevent or control activities likely to be contrary to its aims. A management plan and a monitoring programme should also be in place. Significantly, all Parties agree not to authorize nor undertake any activities that might be contrary to the objectives for which the SPAMIs were established.

The Barcelona Protocol is the most advanced of the regional seas protocols and, with its amended parent Convention, provides a comprehensive basis for regional implementation of the Convention on Biological Diversity. Together with the Kingston Protocol, such instruments establish a supportive legal climate for integrating protection of coastal and marine wetlands into broader land and sea planning. However, it should again be emphasized that even in countries which have ratified such instruments, the legal and institutional framework rarely makes it possible to establish mixed land-sea protected areas or institutional coordination, as discussed below. At global level, moreover, there are still many regions, notably parts of Asia, which do not have any equivalent instruments applicable to coastal and marine wetlands.

8.3 Considerations for Implementation at National and Local Level

The preceding sections show that whilst international law establishes broad requirements for area-based conservation, it is flexible as to how these should be implemented and by whom. Binding obligations are basically limited to general principles or performance standards, leaving it to each country to enact and apply its own legislation, according to its particular conditions. The absence of a prescriptive element does not weaken the obligation to conserve and manage to achieve the respective objectives. Depending on the size and ecological and socio-economic characteristics of a given wetland, legal mechanisms may range from protected areas to targeted conservation orders, designation of categories of areas of natural interest, special land use controls under physical planning legislation and non-regulatory approaches including management contracts.

The diversity of possible approaches is illustrated by national treatment of Ramsar sites. In a global perspective, the use of protected area instruments for designated Ramsar sites is probably the most common approach. In Peru and India, for example, all Ramsar sites have been formally designated as protected areas although management planning is only mandatory under Peruvian legislation. Nevertheless, there are wide differences even between neighbouring countries: Denmark and the Netherlands, for instance, have interpreted the site-specific provisions of the Convention to quite different effect. Denmark considers that designated Ramsar sites should not be restricted to sites which are subject to specific conservation regimes (e.g., statutory protected areas) and has therefore developed advanced procedures for nominating and securing the protection of Ramsar sites on 'ordinary land'.[81] In contrast, the policy of the Dutch government has been that only those sites that already enjoy the status of formally protected areas or nature reserves may

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[80] Criteria for the listing of SPAMIs (Annex I) comprise uniqueness, natural and cultural representativeness, diversity, naturalness and the presence of habitats that are critical to endangered, threatened or endemic species.

[81] Enemark, J. 1998. *Wetlands-related Legislation and Institutions in the Wadden Sea Countries* (citing Koester V. (1989): *The Ramsar Convention on the Conservation of Wetlands. A Legal Analysis of The Adoption and Implementation of the Convention in Denmark).*

be designated for inclusion in the Ramsar List. This means that greater reliance has been placed on land use planning than on site designation and greater prominence given to generalised policies for implementing wise use.[82]

As emphasized throughout this book, there is no blueprint for these important strategic choices. The effectiveness of site-specific conservation ultimately depends not on the individual instrument selected, but rather its degree of compatibility with broader land- and water-use policies and norms. Several countries have integrated protected areas and restrictive zoning techniques within their land use planning systems and also provide for a range of other area-based conservation measures. However, it is still more common, particularly in developing countries, for protected areas to be divorced from spatial planning and for legal frameworks to provide few incentives to manage natural areas to provide environmental goods and services for the community. As a result, strictly protected areas (national parks and equivalent reserves) have to assume the whole burden of securing benefits which could be produced in other types of areas managed for conservation through the efforts of private landowners, tribal groups and management of limited access resources by traditional users.[83]

There is undoubtedly scope for very positive articulation between regional planning and protected areas, which may play a catalyst role at the scale of river basins and catchments.[84] Although they can only cover a relatively small proportion of the entire catchment, they help to conserve natural vegetation cover and to maintain or restore a wider range of protective ecosystem functions. They may also serve to focus investment in sound land management and sustainable development in the buffer zone and surrounding areas. Protected areas that support "non-structural approaches to managing water flow" can contribute to integrated management of floodplain ecosystems through the conservation of important sites and access rules that regulate use of resources in certain areas or at certain seasons (for example, fish nurseries, floodplain forests or pasture).[85]

Much remains to be done, however, before site-specific protection of wetlands becomes fully integrated as an active component of wise use policy and planning. Chapters 9 and 10 consider legal techniques for more integrated approaches to protected wetland instruments. Chapter 11 outlines other types of site-specific instruments applicable to wetlands.

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82 *ibid.* (citing Tweede Kamer der Staten Generaal. Vergaderjaar 1985-1986. Waddengebied. 17990, nr. 24. (Notitie over de uitvoering van de Wetlands-Conventie).

83 See generally Barborak, J.R. 1995, *supra* n. 2.

84 See further Skinner, J. 1992. *Wetlands and Biodiversity - The Need for Protected Areas.*

85 Dugan, P. and Maltby, E. 1995. *Protected Areas and the Hydrological Cycle* at p. 112.

Chapter 9
Adapting Protected Area Instruments to Wetland Characteristics

9.1 Overview of Protected Area Objectives and Management Categories

The term "protected area" functions as convenient shorthand to denote a wide range of highly diverse instruments established for the maintenance of essential ecological processes and life support systems, the preservation of genetic and biological diversity and the provision of spiritual, intellectual, social and economic opportunities through conservation and ecotourism.[86] Whilst popular perceptions of protected areas are often restricted to highly restrictive statutory designations, this is not in fact justified by the broadly-based definitions adopted in certain treaties or by international organisations. The CBD defines "protected areas" to include geographically defined areas "designated or regulated and managed to achieve specific conservation objectives". IUCN-The World Conservation Union refers to "an area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means".[87] These definitions are sufficiently comprehensive to support instruments designed for wetland subject to intensive land use and socio-economic pressures as well as pristine and remote areas.

It is at national level that the scope of protected area instruments is frequently narrowed down. Protected area legislation was usually developed separately from species-based legislation which regulates activities such as hunting, fishing and possibly forestry and this functional division is often still reflected in overlapping administrative arrangements and the absence of cross-sectoral resource management strategies. Whereas flexibility is necessary to design appropriate protected areas, national legal systems often provide for only a limited range of tools (possibly scattered amongst forestry, protected areas, wildlife and/or planning laws) which often have a bias towards strict conservation rather than sustainable use. This is doubtless one of the reasons why the concept of protected areas lacks popular legitimacy in certain regions of the world, particularly in the context of wetlands subject to diverse human demands.

IUCN has promoted a common frame of reference for all types of protected areas by adopting a classification system comprised of six management categories and has formally urged all Governments to consider the relevance of these protected area management categories to national legislation.[88] The six categories are:

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86 Skinner, J. 1992. *Wetlands and Biodiversity - The Need for Protected Areas.*

87 IUCN 1990. *A Framework for The Classification of Terrestrial and Marine Protected Areas,* Report of the Commission on National Parks and Protected Areas (now entitled the World Commission on Protected Areas).

88 First developed in 1978 and formally revised in 1994 by the 19th session of the IUCN General Assembly (Resolution 19.4, Buenos Aires): this is supported *inter alia* in Synge, H (ed.). 1994. *Parks for Life: Action for Protected Areas in Europe.* This Plan was developed in consultation with over 200 individuals (including the authors of this book) and institutions, under the auspices of a Steering Committee which included representatives of the IUCN-WCPA, the Federation of Nature and National Parks in Europe (FNNPE), the World Wide Fund for Nature (WWF) and the World Conservation Monitoring Centre (WCMC).

(I) Strict Nature Reserve/Wilderness Area (managed mainly for science or wilderness protection, so as to preserve its natural conditions: access is either prohibited or severely restricted).

(II) National Park (managed mainly for ecosystem protection and recreation; accessible to visitors in accordance with management policies).

(III) Natural Monument (managed mainly for conservation of specific natural features of outstanding significance together with their associated flora and fauna).

(IV) Habitat/Species Management Area (managed mainly for conservation through management intervention to ensure maintenance of habitats and/or to meet the requirements of particular species). This type of area often denotes semi-natural habitats that have to be maintained at a certain level of succession. In Europe, there are more than 10,000 "managed nature reserves" of this kind. Although they are often very small, they are usually located in places vital for survival of species and habitats and thus make a much bigger contribution to biodiversity conservation than size alone would imply.[89]

(V) Protected Landscape/Seascape (managed mainly for landscape or seascape conservation and recreation). In areas of this type, the interaction of people and nature over time has often produced distinctive characteristics, with significant aesthetic, cultural and/or ecological values and often with high biological diversity.

(VI) Managed Resource Protected Area (managed mainly for the sustainable use of natural ecosystems). Such areas contain predominantly unmodified natural systems managed to ensure long-term protection and maintenance of biological diversity while providing at the same time a sustainable flow of natural products and services to meet community needs.

These management objectives provide a useful starting point for classifying the types of wetland protection instruments used in different countries and for detecting gaps or weaknesses in protected area coverage. An interesting study into the use of protected area instruments for Ramsar implementation[90] drew attention to the uneven spread of protection instruments across these categories. The instruments most commonly used for Ramsar sites were Category I nature reserves, used by all Parties for at least one site. This was followed by Category II national parks used in 93% of respondent countries. There were almost no examples of such instruments being used in a marine context or for artificial wetlands. Most or all Parties thus confer the strictest form of protection on at least some of their most important wetlands by means of general protection instruments designed to promote all aspects of nature conservation within a given area. Category I instruments clearly lend themselves to areas not subject to human use, including caves which are currently underrepresented on the Ramsar List: in France, for instance, there is at least one nature reserve which has been established specifically for the protection of a cave in the Departement de l'Aude. The Decree creating the reserve provides for the protection not only of the cave itself but also of the adjacent area on the surface.[91]

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89 Synge, H (ed.). 1994. *supra* n. 3.

90 See Untermaier, J. 1991. *Aires protégées et zones humides*. The research was based on a questionnaire circulated in 1987, which means that the specific percentages contained in his report will have changed: the analysis is nevertheless still pertinent.

91 Decree of 17 August 1987, establishing a nature reserve for the protection of cave TM71 in the Department of the Aude.

In contrast, much less use was made of specialized protection instruments within Category IV,[92] particularly in very large wetlands. These instruments are focused on relatively narrow objectives and the areas covered rarely have their own management structures: such instruments probably offer the greatest potential for establishment and/or management by private entities, including non-governmental associations. Nearly half of the countries questioned had used Category III designations for Ramsar sites (by way of example, this category includes instruments such as the United Kingdom's Sites of Special Scientific Interest).[93] Use of Category V protected landscape/nature park instruments for Ramsar sites was negligible.

The research also emphasized the uneven distribution of protection instruments across habitat types. The best protected wetland types were lakes and inland marshes, arguably because they combine ecological, recreational and landscape values and may contain "flagship" species in the form of vast colonies of migratory birds. Game reserves were frequently used for interior marshes and ponds rich in waterfowl hunting, as they are relatively easy to institute (including by private associations) and are targeted in their scope and effects. Conversely, certain wetland types were very poorly represented as protected areas, particularly floodplains, wet grasslands, peatbogs and coastal zones/coastal marshes. The protection applied to floodplains and also to coastal and marine wetlands situated in the public maritime domain, tended to be indirect in character: in some cases, nature conservation benefits resulted incidentally from the special planning status and land-use controls applicable in such areas. Multiple use instruments were extremely rare in alluvial plains and coastal zones, presumably due to the prevalence of competing economic interests notably for agriculture and tourism.

Whatever the size or management category, two basic criteria should be applied to protected wetlands as to any other protected areas in order to justify human and financial investment therein. Measures must be taken to maintain and preferably enhance their ecological character (the *integrity* objective) on a long-term basis (the *perennity* objective). Since protected areas are established by or under legislation, certain legal safeguards therefore need to be incorporated into the selection and establishment procedures for protected areas to fulfil these common objectives of perennity and integrity.[94]

The integrity objective relates not only to the management and control of human activities within protected wetlands but also to external activities that generate potentially damaging processes. It is of course particularly demanding to fulfil this objective with regard to wetlands, which fit awkwardly within the conventional matrix of protected areas because they are so often managed with minimal reference to the hydrological cycle and the wider physical, economic and social context. This may be relatively unimportant for certain habitat types (glaciers, caves, small scattered ponds) but is quite unsatisfactory in larger protected areas where maintenance of ecological character depends on compatible provisions in wider land and water use policy. For this reason, as discussed in the following chapters, legislation needs to support the use of buffer and transitional zoning, protection of watersheds and groundwater zones and ecologically rational delimitation of protected wetland boundaries.

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92 Single purpose instruments such as game and fisheries reserves, used respectively in 64% and 57% of respondent countries.

93 This figure may be artificially low as sites or monuments designated within the boundaries of national parks can disappear from the statistics. In addition, many laws restrict the grounds for classification to cultural or historic interest or do not provide for classification based on ecological interest (Untermaier, J. 1991. *supra* n. 5).

94 These objectives have already been discussed in an international context in Chapter 8 above: for a more detailed discussion, see de Klemm, C. in collaboration with Shine, C, 1993. *Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems.*

The perennity objective recalls the fact that protected areas are human institutions, which are never everlasting because what can be done by one law can always be undone by another. Legislation should therefore contain provisions (corresponding to Ramsar[95] and other treaties or programmes discussed in Chapter 8.2 above)[96] to make the abolition of protected areas at least as difficult as their establishment. The general rule should be that the same legal procedure which was used to establish the protected area must be used to abolish it or reduce its size: for example, if a national park has been created by Act of Parliament, another Act of Parliament is required to de-establish it. If a public enquiry is mandatory before a decree creating a park or reserve may be adopted, a public enquiry should similarly be required before a decree abolishing that park or reserve can be promulgated.

There are still very few laws that make specific provision for the creation of protected wetlands: it is much more common for wetland protected areas to be in exactly the same way as any other habitat type benefiting from a statutory designation. A promising exception is the Ugandan National Environment Statute of 1995. Section 38 generally empowers the National Environmental Management Authority, in consultation with lead agencies, District Environment Committees and local environment committees, to establish guidelines for the sustainable management of wetlands, to identify wetlands of local, national and international wetlands and to declare wetlands to be protected wetlands. Where wetlands are declared as protected, human activities may be excluded or limited. However, it is too soon to assess the implementation of this provision and, more specifically, to know whether guidelines will be drafted in a broad spatial perspective (coordination with external activities and policies) or in a traditional compartmentalised way.

The following sections consider some of the main issues for consideration when developing protected area instruments for the conservation and wise use of wetlands.

9.2 Factors of Particular Relevance to the Selection and Design of Protected Wetlands

9.2.1 Determination of Boundaries and Management Powers

One of the conclusions to the 1993 Additional Guidance is that wise use must take account of the problems of the coastal zone or catchment area within which individual wetlands are situated. However, this is far from being achieved even for Ramsar sites, whose conservation is theoretically a priority for the country on whose territory each is situated. The boundaries of many designated wetlands are often delimited more for jurisdictional than ecological reasons. Moreover, the powers of the management authority or equivalent body often do not extend to consultation or joint-decision making on potentially damaging policies and plans beyond the park boundaries.

Well-known Ramsar sites that have been degraded by externally-generated processes include the Sundarbans mangrove forest in Bangladesh, whose ecological character has been adversely changed by reduction of freshwater flow through its river system. The Ramsar COP has addressed

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95 Art. 4.2 (Parties which delete or restrict the boundaries of a listed wetland in their urgent national interests to compensate as far as possible for any loss of wetland resources and in particular, to create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat).

96 E.g., the Kingston and Barcelona Protected Area Protocols. A biosphere reserve should only be delisted in accordance with a special procedure laid down by Article 9 of the 1995 Statutory Framework of the World Network of Biosphere Reserves.

a specific recommendation to the Government of Bangladesh to adopt mitigation measures to remedy this problem.[97] Another example concerns the Everglades National Park in Florida, which has been seriously degraded by the construction of a water-control system north of the Park to service expanding human settlements and agriculture: this has reduced water levels within the Park by half. The Everglades' original boundaries have already been extended by special legislation, thus expanding the geographical area within which protection measures may be instituted. The Ramsar site has been listed in the Montreux Record because of disruption of the natural hydrological regime and the United States is now developing extensive restoration measures to restore the site's ecological character. If approved by Congress, the anticipated cost of the restoration programme will be around $7.8 billion over twenty years. It would involve the destruction of dykes that keep water from reaching the Everglades, Government purchase of thousands of acres of land to act as reservoirs for increased water flow, drilling of hundreds of deep wells to store excess rainwater for the dry months of the year and certain flood control measures.[98]

In Spain, the Doñana National Park[99] was seriously damaged in a well-publicised toxic spill in April 1998 that arose from the collapse of the dam wall to a pyrite mine located upstream on the River Guadiamar. The pollution was transported downriver and over 6,000 ha of the park serving as buffer zone to Doñana were covered by mud rich in heavy metals. In response to this disaster, a thorough system of ecological monitoring had been set up to follow the possible effect of the pollution on ecosystems. More fundamental changes of a legal character have also been determined: the Autonomous Community of Andalucia is create a "linear park" through the polluted area, which would be taken out of agricultural use and managed for conservation. The Central government has developed the "Doñana 2005" restoration programme which is designed to re-establish the natural functioning of the Doñana ecosystems by a number of land acquisitions and ecological restoration programmes.[100]

Externally generated processes are not necessarily water-borne and factors that impact on critical habitats may occur at considerable distance.[101] Some terrestrial parts of the Okavango Delta in Botswana (with an area of 6,864,000 hectares, the largest Ramsar site in the world) have been adversely affected by overgrowing. This is at least partly due to the construction of a buffalo fence in part of the Kalahari Desert to control cattle disease, which has impeded the annual migration of antelopes and other ruminants into the Delta.

Such examples illustrate the artificial or illogical nature of the premise that wetlands can be adequately protected by applying special controls within a very limited radius or by drawing up a restrictive list of controlled activities. Particularly in the context of inhabited protected wetlands, a shift is needed from protecting circumscribed areas and various species from outside influences to working with such influences on a sustainable basis, both within and outside protected areas.

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97 Recommendation 6.17, paragraph 22 (Brisbane, 1996).

98 Recommendation 6.17, paragraph 24 (Brisbane, 1996); see also *Saving the Everglades: Water in, Water Out*, Economist, 6 February 1999.

99 A Ramsar site that also holds the European Diploma conferred by the Council of Europe. The Diploma, established in 1965 by the Council of Europe's specialised Committee for the Conservation and Management of the Environment and Natural Habitats, may only be awarded after an on-the-spot appraisal by an independent expert, accompanied by a member of the Council of Europe Secretariat, followed by a decision of the Committee of Ministers of the Council of Europe.

100 See Proceedings of the Standing Committee to the Bern Convention, December 1998 and specifically documents T-PVS (98) 73 Government Report and T-PVS (98) 70 Report from SEO-BirdLife.

101 McNeely, J.A. (ed.). 1995. *Expanding Partnerships in Conservation* at p. 98.

This has implications for the delimitation of protected area boundaries, which need to reflect natural and social systems more accurately by following the irregular but natural boundaries of landforms, watersheds or migratory patterns. It also has implications for the management policies pursued in the surrounding watershed or coastal area, which must support wise use of land and water resources in order to minimize wetland degradation from damaging processes.[102]

The interface between protected wetland integrity and control of external impacts will depend to a large extent on the management regime established for the area. Most protected area laws make it possible for the competent national or subnational authority to prohibit or regulate specified activities *within* designated areas, primarily to prevent unsustainable land use or overexploitation of wetland biodiversity. This is of course essential, the core mission of management institutions being to protect resources for the long term and produce a sustainable flow of wildland services for a nation.[103] In addition, the management base for protected wetlands needs to be broadened in two respects.

Firstly, management bodies do not operate in a vacuum and their relationship with other sectoral public agencies is of great importance. All statutory agencies, including utilities companies, should be required to coordinate their activities within protected areas and surrounding zones.[104] This is very often not the case. In Peru,[105] for example, the planning and management of wetlands as "protected natural areas" is entrusted to the national conservation agency, INRENA, but other ministries maintain their responsibilities on resources and activities, even within these protected areas and there is no legal requirement for prior consultation or joint decision-making. Secondly, the competent agency or management authority should be formally involved in or consulted about regional planning and individual development proposals within the watershed, catchment or coastal unit of the wetland concerned. This is rare at present: few laws provide a statutory basis for management authorities (or private wetland owners) to be informed about potentially damaging plans and projects beyond the boundaries of protected wetlands.

Another important issue relates to the appropriate level of management for protected areas. As discussed in Chapter 6 above, there is a generalised trend towards decentralisation of specific authority and responsibility to local managerial level. However, particularly where nationally or internationally important wetlands are concerned, it is important to strike a balance between exclusively centralised control and excessive decentralisation, local control or unofficial semi-privatisation.[106] It is self-evident that local interests differ from those of Government, although this can work in both directions. The *Tasmanian Dams* case[107] provides one example of legislative and judicial action by a federal government to ensure that treaty commitments accepted at national level were not overridden by incompatible project authorisation at subnational (state) level. In other cases, however, incompatible projects may be instituted at national level and opposed locally, by affected communities, stakeholders or NGOs. In such cases, the availability of judicial review in administrative law will be a necessary precondition to curbing possibly unlawful actions or omissions by public bodies.[108] Legislation should therefore provide for some form of supervisory

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102 Van Droste, B. 1995. *Biosphere Reserves: A Comprehensive Approach.*

103 Barborak, J.R. 1995. *Institutional Options for Managing Protected Areas.*

104 As recommended *inter alia* in Synge H. (ed.). *Parks for Life: Action for Protected Areas in Europe.*

105 Solano, P. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Peru.*

106 Barborak, J.R. 1995. *supra* n. 18.

107 *Commonwealth of Australia v. State of Tasmania,* High Court of Australia (1983), 68 *I.L.R.* 266 (see Chapter 8.2 above).

108 See Chapter 21 below.

institutional mechanism to ensure that outstanding areas are managed to appropriate and scientifically based standards to ensure their integrity and perennity.

9.2.2 Under-representation of Coastal and Marine Protected Areas

Coastal and marine protected areas are grossly under-represented in comparison to their terrestrial counterparts. This is partly due to an imbalance of scientific research: whilst a classification system, largely based on phytology, has been developed for terrestrial habitats, there is still no comprehensive equivalent for marine habitats other than coral reefs, seagrass beds and some coastal wetland complexes. It is also due to the legal imbalance outlined below.

At international level, all global conservation treaties and many regional instruments notionally apply to marine areas and species as well as to land, but in practice their coverage of marine areas is very limited. Few coastal or marine areas have been designated as World Heritage Sites, the most famous one being the Australian Great Barrier Reef. As noted in Chapter I, the Ramsar Convention does not define the coastal zone and relatively few coastal or marine wetlands have yet been included in the Ramsar List. The COP has acknowledged the under-representation of coral reefs, mangroves and seagrass beds on the Ramsar List and has urged Parties to designate wetlands of these types that meet the Convention's criteria.[109] Increasing attention has also been paid to the need to protect key coastal habitats for fish, particularly as spawning areas and nurseries.[110] This evolution reflects the recommendations in Agenda 21, adopted by the UNCED in 1992, for States to identify marine ecosystems of high biodiversity and productivity and other critical habitat areas and to provide necessary limitations on use in those areas, *inter alia* through the designation of protected areas.[111]

The weak or non-existent status of coastal and marine protected areas has now been addressed by the Convention on Biological Diversity, through its 1995 Jakarta Mandate. The Mandate contains a programme element on marine and coastal protected areas, which are acknowledged to play a vital role in protecting ecosystem processes and functions as well as specific species and stocks. It recognizes that there are currently many gaps in the kinds of ecosystems and species that are adequately protected and that in many countries the lack of training, finance and technical capacity and enabling legislation often limits their effectiveness. The Mandate calls for the integration of such protected areas into wider strategies for preventing adverse effects to marine and coastal ecosystems from external activities;[112] the development of criteria for the establishment and management of such areas, including as critical habitats for marine living resources; the exchange of research and management information; and the provision of incentive measures. Important progress in this respect has been made at regional level in the Mediterranean: as noted above, the 1995 Barcelona Protocol establishes criteria, norms and procedures for the establishment and long-term conservation of Specially Protected Areas of Mediterranean importance.

Although international momentum is building up, at national level the jurisdictional split between land and sea generally prevents the establishment of protected areas covering both terrestrial and marine ecosystems.[113] Terrestrial and marine protected areas, to the extent that these

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109 Strategic Plan, Action 6.2.3. Resolution VI.3 (Brisbane, 1996) supports the development of listing criteria for these wetland types.

110 Resolution VI.2 (Brisbane, 1996).

111 Para. 17.86, Agenda 21 (Res. I, Annex II to the 1992 Report of the United Nations Conference on Environment and Development, Rio de Janeiro, June 3-10, 1992).

112 See further Chapter 15 below.

113 See Chapter 5.2.4 above.

exist, are established under separate laws and by different institutions and must stop on their respective sides of the high water mark. This is a near universal problem as illustrated by the 1982 Geneva Protocol (the predecessor to the 1995 Barcelona Protocol) which remains in force for the time being. More than 120 Specially Protected Areas have been designated under this Protocol: nearly all of these already benefited from some form of legal protection before the Protocol's entry into force and more than two-thirds are purely terrestrial coastal areas without any extension to the sea.

Marine legislation is beginning to contain more developed environmental components. Interestingly, in Trinidad & Tobago, the 1970 Marine Areas (Preservation and Enhancement) Act provides a legal basis for defining protected area boundaries by reference to ecological criteria. "Marine areas" as defined by section 2 may include "any adjoining land or swamp areas that form within certain submarine areas a single ecological entity".[114] More recently, Canada's Oceans Act 1996 has established a comprehensive basis for the creation of a national system of marine protected areas. These may include areas of the sea that form part of the internal waters of Canada, thus covering coastal and marine wetlands. MPAs may be designated for the conservation and protection of: commercial and non-commercial fishery resources, including marine mammals, and their habitats; endangered or threatened marine species and their habitats; unique habitats; marine areas of high biodiversity or biological productivity. Measures that may be prescribed within MPAs include zoning, the prohibition of classes of activities and any other matter consistent with the purpose of the designation.[115] Significantly, where the competent minister considers that a marine resource or habitat is or is likely to be at risk, the above powers may be exercised on an emergency basis to create interim marine protected areas.[116]

Several countries have developed parallel or complementary protection regimes for marine and terrestrial units. If these are supported by effective institutional coordination, they can provide an effective legal basis for harmonised management of the land-sea interface. In some cases, they can be extended progressively to establish a fully integrated approach over time. In the Galapagos Islands off Ecuador, for example, a large proportion of the land area (comprising nearly 770,000 ha of a total area of 800,000 ha, and comprising 13 major islands) has been designated as a national park. In a separate designation, 8 million ha of near and offshore waters around the islands were established as the Galapagos Marine Resources Reserve in 1986: the legal status was then upgraded to a Biological Reserve of Marine Resources in December 1996. In March 1998, new legislation was adopted (Special Law for the Conservation and Sustainable Development of the Province of Galapagos) which brought all waters within 40 nautical miles of the outer perimeter of the islands under the jurisdiction of the National Park Service. The law confers specific jurisdiction on the Service to control Galapagos fisheries, with authorisation to be restricted to local artisanal fisheries. A management plan is now under development, which may include a limited sea cucumber fishery.[117]

Unified coverage of both terrestrial and marine parts of the coastline will most often require enabling legislation.[118] A few recent laws for this purpose may be cited. The Italian Law on Protection of the Sea of 31 December 1982 makes it possible to prohibit or limit all human activities

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114 Cited in Pritchard, D. 1997. *Implementation of the Ramsar Convention in Trinidad & Tobago.*

115 Art. 35(1-3).

116 Art. 36(1).

117 Jenkins, M. and Mulliken, T.A. *Evolution of Exploitation in the Galapagos Islands: Ecuador's Sea Cucumber Trade* in TRAFFIC Bulletin, Vol. 17 No. 3 (1999) at p. 107-118 (see also Chapter 19 below).

118 See generally de Klernm, C. 1991. *Protected Areas in the Mediterranean: an Analytical Study of the Relevant Legislation,* IUCN-Environmental Law Centre.

in these reserves, including navigation and even access. In Iceland, the Law of 8 March 1995 was enacted specifically to create the Breijafjardar (Breidafjördur) Conservation Area, which includes a marine area, its coastline and a very large number of small islands.[119] In Finland, the 'Gulf of Finland East System' comprises a cluster of strictly protected natural areas and managed nature reserves. These areas, established pursuant to legislation for the implementation of the Helsinki Convention in Finland, will form part of the network of protected areas created under the Convention.[120] The Model Law on Coastal Conservation prepared under the auspices of the Council of Europe makes provision for mixed maritime-terrestrial areas.[121]

Innovative mixed areas may be beset by 'teething troubles', particularly of an institutional character. It remains difficult to establish and operate joint management bodies, whilst enforcement personnel will often be different on each side of the high water mark (the fisheries agency to the marine side, the conservation agency to the landward side). In Turkey, for instance, the main difficulty in securing adequate legal protection for coastal nesting beaches for marine turtles has been the apportionment of powers and responsibilities between the Ministries of the Environment, Culture, Agriculture and Tourism, which has considerably hampered effective implementation of protection status rules.[122]

Greece has enacted special legislation providing for the establishment of national marine parks by Presidential Decree. However, there have been long-running problems associated *inter alia* with the creation of the Zakynthos National Marine Park, which contains important nesting sites for the marine turtle *Caretta caretta*, now under serious threat from tourist development. The case provides an interesting example of the interplay between international commitments (to protect critical habitats of protected species) and standards of national implementation.[123] Even though this subject has been under consideration by the Standing Committee to the Bern Convention since 1986, the marine park has still not been established.[124] This is expected to happen in 1999, following the signature of the Draft Presidential Decree on the Establishment of the Park by all competent Ministers in 1998.

Despite the proposal to create the Park, existing protection measures to guard beaches and night, control unlawful building and restrict speedboat use have been very poorly enforced to date. Several factors contribute to the difficulties encountered in establishing area-based protection in Zakynthos Locally, there is considerable opposition to restrictions on commercial exploitation of the coastal zone. At a broader scale, the position is complicated by the absence of cadastral plans (official land surveys that delimit the boundaries of public and private landholdings) and the resulting uncertainty regarding the legal status or ownership of land. title to land. Cadastral plans are now being prepared in Greece but will not be completed until nearly 2010. A further problem concerns the very limited scope of physical planning documents at local and strategic (regional or

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119 Report by Iceland to the 13th Meeting of the Standing Committee of the Bern Convention (Council of Europe document T-PVS (93)47).

120 Fokin Y. 1996. *The Strictly Protected Natural Area 'Gulf of Finland East System' in Baltic Floating University Research Bulletin,* n°2, co-sponsored by UNESCO, Inter-governmental Oceanographic Commission and the Commission of the Helsinki Convention, p. 87.

121 Prieur, M. 1997. *Model Law on Sustainable Management of Coastal Zones (Draft 3).*

122 Conclusions, Group of Experts on the Conservation of Amphibians and Reptiles of the Bern Convention met in Thessaloniki (28-31 May 1998), reported in Proceedings of the Standing Committee to the Bern Convention, December 1998.

123 See also Chapter 21 below.

124 In breach of the Committee's Decision of 24 March 1995 that the natural marine park should be created before 25 March 1998.

national) level. In addition, competence with regard to the public maritime domain is split between fifteen national ministries or public agencies.

Countries in which protected area jurisdiction is split between national and subnational governments may face particular complexities in establishing certain categories of land-use restriction, particularly in the case of coastal or marine protected wetlands. This has been graphically illustrated in Spain. Article 132 of the 1978 Constitution confers ownership of the public maritime domain (PMD), as defined by the Coastal Act of 28 July 1988, on the State. Under the 1989 Nature Conservation Act, the regions (Autonomous Communities) are competent to establish all categories of protected areas except for national parks and parks with territory in more than one Autonomous Community. The 1989 Act provides for the establishment of protected areas in the public maritime domain, but makes no reference to the possibility of establishing mixed protected areas encompassing areas within the public maritime domain and adjacent land under the jurisdiction of the Autonomous Communities. This has led to legal confusion and problems of coordination in establishing mixed marine-terrestrial parks, such as the Nature Park of the Columbretes Islands, The legal position has been formally considered by the Spain Constitutional Court, which ruled that although the State is the owner of the PMD, it is the Autonomous Communities that have competence to create and/or manage most categories of protected areas therein: in other words, marine parks may have a split ownership-management regime. This fairly decision should make it easier for the Autonomous Communities to create mixed protected areas extending from the land into the public maritime domain.[125]

9.2.3 Relationship Between Strict Conservation and Human Utilisation

Strict protection instruments for wetland areas are of great importance to the conservation of biodiversity but are necessarily limited in both number and acreage. As mentioned earlier, the Ramsar institutions have acknowledged that there are few wetlands not subject to some form of use. Given the demands of socio-economic development and, particularly in developing countries, rapid population growth and associated pressures on land-use, the mere idea of setting aside large wetland areas for strict protection is economically and politically impossible. Single purpose protection instruments do not lend themselves to coastal areas or river systems, which have used for transport, commerce and human settlement. Protected areas established in such areas must be designed to incorporate anthropocentric values and concerns, since preservation and rehabilitation of vast expanses of pristine coastline or of river basins is generally unrealistic.

National protected area systems need to cover both the terrestrial and marine environments and to support comprehensive, adequate and representative coverage of ecosystem types across the full range of management categories described above. More commonly, however, conventional protected area legislation does not provide for the creation of multiple use instruments. This can make it much harder to implement wise use measures with popular support on a site-specific basis. The following case study from India clearly illustrates the potential problems.[126]

Under the Indian Wildlife (Protection) Act 1972 as amended in 1991, wetlands are included in protected areas only to the extent that they form the habitat of endangered wildlife or exist within designated sanctuaries (s. 18) or national parks (s. 35). National parks are the most strictly protected

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[125] Judgment of 28 June 1995. See also Chapters 10.2, 11 and 15 for a discussion of coastal protected areas and coastal land use planning legislation in Spain.

[126] See generally Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

category. They are established only on public land and human access and uses are prohibited: there is no legal requirement to prepare management plans. In the well-known case of Keoladeo National Park (an artificial wetland designated as a Ramsar site), the prohibition on grazing and fuel-wood collection following the designation of the wetland led to the colonisation of aquatic macrophytes. A scientific report concluded that controlled grazing (resumption of human uses) was necessary to prevent such colonisation and to restore the wetland's ecological character. This case highlights the potential contradiction between the inclusive nature of the wise use obligation and its often-restrictive interpretation at national level. To quote the author of the case study, "merely assigning a protected area status and declaring the area a listed site under the Convention does not automatically ensure wise use.... [has] listed site status in any way helped in ensuring or continuing the wise use of the wetland? Or has listing the area under the Ramsar Convention merely increased Government control over the wetland resource, disrupting the local communities' wise use practices in the area and leading to deep-seated resentment amongst them?"

Legal systems that provide only for limited protection instruments commonly offer less flexibility in the application of land-use controls and management techniques. Conversely, countries that have established a broad spectrum of site-specific conservation mechanisms tend also to have gone furthest towards integrated planning of land and water resources.[127] Well-designed protected areas provide an enabling framework to advance wise use, subject to important safeguards. Protection of an area is meaningless unless the restrictions on human activities have legitimacy in the eyes of people who live and work there, the agency responsible for policing the area is capable of adequate enforcement and the management measures are supported by a broader integrated management strategy for the surrounding area.[128]

The creation, design and management of protected areas in all categories therefore needs to be an interdisciplinary process that reflects multiple purposes and the aspirations of multiple constituencies. Chapter 10 considers some of the legal techniques appropriate for this purpose before setting out some detailed case studies.

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[127] Untermaier, J. 1991. *supra* n. 5.

[128] WWF 1998. *Strategy for Marine and Coastal Conservation in the Africa & Madagascar Region* at p. 16.

Chapter 10
Legislative Techniques for Protecting Larger Wetlands

The 1993 Additional Guidance sets out recommendations for legislation for the conservation and wise use of larger wetland areas "where human activities compatible with the conservation of the ecosystem should be maintained, encouraged and developed for the benefit of the local populations". Such wetlands could include not only listed Ramsar sites but also ecologically sensitive areas, areas with a high degree of biodiversity, sites containing endemic species or wetland nature reserves. For many of the reasons discussed in the preceding chapters, such approaches may require radical change to legislative and institutional frameworks. This Chapter provides practical examples of some ways in which multiple use of protected wetlands has been developed around the world.

10.1 Key Components of Legislation

10.1.1 Legal Status and Management Structures Supportive of Multiple Use

Nature parks, biosphere reserves and other Category V instruments such as protected landscapes or seascapes offer great potential for the integration of protected wetlands into the broader bioregional context discussed in Part IV of this book. Such instruments can promote conservation and wise use by providing for the regulation or management of any potentially damaging activity in accordance with the specific conservation objectives and requirements of different zones within a park. They represent a significant departure from strict nature reserves, national parks and wilderness areas, in which the conventional approach is to start from an uninhabited area and to allow compatible uses on a restrictive basis. Here, the reverse process is actually encouraged, involving the delimitation of an inhabited area in which certain no-use or limited use zones are established to protect ecological integrity and where unsustainable activities incompatible with the purposes of the whole area are eliminated.

Because nature parks and equivalent instruments are not restricted to areas that are basically uninhabited, legislation may provide for their establishment on a larger geographic scale. Biosphere reserves, which give particular attention to socio-economic factors as well as nature conservation, are deliberately managed to promote appropriate blending into regional and even national development and planning.[129] Mexican legislation, for example, now provides specifically for the creation of biosphere reserves. This broad scope also characterises the helpful definition used in Portugal's Law Decree of 23 January 1993 on the National Network of Protected Areas, which specifically creates the category of nature park. A nature park is defined as "an area characterised by natural, semi-natural or man-made landscapes of national interest, which are examples of harmonious integration of human activity and nature and which represent samples of a biome or natural region."

The nature park concept originated within Europe and has grown rapidly in popularity. Reasons for this include the relative scarcity of uninhabited areas, the fact that there are only a few large areas remaining in government ownership (most of which are managed forests) and the existence of a long-established European tradition of imposing fairly strict controls over the use of private land. From the start, nature parks seem to have been designed as regional planning tools to

[129] Van Droste, B. 1995. *Biosphere Reserves: A Comprehensive Approach.*

foster socio-economic development in disadvantaged regions unsuited to modern agriculture and threatened by the rural exodus. Rapidly, the conservation of natural habitats became a complementary objective for such parks, which are now established to promote harmonious interaction between people and their natural environment based on sustainable land use: they are frequently rich in cultural heritage and also provide considerable opportunities for tourism and leisure activities. The nature park model has proved its versatility by spreading to many other countries under a variety of names and is now used *inter alia* in the Republic of Korea, Japan, Brazil, Mexico and Venezuela.

One of the most distinctive features of nature parks is their highly flexible framework. Legal tools can be combined to provide a tailor-made suite of measures adapted to the specific characteristics and priorities of the individual park. Such tools ideally include a mixture of regulatory techniques (zoning, permitting and licensing systems) and non-regulatory techniques (economic incentives, contractual measures, interpretation and education) in order to achieve a balance between traditional uses, economic priorities and future demands.[130] Interestingly, nature parks may encompass several different categories of site-specific mechanisms. The Camargue in southern France, for example, is a Ramsar site which has been designated under French law as a regional nature park *(parc naturel régional):* it contains a strict nature reserve and also benefits from the special planning regime applicable to the public maritime domain.

Another important feature of nature parks is that they may be established whether the land tenure is public, communal, private or a mixture of any of these categories. This is of particular significance to the creation of protection regimes for larger wetlands and watersheds. With trends towards bioregional thinking, it is increasingly common to find complexes involving large areas of contiguous land, owned by a range of government, NGOs and private concerns.[131] The model also lends itself to the complex ownership and use patterns of many coastal zones, where pressures for change of land use, wetland reclamation and access to natural resources are often most acute.

Developments of this kind have clear implications for the design of management structures and the training of personnel. Standards of management currently vary widely across nature parks and sometimes hardly exist. It is essential to endow larger protected wetlands with a legally-backed management system and a management body to oversee its implementation and ensure compliance with regulations. Strong representative institutions reinforce the capacity of a protected area to resist inappropriate development or other activities where likely to damage the site. Legislation should therefore provide for the establishment or appointment of one specific managing body in charge of the whole area of the nature park, irrespective of the legal regime of each of its zones.

The management body needs to have specific responsibilities for the implementation of conservation and management measures throughout the park. It should be endowed with clearly defined powers to grant permits, make regulations, acquire land, pay compensation for loss of land use rights or loss of income due to the creation of the protected area, conclude management agreements, make grants to farmers and to provide economic incentives to local people. This implies the need for a broad range of skills within the management body, because specialist conservation personnel should not be overloaded or expected to address issues for which they were not trained. Management bodies should therefore include personnel trained in the design and implementation of measures to promote sustainable development for local communities in transitional or equivalent zones.

Successful large nature parks are likely to be characterised by a high number of cooperating institutions and growing public involvement in the decision-making process. Reaching overall

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130 Jepsen, P.U. 1992. *Wetland Conservation: Integrated Management Structures* at p. 67.

131 Barborak, J.R. 1995. *Institutional Options for Managing Protected Areas* at p. 33.

consensus among diverse institutions and individuals is a complicated task that calls for new approaches to institutional design (see Chapter 10.1.3 below and the case studies that follow). As one commentator has expressed it, one of the greatest challenges of the future for protected areas systems will be how to resolve inter-institutional conflict over management of large bioregions. Such scenarios often involve shared managerial responsibility among a host of agencies with different mandates who must also be open to considerable public input and political scrutiny over the decision making process.[132] In the wetland context, such institutional arrangements are particularly important because of complex management requirements and the fact that water is almost always subject to conflicting uses. An institutional mechanism should prioritize dialogue between different user groups, as opposed to parallel statements of vested interests that never find a meeting point.[133]

Unsurprisingly, this kind of change will take time, sometimes a very long time. It is an immense challenge to establish larger protected wetlands aligned with catchments and administered by special authorities that manage all types of activity and development within the park (including planning). Politically, especially within local government and territorial planning authorities, this type of approach may be perceived as an unjustifiable transfer of competence to a rival institution, particularly if the management body does not include elected representatives amongst its members. Conceptually, the evolution of nature parks and equivalent instruments involves the slow transformation of purely conservation-orientated bodies into something much closer to ordinary planning authorities (this is exactly what has happened in the national parks of the United Kingdom which, despite their name, are actually Category V instruments). Where legislation provides the necessary basis for this shift, nature park instruments may provide a valuable bridge between limited area-specific conservation and regional planning for wise use and sustainable development.

10.1.2 Management Planning and Zoning

The 1993 Additional Guidance emphasises the importance of integrated management planning, including the establishment of appropriate legal and administrative structures for the implementation of these plans, and has adopted guidelines on management planning for Ramsar sites and other wetlands.[134] This objective has been taken forward by the Strategic Plan which emphasizes the need to involve local communities and other stakeholders. It also sets a target for management plans or other mechanisms to be in preparation or in place for at least half of the Ramsar sites in each Party by 2002. The Plan supports the provision of financial assistance from the Ramsar Small Grants Fund for management planning at Ramsar sites.[135]

The management planning process essentially involves two groups of actors. The first consists of the people who need to use wetlands, whether sustainably or not and who may have or demand the right to live on and utilise these resources without regulation. The second includes government authorities and conservation agencies, development agencies, non-governmental organisations and politicians. The process should uncover and address all the issues affecting the management of the wetland and identify external factors that may affect its ecological character, and should result in agreement on a comprehensive and firmly endorsed management scheme with an action plan.[136]

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132 *ibid.*

133 Untermaier, J. 1991. *Aires protégées et zones humides.*

134 Annex to Resolution 5.7 (Kushiro); see also Recommendation 6.13 (Brisbane).

135 Operational Objective 5.2 which lists specific Actions to be implemented.

136 Jepsen, P.U. 1992. *supra* n. 8.

Management planning should be given a firm legal basis under national legislation. There are already many laws that require management plans to be prepared for particular categories of protected areas or certain habitat types. This is the case, for example, in Peru where all "natural protected areas" (including the seven Ramsar sites) must be covered by "master" and "operative" management plans.[137] In Portugal, the Law Decree of 23 January 1993 on the National Network of Protected Areas requires management plans to be developed for nature parks. Much more rarely, the law may also specify that in the event of inconsistency, such plans take precedence over other planning instruments in the region. In Spain, the Autonomous Community of Madrid has enacted legislation for the protection of wetlands and artificial water impoundments, which specifically provides for the making of binding wetland land-use plans by the Environment Agency.[138] Australia's proposed legislation on biodiversity conservation, undergoing Parliamentary consideration in 1999, would make management planning a mandatory requirement for all designated sites on Commonwealth land, including Ramsar sites: the provisions of such plans would be legally binding on all Commonwealth agencies.

Particularly in larger wetlands subject to multiple demands from different sectors, management plans need to provide for the zoning of protected areas to combine different management categories, including strict protection (core) zones. The COP has recommended that Parties promote the establishment and implementation of strict protection measures for certain Ramsar sites and other wetlands of small size and/or particular sensitivity[139] as well as promoting the establishment and implementation of zoning measures related to larger Ramsar sites, wetland reserves and other wetlands.[140] The management body for larger protected areas should have powers to regulate or otherwise manage activities within each zone to ensure that the conservation objectives defined for that zone are fulfilled. The establishment and maintenance of effective monitoring systems are necessary to ensure that measures applicable within each zone remain proportionate and appropriate to its conservation status.

As mentioned above, nature parks are generally zoned. Unlike most land-use and planning control systems, which are usually confined to controls on construction, public and private works, the prohibitions or limitations in the various zones may be applied to a very broad range of activities.[141] Significantly, these include agriculture and forestry, including the use of pesticides, ploughing of grasslands, draining and filling of wetlands, felling of trees, plantations of exotics, crop changes and grazing. Such controls may also extend to hunting, fishing, aquaculture and fish farming, motorised traffic, the use of boats and many others. Management plans for coastal and marine parks can specifically provide for zones linked to recreational activities. For example, where legislation provides for this, marine areas may be zoned to limit the number of diving sites and dives permitted each year to ensure that diver-induced damage does not exceed the carrying capacity of an ecologically fragile site such as a coral reef.[142]

UNESCO has significantly advanced the concept of zoning in the context of biosphere reserves. The 1995 Statutory Framework of the World Network of Biosphere Reserves provides that biosphere reserves should combine three functions (conservation of landscapes, ecosystems,

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137 Solano, P. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Peru.*

138 Act of 28 June 1990.

139 Action 5.2.5, Strategic Plan.

140 Recommendation 5.3 (Kushiro, 1993).

141 See in particular Chapters 12, 13 and 18 below for a further discussion of the scope of permit systems and planning controls in the context of wetlands.

142 See Post, J.C. 1994. *The Economic Feasibility and Ecological Sustainability of the Bonaire Marine Park, Dutch Antilles.* In Munasinghe, M. and McNeely, J. (eds.). 1994. at pp. 333-338.

species and genetic variation; economic and human development which is socio-culturally and ecologically sustainable; and logistic support for environmental education and training, research and monitoring). To qualify for designation, a biosphere reserve must be large enough to perform these three functions and must contain three zoning categories:

- a legally constituted core area devoted to long-term protection, according to the conservation objectives of the biosphere reserve and of sufficient size to meet these objectives;
- a buffer zone clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place; and
- an outer transition area where sustainable resource management practices are promoted and developed (this corresponds to Article 8 of the CBD which supports the promotion of "environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas").[143]

In the context of wetlands, well-designed buffer and transition zones can provide extremely important benefits if they are used as a spatial tool to safeguard ecological processes essential for wetland functions and values. Examples of such approaches include the designation of buffer zones to protect water tables (used in the Netherlands); groundwater protection zones (known as *périmètres sensibles* under French law); soil conservation zones in watersheds which restrictions are targeted at preventing erosion; and dune and forest conservation zones in coastal areas subject to erosion, flooding and storms. The planning and design of protected wetlands should also take into account the role of wetlands as buffer zones for natural hazards by preserving the natural mitigation elements provided by certain wetland types, notably reefs, dunes and mangrove forests.[144] Techniques of this kind are not of course restricted to protected areas: they may be incorporated in different ways into spatial planning documents, as discussed in Part IV below. They provide a promising example of the way in which law and science can be combined quite creatively to protect the natural infrastructure of wetlands and water systems.

Lastly, the 1990 Guidelines and 1993 Additional Guidance contain specific recommendations for the application of special environmental impact assessment (EIA) rules to wetland areas in view of their particular environmental sensitivity. As EIA is a crosscutting issue that is also directly relevant to generalised wise use legislation and land-use planning, it is discussed separately in Chapter 17 below.

10.1.3 Involvement of Local Populations in Wetland Management

The 1993 Additional Guidance advocates the establishment of local procedures to "guarantee that local populations are involved in the decision-making process related to wetland use and to provide local populations with sufficient knowledge of planned activities to ensure their meaningful participation in this decision-making process." The Strategic Plan develops this further by urging Parties to encourage active and informed participation of local communities, including indigenous people and women, in the conservation and wise use of wetlands.[145]

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143 Article 4. See further Schelhas, J. and Shaw, W.W. 1995. *Around Protected Areas: Partnerships Between Rural People and Protected Areas* in McNeely, J.A. (ed.). 1995. *Expanding Partnerships in Conservation* at pp. 206-214.

144 Bender, S.O. 1995. *Protected Areas as a Protection against Natural Hazards.*

145 Operational Objective 2.7.

The first step towards community-based approaches to wetland management will generally be to identify existing and potential partners from the pool of public departments and agencies, resource users and interest groups including conservation NGOs, and then to clarify their respective roles. This will of course vary between wetlands. Criteria that may help in this task include the degree of socio-economic dependence and cultural and historic relationship with the resource; the actual or potential impact of the groups concerned on the resource; and the compatibility of each group's interests and activities with national conservation and development policies.[146]

This kind of involvement is often initiated on an informal basis and at this level can make an important contribution to strengthening the role of human communities in wise use. In this respect, it is encouraging that two winners of the 1999 Ramsar Wetland Conservation Award are private associations that have provided a catalyst for more broadly-based management of particular wetlands (the Lake Naivasha Riparian Association in Kenya and the Society for Protection of Prespa in Greece).

Wherever possible, the rights of communities should be formalised and given legal backing under appropriate legislation. Structures for joint management may be developed on a sliding scale of formality, depending on the institutional traditions and applicable legislation of the country or locality concerned. Legal and administrative arrangements should give local communities the right to be involved in the management of all public protected areas within their geographic area. They should also specify rights to information and participation of local authorities, local businesses, scientific institutions and conservation NGOs.[147] Some countries already have a structure of local government that provides for the formation of committees at the lowest level. As mentioned in Chapter 6, Ugandan legislation supports the creation of local environment committees as subcommittees of local village committees. Local environment committees of this kind could be specifically created or mandated to address wetland management.[148]

The integrated management structures discussed in Chapter 10.1.1 above can be designed to incorporate some form of local representation. The status and membership of a decision-making management authority is generally laid down by the decree or other instrument enacted for the establishment of the park. This will often authorise one representative of each local authority on whose territory part of the park is situated to sit as a member of the management authority. In contrast, it is rare for representatives of local communities and user groups, such as fishermen, to be permitted to sit as full members: a more usual approach is to confer some kind of formal consultative status on designated representatives. One possibility is to create an advisory or consultative committee, which has the legally-backed right to be consulted in advance of decisions relating *inter alia* to management planning and individual development proposals. The Strategic Plan[149] supports the establishment of wetland management committees, especially at Ramsar sites, on which local stakeholders, landowners, managers, developers and community interest groups, in particular women's groups, are represented.

Enabling legislation should also make provision for the representation of relevant scientific institutions and local or national NGOs, where appropriate. Such representation could be within the management authority, the wetland management committee or in some cases a separate scientific advisory body.

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146 Renard, Y. 1993. *Responsabilité locale et co-gestion des zones humides.*

147 Synge, H (ed.). 1994. *Parks for Life: Action for Protected Areas in Europe* which recommends that local authorities should also be given the power to establish local nature reserves.

148 Ntambirweki, J. 1998b. *The Evolution of Policy and Legislation on Wetlands in Uganda.*

149 Action 2.7.3.

The active involvement of local populations and interest groups through appropriate representation is a useful awareness-building tool and can help to mediate and reduce conflicts. Such processes may be used to develop a supportive climate for their involvement in wardening and monitoring, thus reducing some management costs. The Strategic Plan urges Parties to encourage site managers and local communities to work in partnership at all levels to monitor the ecological character of wetlands, thus providing a better understanding of management needs and human impacts.[150]

The Additional Guidance also addresses the need to encourage traditional and other sustainable activities within protected areas through incentives and other financial mechanisms. Legal tools of this kind are designed to encourage private wetland owners and users to manage particular land and resources in a sustainable way and may be targeted in almost limitless ways. Because incentive mechanisms relate to the management of activities and always depend on the existence of general enabling legislation, they are addressed separately in Chapter 20 below.

Lastly, and at the risk of stating the obvious, it should be emphasized that community involvement in wetland management - at whatever degree of formality - is unlikely to flourish where there is insecurity or perceived injustice in the system of land tenure or access to wetland resources. Individuals need to have a sense of ownership (some kind of personal stake or investment) if they are to take a long-term view towards resource management: their communities will only be genuinely empowered through effective partnerships with local, regional and even national governments.[151]

10.2 Selected Case Studies of Wetland Nature Parks and Biosphere Reserves

10.2.1 Linear River Parks (Italy)[152]

In Italy, jurisdiction for most aspects of nature and landscape conservation and regional planning were transferred to the Regions under the 1948 Constitution and, in the case of regional nature parks, by a Constitutional amendment of 1977. These legal powers must be exercised within the limits of fundamental principles laid down by national legislation.[153] The State therefore retains the right to adopt framework legislation with which regional laws must be consistent.

The framework Protected Areas Act of 6 December 1991 defines the allocation of powers between the State and the Regions in respect of protected areas. Certain responsibilities for the protection of natural areas have been retained at national level and are split between several different departments. The Ministry of the Environment has jurisdiction over national parks and terrestrial state nature reserves, whilst the protection of "natural beauties" and the landscape comes under the separate Ministry for Cultural and Environmental Property. The power to establish protected areas in coastal waters, the territorial sea and the public maritime domain is shared

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150 Action 2.7.2.

151 *Community-Based Wetland Management*, Technical Session F, COP6 (Brisbane, 1996), Vol. 10/12.

152 See further Simoncini, A. 1992. *Ecosystem Conservation in Land-Use Planning: The Dialectic Between Central and Regional Policies in the Italian Legal Model.* Proceedings of the IV World Congress on National Parks and Protected Areas, Caracas, 10-21 February 1992.

153 Art. 117 of the Constitution.

between the Ministry of the Environment and the Ministry of the Merchant Navy.[154] The management regime for Regional nature parks established under the Act provides for the exercise of wide-ranging powers. These include the power to lease, buy or expropriate land, to exercise a right of preemption over land within a defined area that is offered for sale and to grant concessions for certain categories of activities including ecotourism facilities. Subject to the management plan developed for each park (see below), the competent authority has extensive powers related to grants, subsidies and incentives and also to enforcement.[155]

Each Region has adopted its own regional framework law which deals with all categories of protected areas, including nature parks, nature reserves, natural monuments and other areas of particular environmental importance. Individual protected areas are then created by special legal instruments, which deal with institutional arrangements, the park plan, zoning, representation of local interests and specific regulations for the protected area. In most Regions, the provisions of the park plan must be formally approved and will then be binding on all public and private persons and automatically prevail over municipal land-use plans. The following section discusses the application of protected area instruments to Lombardy's wetlands.

Several of the regional parks established to date are river parks, comprised of relatively long narrow strips of land along a watercourse. River parks now exist in many Regions, including Liguria (the Magra Park), Emilia-Romagna, Lazio and Veneto. The first to be created was the Ticino Park (Lombardia Region), established in 1974: it is 85 km long, stretching on the Lombardia side from Lake Maggiore to the confluence of the Ticino and the Po. A similar park has been established on the Piedmont side of the river. Since that date, the Regional Executive of the Lombardia Region has developed detailed requirements for park territorial coordination plans (PTCPs) in order to take better account of the dynamics of ecological processes and socio-economic activities within the planning system and to place less emphasis on regulatory approaches.[156]

The Regional Regulations[157] lay down comprehensive guidelines on the content and preparation of PTCPs, which have a dual function: a policy instrument as well as a programme for future actions in the park. PTCPs must include an evaluation of the environmental status of the river park and the causes of degradation, the interactions between human activities and the environment and the identification of conservation priorities, possible remedial actions and management measures. Based on this evaluation, each PTCP must set out binding rules as well as specific proposals for action. These binding provisions apply to the development of the park's detailed management plan, but also to all other sectoral plans and use regulations applicable in the park area. The Regulations set out specific "criteria" related to the conservation and management of nature reserves, forests and wildlife and lay down two key objectives with regard to farming. These are respectively the protection of agricultural heritage through the maintenance of farming methods compatible with the transmission of this heritage intact to future generations, and the identification of environmentally sensitive areas where the ecological balance must be maintained and certain activities restricted. These activities include the discharge of pollutants, the use of pesticides and phyto-

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154 Pursuant to the Sea Protection Act of 31 December 1982 which specifically provides for the establishment of marine nature reserves.

155 See further Chapter 21 for a discussion of enforcement.

156 The following summary is partly based on a paper by Tenconi. A. 1992. *The Evolution of Park Planning in the Lombardia Region: Comparative Experiences*, which was presented at the Conference on Protected Area Planning, Turin, 30-31 October 1992.

157 *Criteri per la formazione dei piani territoriali di coordinamento dei parchi*, 31 May 1988 as amended.

pharmaceutical products, tree plantations or land consolidation operations. The agri-environmental measures and funding provisions of relevant EC Regulations may be used to achieve this objective.[158]

PTCP proposals for specific management actions must cover the conservation and restoration of natural habitats, the acquisition of land in the park, the development of necessary infrastructure, the protection and management of wildlife, the abatement of factors which put natural resources at risk and landscape protection measures. Each Plan must identify not only the nature and objectives of such actions, but also the procedure for their preparation and execution and specify the institution responsible in each case. Significantly, the PTCP must specifically address any contradictions that might arise between its own provisions and those of other plans and must lay down directive guidelines to municipalities responsible for land-use planning around the park. It should also lay down priorities for the implementation within the park of sectoral plans developed at Regional level: these include water and air pollution control plans and waste elimination plans. Environmental impact assessments should preferably be required *inter alia* for activities not covered by the regulations applicable to the various park zones: a list must be drawn up of projects for which an EIA is mandatory.

The Regional regulations specify that after a PTCP has been prepared, its effectiveness should be evaluated. This analysis should include the length of time, the legal tools and the budget needed to achieve the objectives determined for each zone as well as a critical assessment of the techniques and procedures proposed by the PTCP for that purpose. Evaluation may be carried out on a zone-by-zone basis or by reference to each category of activity, including those initiated by the park itself. These requirements are designed so that a PTCP can be amended as necessary to ensure that suggested objectives and techniques remain relevant and cost-effective to the evolving state of each park.

As a result of these comprehensive criteria, the more recent PTCPs adopted in the Lombardia Region place much greater emphasis on the management, restoration and development of natural habitats. The objectives of the newer Southern Adda River Park, for example, include the protection of the few, very fragmented natural areas remaining in the floodplain (flood meadows, vegetated river banks and the small tributaries of the Adda river). They also cover the restoration or recreation of habitats that have been altered or destroyed in the past through channeling of the river and the extension of farming to the very edge of its banks. The Plan is based on a detailed inventory of areas of natural interest, which are classified in relation to their importance and vulnerability, especially with regard to the flora and vertebrate species that they contain. The zoning of the Southern Adda Park is therefore much better adapted to the conservation needs of natural areas and wild species.

The PTCP establishes a programme for the gradual reconversion of cultivated land to nature and restricts existing or new agricultural practices to those compatible with the hydrogeological constraints characteristic of the flood plain. To achieve these objectives, the Plan combines regulatory measures with incentives, coordination requirements and cooperative measures. These mechanisms are intended to promote the initiation of concrete and positive action, aimed at encouraging better management of the natural resources of the Park by both public bodies and private persons. Since effective habitat conservation or restoration measures must be carried out in precisely-identified areas, the PTCP is more detailed than many earlier plans: for instance, the scale of the maps which form part of the Plan is 1 in 10,000 instead of 1 in 25,000 for the Ticino Plan.

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[158] See further Chapter 20.

10.2.2 Inland Bogs and Forested Wetlands (New Jersey Pinelands, United States)

There are relatively few examples of nature parks or equivalent protected areas in the United States, where around one third of all land is under federal ownership and there still exist fairly large tracts of relatively pristine natural areas. The same is true in Canada, although as in the United States there are a few outstanding examples of such instruments (one being the Niagara Escarpment in the province of Ontario, Canada). This makes the New Jersey Pinelands, a designated biosphere reserve, of particular interest.

The Pinelands cover an area of more than 400,000 hectares, almost a quarter of the State of New Jersey and have a population of around 450,000: they are situated at close distance to two huge conurbations, New York and Philadelphia. They are in mixed ownership, comprising federal lands, State-owned lands and, for more than half of the acreage, a series of private landholdings. There is a considerable area of natural forest with a large aquifer that is often at or near the surface and results in extensive bogs and marshes: production of blueberries and cranberries in these wetlands is a major agricultural activity. The Pinelands thus provide a particularly good example of the biosphere reserve concept, in view of their multifunctional character and the need for sophisticated zoning.

The Pinelands National Reserve was established by a federal Act of 1978, which determines the respective roles of the federal and State governments in the Reserve's creation and management, and by an Act of the State of New Jersey of 1979. This 1979 Act establishes the Pinelands Commission which is a public body with legal personality and its own staff. It may conclude contracts and may also adopt such rules and regulations as are necessary to implement the provisions of the Act. The Commission is composed of 15 members: one designated by the Secretary for the Interior; one for each of the seven "counties" with territory within the Reserve, each designated by the governing body of the county concerned; and seven appointed by the Governor of the State of New Jersey. The Act specifies that members must include residents of the Reserve representing economic interests such as agriculture as well as residents of New Jersey who represent conservation interests. The Act also provides for the establishment of the Pinelands Municipal Council, composed of the mayors (or their representatives) of all municipalities with land in the Reserve. This body is purely advisory.

The Commission functions as the planning authority for the Reserve with a mandate to develop, adopt and implement a Comprehensive Management Plan which is subject to approval at federal level by the Secretary of the Interior. The Plan is a regulatory instrument, which provides for the exercise of police powers to regulate the use of land and water. Its general goal is to protect, preserve and enhance the significant values of the resources. The specific objectives are to preserve and maintain the essential character of the environment, including indigenous animal and plant species and their habitats; to protect the quality of surface and ground waters; promote the continuation and expansion of agricultural and horticultural uses; to discourage piecemeal and scattered development; and to encourage appropriate patterns of compatible residential, commercial and industrial development in and adjacent to areas which are already utilised for such purposes. Any permit issued in violation of the rules of the Comprehensive Management Plan is null and void.

The 1979 Act provides an extremely interesting model for the sensitive issue of harmonising different physical planning documents. Under the Act, county and municipal master plans and zoning ordinances adopted by local authorities must be in conformity with the Comprehensive Management Plan. If they are not, they must be revised accordingly and their conformity "certified" by the Pinelands Commission. Once plans and ordinances have been certified, the local authority concerned remains competent to issue all development permits in accordance with the provisions of the Plan. In the absence of certification, however, the local authority has no power to issue permits. These will instead be granted or refused by the Commission, which adopts and enforces

such regulations as may be necessary to implement the Plan's minimum standards insofar as these are applicable to the country or municipality concerned.

The Plan divides the Pinelands Reserve into zones according to "land-capability" with different rules for each zone. The core of the Reserve is called the *Preservation Area,* which is a wilderness with pristine rivers and wetlands and must remain so. The Plan's conservation objective for the Preservation Area is to preserve an extensive and contiguous area of land in its natural state and at the same time to promote compatible agriculture, horticulture and recreational uses, including hunting, fishing and trapping. This land is mainly in public ownership. The Federal Government makes grants to New Jersey to acquire land within the Preservation Area or acquires it directly.

The Comprehensive Management Plan establishes special rules for wetlands within the Reserve. All development is prohibited. Other planning documents applicable to the Reserve (county master plans and municipal zoning ordinances) must also provide for the integrity of wetlands.

The Act establishes an innovative system of incentives to deflect development towards the least ecologically sensitive areas of the Reserve. Private landowners in the Preservation Area and in *Agricultural Production Areas* are offered attractive terms in return for surrendering development rights on their land. As a general rule, two *Pinelands Development Credits* are allocated for around 39 acres (16 ha) of natural lands within the ecologically sensitive areas of the Reserve. Each credit permits the private landowner to construct four dwelling units in the *Regional Growth Area* of the Reserve, even if this is above the permitted density under the Plan. However, no transfer of development rights can be made unless the private landowner has signed a legally binding property law instrument (deed) that permanently restricts the use of the land from which such rights are to be transferred. This deed must be made in favour of a public agency or conservation NGO and must be clearly expressed to be enforceable by the Pinelands Commission. Deed restrictions must also specify permitted uses, as listed in the Comprehensive Management Plan. The only activities allowed in the Preservation Area are berry agriculture, horticulture of native Pinelands plants, forestry, beekeeping, fish and wildlife management and low intensity recreational use with no motor vehicle access. The clearing of vegetation must not exceed 5% on the parcel of land concerned and no more than 1% may be covered with impermeable surfaces. This system encourages the keeping of natural areas while still allowing owners to make capital gains by selling their development rights.

The Secretary of the Interior may make grants to New Jersey for the acquisition within the Reserve of lands and waters of critical ecological value that are in danger of alteration or destruction. Alternatively, the US Government may buy such lands or waters outright and subsequently transfer them to the State of New Jersey.

The Pinelands Reserve thus contains several elements of interest. It combines limited public acquisition with land-use controls that have been developed and implemented through a cooperative programme involving Federal, State and local governments (counties and municipalities) as well as concerned private groups and individuals.

10.2.3 Fens and Marshes (Norfolk and Suffolk Broads, United Kingdom)

The national parks of England and Wales are the nearest equivalent in the United Kingdom to the protected landscapes or nature parks found in continental Europe: they are 'working' and inhabited landscapes, the natural beauty of which is to be preserved and enhanced whilst access is provided for public enjoyment. The enabling legislation for such parks is the National Parks and Access to the Countryside Act 1949 as amended, but the Norfolk and Suffolk Broads discussed below have been developed under separate legislation to quite interesting effect.

The Broads are made up of 20,000 hectares of shallow lakes and waterways in the east of England, a legacy of the medieval flooding of ancient peat workings. The forty odd Broads are connected by some 160 km of navigable channels and provide a much-prized recreational amenity as well as an internationally important habitat for birds and wetland plants. The Broads face a range of threats, including drainage of land for conversion from pastoral to arable use, non-point water pollution caused by fertiliser run-off from arable land as well as by the increasing use of motor boats, and the erosion of banks caused by heavier traffic along the waterways. The cumulative impacts of these activities have seriously endangered both the conservation and amenity value of a valuable ecosystem unique in the United Kingdom.

It has long been acknowledged that only an integrated administrative authority could reconcile the competing claims for recreation and conservation in the Broads. However, attempts made in 1949 and 1976 to have the Broads designated as the eleventh national park were unsuccessful. Since then, innovative management arrangements have been developed around the particular ecological requirements of the Broads to deal with these growing threats.

The first management authority was set up on an experimental basis in 1978 as a joint planning committee comprising representatives of all the local authorities concerned. This authority was replaced by the statutory Broads Authority, which came into being on 1 April 1989, pursuant to the Norfolk and Suffolk Broads Act 1988. The Act defines the Broads as an area qualifying for special conservation on account of its ecological value and gives the Broads equivalent status and funding to the national parks. The statutory designation does not affect the legal ownership of the Broads, which means that the land remains in mixed public and private ownership.

The principle of multi-purpose conservation is embodied in the 1988 Act. The Broads Authority is required to take account of the area's national importance and the need to protect it. It must promote public enjoyment, preserve natural amenity and maintain, improve and/or develop the navigation area as it thinks fit, whilst having regard to the needs of agriculture and forestry and the social and economic interests of those who live and work in the Broads.

The Broads Authority is a legal entity with its own staff, directors and budget. It constitutes an autonomous planning unit, has wide-ranging powers relating to land-use management and is authorised to make binding local regulations (bye-laws) for the purpose of carrying out its general functions. Its members include representatives from all the constituent local authorities, the Countryside Agency,[159] English Nature,[160] the Environment Agency[161] which is the enforcement authority in cases of water pollution and the Great Yarmouth Port and Haven Commissioners (the competent navigation authority). The Authority must also set up a Navigation Committee that includes some of its own members as well as representatives of navigation interests (including recreational boating) that are not already represented on the Authority.

The Authority is under a statutory duty to prepare a Broads Plan setting out its policies for achieving its statutory objectives, which is subject to a detailed public consultation procedure before it is finalised and must be renewed every five years. This management plan regulates navigation and water management and demarcates zones for priority conservation: it also contains restoration provisions for silted-up waterways. The Authority must also prepare and regularly update a map, in accordance with scientific guidelines drawn up by the Countryside Agency,

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[159] This body was established in 1999 following the merger of the Countryside Commission and parts of the Rural Development Commission in England. It is a statutory body that advises the Government on all aspects of countryside management and development in England.

[160] The statutory body which advises the Government on nature conservation in England.

[161] Formerly the National Rivers Authority.

delimiting areas whose natural beauty should be conserved. A Code of Practice for drainage operations has been drawn up.

The Broads Authority has specific powers to make conservation orders regulating activities likely to affect the character or appearance of specified areas, such as grazing marsh, fen marsh, reed bed or broad-leaved woodland. Once an order is made, no person may undertake such an operation without first giving written notice to the Authority and then: (i) receiving the written consent of the Authority, or; (ii) waiting for three months without being notified of the Authority's decision, or (iii) waiting for twelve months where the Authority has refused consent. Breach of any of these conditions constitutes a criminal offence. The refusal of consent by the Authority is not permanent as, in a worst case scenario, it simply delays the commencement of the activity by twelve months. Nevertheless, this provides a useful 'breathing space' during which negotiations with the landowner may be conducted in order to modify the planned operation by consent or to conclude a management agreement providing for compensation or for payment in return for positive management practices. Where no agreement can be reached, the Authority has the power,[162] in consultation with English Nature, to expropriate the land to create a nature reserve. Such powers are almost never exercised.

The Authority also has statutory powers to buy land and to make grants to farmers and other landowners. The whole of the Broads has been designated an Environmentally Sensitive Area within the meaning of EU Regulations,[163] which has enabled a large number of management agreements to be concluded for the preservation of meadowland by the maintenance of traditional forms of grazing. Larger payments are made in respect of some 10,000 hectares to foster management methods enabling rare plant species as well as nesting and wintering birds to be protected.

10.2.4 Estuaries (Chesapeake Bay, United States)

Chesapeake Bay in the American States of Maryland and Virginia has been placed under a broadly-based management regime to secure protection of water quality and sustainable use of surrounding land areas. Local authorities play the lead role in implementing this regime.

The Chesapeake Bay Preservation Act of 1988 establishes a Chesapeake Bay Local Assistance Board with nine members, one for each of the local planning units with territory in the protected area. The State Governor appoints members for a four-year term. The Board has legal personality, its own budget and staff. Its powers include provision of financial and technical assistance and advice to local governments and to regional and state agencies on land-use and water quality protection. More specifically, it is required to make regulations setting out criteria for the identification of *Chesapeake Bay Preservation Areas:* these are zones in which inappropriate development could entail substantial damage to the water quality of the Chesapeake Bay and its tributaries. On the basis of these criteria, local authorities (counties and municipalities) along Chesapeake Bay must identify and delimit these Preservation Areas and incorporate them into local plans and ordinances. As necessary, these planning documents must be revised to bring them into conformity with the Act and Regulations. The Board may take administrative and legal action to ensure compliance.

Implementing regulations adopted in 1991 set out criteria for two categories of Preservation Areas. The first category consists *of Resource Protection Areas:* these are sensitive lands at or near

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[162] Under the Wildlife and Countryside Act 1981 as amended. This system is analogous to the system of Sites of Special Scientific Interest, discussed further in Chapters 11 and 20.

[163] See further Chapter 20.

the shoreline that have intrinsic water quality value due to the ecological and biological processes they perform. They include tidal wetlands, tidal shores and non-tidal wetlands connected and contiguous to tidal wetlands or tributary streams, together with a buffer area not less than 100 feet in width.

The second category consists of *Resource Management Areas.* These are lands which, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of a Resource Protection Area. They must be contiguous to the entire inland boundary of a Resource Protection Area. They include *inter alia* floodplains, highly erodible soils including steep slopes, highly permeable soils and non-tidal wetlands which are not included in the Resource Protection Area. The buffer area on the edge of Resource Protection Areas is 100 feet, but may be reduced to 50 or 25 feet in certain areas. Its object is to maintain the role of vegetation in retarding runoff, preventing erosion and filtering nonpoint source pollution. Within the buffer area, indigenous vegetation must be maintained or reestablished.

General performance criteria have been established for the Chesapeake Bay Preservation Areas. No more land may be disturbed than is necessary to provide for the desired use or development; indigenous vegetation must be preserved to the maximum extent possible; authorised developments must minimise impervious cover consistent with the use or development allowed.

The states concerned have a mainly supportive role, providing financial and technical assistance as well as policy guidance. All State agencies must exercise their authority in a manner consistent with the provisions of the Act.

The last two case studies in this Chapter illustrate the legal regime developed for two very different types of coastal wetland complexes: a relatively small Mediterranean site and a very large lowland tropical wetland that combines forested and marine areas.

10.2.5 Mediterranean Coastal Zone (Albufera de Mallorca, Spain)

Under the Spanish Constitution, as mentioned above, competence for all protected areas other than national parks has been transferred to the decentralised regional entities known as the Autonomous Communities. These Communities must comply with the provisions of the framework National Act of 27 March 1989 on the Conservation of Natural Areas and of Wild Flora and Fauna, which lays down general rules relating to the establishment and management of protected areas (generally referred to as "parks"). The Act's requirements are extremely general and the level of protection may vary widely between protected areas. The only obligation is to restrict the use of natural resources and to prohibit activities incompatible with the purpose of a protected area as laid down in the legal text establishing that area. This is a long way from the concept of strict protection of conventional protected areas: the general premise is that activities which are compatible with the sustainable use of natural resources will usually remain authorised. The Act provides for the establishment of buffer zones in which activity-based restrictions may also be imposed as well as "zones of influence". The purpose of such a zone is to contribute to the maintenance of the protected area and to provide socio-economic compensation to human populations whose interests are affected by the establishment of the park. The zone of influence extends to the whole territory of any municipality that has part of its territory included in the core or buffer zones of a park.

Parks are administered and managed by the nature conservation authorities within the Autonomous Communities. Unlike the regional nature park regime in countries such as Italy and France, these management authorities are not autonomous bodies with legal personality. Each park management authority is required to prepare a management plan *(Plan rector de uso y gestiõn)* setting out general rules for the use and management of the park. The Plan must be approved by decree of the competent body of the Autonomous Community concerned, after consultation with

the regional planning authority, and must be revised periodically. The content of an approved Plan is legally binding upon all public authorities and private persons: its provisions prevail over any other land-use plans which, in the event of inconsistency, must be revised accordingly. The establishment of a park constitutes a declaration of public interest: this means that the competent authorities have the right of preemption (right of first refusal) with regard to any land in the park that comes onto the market and may also expropriate land within the park as necessary.

The Act of 1989 also provides for the creation of advisory bodies, called *Patronatos* or *Suntas Rectoras*. The composition and functions of these bodies must be specified in the text establishing each park.

Several Autonomous Communities have established regional parks for the protection of large wetlands in Spain. Some of these are in coastal areas,[164] although these form a relatively small element of a legal protection system based on advanced special coastal planning controls (see Chapter 15 below). The Albufera de Mallorca in the Balearic Islands is a coastal wetland listed as a Ramsar site. Its 1700 hectares are mainly in Government ownership but about one quarter is privately owned. It was established by a Decree of the Government of the Autonomous Community of the Balearic Islands dated 28 January 1988. The park objectives are standard, covering the conservation of natural ecosystems and the maintenance of traditional economic activities compatible with the protection of the area. The Decree itself imposes a general prohibition on any activity which would result in the total or partial drying up of wetlands, the lowering of the water level, the alteration of the natural flow or the discharge of polluted waters inside the Park or outside the Park if such waters flow into the Park.

The approved management plan divides the Park into zones and specifies the activities for which permits must be granted by the competent authority of the Autonomous Community (in this case, the Department of Agriculture and Fisheries). Certain restrictions apply uniformly to the whole Park. All activities that directly affect flora, fauna and water in the Park must always be subject to a permit. Activities that may adversely affect the conservation state of the Park may not be authorised. The plan generally prohibits the construction of new buildings or new roads as well as movements of earth within the Park, subject to a few exceptions. It also prohibits the discharge of wastewaters or waters that have only undergone primary treatment, whether directly or indirectly. The discharge of other treated waters requires prior approval. The drilling of new wells within the Park or at a distance of less than 1000 metres from the Park boundary requires a permit if it is liable to affect the water table in the Park. Other controlled activities include other types of construction, including water tanks; the discharge of solid waste; aquaculture or fish farming projects; the use of pesticides of any kind; and sporting competition and rallies.

A permit is required from the Park Director for activities such as scientific research, forestry exploitation, the digging of canals and ditches and sport fishing in public waters. The collection of seaweed on the coast is only authorised from April to September. The use of mechanical equipment may be restricted in order to ensure the conservation of dunes and their vegetation.

Certain activities cannot be authorised if they may result in the significant alteration of the natural values of the Park. These include the taking, collection, damaging or disturbing of animals and plants of species native to the Park. Hunting is prohibited on public lands and waters but authorised elsewhere under special restrictions. Hunting on private land is limited to landowners and their near relatives and requires a special permit from the Park Director, specifying the dates on which hunting is allowed. The maximum number of days when hunting is allowed is calculated by dividing the size in hectares of the property by the number of persons authorised to hunt. By way

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[164] See Chapter 9.2.2 for an explanation of the respective powers of the State and the Autonomous Communities with regard to protected areas in the public maritime domain.

of example, a single person occupying an estate of 10 hectares may hunt for ten days, whereas two people could only hunt for five days each. All other hunting restrictions applicable throughout the Autonomous Community are obviously also applicable in the Park.

The management plan also prohibits sand extraction, the introduction of exotic wild species, camping (with limited exceptions) and unauthorised use of motor vehicles, motor cycles and boats. Access to parts of the Park not in the public domain (which is limited to beaches and public roads) is subject to a permit from the Park authorities. A special permit is required for access off roads and paths.

On the other hand, certain categories of activity may be freely exercised without a permit. The management plan lists *inter alia* extensive livestock rearing; the collection of bulrushes and cane; beekeeping; the cultivation of traditional crops on land already used for that purpose and rice-growing; scientific research that does not involve the taking, collection or disturbance of flora or fauna; and the restoration of salt pans in areas where the collection of salt was carried out in the past. The Department of Agriculture and Fisheries may propose to the Balearic Government that management agreements should be concluded with landowners for the purpose of improving the conservation and use of the Park. The Department also has the right of preemption over privately-owned land in the Park that comes up for sale.

Four types of zone have been established in the Park. The strictest category is that of *reserves* in which no human intervention is permitted. Access is prohibited except for landowners or for conservation purposes: a permit is required for scientific research. The second category consists *of protection zones,* in which permitted activities are basically limited to extensive grazing and other extensive activities. No other economic activities are allowed. Access is prohibited as above or restricted, and is always subject to permit. No permanent changes of land use may be authorised within these zones. The third category is the *special use zone* in which agriculture and some fish farming and services are permitted. Lastly, in the *restoration zone,* agriculture and other forms of intervention are permitted, but access remains restricted.

At institutional level, the managing Department of Agriculture and Fisheries appoints the Park Director who must be a staff member of the Department. The Director is in charge of the daily management of the Park and has power to grant certain permits. S/he acts as the Secretary of the *Sunta Rectora,* a specially created advisory body that is designed along cross-sectoral lines. Its membership includes representatives of several departments within the Autonomous Community, notably those responsible for Public Works, Regional Planning and Tourism. It also includes representatives of all local authorities with territory in the park, one representative from the national public Nature Conservation Institute (ICONA), one representative of conservation NGOs, two conservation experts, one university specialist and the head of the nature conservation service within the Department of Agriculture and Fisheries. The Balearic Government must approve the President of the Advisory Body. The functions of the *Sunta Rectora* are to advise the Department of Agriculture and Fisheries on park management and to supervise the conservation of the Park and the implementation of legislation. It must also promote all activities consistent with the purposes of the Park and must advise on management plans and on any other plan or project relating to the Park.

10.2.6 Tropical Forests and Coastal and Marine Wetland Complexes (Sian Ka'an, Mexico)

Mexico, as mentioned earlier, expressly provides in its legislation for the creation of biosphere reserves. These must contain one or more core areas as well as a buffer zone: the legislation does not refer to transitional zones. Human activities are regulated within biosphere reserves pursuant to binding management plans. A management plan may establish complementary zones within each of these two main zones, in which activities may be specifically permitted under strict

controls. Management plans must also lay down general measures to regulate or manage the various activities that may be carried out in biosphere reserves: tree felling, collection of plants and forestry products, hunting, agriculture, livestock rearing, fishing, extraction of mineral resources, water resource use, tourism and scientific research.

The Sian Ka'an Biosphere Reserve is located in the state of Quintana Roo on the southern humid coast of the Yucatan Peninsula. The Reserve covers approximately 528,000 ha, of which about one third is covered by tropical forests receiving 1200 to 1500 millimeters of rain per year. The rest of the Reserve is covered by coastal swamps, savannas, lagoons and coral reef. The reserve has very high levels of biodiversity and contains more than 1200 species of plants and 320 species of birds. The coastal lagoons and shallow bays form the greatest breeding grounds for spiny lobster on the Caribbean coast of Mexico, whilst the coral reef is the second longest barrier reef in the world: these values are obviously of great economic importance.

More than 99% of the land is government-owned, and less than two thousand people live within its boundaries. As against this, it should be borne in mind that a highway connecting the Peninsula to the rest of Mexico was only completed in 1960. Whilst the area is only sparsely populated, tourist development pressures and opportunities are spreading rapidly down the Yucatan Peninsula. These factors have provided an added incentive to establish a biosphere reserve in this area.[165]

The Reserve was established by Presidential Decree in 1986 and, pursuant to enabling legislation, has a legally-backed management plan implemented by competent government agencies. At institutional level, an Advisory Council has been established which includes representation of fisheries cooperatives, coconut growers, livestock breeders, small landowners and the *Amigos de Sian Ka 'an* (see below), as well as national and local research organisations. The Council meets every two to three months. Its functions are broadly to address and promote solutions for all types of practical problems that may arise within the Reserve. More specifically, it is empowered to examine all proposals for development and must give its consent before the competent authorities may grant the necessary permits.

One of the most interesting aspects of the Reserve is that a non-profit private support group, known as *Amigos de Sian Ka'an,* was established the same year to complement the work of competent government organisations. Without strong local support, any park project in Mexico is unlikely to succeed. The NGO's main objective is the development of practical conservation projects in the Reserve's buffer zone, the enhancement of local public awareness and the generation of local and international support. The long-term aim is for the Reserve to become economically self-sufficient, although most operational aspects (protection and maintenance) would continue to be handled by government organisations.[166]

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If space had permitted, these case studies should have extended to many other examples of larger protected wetlands, notably the Danube Delta in Romania and Ukraine and the Great Barrier Reef in Queensland, Australia (which is exclusively marine). At the same time, however, it must be also emphasized that instruments of this type remain the exception rather than the rule in wetland areas. Around the world, there are still many political or legislative obstacles to the institution of multiple purpose conservation areas in wetlands. The position is particularly difficult in coastal

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[165] See generally Gradwohl, J. and Greenberg, R. 1988. *Saving the Tropical Forests.* Earthscan Publications, London at pp. 70-72.

[166] *ibid.* at p. 71.

zones where competing demands on land and water are notoriously fierce and where the price of land acquisition will often be prohibitive for public agencies. It is doubtless no coincidence that Sian Ka'an is publicly-owned and has a low population, whilst there are still few examples of nature park instruments being established on a larger scale in the highly-stressed Mediterranean region or in densely-populated coastal regions in Asia.

Chapter 11
Other Mechanisms for Site-specific Conservation of Wetlands

Statutory protected areas are far from being the only legal tool for conserving individual wetlands and water systems. As discussed in the course of Part III, there are many political, legislative, financial and socio-cultural limitations on expanding the protected area estate. There are many other complementary or alternative mechanisms that may secure conservation and wise use of specific sites: the nature conservation legislation of several countries provides for the making of site-specific conservation orders or other regulatory tools to protect certain landscape elements, particularly forests, copses and even individual trees. Although these may benefit wetlands, they were mostly not designed for the specific needs of wetlands. For reasons of space, this chapter therefore concentrates on a small number of examples that are particularly interesting in the wetland context.[167]

Conceptually, these techniques may be divided into two groups. The first, discussed in 11.1 and 11.2, relates to the control of activity or development within designated wetlands or wetland types that are not statutory protected areas. The second relates to the legal regime for ownership and management of individual wetlands: conservation strategies based on public acquisition and private acquisition/management are discussed in 11.3 and 11.4 respectively.

11.1 Regulatory Protection of Designated Rivers and Wetland Sites

Legislation to conserve and manage particular categories of wetland may either be generally applicable[168] or may be made site-specific in its scope. In the latter case, the law or implementing regulations specifically identify certain wetlands and lay down a special legal status and/or restrictions on the use of the habitat concerned. This type of approach is broadly analogous to the classic protected area instruments described above but with the interesting difference that individual wetlands are singled out for protection on the basis of ecological category or habitat type. The following section provides a few examples of how national laws have used such mechanisms to conserve particular water systems.

As described in Chapter 14.1 below, the range of manmade demands upon river ecosystems, particularly major watercourses, is so broad that it presents complex legal problems for policymakers. Issues to be addressed include whether or not to permit the construction of dams, mineral extraction or dredging from the riverbed or banks, or river channel straightening or other modifications. Comprehensive *legal instruments would need to cover the control of upstream erosion and* sediment build-up, maintenance of minimum water flow and the conservation of floodplains, watersheds and aquatic and riparian biodiversity, usually in the context of very longstanding economic interests.

Some countries have adopted regulatory measures to conserve the functions and values of particular watercourses or sections of watercourses. Such regulations vary in their scope. The first

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[167] On the diversity of legal options, see generally Shine, C. 1996. *Private or Voluntary Systems of Natural Habitat Protection and Management* and de Klemm, C. and Shine, C. 1996. *Legal Measures for the Conservation of Natural Areas.*

[168] Discussed in Chapter 12 below.

type of instrument described below involves the designation of rivers in which the free flow of water is to be maintained by means of a prohibition on the construction of dams or other structures. This type of regulation does not cover the banks or floodplain of such rivers and consequently does not provide a legal basis for an integrated approach to river management

Swedish legislation adopted in 1983 listed sixteen rivers or river sections, which must be maintained in their natural state and on which no hydraulic corks are allowed. As this list of rivers is contained in the Act itself, any changes to the list must be effected by amending the Act or enacting new legislation.

In Finland, the Wild River Act of 23 July 1987 prohibited the construction of hydroelectric plants on 53 watercourses, in most cases throughout the whole of the watershed concerned. Once again, the list of watercourses is contained in the Act itself, making it much more cumbersome to delete any rivers from the list. The watercourses concerned are all fast flowing rivers or waterfalls. Prohibitions or restrictions on other activities that may affect these rivers, including those that are liable to affect water quality and watercourse hydrology, may be adopted by regulations.

In France, more than a decade before the adoption of its modern water legislation,[169] a list of watercourses was drawn up by decree in 1981 and significantly extended in 1984 to cover about fifty river sites or river segments. No permits may be granted for new hydraulic works within these areas. The 1981 list included the Loire from its mouth to its confluence with the Allier, hundreds of kilometres inland.

A second type of regulatory instrument is used to impose restrictions on a particular category of construction, usually the development of dams for hydroelectric power generation. Norway has developed an extensive system for this purpose.[170] A fairly large number of watercourses are protected against such development pursuant to Parliamentary 'instructions' which require the competent government authority to refuse permits for power facilities. Parliamentary decisions are taken on the basis of a Master Plan for Water Resources, which is subject to formal parliamentary approval. The Master Plan is not a protection or development plan but a global survey based on the ecosystem approach. Its purpose is to classify the remaining unprotected watercourses according to their merits from the power production, economic and conservation points of view. This involves an evaluation of the consequences of potential river development in relation to the whole range of interests concerned, including nature conservation, fish and wildlife, recreation and implications for the local economy. Applications for licences must be decided on the basis of the Master Plan.

Under the Master Plan, watercourses may be classified into three categories:

- rivers which are not suitable for hydro-electric development for reasons *inter alia* of nature conservation or because development would be too costly;
- an intermediate category of rivers which can be used for hydro-power development or for other purposes, without priority being given to either; and
- rivers which can be considered for immediate licensing of hydropower works.

In 1991,[171] parliamentary instructions in force affected an annual mean hydroelectric production of some 21 Terawatt hours (Twh) out of the total hydroelectric capacity of about 171

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169 See Chapter 14 below.

170 The following summary is based mainly on Thaulow, 1991. *The Master Plan for Water Resources,* UN-ECE Seminar on Ecosystems Approach to Water Management, Oslo 27-31 May 1991.

171 The last year for which figures were available to the authors.

Twh. In addition to this figure, the Master Plan included rivers representing about 19 Twh of capacity in the first category, for which no licences may be granted. On the basis of these figures, Norwegian rivers with a potential annual mean production of some 40 Twh are now legally protected against hydropower development in order to protect the ecological character of designated watercourses. This amounts to nearly 24% of total national capacity.

Variants of river protection regimes have also been developed in other parts of the world. In the United States, federal legislation provides for regulatory protection of river stretches designated as Wild and Scenic Rivers. This system, like that applicable in parts of Scandinavia, is broadly equivalent to a protected landscape or nature park approach. Wild and Scenic Rivers legislation may be used *inter alia* to restrict access to designated river sections: this can indirectly confer legal protection on instream values by providing a control mechanism for water abstraction.[172] The States of Maine and Massachusetts both provide for the protection of specific rivers, whilst the State of Montana adopted a Natural Streambed and Land Preservation Act as far back as 1975. Zimbabwean legislation also establishes a legal basis for river-specific protection orders.

River banks in specific areas may be conserved either by the establishment of conventional protected areas or by the adoption of special rules. The *Land* of Upper Austria provides an example of the second approach. Regulations adopted pursuant to its Nature Conservation Act set out a list of named watercourses that are subject to prohibitions laid down in the Act itself and institute a system of linear protection strips along the banks of designated rivers and their tributaries. The width of the strip is usually 50 metres wide but is increased to a width of 200 metres along the banks of the Danube. In these protected strips, the public interest of landscape protection must prevail over all other interests. Permits may only be granted if the proposed activity does not affect the public interest in maintenance of the landscape. However, these restrictions do not apply in areas which are already urbanised or which are designated as constructible under local development plans.

Linear or circular wetland protection zones may of course be instituted in a non-site-specific way, under habitat conservation legislation or through land-use planning procedures. Several examples are given in Part IV of this book.

Regulatory protection may also be conferred on designated coastal wetlands. Interestingly, in the State of Queensland, Australia, fisheries legislation has provided the legal basis for such measures. Regulations adopted under the Fisheries Act of 1976 apply stricter rules to the protection of all mangrove forests that are located within designated *fish habitat reserves*. These reserves may only be established on tidal Crown land. In these mangrove areas, it is prohibited without a ministerial permit to remove any material, to deposit any filling or other material, to discharge any matters which may be deleterious to fish, marine products, mangroves or marine plants or to perform any other action which may cause a direct and substantial alteration of the physico-chemical environment. Permits may be granted subject to such conditions as the Minister may determine necessary.

In another variant, non-site-specific legislation may lay down certain controls that apply only to designated wetland sites: this part of the legislation then become site-specific in character. Several countries make use of this kind of targeting. In Denmark, for instance, regulations adopted under environmental legislation provide that stricter conservation measures are automatically applicable to Ramsar sites and Specially Protected Areas (which encompass the country's Ramsar sites) and Special Areas of Conservation designated under the relevant EC Directives. These regulations take precedence over municipal land planning documents. The Marine Environmental Protection Act of 1993 also provides that the dumping of waste is prohibited in these designated

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[172] Butler, L.L. 1990. *Environmental Water Rights: An Evolving Concept of Public Property* at p. 351.

sites unless a permit has been granted by the National Nature and Forests Agency (instead of the County Council which would normally be competent). The Agency's discretion is limited under the Act, which specifies that dumping may only take place if there are no other economically acceptable solutions and provided that such dumping will not adversely affect the sites concerned. Thirdly, Denmark's Quarries Law prohibits any extraction of sand, gravel or stone from marine Special Protection Areas.

11.2 Designation of Wetlands as Sites of Special Scientific Interest

The concept of areas or sites of special scientific interest has been introduced in different forms into several legal systems. Essentially, these systems make it possible to confer special protection measures on areas of ecological importance without it being necessary to create conventional protected areas or to modify the land tenure of such areas. Measures applied to such areas may be regulatory, contractual or a combination of both.

The longest-established system of this kind is that of Sites of Special Scientific Interest (SSSIs) in the United Kingdom, which was created in 1949 and significantly amended by the Wildlife and Countryside Act of 1981 as amended in 1985. It is designed to cover all important natural and semi-natural areas and all listed Ramsar sites and National Nature Reserves are classified as SSSIs. By 31 March 1998, a total of 3987 SSSIs had been notified in England,[173] covering nearly one million hectares about 40% are in public ownership. Many SSSIs include wetland habitat types and several river SSSIs have now been notified (see below).

Where English Nature considers that any area of land is of special interest by reason of any of its flora, fauna, or geological or physiographic features, it must "notify" the existence of the SSSI to the owners and occupiers of the land, the local planning authority, the Secretary of State for the Environment, the Environment Agency, the privatised Water Companies and the Internal Drainage Boards. The local planning authority must register the notification as a local land charge in the Land Register, which means that potential purchasers of the land are deemed to be aware of the existence and boundaries of SSSIs. All sites that meet objective selection criteria[174] must be notified as SSSIs and are then automatically subject to the legal restrictions flowing from this special status. There is no right of appeal against the notification of an SSSI except in the event of procedural irregularities.

The innovative aspect of the SSSI system is that the type of legal protection conferred by the SSSI notification varies according to whether or not proposed activities are subject to planning controls. Where they are, the local planning authority is under a statutory duty to consult with English Nature[175] before determining any planning application for a development on a notified

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[173] Wales, Scotland and Northern Ireland have broadly equivalent systems and institutional arrangements, which will not be discussed further here.

[174] Provided *inter alia* by the *1989 Guidelines for Selection of Biological SSSIs*, which establish two main principles for selection of sites. Firstly, the network of designated sites should contain adequate representation of the countrywide range of variation in natural and semi-natural ecosystem types, with their associated assemblages of plants and animals, considered both as communities and species. Secondly, certain types of site may be selected following the identification of a critical standard of nature conservation importance (such as population size or percentage), above which all examples qualify for key site status.

[175] Or the equivalent body in Wales, Scotland or Northern Ireland.

SSSI. Although the authority is not bound by English Nature's recommendation, there are now very few cases of planning consent being given after a negative opinion.

Where proposed activities are exempt from planning controls, as is the cases for most agricultural and forestry operations, a combination of regulatory and voluntary measures come into play. Each SSSI notification must identify the flora, fauna or features which make the site of special interest and set out a list of "potentially damaging operations" which appear to be likely to damage the natural features of the SSSI and which are outside the scope of planning controls. The landowner or occupier may not carry out such an operation without first informing the competent agency. The latter then has a specified period of time in which to conduct negotiations. Where necessary, it may propose the conclusion of a management agreement under which the owner or occupier receives some form of compensation or, more commonly under updated procedures, is remunerated for carrying out positive management measures on the site.[176] It is a criminal offence for the owner or occupier to carry out a potentially damaging operation during a defined period. The SSSI system is thus regulatory in that owners cannot undertake certain actions and voluntary to the extent that management agreements are freely negotiated. Where the parties fail to reach agreement, the conservation agency has back-up regulatory powers and may make special conservation orders in respect of sites of particular value. It also has powers to acquire SSSI by compulsory purchase, but this is extremely rare.

Another important aspect of the SSSI system is that certain public bodies and utility companies are required by law to consult with English Nature before disposing of SSSI land and/or before granting permits or licences for certain categories of polluting activities or for water abstraction that may affect an SSSI. Stricter environmental impact assessment procedures also apply in and around SSSIs (see Chapter 17 below). English Nature has concluded several Statements of Intent with public agencies and landowners, including the Ministry of Defence (MoD) and the Crown Estate, to promote the environmentally sensitive management of SSSIs.

By 1998, 26 rivers had been notified as SSSIs in England. Although the notification usually covers only the watercourse and the banks, there are a few cases in which the Internal Drainage Board or other landowner has agreed on a voluntary basis to the establishment of a buffer strip on each side of the protected watercourse for more effective conservation. The notification and management of river SSSIs is carried out in close cooperation with the Environment Agency (which includes the former National Rivers Authority), which is currently drawing up joint conservation strategies with English Nature. In a broader perspective, there has also been close coordination with the private water supply companies and the public body that regulates these companies (OFWAT): formal priority has been given to wetland SSSI protection and enhancement in water company investment programmes.[177] Water level management plans have now been developed for many wetland SSSIs, whilst specific management schemes have been proposed for 79 SSSIs adversely affected by water abstraction or sewage discharge.

Hungary has also developed a site-specific system for areas of special scientific interest. Under its 1996 Nature Conservation Law, certain natural areas may be entered in the Land Registry because of the ecological communities *(biocénose)* they house. Once registered, these sites are then subject to specified legal restrictions. A permit from the Department for Nature Conservation is necessary for any modification of wetland habitats, particularly the banks of lakes and watercourses and riparian wetland vegetation found along these banks. The permit requirement also applies to the conversion or cultivation of meadows and reedbeds, the use of arable land for purposes other than agriculture and to mining operations.

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[176] See further Chapter 20 below.

[177] The AMP3 investment programme: see further English Nature's 7th Report, 1 April 1997-31 March 1998.

11.3 Conservation Strategies Based on Public Acquisition of Wetlands

The relationship between land ownership and long-term conservation of natural areas is a vast topic. The next two sections seek to highlight the key factors for consideration by policy-makers, administrators and private bodies and individuals committed to conservation.

In many countries, public ownership under an appropriate management regime (known as *maîtrise foncière* in France) is considered the only guarantee of securing the protection and enhancement of important wetlands and safeguarding them from competing short-term economic interests. A near-equivalent strategy is to impose very strict planning restrictions on privately-owned wetlands in order to prevent change of land use or significant degradation.

Under such approaches, priority tends to be given to three categories of natural areas:

- those that perform essential ecological functions within the hydrological cycle and provide important economic benefits, such as the floodplain;

- those that perform important functions but are also subject to intense pressures as a result of economic development, population growth and many different competing demands for land resources. The coastal zone in densely-populated or highly-urbanised areas, especially the almost enclosed Mediterranean Sea, is the classic illustration in this respect: public acquisition may be the only way to confer long-term protection and is likelier to be quicker - if costlier - than instituting negotiations for the demarcation and ultimate establishment of a protected area;

- those situated in core areas of a protected area (in order to guarantee its strict conservation) or around a protected area. In the latter case, public acquisition can be used to increase the total area managed for conservation and therefore secure consistent land and water use over a larger proportion of the ecological unit or catchment area.

Provided that the competent nature conservation or management authority has general powers to acquire land and adequate finance, it may progressively acquire key wetlands without special legislation for this purpose. In the United States, for example, Lake Tahoe and the surrounding basin are gradually coming under public ownership. There have been many gifts of land to the State, which under American legislation attract fiscal advantages. Whilst much land in the lower elevation is still privately owned and access around the lake is limited, State and federal governments have now acquired over three-quarters of the total basin land area. "With careful land-use planning, forward-thinking government agencies can acquire park and beach sites before land prices become prohibitive".[178]

In some countries, however, special legislation has been enacted to authorise targeted strategic acquisitions by a specific public agency and to facilitate the funding of such acquisitions. The legal powers enjoyed by such agencies tend to be broadly similar because they are typically categorised as carrying out functions of public interest. Legislation generally provides for competent public agencies or municipalities to have the right of preemption (first refusal) over land in specific areas and also to expropriate land under certain conditions. The areas concerned may be ecologically sensitive zones, such as the littoral, or key sites in and around national parks and other protected areas. Where privately-owned land in such areas comes on to the market, it can be systematically

[178] Goldman, C. 1989, *Lake Tahoe: Preserving a Fragile Ecosystem*. Environment, Vol. 31, Number 7, September 1989, pp. 7-30.

purchased by the State within its financial limits. This is provided for under the Spanish Water Act of 1985 and some of the laws of the Autonomous Communities in Spain, including Madrid. Where designated 'pre-emption zones' are made subject to building prohibitions under relevant planning documents, this tends to drive down the market price of the land in question and thus to reduce the price that must be paid by the public land-purchasing body. Where legislation does not provide for such mechanisms, for example in Greece, the full market price has to be paid to acquire important natural areas. In the prized coastal zone, the cost of acquiring land for conservation instead of development may therefore be prohibitive.

The above techniques are used by the French Coastal and Lakeside Conservancy *(Conservatoire du Littoral et des Rivages Lacustres),* established by statute in 1975.[179] The Conservancy is a public body with legal personality, which is funded by central Government from the national budget. Its main statutory duty is to acquire land of natural or landscape value along the coast and lakeshores. Land belonging to the private domain of the State may also be transferred to the Conservancy. It has the same range of legal powers as a Government agency, in that it may not only acquire land by gift, legacy or ordinary purchase, but also may also expropriate land (this is done very rarely) or exercise a right of preemption in defined areas.

Significantly, land acquired by the Conservancy is virtually inalienable and may only be sold if a lengthy procedure laid down by statute is followed. The relevant proposal for sale must first be adopted by a three-quarters majority of the Conservancy's Board of Directors and must then go for consultation before the *Conseil d'Etat.* Only after these two steps have been completed may the Government adopt the Decree necessary to authorise the sale.

The Conservancy has acquired over 330 sites covering nearly 44,000 hectares of land, including around 600 km of coastline. Its acquisition programme is primarily targeted at undeveloped preemption zones that are delimited for this purpose by the elected assembly (Conseil General) of each *Département.* In a rare example of conservation incentives being targeted at public authorities, special legislation (Act of 18 July 1985) authorises individual *Départements* to levy a sensitive natural areas tax *(taxe départementale d'espaces naturels sensibles)* on the construction of most categories of buildings.[180] The proceeds of the tax must be used for the protection of sensitive natural areas and footpaths and a special budget line must be created for this purpose. More specific permitted uses include financial support for the acquisition of land by the Conservancy and the acquisition, protection and management of other land in order to increase public access to sensitive natural areas, except where this is inappropriate in view of the ecological fragility of the area. The price of land acquisition is reached by agreement or, if agreement cannot be reached, by *the juge de l'expropriation* (compulsory purchase judge). If the *Département* does not choose to buy an area that comes up for sale, the Conservancy or individual communes (municipalities) may exercise their own rights of preemption. Each *Département* is also responsible for developing and implementing a departmental policy for the protection of sensitive natural areas. Private donations and bequests of land to the Conservancy are tax-exempt.

In areas acquired with the proceeds of this tax, certain restrictions automatically apply. The public landowner is under a statutory duty to preserve, maintain and enhance the scientific and cultural values of such areas in the public interest, and may entrust their management to a competent public or private person or body.

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[179] Act of 10 July 1975, as incorporated into the Rural Code (article R243-1 to 243-33) and amended by articles 18 and 19 of the Landscape Protection and Enhancement Act *{Loi sur la protection et la mise en valeur des paysages)* of 8 January 1993.

[180] Regulated by Articles L. 142.1 -13 and R. 142.1 -18 of the *Code de l'urbanisme.* The level of the tax may not exceed 2% of the total value of the proposed construction: it is generally levied at 1%.

The Conservancy does not manage its properties itself but instead concludes management contracts with local authorities, other public bodies or approved non-governmental organisations. It may therefore be seen as the interface between national government and local authorities, communities and locally-based NGOs. The managing entity is required to prepare an ecological assessment *(bilan écologique)* or management plan for the site concerned. The costs involved are split between the Conservancy as owner of the site, which pays for the residual costs of protecting and maintaining the site, and the management body which meets the ongoing costs of maintaining any new facilities and monitoring of the site. The Conservancy provides technical support, such as the provision and training of wardens.

Where important wetlands are already in public ownership and are managed by the conservation agency, a formal declaration of inalienability can still provide important guarantees for their long-term protection. In Peru, the Land Law Regulations[181] have declared certain wetlands in the Peruvian Amazon to be *Zones of Ecological Protection (Zonas de Protección Ecológica)* because of their important ecological functions: this does not involve the establishment of new protected areas. All land within these Zones is inalienable and may not be donated or sold.

Public land acquisition and management undoubtedly has significant benefits, particularly when targeted at the most threatened or ecologically critical wetland areas. Under most legal systems, it offers greater certainty of permanent conservation. However, it is very often not feasible for political as well as financial reasons. In many parts of the world, changes of government have led to progressive reprivatisation of land in order to redress inequities in land distribution. This can make it extremely difficult to propose increasing the protected area estate or subjecting other natural areas to high levels of regulatory protection. At a pragmatic level, negotiation for the protection or acquisition of privately-owned land is a slow process and "too often, while the protected negotiations are underway, the very elements requiring protection are lost or destroyed".[182] In such complex situations, law needs to provide a range of possible options and to involve as many actors as possible in the conservation and wise use of the resource base.

11.4 Legislative Techniques to Promote Private Acquisition and Protection of Wetlands

11.4.1 Measures to Help Private Organisations

Private associations (NGOs) established for nature conservation objectives need no persuasion about the desirability of conserving and wisely using land in their ownership. However, their ability to acquire and manage wetlands is linked to their size, legal objects, membership and funding. Several countries have enacted far-reaching legal and fiscal measures to support the work of approved organisations on the basis that these act as partners with governments in the implementation of environmental protection policies. Tax benefits for land or money donations to NGOs are of fundamental importance in many countries, but these are not discussed in detail here for reasons of space.[183]

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[181] Executive Decree 056-97-PCM: see Solano, P. 1998. *Reviewing Laws and Institutions relevant to Wetlands in Peru.*

[182] Cohen, M. 1995. *The South African Natural Heritage Program: A New Partnership among Government, Landowners and the Business Sector*. In McNeely, J.A. (ed.). 1995. *Expanding Partnerships in Conservation* at pp. 252-260.

[183] See generally Shine, C. 1996. *supra* n. 1.

Statutory protected areas may in some countries be designated on privately-owned land. However, the focus of this brief discussion is the way in which law can support the institution of private or voluntary wetland reserves outside the statutory protected area system. As a general rule, private reserves are not subject to regulatory conservation measures other than those adopted under national or sub-national legislation in respect of any privately-owned land. The owner of a private reserve therefore has no powers, beyond normal property rights, to protect the site from trespassers or from adverse environmental impacts arising from third party action, such as industrial or infrastructure development. Even more fundamentally, a non-statutory reserve may usually be expropriated like any other land if a Government or other public agency requires the land for reasons deemed to be of public interest. This weakness sometimes only becomes apparent after an NGO has acquired a site for conservation. The fact that private ownership does not guarantee site protection can deter some NGOs from making the financial and managerial commitment necessary to establish reserves.

A few laws do confer a special status on such reserves to protect them from possible expropriation at a future date. In the Walloon Region of Belgium,[184] private voluntary reserves which have been formally approved by the Government benefit from the same legal protection as if they were publicly-owned reserves. Approval is restricted to areas recognized as being of ecological and scientific importance. The approval order is made for a period of twenty years, which may be renewed. An NGO wishing to manage an approved reserve must be approved by the Government on the basis of its members' expertise and the period of time for which it has been in existence. A management plan must be established and approved by the Regional Executive, together with the rules concerning public access to the reserve. Non-compliance with the provisions of the plan may lead to the withdrawal of the reserve's approval status.

French law[185] permits the establishment of voluntary nature reserves by private persons and municipalities and has established detailed consultative procedures for this purpose with the Departmental Nature Conservation Commission. Approval is given by the *Préfet of* the *département* concerned and approved reserves have the same protective status as statutory reserves established by Government Decree. The approval order lists the activities which are prohibited on the site and defines the landowner's own obligations. It is a criminal offence to breach any of the prohibitions laid down by the order and violations are punishable with the same penalties as if they had been committed in a reserve established by the Government. The approval order lasts for six years but is automatically renewed unless this is opposed by the landowner. Approval may be withdrawn at any time at the landowner's request or if s/he breaches the terms of the order. Approval does not confer complete protection against expropriation in the public interest, but there are certain safeguards and the above-mentioned Commission must be formally consulted before an expropriation order can be made.

In the United States, special powers have been conferred on the National Fish and Wildlife Foundation, a private body established by a Special Act of Congress of 1984, to acquire land for fish and wildlife conservation. No state or political agency may compulsorily purchase property owned by the Foundation that is classified by the Directors of the federal Fish and Wildlife Service or the Migratory Birds Conservation Commission as valuable for wildlife conservation or management. At a lesser level, planning authorities in the United Kingdom are required to take account of public or private non-statutory reserves when deciding planning applications in the vicinity.[186]

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184 Nature Conservation Act of the Walloon Region of 12 July 1973 and its implementing statutory instrument dated 17 July 1986.

185 Pursuant to the Nature Protection Act of 10 July 1976, now incorporated into the Rural Code.

186 Countryside Act 1968.

A much rarer approach is for legislation to confer special status on the private organisation itself. The National Trusts established in the United Kingdom, and more recently in some other common law jurisdictions,[187] benefit from exceptional privileges in this respect.

The National Trust for Places of Historic Interest and Natural Beauty was established as a charitable association for England and Wales[188] in 1895 and given legislative backing by the National Trust Act in 1907, as amended in 1971. Its statutory purpose is to promote the "permanent preservation for the benefit of the nation of lands and tenements (including buildings) of beauty or historic interest and as regards lands for the preservation (so far as is practicable) of their natural aspect, features and animal and plant life". In support of these ambitious objectives, the Act confers unusually wide powers on the private Trust. It may declare its properties inalienable and regulate activities on its own land: it also enjoys extensive tax benefits.

Where the Trust makes a declaration of inalienability, its future development or sale is subject to a special Act of Parliament. The State or any competent public body may only expropriate trust-owned land if a special committee of members of both Houses of Parliament passes a formal resolution. This procedure, used only once in England since the National Trusts were established, ensures the public scrutiny of any proposed land disposal and means that the protective status of Trust-owned land is almost absolute. The Trust is the only land-holding private organisation in the United Kingdom to have this status. The near-certainty that an estate will remain in continuous protective ownership is of immense importance in encouraging gifts or bequests of sites of high conservation value as well as long-term investment in the management of such sites.

In addition to its buildings and historic gardens, the Trust in England and Wales owns over 270,000 ha of open countryside (around 30% of which is designated as Sites of Special Scientific Interest), 24 national nature reserves and protects 850 kilometres of coastline through ownership or restrictive covenants (see below). It has prepared a joint action plan with English Nature to promote conservation of its 470 SSSIs. Many of these are farmed under agricultural tenancies: the Trust has the power to include special clauses in its Tenancy Agreements requiring the conservation value of National Trust land to be protected and improved.

Other NGOs in the United Kingdom also have a long tradition of acquiring land for conservation, albeit without the statutory remit enjoyed by the National Trust. By way of example, the Royal Society for the Protection of Birds (RSPB) is the largest NGO in Europe devoted entirely to nature conservation, with nearly 900,000 members. The RSPB owns or manages over 130 wetland nature reserves covering more than 84,000 hectares.

Even without special legislation, governments can facilitate systematic wetland conservation and management by NGOs. The Netherlands provides an interesting and long-established precedent for this type of public-private partnership. *Vereniging Natuurmonumenten* (the Society for the Preservation of Nature) is a private law foundation established in 1905 for the specific purpose of protecting areas of natural beauty through acquisition. The Society now has more than 720,000 members (growing by some 20,000 a year) and owns and/or manages more than 250 sites, covering 70,000 hectares, almost all of which is under its direct management. Its first purchase was the Naardermeer, an area of lakes and abundant birdlife that had previously been used by the city of Amsterdam to dump its refuse. The Society's mission has been expanded to cover "practical nature conservation by means of buying, managing and developing sites of natural beauty and valuable countryside". The Society tries to buy land in threatened areas on the basis that better

[187] The States of South Australia and Victoria in Australia, New Zealand and the Bahamas.

[188] The National Trust for Scotland was established by law in 1931.

results can be achieved through land ownership: "it is difficult to have a say if you don't own the site".[189]

Site acquisitions are wholly funded by national and provincial governments in equal shares. Natuurmonumenten therefore devotes most of its income to site management: like the National Trust, it makes extensive use of leases to third parties and part-finances site management through the income derived from such rental and the sale of reeds, wood, grass and other natural products. However, even site management costs are heavily subsidised with the Government meeting nearly half of the costs per hectare. This level of State commitment may be explained by the fact that acquisitions are mainly targeted at sites designated as "core areas" within the National Ecological Network, which was created by the Nature Policy Plan adopted in 1990.[190] In contrast to its early beginnings, Natuurmonumenten thus effectively acts on behalf of the Government in pursuing the acquisition strategy described above.

In Italy too, there is quasi-official reliance on NGOs for the management of certain protected areas. The World Wide Fund for Nature (WWF) in Italy owns many coastal reserves and manages others on a concessionary basis. By 1998 it managed about 15,000 ha made up of 30 coastal nature reserves. Significantly, the Protected Areas Act of 1991 permits any natural or legal person to deduct from its taxable income sums donated for the acquisition, protection or development of property protected under the 1939 Act for the Protection of Natural Beauties. The same tax incentives apply to donations relating to property subject to a construction prohibition under a landscape plan adopted under the 1939 Act or under the 'Galasso Act' of 1985 which establishes special protective planning controls along the coastal zone.[191] The recipient may be the management body of a national or regional park or reserve, whether terrestrial or marine, or any legally protected area.

In the United Kingdom, many national nature reserves have been established on land leased by English Nature which then contracts out their management to "approved bodies", such as local authorities, wildlife trusts and other conservation organisations.

Lastly, the potential role of user groups in wetland acquisition and management should be briefly described. A growing number of hunting and fishing associations now promote land ownership as a necessary precondition for improving the conservation status of the species and habitats necessary for their respective interests. In Germany, several angling associations have drawn up river management contracts with water companies, under which they are responsible for conserving riparian vegetation, clearing silted-up areas and protecting critical fish habitats. In France, the Hunting Conservation Foundation retains title to the sites it acquires, but contracts their management under a binding agreement to the Hunting Federation of the relevant *département*, which must then draw up a management plan for the site.

The active involvement of user groups in wetland acquisition has important financial implications. The application of the 'user pays' principle to support wetland conservation and rational use of water resources.[192] It has been implemented specifically for wetland acquisition in at least two countries:

- in the United States, 'revenue stamps' are used to finance conservation. All duck hunters must purchase Federal Duck Stamps in return for their annual hunting permit. The

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189 Fiechter, F. 1991. *Conservationists are Natural Optimists* in *ABP World*, 2/1991.

190 See Chapter 13 below.

191 *ibid.*

192 Briefly discussed, together with the polluter pays principle, in Chapter 7.2 above.

proceeds, which amount to about $50 million per year, are paid to the Migratory Bird Conservation Fund, which is used to acquire habitat for the national system of refuges.

- at a voluntary level, the Wildlife Trusts in the United Kingdom have established a Conservation Stamp Programme that channels funds from the sale of duck stamps and artworks into the purchase and management of wetlands along the western palaearctic migratory flyway. This Programme was used as the model for the European Habitat Conservation Stamp Programme, launched during European Nature Conservation Year in 1995.

11.4.2 Measures to Assist Individuals

Private law instruments for site conservation are used mainly in common law systems and have been developed most fully in the United States and Canada: they are also used to varying extents in the United Kingdom, parts of Asia and South Africa. They tend to fit awkwardly or not at all into civil law systems, where they may be deemed to lack legal content. However, certain instruments of this type are being studied with increasing interest in some civil law systems.[193]

Private law measures can be used in different ways to restrict development options over large areas of private land that maintains important conservation values. Voluntary instruments of this kind range from the non-binding (unilateral) dedication of land for conservation to formal property law mechanisms (generally known as conservation easements) which permanently restrict the use that may be made of a particular site. Donations of land, limited title to land or money are often supported by fiscal incentives, notably in Italy, the United Kingdom and the United States and Canada.

The United States provides a rare example of a unilateral procedure. Some states permit a landowner (including a Government department, university or conservation organisation) unilaterally to dedicate land for conservation. The articles of dedication must be approved by the competent authority and officially registered, and then bind both the landowner and the state in perpetuity. Expropriation of dedicated land is only possible in cases of "imperative and unavoidable necessity" and is subject to public inquiry: it may additionally require the prior approval of the legislature, the Governor or Court.

Another innovative approach is provided by the very recent announcement in February 1999 of the newest Australian Ramsar site. The Gwydir wetlands of New South Wales, Australia are largely under private ownership and are not covered by a statutory protected area designation. A Memorandum of Understanding has been drawn up between the various private landowners, private conservation organisations and competent government agencies to secure the site's conservation.

Easements (servitudes) and covenants are property law rights and obligations that constitute charges on land and are binding on successors in title. In their traditional form derived from Roman law, easements benefit the "dominant tenement" by limiting the exercise of property rights by the owner of the adjoining parcel of land (the "servient tenement"). Such instruments may be adapted for conservation purposes by enacting special legislation that waives the traditional requirements of contiguity (adjacent parcels of land) and benefit to the dominant tenement. Laws for this purpose have been adopted in more than thirty American States and several Canadian Provinces in order to provide incentives for private citizens to take an active role in protecting their lands.

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[193] See for example Giraudel, C. 1997. *La protection conventionnelle des espaces naturels: Droit français et comparé de l'environnement.*

Under an easement contract, a landowner (the 'easement donor') gives or sells a conservation easement to the 'easement holder'. This is usually a government agency, but in some states it may be a qualified conservation organisation[194] such as The Nature Conservancy[195] or one of the nationwide network of Lands Trusts.[196] Landowners undertake not to exercise some of the rights that are normally attached to property ownership in order to preserve the site's conservation values. They retain title to the property, which may be freely sold, or bequeathed, but future owners of the property will also be bound by the terms of the easement. Restrictions are tailored to individual properties, the interests of each owner and the resource to be protected. An easement normally specifies the extent to which the property may be developed and requires the remainder of the property to be managed to protect woodlands, wild animals and rare or endangered plants and generally preserve its natural state. The easement holder is responsible for monitoring and enforcing the terms of the easement, if necessary by judicial proceedings: for this it will have a limited right of access for inspection, scientific data collection or other agreed purposes. The easement donor is usually asked to make a donation to offset stewardship costs. Failure to comply with these restrictions constitutes a breach of contract enforceable in the civil courts.

In the United States, special legislation has been developed to support the use of easements to protect wetlands. The federal Wetlands Reserve Program is designed to assist owners of eligible lands in restoring and protecting wetlands by allowing the Department of Agriculture to purchase conservation easements. Landowners grant easements that may be permanent (under the law of Minnesota), last at least 30 years or for the maximum time permitted by the state concerned. Wetland owners must agree to implement a wetland conservation plan, for which technical assistance may be provided. Owners are paid compensation, based on the difference in fair market value of the land before and after the easement is recorded. Depending on the state, the conclusion of a conservation easement may attract a range of extensive tax benefits relating both to local land taxes and to income and inheritance taxes.[197]

Conservation easements do have limitations, particularly because donors cannot be required to carry out active management measures. Easement holders may usually only be Government agencies, autonomous public bodies or approved conservation bodies: the right of private persons to conclude such contracts is rarely recognised. In the Canadian Province of Ontario, the right to create conservation easements is exclusively vested in the Ontario Heritage Foundation but the latter may assign easements to any private or public person.

Unusually for a civil law jurisdiction, Swiss legislation permits private or public entities to conclude easement contracts with landowners, most frequently for the benefit of a private conservation association. These must be entered in the land registry and then run with the land. Landowners are paid compensation for accepting permanent restrictions on the use of their property.

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194 Qualified conservation purposes typically include the preservation of land for public outdoor recreation or education; the protection of relatively natural habitats of fish, wildlife or plants; the preservation of open space - including farm and forest land - for scenic enjoyment or pursuant to an adopted governmental conservation policy; and the preservation of historically important land or buildings.

195 By 1995, TNC had protected over 3.16 million hectares of land in and beyond North America by means of easements or debt-for nature swaps. It owns or manages more than 1,500 private "nature preserves" covering some 400,000 hectares, which constitutes the largest private system of nature sanctuaries in the world.

196 In 1994, these community-based private organisations held conservation easements over some 295,000 hectares and owned a further 210,000 hectares *{1994 National Land Trust Survey).*

197 See Shine, C. 1996. *supra* n. 1.

Covenants may be incorporated into property law contracts for the sale or lease of land to impose permanent conditions on the use of that land. In the United Kingdom, the sale or lease of land of ecological value by English Nature or national park authorities may in certain circumstances be subject to covenants relating to management practices or to rights of public access to areas formerly in public ownership. Interestingly, the National Trusts may make and enforce restrictive covenants with other landowners. For example, the National Trust in England and Wales has prioritised the negotiation of covenants for land around Trust properties in order to establish a protective buffer zone. Landowners who voluntarily accept this kind of restriction receive assistance from the Trust in managing their land in an environmentally friendly way.

The legislation of certain countries also makes it possible for individuals or private organisations to take long leases (up to 99 years) that contain certain conservation clauses. In the context of wetlands, this may be particularly useful in areas that are inalienable and cannot be fully owned by NGOs, such as the public maritime domain.

Site conservation based on acquisition and direct management is expensive in terms of finance and manpower. Many public bodies and private associations no longer view acquisition as their preferred strategy and reserve its use for irreplaceable, representative or seriously threatened sites. Increasingly, the trend in both public and private sectors is to secure conservation benefits through enforceable contracts designed to promote positive land management practices. Some of the fiscal and contractual instruments to promote activities compatible with conservation and wise use are discussed in Chapter 20 below.

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Protected areas and other site-specific instruments play a critical role in maintaining the essential functions, values and services of wetlands of high quality and conserving unique, rare or representative habitat types and species. However, such instruments can only be of limited effectiveness if planned and implemented separately from broader policies on land and water use.

Conservation regimes based exclusively or mainly on a site-specific nexus tend to be inadequate in two ways. The quality of water, air and soil in wetlands is affected by external processes and activities whilst migratory species dependent on wetlands also need to be able to make use of 'ordinary' sites which must be of adequate quality. Some potentially damaging processes and categories of activities are crosscutting issues that can have to be regulated or managed in a generalised way. Obvious examples include the introduction of alien species and living modified organisms, which cannot be rationally managed within artificial boundaries imposed by protected area legislation, and the management of the water regime.

More fundamentally, there may be a danger in considering site-specific approaches as a panacea to wetland degradation. Whilst some wetlands are obviously of particular importance, it is unfortunate if policies draw too sharp a distinction between 'important' and 'unimportant' wetlands. The conceptual basis underpinning the Convention on Biological Diversity is that all components of biological diversity matter. Too little is known about the services they perform and the chains of ecological interdependency for any natural areas or values to be considered redundant. Site-specific conservation should therefore form a key component of and catalyst for wise use policies and measures developed at bioregional and national level. However, it must not be seen as providing a substitute for the introduction of policies and programmes consistent with wise use at bioregional level and national level.

PART IV

MANAGING WETLAND AREAS IN A BIOREGIONAL CONTEXT

Parties to the Ramsar Convention are required not only to conserve individual sites but to promote the wise use of wetlands in a broader territorial context. Each country should therefore equip itself with generally applicable (non-site-specific) policies and measures to ensure that wetland functions and values are safeguarded on a national scale.

Legislation may address this requirement in different ways and to varying degrees. The most common approach - which remains the exception rather than the rule - is to confer protective status on some or all categories of wetland under national constitutions or relevant legislation. Examples of such legislation, which may be very far-reaching, are discussed in Chapter 12. Chapters 13 to 15 consider the ways in which law may promote fuller integration of wetland units into land-use planning and the management of river basins and coastal areas. This type of legislation, which is rare but now evolving rapidly, seeks to promote rational management of wetlands and water systems based on ecological rather than administrative units. Its successful implementation is closely linked to the issue of institutional coordination, already discussed in Chapter 6 of this book.

Chapter 12
Generalised Protection of Wetland Habitat Types

12.1 Constitutional Protection of Wetlands

Almost all recent constitutions establish a general obligation on the part of the State and a duty for citizens to protect the environment: they also often enshrine the right to a healthy environment. Solemn affirmations of this kind have the immense merit of raising environmental conservation, in the perspective of intergenerational equity, to the same rank as other rights and interests guaranteed by constitutions. They thus impart to conservation measures the legitimacy which the latter might otherwise lack. Constitutions formalise certain public and private rights and interests that should not in theory be infringed or ignored by state agencies without due process (in the form of *inter alia* a planning inquiry, impact assessment, consultation process or compensation). However, their provisions are always very general and, to achieve their desired effects, must be further developed in implementing legislation that establishes legally precise rules and obligations.

At least three countries have now incorporated provisions for the protection of wetlands into their national or provincial constitutions.

12.1.1 Brazilian Federal States

Following the promulgation of the Federal Constitution of Brazil in 1988, several Brazilian States incorporated far-reaching provisions into their state constitutions for the conservation of specific habitat types, mostly wetlands. In the majority of cases, these constitutions provide for two categories of protected habitat types, each with its specific legal regime. The first category consists of "permanently protected areas" which presumably benefit from the strictest conservation measures (although none of the constitutions is explicit on this point). The second category consists of "areas of particular ecological interest", which may only be utilised under permit from the competent authorities. A permit can only be granted if the essential attributes of the habitat types concerned are preserved.

"Permanently protected areas" designated under state constitutions include riverbanks (in Bahia and Maranhão), lakes (Rio de Janeiro), springs (Bahia, Maranhão, Sao Paolo, Rio de Janeiro), sea, river and lake islands (Piaui) and caves (Bahia, Sao Paolo). Wetland types designated by certain coastal States include dunes (Maranhão, Sergipe), estuaries (Bahia, Rio de Janeiro, Sao Paolo), lagoons (Rio de Janeiro), mangroves (Biaha, Piaui, Rio de Janeiro, Sao Paolo, Sergipe), deltas (Piaui) and coral reefs (Bahia, Maranhão).

"Areas of particular ecological interest" include the coastal zone (Maranhão and Piaui) and flood plains (Maranhão). Some States have conferred this lesser designation on habitat types which are listed as permanently protected areas by other States: this is the position for riverbanks under the Constitutions of Goias, Pemambuco and Sergipe, lakes in Pernambuco, springs in Goias and Piaui, caves in Sergipe, estuaries and mangroves in Pernambuco and lagoons in Piaui.

Constitutional provisions of this kind are only the first step. The Parliaments of the Brazilian States concerned need to enact legislation laying down specific rules with regard to permitted and prohibited activities within the habitat types covered by their respective constitutions and governing the criteria and procedure for the issue of permits.

12.1.2 Switzerland

The inclusion of wetlands in the Swiss Constitution is a relatively recent development. It came about after an announcement in 1983 that the Army intended to construct large military training facilities in the Rothenthurm marshes in central Switzerland. Citizens petitioned the Federal Government[1] to submit to referendum a proposed amendment to the Constitution to the effect that marshes and marshy areas of particular beauty and/or national interest should be protected. This amendment would require that works already in progress at Rothenthurm be dismantled.

The Federal Government opposed the proposed amendment, mainly on the grounds that there was no reason to single out marshes among many kinds of endangered habitat types, and advised voters to reject the proposal. Instead it submitted to the Federal Parliament various amendments to the Nature Conservation Act providing for the protection of all natural sites of national importance. Although these legislative amendments were adopted, citizens still voted in the referendum of 6 December 1987 to accept the proposed amendment to the Constitution. The protection of marshes of national importance is accordingly now enshrined in the Swiss Constitution, which confers a safeguard against any changes in government policy in the future.

The Nature Conservation Act as amended in 1987 applies to all sites designated as being of national importance, whether or not they are wetlands. Regulations adopted under this Act, in accordance with the constitutional amendment, list about five hundred marshes for protection. Interestingly, although the constitutional provision itself is generally applicable, the effect of these regulations is to make its implementation site-specific.

12.1.3 Uganda

Uganda's new Constitution,[2] adopted on 22 September 1995, makes specific provision for wetland conservation. The State is generally required under National Objective XVII of the Constitution to protect natural resources, including water, wetlands, minerals, oil, flora and fauna, on behalf of the people of Uganda. More specifically, the Constitution provides that the government, or a local government as determined by Parliament by law, shall hold in trust for the people and protect natural lakes, rivers, wetlands, forest reserves, game reserves, national parks and any land to be reserved for ecological and touristic purposes for the common good of all citizens.[3] The National Environment Statute adopted in 1995 contains more detailed provisions for the implementation of this general obligation.[4]

12.2 Legislation for the Conservation of Wetland Habitat Types

A growing number of countries have adopted or amended laws to confer protective status on certain habitat types, wherever they occur, usually in order to check the alarming rate of their disappearance. Such laws generally prohibit the destruction or alteration of these habitats except under

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1 As they are entitled to do under the Constitution.

2 See generally Ntambirweki, J. 1998b. *The Evolution of Policy and Legislation on Wetlands in Uganda*.

3 Art. 237(2).

4 See Chapter 12.3 below.

permit.[5] The habitat types protected in this way are not of course limited to wetlands: many other kinds of natural or semi-natural environments, such as grasslands and old growth forests, are under increasing threat and may be protected by this method. However, most modern laws in this category specifically address the protection of at least some types of wetlands. As mentioned in Chapter 8.2 above, certain international instruments have given impetus to this area of legal development, notably the 1979 Bern Convention and, much more recently, the EC Habitats Directive of 1992. Coverage of coastal and marine wetland types is relatively undeveloped at both international and national level, although the position is beginning to improve

Habitat-type systems are fairly new and are still evolving. In some countries, their scope and procedures have been progressively amended by means of regulations in order to improve clarity and effectiveness. The following list sets out some of the key variables that distinguish national regimes for wetland habitat type conservation:

- nature of enabling legislation (earlier systems were developed under nature conservation legislation, whereas newer systems may be established under framework environmental legislation or modern water laws);
- institutional competence (in countries with a federal or decentralised structure of government, responsibility for making and/or implementing legislation may be divided between national and subnational governments or entirely delegated to subnational level);
- range of habitat types covered (most laws apply to lakes and marshes as a minimum but some go much further);
- minimum size of wetlands benefiting from legal protection;
- ownership of wetlands subject to the legislation (permit systems linked to habitat types may be limited to privately-owned land or apply irrespective of land ownership);
- operational effects (some laws are sufficiently detailed to provide a workable regulatory system, whilst others lay down general rules which must be implemented by means of secondary site-specific regulations).

As this list shows, habitat type legislation may be tailored to fit national or local conditions and is thus capable of much broader application around the world. The next section considers a non-exhaustive selection of laws that demonstrate the variety of ways in which wetland conservation may be advanced through such techniques.

12.3 Scope of Generally-applicable Laws for Wetland Conservation: Selected Examples

12.3.1 Austria

In this federated country, jurisdiction over nature conservation is entirely vested in the individual *Länder* and there is no federal legislation governing the protection of species and natural habitats. Several *Länder* have introduced specific provisions into their nature conservation legislation for the preservation of certain endangered habitat types, including wetlands.

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5 The operation of permit systems in general is discussed further in Chapter 18 below.

In Upper Austria, a permit is required from the nature conservation authorities[6] for the drainage and/or afforestation of marshes and peatbogs larger than 5 hectares; the extraction of peat; the clearing of alluvial forests; and the filling of natural or manmade ponds unless they are smaller than 200m^2 and are located within one hundred metres from a residential dwelling. Significantly, permit requirements also apply to agricultural and forestry activities. Permits may be granted subject to conditions or mitigation requirements.

The Act provides for stricter site-specific conservation of ecologically important areas. Where marshes, peatbogs, stands of rare plants or breeding or spawning areas of protected animals are of particular importance to maintenance of the ecological balance but are not already included in a nature reserve or do not meet the conditions for designation as a natural monument, they may be protected by government order if the public interest in their conservation overrides all other considerations. Conservation orders made for such areas may establish restrictions and additional permit requirements, but only in respect of activities which may jeopardize the natural features in need of protection. Permits may only be issued if the proposed activity will not damage the natural balance of the plant and animal communities concerned, has no impact on the *value of the site for* recreation or does not affect the landscape in any way contrary to the public interest. In exceptional circumstances, permits may be granted where the public or private interest of the proposed activity outweighs the public interest in the conservation of nature or of the landscape.

In Carinthia, special protection is conferred[7] on marshes, peatbogs, reedbeds and alluvial forests: filling, dredging, drainage and any other actions that may permanently damage the habitats of wild flora and fauna is prohibited. Wetland habitat types covered by the legislation should be protected from any damaging activity in order to preserve the fauna and flora, maintain the water balance and stabilize the climate. Exemptions from these prohibitions may only be granted for small-scale activities that do not directly and adversely affect protected habitats or where the public interest of the proposed activity is considered to be more important than the preservation of the wetland.

In Vorarlberg, it is prohibited[8] to fill, drain, excavate or carry out any other activity liable to threaten the habitat of animals and plants in alluvial forest, peat bogs, marshes (with some exceptions) and ponds. Once again, exemptions may be granted when other public interests override the interest of landscape protection. In the Tyrol, legislation[9] has been progressively amended to incorporate provisions protecting alluvial forests and wetlands, defined to include all marshes and peatbogs. Activities which may adversely affect these habitats, particularly filling, dredging, drainage, the construction of structures of any kind and the clear-felling of trees in alluvial forests, are prohibited except under permit. These permit requirements also apply to agricultural and silvicultural activities.

12.3.2 Costa Rica[10]

The framework environmental law of Costa Rica confers very general protection on all wetlands, pending the adoption of specific wetland legislation. The 1995 Organic Environmental Law[11]

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6 Nature Conservation Act of 1982.

7 Nature Conservation Act of 1986 and Notes appended to the Act.

8 Landscape Protection Act of 1982.

9 Nature Conservation Act of 1974 as amended in 1990.

10 Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica*.

11 See Chapter 7.3 above.

declares the conservation of certain habitat types to be of public interest because of their multiple uses, whether or not they are protected by specific legislation. This protective status is expressly extended to wetlands as defined under the Act. The declaration of public interest has far-reaching legal consequences, although in some cases these are dependent on further action by the State which may impose restrictions on the use of resources within wetlands in order to protect the collective interest. The construction of infrastructure, especially that relating to water resources, may not damage wetland ecosystems. An environmental impact assessment is therefore required for proposed developments that may affect wetlands.

12.3.3 Denmark

Danish habitat conservation legislation is currently the most advanced in the world. The principle was introduced in 1972[12] through a series of amendments that prohibited modification of the beds of public watercourses or changes to natural lakes above 1000m^2 without a permit from the nature conservation authorities. The scope of this legislation has gradually been extended by a series of subsequent amendments. In 1978 it was applied to all private watercourses having a bed wider than 1.5 metres and to marshes and peatbogs. The Minister of the Environment may by regulations exempt designated private watercourses with a bed wider than 1.5 metres from this requirement or, conversely, extend the permit requirement to designated private watercourses with a bed narrower then 1.5 metres: maps of protected watercourses have now been produced. In 1983, the statutory list of protected habitat types was extended to cover salt meadows, coastal marshes and coastal meadows of 3 ha and above.

New legislation adopted in 1992 has extended this protection regime by adding all natural grasslands, including wet meadows, to the list of protected habitat types. About 9% of Denmark is now covered by protected habitat types, including all types of wetlands[13] except where they fall below size thresholds defined by the Act. These thresholds have been regularly revised downwards and are now set at 2500m^2 for most protected habitat types. Stricter rules apply to lakes for which the threshold is now set at 100m^2 so as to ensure the conservation of small ponds which provide critical habitat for amphibians. Where individual protected habitats fall below the 2500m^2 threshold, they are still subject to the protection regime if the total area of adjacent protected habitat types or habitat types adjacent to a lake exceeds that threshold. In addition, the Forest Act of 1989[14] provides that watercourses, lakes, bogs and marshes which are not protected by the Nature Conservation Act (because they fall below its size thresholds) cannot be cultivated, drained, planted or altered in any other way if they are located in public forests and certain private forests.

The 1992 Act generally prohibits any alteration to the conservation status of protected habitat types (including alterations caused by agriculture and forestry activities). Derogations may only be granted in extremely limited circumstances[15] which means that administrative discretion is very narrow. The Minister for the Environment may adopt regulations limiting or prohibiting the use of fertiliser in protected habitats. No such regulations have yet been made, but a government circular specifies that in certain habitat types, including peatbogs and some natural meadows, any use of fertiliser would automatically constitute a breach of the requirement not to alter their state of conservation.

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12 By amendments to the 1969 Nature Conservation Act, now replaced by the Nature Protection Act of 3 January 1992. As mentioned in Chapter 11.1 above, some environmental protection measures are applied more strictly in Ramsar sites and some statutory protected areas.

13 The mudflats of the Wadden Sea area are protected by a special Ministerial Order.

14 Article 16-6.

15 Implementing regulation no.572/1992 establishes certain exceptions *inter alia* with regard to urbanised areas but these are not directly relevant to wetlands.

A habitat is covered by the Act if it fulfils the prescribed conditions at the date on which it is proposed to carry out an alteration. Habitats may lose their protected status through natural causes (encroachment of vegetation, natural drying out of a marsh). Conversely, a habitat may acquire this status through natural or human-induced change to its ecological character, for example where agricultural land is 'set aside' for a period of years or managed under an environmental management agreement concluded with a public agency. Regulations have been made under the Act to address this type of eventuality: landowners have one year after the expiry of such a contract in which they may manage the land as a non-protected habitat without committing an offence.

Because these police powers apply uniformly throughout the country, no compensation is payable to individual landowners, a rule which has been upheld by the Danish Courts. It is considered that generally-applicable nature conservation restrictions are akin to restrictions imposed under conventional planning legislation: the ensuing limitations on private property rights affect all landowners. On the other hand, of course, the system cannot be used to require landowners to take active measures to maintain the habitat types concerned unless a nature conservation order is issued to this effect. However, the 1992 Act specifies that where a protected habitat type is located on publicly-owned land, the public owner is legally required to conserve its natural values. Local authorities may be granted subsidies for this purpose.

12.3.4 France

France is one of relatively few countries to have incorporated specific provisions for wetland conservation into its water legislation. The purpose of the 1992 Water Act[16] is to promote balanced management of water resources in order to ensure *inter alia* the preservation of aquatic ecosystems, site and wetlands (Article 2). Wetlands are very broadly defined as "areas, whether exploited or not, that are regularly flooded or saturated with water that is fresh, salt or brackish, whether permanent or temporary: their vegetation, where it exists, is dominated by hygrophilic plants for at least part of the year". The Act provides for the establishment of master plans and detailed plans for water development and management which must provide for wetland conservation. Coastal wetlands are also covered by special legislation.[17]

12.3.5 Germany

Jurisdiction over wildlife conservation and the natural environment is split between the Federal Government and the *Länder*. Habitat types are protected by rules set out in the 1986 amendment to the federal Nature Conservation Act of 1976. They include many categories of wetlands such as peatbogs, marshes, reedbeds, wet meadows covered with sedges and rushes, springs, natural segments of brooks and rivers, areas of still waters, alluvial, marsh and riparian forests, salt marshes and mudflats. Agricultural and forestry activities are still authorised in these areas.

It is for the individual *Länder* to adopt legislation to implement the federal provision and to take protective measures. However, the federal Act permits a *Land* to exempt a habitat type from such protection where any adverse effects on protected habitat types may be compensated or where

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16 Law no. 92-3 of 3 January 1992, as amended by the Law no. 92-1336 of 16 December 1992 and by the Law to Strengthen Environmental Protection no. 95-101 of 2 February 1995 (generally known as the *Loi Barnier).* For further information, including on relevant caselaw, see generally *Zones Humides Infos* (a trimestrial publication of the *Société nationale de protection de la nature*, cofinanced by the French Ministry of the Environment).

17 See Chapters 14 and 15 below.

the proposed activity or development is in the overriding public interest. Conversely, a *Land* may add new habitat types to the federal list.

12.3.6 Luxembourg

The Nature Protection Act of 11 August 1982 prohibits the destruction or alteration of ponds, marshes and reedbeds. Exemptions may be granted by the Minister for Water and Forestry in exceptional circumstances. A permit from the Minister is also required before carrying out any work liable to modify the level or flow of waters or have an adverse effect on aquatic fauna or flora or the quality of the habitat. Such works include draining, dredging, water extraction and pumping.

12.3.7 Spain

At national level, three fairly recent laws together constitute a comprehensive system for wetland conservation. These are the 1985 Water Act, the 1988 Coastal Zone Act and the 1989 Natural Areas and Wild Flora and Fauna Conservation Act.[18]

The Water Act lays down the general rule that any activity affecting a wetland requires either a permit or the granting of an administrative concession. Its definition of wetlands is based on that contained in the Ramsar Convention, but excludes marine waters. Implementing regulations specify that where an activity for which a permit is required is liable significantly to affect the integrity of a wetland, the ecological consequences of that activity must be evaluated before the permit can be issued.

Each river basin authority is required to compile an inventory of wetlands in the area under its jurisdiction. This must determine the boundaries of the wetlands, their characteristics including the biological communities which occur in them, their conservation status and threats to their integrity, existing uses, the conservation measures required and specific actions or works necessary for the preservation and use of the wetlands which are compatible with the sustainable utilization of the resources. The competent authority is obliged not only to control the release of waste into waters flowing into wetlands, but also to take any measures necessary to maintain the quantity of water flowing into these areas.

Each inventory should identify areas that have been drained naturally or artificially and can be restored, as well as areas where wetlands may be created. Subject to the payment of compensation to the owner, restoration is compulsory where a former wetland is no longer in use, the existing uses are of minor importance or the yield of the crops produced is well below the yield anticipated from the drained wetland. The Government may by regulations order the restoration of the wetlands concerned and, where necessary, the compulsory purchase of the land concerned. With regard to the creation of new wetlands, implementing regulations require the competent authority to study the possibility of carrying out works to establish wetland vegetation wherever new water impoundments are constructed.

Buffer zones may be established around wetlands after consultation with the landowner concerned. Any activity or other use in a buffer zone requires a permit and, where applicable, an environmental impact assessment.

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[18] *Ley de Aguas* of 2 August 1985, discussed further in Chapter 14; *Ley de Costas* of 28 July 1988, discussed further in Chapter 15; *Ley de Conservation de los Espacios Naturales y de la Flora y Fauna Silvestres* of 27 March 1989.

The 1988 Coastal Zone Act incorporates all coastal wetlands into the State's public maritime domain. "Coastal wetlands" are defined as all lands which can be covered by seawater at high tide, storm waters or infiltrating seawater and thus include all coastal marshes and salt marshes. Activities or installations in the public maritime domain may only be authorised if by their very nature they cannot be carried out or located elsewhere.

The 1989 Conservation of Natural Areas and Wild Flora and Fauna Act contains certain provisions on wetlands which complement those of the Water Act. It requires basin authorities to make provision for the conservation of natural areas, especially wetlands, in their basin-wide plans. The Spanish Minister of Agriculture is required to prepare and maintain a nationwide inventory of wetlands in order to monitor the conservation status of wetlands and, where necessary, to indicate the protection measures that river basin authorities should take to preserve specific areas.

Several Autonomous Communities, including Catalonia, Madrid and Valencia, have incorporated wetland-related measures into their nature conservation laws. Madrid, for example, has laid down detailed rules for the protection of wetlands and artificial water impoundments.[19] Construction and any other activity liable to affect the natural state of the waters or ecological or landscape values is prohibited in wetlands (the definition being modelled on the Ramsar definition) and in a surrounding 50 metre-wide upland area serving as a buffer. The Autonomous Community is empowered to purchase land compulsorily and to exercise a right of preemption to ensure that these areas are respected.

12.3.8 Sweden

Swedish nature conservation legislation[20] provides that a permit is required from the County Authority for the drainage of wetlands, lowering of the water level of lakes and flood protection works, wherever such interventions are liable to have adverse effects on the environment. The same provisions apply to the extraction of peat for all purposes other than the production of energy. Where granted, permits should specify conditions to mitigate the effects of these activities on the environment. Amendments adopted in 1991[21] prohibit activities that may be harmful to small land or water areas which are the habitats of endangered species or which are especially worthy of protection for other reasons. The habitat types to which this provision applies must be specifically identified by regulations and landowners are only entitled to compensation if their existing use of the land is "considerably obstructed".

12.3.9 Switzerland

Jurisdiction over nature conservation in Switzerland is split between the Confederation and the Cantons. The federal Constitution empowers the Confederation to legislate for the protection of wild animal and plant species and natural habitats. The 26 Cantons enact their own legislation to implement federal law and to deal with matters falling under their own jurisdiction. These include the establishment of reserves and the protection of species and habitats not protected by the Confederation.

The federal Nature and Landscape Protection Act of 1 July 1966 as amended lays down the principle that river banks and lakeshores, reedbeds, marshes, rare forest communities and other

19 Act of 28 June 1990.

20 Nature Protection Act of 1964 as amended on 27 May 1986.

21 Article 21.

habitats contributing to ecological equilibria or particularly favourable for wildlife communities should be preserved. If, when all interests have been taken into consideration, it is not possible to avoid carrying out activities damaging to these sites, the author of the damage must take all possible measures for mitigation or compensation. Implementing regulations[22] require that ecologically sufficient buffer zones be established around protected habitats. In these zones, permits for activities liable to lead to the deterioration of protected habitats may only be granted if the activity cannot be carried out elsewhere and it corresponds to an overriding public interest. The 1992 Fisheries Act contains specific provisions for the preservation of fish habitat and aquatic vegetation used by fish as spawning grounds or nurseries. Permits are required for a large number of activities affecting rivers and lakes as well as for drainage or irrigation of agricultural land.

Most Swiss Cantons have also adopted provisions for the protection of particular habitat types, especially wetlands, in their nature conservation legislation: these include the Cantons of Saint Gall, Aarau, Clarns and Solothurn. Nature protection legislation in Solothurn, for instance, prohibits any alterations to the ground which would involve the destruction of ponds, marshes or other valuable biotopes constituting the habitats of animal and plant species. Exemptions may be made only where there is an overriding public interest in the proposed activity, in which case a new wetland should where possible be created by way of compensation.

12.3.10 Tunisia

The Forest Code[23] gives a definition of wetlands based on the Ramsar definition, although it is unclear whether this includes marine areas other than those parts of the sea-shore which are frequented by water-birds. If these are included, this would cover the mud-flats of the Gulf of Gabes, which are an area of major importance for the wintering of large number of European waders. The Code specifically prohibits the discharge of toxic or polluting substances into any wetland covered by this definition. It also prohibits the filling or draining of wetlands except for overriding reasons of national interest and subject to the grant of a permit from the Minister of Agriculture. These very general provisions must be implemented by means of regulations adopted under the Code.

12.3.11 Uganda

The National Environment Statute enacted in 1995 contains several operative provisions applicable to wetlands as defined by the Ramsar Convention. These are arranged in three groups: rivers and lakes; their banks and shores; and other wetlands. Implementing regulations are currently being developed for each of these categories.

Article 37 covers the conservation and management of wetlands other than rivers, lakes and their banks. It is prohibited, without prior consent from the National Environment Management Authority (NEMA) in consultation with the lead agency, for any person to reclaim or drain any wetland; construct, extend, remove or demolish any structure that is fixed in any wetland; disturb any wetland by drilling or tunnelling in an manner likely to have an adverse impact on the wetland; deposit in, on or under any wetland any substance likely to have an adverse impact on the environment; and introduce any plant or animal into the wetland.

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22 Dated 16 January 1991. Zoning requirements for certain landscapes and natural habitats are also laid down by planning legislation (see Chapter 13 below).

23 Enacted by Parliament on 13 April 1988.

12.3.12 United States of America[24]

Responsibility for wetland conservation in the United States is split between federal and state governments. Under the Constitution, the federal government has jurisdiction over navigable waters and interstate commerce. As far back as 1899, Congress enacted the Rivers and Harbours Act which required a permit by the Army Corps of Engineers[25] for the dredging, filling or construction in navigable waters. The original objective of the Act was to prevent obstacles to navigation, but its scope was significantly broadened by regulations adopted by the Corps in 1968: these specified that all relevant factors should be taken into consideration before a permit could be issued, including fish and wildlife, conservation, pollution, aesthetics, ecology and the public interest in general.

In 1972, the federal Water Pollution Control Act was adopted to regulate the discharge of pollutants into the waters of the United States. It was subsequently amended by the 1977 Clean Water Act, the objective of which is restore and maintain the physical, chemical and biological integrity of such waters, and is now known as the Clean Water Act. Section 404 of the 1972 Act as amended provides that permits must be obtained from the Corps for the discharge of dredged or fill materials into those waters. The term "waters of the United States" was initially interpreted by the Corps to cover navigable waters only, but a series of judicial decisions have gradually pushed the application of the Programme further up the watershed into smaller rivers and isolated wetlands. In the absence of a legislative definition of wetlands, section 404 has thus been interpreted as being applicable to virtually all waters, including most kinds of wetlands. Its precise scope continues to give rise to litigation and legal controversy and attempts by the Corps to draw up a clear definition of the wetlands over which it has jurisdiction have only been partially successful. The Corps has developed a series of detailed indicators linked to vegetation, soil and hydrology for practical application, but it is still the case that 'jurisdictional wetlands' (as wetlands covered by the 1972 Act are called) are not always easy to identify by landowners or even the Corps itself.

The sensitivity over wetland delineation needs to be understood in the specific context of the United States, where federal regulation of land use is relatively unusual and the states retain all powers of government not expressly reserved for the federal government. The section 404 programme was developed at federal level because navigable waters cross state and international boundaries, but it now provides a legal basis for regulating activities on wetlands under private ownership. From one perspective, essentially scientific questions about "what is a wetland and how does one identify it?" have been turned into a political issue about "what is the extent of federal regulatory jurisdiction over privately owned property?"[26]

Turning to the scope of activities covered, the section 404 programme is relatively narrow. Whilst the courts have expanded the application of the term "discharge of dredged or fill material", the federal regime does not address the degradation of overall watersheds or regulate other damaging activities (wetland excavation, clearing of vegetation or the alteration of the upstream water regime) unless these are accompanied by incidental discharges.[27] A permit is not required

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24 For detailed analysis of the relevant federal and state legislation and caselaw, see generally *National Wetlands Newsletter,* a quarterly publication of the Environmental Law Institute in Washington D.C. The Clean Lakes Programme and Watershed Restoration Action Strategies developed under the federal Clean Water Act are discussed separately in Chapter 14 and Part V below.

25 The public agency responsible for the construction of dams and other public works.

26 Franco, J.J. 1995. *Real Reform for Section 404.* National Wetlands Newsletter, Vol. 17/5, September-October 1995 at p. 14.

27 *ibid.*

for "normal" agricultural and forestry activities, but the interpretation of this provision has given rise to some uncertainty, with the courts tending to take a more restrictive approach than the Corps. In a case involving the drainage and clearance of 20,000 acres of lowlying woodland in Louisiana,[28] a court of appeals ruled that because the site had to be cleared before any farming could take place, the clearance operation could not be construed as a normal farming activity: refusal of a permit was justified because clearance could not be undertaken without discharges taking place.

The Corps has issued implementing regulations that specify that no permit may be granted for works in wetlands that are considered to perform important functions in the public interest. These functions include natural ecological functions, hydrological functions, protection from wave action or storm damage, storage areas for storm and flood waters, the recharging of aquifers and the purification of water by filtration. Exceptions to this rule may only be made when the benefits of the proposed wetland alteration outweigh the damage to the wetland and the proposed alteration is necessary to realise those benefits. In evaluating whether the proposed alteration is necessary, the Corps must consider whether the proposed activity is water-dependent and whether feasible alternatives exist. Permits may be issued subject to conditions, including mitigation requirements.

These regulations are based on mandatory guidelines prepared by the federal Environment Protection Agency (EPA), which must be followed by the Corps when granting permits. Violation of these guidelines entitles the EPA to veto the permit. This means that two separate federal agencies, each with its own set of regulations, are directly involved in the implementation of section 404. The Corps must also comply with the requirements of the National Environment Protection Act in respect of environmental impact statements. The Corps' discretionary powers are further limited because the federal Clean Water Act as amended empowers any State to veto a permit granted in respect of a wetland situated on its territory. However, the right of veto vested in the EPA and individual States has to date been used only sparingly.

In order to ensure that proposed activities do not adversely affect species protected by federal law or federal protected areas, the Corps is also required to submit all permit applications to the federal Fish and Wildlife Service and, as appropriate, the National Marine Fisheries Service for consideration. Where the proposed activity would threaten a listed endangered or threatened species or its critical habitat,[29] the Corps cannot in principle grant a permit unless suitable mitigation measures are adopted.

Individual states are free to enact wetland legislation, as the federal laws do not preempt state jurisdiction over wetlands. The first state law for this purpose was enacted by Massachussetts in 1963. Since then, all thirty coastal states (including those bordering the Great Lakes) have enacted legislation providing some degree of protection to coastal wetlands: most lay down some form of permit requirement for activities destructive to these wetlands. States have been slower to enact legislation to conserve inland wetlands but at least 15 states now have laws containing provisions for this purpose. Several states, such as New York, New Jersey and Maryland, have separate laws for coastal and inland wetlands: others, such as New Hampshire, have legislation that applies to both coastal and freshwater wetlands.

The requirements set out in state wetland laws supplement those established under the federal section 404 programme. Where a wetland is covered both by federal and state legislation, two separate permits are necessary (one from the Corps of Engineers and the other from the competent authority of the State concerned). Subject to the approval of the federal Environment Protection

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28 *Avoyelles Sportsman's League v. Marsh*, 715F.2d 897, 914-5 (5th Cir. 1983).

29 Which are protected under s. 7 of the federal Endangered Species Act.

Agency, a state may develop its own section 404 programme[30] and 'assume' total responsibility for certain wetlands. However, permit-issuing authority may not be delegated in respect of inland waters which are or could be used for interstate commercial transport and wetlands adjacent to these waters. It is also possible for individual states to apply for 'programmatic general permits' which allow them to process a wider range of permit applications in close coordination with the federal section 404 programme. This mechanism permits the streamlining of the permit process, but is less financially onerous for the individual State and still enables the Fish and Wildlife Service, the EPA and the National Marine Fisheries Service to intercede where they believe federal interests to be atstake.[31]

State wetland laws usually confer permit-issuing authority on one central agency, usually that in charge of natural resources. However, a few states, including Connecticut, New York, Maryland and Virginia, have delegated these powers to local authorities (counties or municipalities). Regulations made by local authorities must conform to state regulations: where a county or municipality fails to exercise its regulatory authority on wetlands, the state concerned may substitute its own powers for those of the defaulting local authority. In Virginia, for example, each coastal county or city must adopt a wetland ordinance for the protection of coastal wetlands, based on a standard text laid down by state law which may not be amended by local authorities. Each local authority which has enacted an ordinance must establish a wetlands board to decide on permit applications, such decisions being subject to review by the Virginia Marine Resources Commission. Where an ordinance has not been adopted, permit applications are processed by the Commission.

State laws protecting wetlands usually apply to additional categories of wetlands and activities that are not covered by the federal section 404 programme. The law of New Hampshire, for instance, applies to any area where fresh water stands or flows to the coastal area up to 3.5 feet above the mean high tide line, where listed halophilic plant species occur. A permit is required for dredging, draining, filling, the erection of structures and the clearance of vegetation, but not for most agricultural and forestry activities.

In Maryland, the Non-Tidal Wetlands Protection Act of 1989, which complements an earlier Act on the protection of coastal critical areas, is the first state wetland law which explicitly establishes a "no net loss" goal as regards both acreage and functions. The Act provides for a 25 foot buffer zone around all wetlands which may be extended, by means of regulations, to 100 foot in sensitive areas or around wetlands of special state concern. Almost all activities that could adversely affect high-water wetlands and their buffer zones are subject to permits. Although exceptions are made for agricultural and forestry activities, these activities must conform to "best management practices" approved by the local Soil Conservation Districts. Isolated wetlands of less than one acre ($4000m^2$) are also exempt, provided that they contain no significant plant or wildlife value. Permits may only be issued for water-dependent activities where there is no practicable alternative.[32]

New Jersey's Freshwater Wetland Protection Act of 1987 covers the same wetlands as those regulated under section 404 of the federal Clean Water Act. The State's Department of Environ-

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30 The partial delegation of permit-issuing authority to a State is authorised under certain conditions, pursuant to amendments to section 404 made by the 1977 federal Clean Water Act. The EPA has adopted regulations establishing criteria and procedures for the approval, review and revocation of approval of State section 404 programmes established pursuant to this delegation of authority.

31 See further Chapter 18 on the scope and criteria of permit systems.

32 This legislation provides for the making of comprehensive watershed management plans: see further Chapter 14 below.

mental Protection must classify these wetlands into three categories: exceptional, intermediate and ordinary resource value. The size of the buffer zone varies according to the category. Regulated activities include the removal, disturbance or dredging of soil, drainage of and alteration to the water level or water table, filling and the discharge of materials. Normal agricultural, silvicultural and grazing activities are exempted.

Interestingly, Vermont's Wetlands Act of 1986 seeks to protect the functions and values of wetlands rather than the areas *per se*. A wetland is considered to be "significant" and may benefit from legal protection when one or more of ten listed functions or values are present in a given area. These features include the provision of suitable habitat for fish, wildlife, migratory birds, hydrophilic vegetation or endangered or threatened species; water storage for floodwater or stormwater; surface and groundwater protection; resource areas for education and research; recreational and economic benefits; open space and aesthetic values; and erosion control.

Implementing regulations have established three categories of wetlands in Vermont. Class I areas are qualified as "exceptional and irreplaceable" and are to be surrounded by a 100 foot buffer zone. Class II wetlands require only a 50 foot buffer. Class III areas, which account for about 20% of the State's wetlands, are not considered significant and are not legally protected. Wetland classification and up- or downgrading between categories is carried out by the Vermont Resources Board, either of its own motion or after a petition from members of the public. The regulations list activities in significant wetlands which are exempt from the permit requirement. All other activities in the wetlands or their buffer zones are considered to be "conditional uses" and require a conditional use determination from the State authorities, which must first give the public at least 15 days in which to comment. A determination may only be granted when the applicant shows that the functions and values of the wetland concerned will not be adversely affected by the proposed use. Cumulative effects must also be taken into consideration.

The relationship between state and federal governments is clearly of central importance in implementing wetland legislation in the United States. The section 404 programme operates from a limited foundation of statutory authority and has evolved in a fairly cumbersome way to involve several federal institutions and many different federal and state laws. On one view,[33] the agencies administering this programme are under constant pressure to cede pieces of their authority through general permits, exemptions or jurisdictional disputes. Allowing states to assume the section 404 programme can have many advantages, such as simplifying and accelerating administration of permit-issuing procedures. However, there are also potential disadvantages. A state that assumes the programme faces enlarged regulatory responsibilities but may lack the necessary financial and staff resources to administer the programme adequately. Assumption is often opposed by NGOs and federal environmental agencies[34] on the grounds that it would weaken the effectiveness of wetland protection and make it harder for competent federal agencies to ensure systematic compliance of permit applications with legislation on endangered species, critical habitats and environmental impact assessment. Lastly, the federal section 404 programme makes it possible for the public to comment on permit applications through the Corps' public notice process and, if necessary, to challenge bad decisions in court. In contrast, individual State legislation does not carry the same guarantees of access to the administrative process and the courts.

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33 Franco, J.J. 1995. *supra* n. 26.

34 E.g., the State of New Jersey assumed the section 404 wetlands protection programme on 22 December 1993 after over two years of negotiations with the EPA and considerable opposition from the Fish and Wildlife Service and national environmental groups. The State's draft legislation was amended to ensure that existing methods for assessing impacts to threatened and endangered species under the federal Endangered Species Act would not be compromised. The Fish and Wildlife Service retains the right to review permit applications liable to affect such species but must observe shorter timescales in order to minimize delay.

12.3.13 Zimbabwe

Under the Natural Resources Act of 1941 as amended, the Minister for Natural Resources may make regulations to protect wetlands. These are defined as lands saturated with water for the major part of a rainfall season or which exhibit certain particular morphological features. It is prohibited under implementing regulations[35] to cultivate or destroy any natural vegetation, or to dig up, break up, remove or alter in any way the soil or surface of a wetland without the written permission of the Natural Resources Board. Similar prohibitions apply to the banks of public streams and to artificial reservoirs on such streams.

12.4 Conservation of Particular Categories or Components of Wetlands

12.4.1 Lakes and Ponds

From the legal point of view, lakes do not generally belong to a distinct category of wetlands. As a result, there are rarely any particular rules applicable to lakes other than those for the conservation of any category of wetland falling within the definition given by national legislation. Where lake shores are protected, they are usually subject to the same rules as river banks. In the United States, state laws protecting inland wetlands are equally applicable to lakes.

Nevertheless, a few countries[36] have now included specific provisions concerning lakes in their legislation. In Denmark, under the Nature Conservation Act as amended, any change in the equilibrium of natural lakes is subject to a permit from the nature conservation authorities. This provision has been interpreted quite broadly to include not only filling, dredging of materials and extraction of sand and gravel, but also the introduction of new indigenous species of fish. The laws of certain Austrian *Länder* also contain provisions relating to lakes. The *Land* of Upper Austria, for instance, requires a permit for the alteration of any lake or pond of more than 200m^2 or for any changes to lake shores outside built-up areas that have amenity or recreational value.

In Switzerland, there is a prohibition on dumping any solid substances into lakes, even where these are not pollutants, which means that filling along lake shores is banned. Permits may be granted for buildings or works which cannot be erected elsewhere and which are located in a built-up area, but only where there is an overriding public interest and no other alternatives exist. Any filling must be carried out in as natural a way as possible and destroyed natural vegetation must be replaced. More generally, the Swiss federal laws on nature and landscape protection and on fisheries apply to lake shores as well as river banks and provide a legal basis for the protection of riparian vegetation.

Ugandan law[37] establishes a permit system for activities and developments affecting lakes or rivers. It is prohibited to use, build, alter or remove any structure in, above, on or under the lake or river bed or to excavate, drill, tunnel or disturb the bed without the written consent of the National Environment Management Authority. Similar authorisation is required to drain any lake or river

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35 The most recent implementing regulations known are the Natural Resources (Protection) Regulations of 1975.

36 France has adopted a special legal regime for lake shores which is analogous to its coastal management legislation, discussed in Chapter 15 below.

37 Sections 35 and 36, National Environment Statute 1995.

or to divert or block any river. The introduction of any plant, micro-organism or animal (whether alien or indigenous) into a lake or river is also subject to permit. The legislation provides generally for the conservation and management of lake shores and river banks. It requires central government, districts and local authorities to collaborate in determining and implementing the measures necessary for such management. The size of the lake or river and existing legal interests in such shores or banks must be taken into account when issuing guidelines and implementing regulations for this purpose.

12.4.2 Peatbogs

Peatbogs, an under-represented wetland type on the Ramsar List, are particularly threatened by eutrophication, drainage, artificial reforestation and the extraction of peat: in some cases, peat extraction is lawfully carried out under a permit granted long before the ecological importance of peatbog habitats was recognized. Where there is a significant reduction in water supply to peatbogs, this may have serious and even irreversible ecological consequences. Peatlands can rarely be reconstituted upon subsequent rehydration. Their shrinkage, compaction or destruction may lead to erosion and loss of flood control function.

Peatbogs are comparatively easy to delimit and, unless they are located in forests, usually come under the jurisdiction of nature conservation departments. They may be protected in a site-specific way by the establishment of nature reserves or under generally applicable legislation. In Upper Austria, the Nature Conservation Act requires a permit from the nature conservation authorities for the drainage and/or afforestation of marshes and peatbogs larger than 5 hectares. A permit is also required for the extraction of peat. In Sweden, the extraction of peat for the production of energy is governed by the Peat Act of 13 June 1985, which prohibits the exploration and exploitation of peatbogs for the production of energy without a permit. Permits may only be granted where the proposed project is in the public interest. The permit may set out mitigation conditions in order to attenuate, limit or compensate for the adverse effect of the operation on the environment, and should take into consideration other public and private interests. The operator must deposit a bond as a security to ensure that the conditions will be complied with. The extraction of peat for any other purpose is subject to a permit[38] from the County Authority where this may have adverse effects on the environment In Italy, the Region of Tuscany adopted legislation on 3 November 1998 to regulate extraction from peatbogs and to provide for the restoration of damaged habitat types.

12.4.3 Caves and Subterranean Karst Wetlands

Caves and karstic areas are characterised *inter alia* by the presence of groundwater and are considered to be wetlands within the terms of the Ramsar definition. Like peatbogs, they are currently under-represented on the Ramsar List. Their conservation is important for geological, archeological, biological, aesthetic and economic reasons: many caves are major tourist attractions. Caves provide excellent roosting and often wintering places for large numbers of bats and are also a unique habitat for a large number of highly-specialised species, many of which are aquatic.

In most countries, there is no legislation setting out specific rules for the conservation of caves as a particular type of habitat, although individual caves may be protected by the establishment of nature reserves. However, a small number of countries have adopted comprehensive legislation for the preservation of caves, especially in those parts of Europe where there are large areas of karstic formations.

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38 Under the Nature Protection Act of 1964 as amended on 27 May 1986.

Hungarian legislation[39] provides that all caves are protected except those which have been specifically exempted by regulations. This means that any newly discovered cave is automatically protected unless and until the nature conservation authority decides that its preservation is not necessary, once its importance has been evaluated. Any discovery of a new cave must be reported within eight days to this authority. All caves protected under this provision are classified as nature protection areas and permits from the nature conservation authority are required for any alteration or utilisation of such caves. Caves of outstanding value may be designated as specially protected natural areas and will therefore benefit from stricter protection measures.

In Austria, caves are also generally protected under long-established legislation, dating back to 1928. Several Austrian *Länder*, including Corinthia, Lower Austria, Salzburg, Tyrol and Vorarlberg, have now enacted their own legislation for the protection of caves. These laws usually require a permit to be issued for activities that may adversely affect these particular habitat types.

In Italy, the Region of Liguria has enacted a special law for the protection and enhancement of the speological heritage and karstic regions. The Act of 3 April 1990 prohibits the destruction, damage or obstruction of caves, the discharge of solid or liquid waste, changes in the water flow, excavations, the removal of concretions and many other activities. Access may be prohibited for reasons of public safety or to safeguard scientific values. The use of caves for economic purposes or tourism requires a permit. Speleology is also regulated. Karstic regions of hydrogeological, environmental or landscape value must be identified and listed: this list must be approved by Decree and then has legal force. Listed areas are subject to special restrictions to be laid down in regional Landscape Plans. The discharge of waste is prohibited in all listed areas. More recently, the Region of Tuscany has also adopted general protection measures for caves under its new law of 3 November 1998.

In Brazil, the protection of caves is a constitutional requirement in certain states, such as Bahia and Minas Gerais.

12.4.4 Glaciers

The laws of several Austrian *Länder*, such as Carinthia, Tyrol and Vorarlberg, establish specific protection measures for glaciers. Carinthia's Nature Protection Act of 3 June 1986 lays down particularly strict rules as it prohibits any change or alteration of landscapes composed of glaciers and their upper watershed. There are some possibilities for exemptions but these are very limited. In France, the Mountain Development and Protection Act of 9 January 1985 provides that regional land-use plans in mountain areas may designate protected glaciers. In Italy, the Landscape Protection Act of 8 August 1985 (known as the "Galasso Law") institutes a permit requirement for any modification of the present state of glaciers and glaciers circuses.

12.4.5 Mangroves and Other Coastal Wetlands

Coastal and marine wetlands covered by the broad Ramsar definition include estuaries, deltas, mangroves, coastal marshes, mudflats, lagoons and coral reefs. As discussed in Part I above, many of these habitat types are of great economic importance *inter alia* for fisheries, tourism and forest products. Partly due to jurisdictional constraints, marine or terrestrial coastal habitats have

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[39] This principle was laid down by earlier legislation and restated in the 1982 Legal Decree on Nature Conservation. Hungary adopted new nature conservation legislation in 1996 (see further Chapter 13) but it is not known whether these provisions on caves have been consolidated into the new law.

traditionally received relatively little protection under national and subnational legal frameworks. However, a small but growing number of countries have now enacted measures to protect coastal habitat types. The constitutions of some Brazilian states include mangroves and other coastal wetland types amongst the list of protected habitats, but this protection depends in practice on the enactment of specific legislation. Relevant laws include those of several American states, Costa Rica, Spain and France. In the latter, the Coastal Planning and Protection Act of 3 January 1986 specifically covers sand dunes, coastal heaths, beaches, coastal woodlands, uninhabited islets, marshes and mudflats. Coral reefs and mangroves are also covered because these occur in France's overseas departments.[40]

The Canadian Fisheries Act of 1985 prohibits, except under a permit, any work or undertaking resulting in the harmful alteration, disruption or destruction of spawning grounds and nursery, rearing and food supply areas on which marine animals depend directly or indirectly to carry out their life processes. The impact of projects potentially affecting fish habitats must be considered before an activity may begin. The American State of Florida[41] lays down a permit requirement for the dredging or filling of coastal wetlands: the cutting, removal or destruction of mangrove trees is also prohibited except under permit.

Mangrove ecosystems are in a peculiar position with regard to the law, as mentioned in Chapter 5 above. Because they are covered with trees, they are often subject to forestry legislation which seldom takes account of the special character of mangroves as coastal wetlands. Even where mangroves are designated as forest reserves, this may not be sufficient to preserve mangrove ecosystems in their entirety or even to protect against illegal felling. Several countries, including Senegal, Thailand and the Philippines, have therefore developed special legislation to preserve mangroves and to go beyond an exclusively forest-oriented approach.

Venezuela has conferred legal protection on mangrove ecosystems since 1972. The Mangrove Protection Decree[42] requires any person or legal entity intending to carry out projects, activities or building works liable to affect mangrove ecosystems and the associated environment to obtain a permit from the competent administrative authorities. An environmental impact assessment must be conducted and the permit may only be granted if the technical assessment satisfies four conditions. The Ministry of the Environment must confirm that there is no other practicable location for the proposed activity; the project should involve as little damage as possible to the ecosystem; the natural flow of sea and river water must not be interrupted; and the contractor must guarantee to correct and minimise any damage caused to the environment.

The Decree prohibits certain activities in mangrove ecosystems. These include the use of pesticides except in case of epidemics, the construction of houses on stilts or floating houses, the replanting of mangrove swamps with alien species, the discharge of building refuse or liquid effluent into mangroves and any other activity which, in the opinion of the Ministry of the Environment, could damage mangroves or their associated or dependent species. Exemptions from these prohibitions may be made in two cases. Firstly, the competent authority may designate "special administrative zones" for permanent forestry which are exempted from these requirements, provided that management plans have been prepared for the area in question. The second concerns indigenous populations who depend on such ecosystems for their subsistence, including small-scale fishermen, provided that their activities do not degrade the mangroves concerned.

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40 Guadeloupe, Guyane, Martinique and La Reunion.

41 Florida Statutes (1985), ch 403, Part VIII. & 403.931

42 Decree *(Decreto Sobre Protectíon de los Manlares y sus Espacios Vitales Associados, n° 1544)* of 18 April 1991, which replaced the Ministerial Order of 1972.

The above measures are generally applicable. In addition, the Minister of the Environment may enact more rigourous site-specific regulations for mangrove swamps and surrounding biotopes which are in need of greater protection. Additional restrictions of this kind would effectively convert the areas in question into nature reserves.

In Costa Rica, mangroves were the first wetland type to be specifically regulated by legislation. Under the Forestry Law of 1996, it is prohibited in the public interest to cut or utilise mangroves in state ownership. The only activities permitted are scientific research, training and ecotourism. Amendments to this law have been approved by the legislative assembly and are expected to enter into force in 1999. These provide that existing permits, concessions and contracts for mangrove exploitation granted under the Forestry Law may remain in effect until they expire. The competent administration may grant extensions to such permits, provided that the permit holder complies with specific environmental requirements. Pursuant to the amendments, no new permits, concessions or contracts may be granted in mangroves covered by the Act.

Interestingly, many recent laws confer powers to conserve mangrove wetlands on fisheries administrations. In Honduras, regulations made under fisheries legislation prohibit the deforestation of mangroves and all other trees on the sea shore, river banks and other areas serving as shelter to fishes and other aquatic species.

In the Australian States of Queensland and New South Wales, mangroves are regulated by the Fisheries Department in recognition of their important role for fisheries as spawning areas and nurseries and as the habitat of oysters, a marine product of great commercial value. Regulations adopted under Queensland's Fisheries Act of 1976 generally prohibits, except under permit, the cutting, lopping, burning, removal of or other form of destruction or damage to mangrove or marine plants. In New South Wales, the Fisheries Management Act of 1994 prohibits the destruction, damaging or removal of mangrove or seagrass vegetation except under a permit. It is also prohibited under the earlier Fisheries and Oyster Farms Act of 1935 as amended to cut, lop or remove mangroves from areas leased by the State to private persons for oyster farming, unless lessors have a special permit.

12.4.6 Native Wetland Vegetation

A tiny number of laws exist to protect native vegetation wherever it occurs, including in wetlands. Legislation of this type is potentially further-reaching even than that of Denmark, where protection is focused on wetland habitat type rather than wetland components.

This approach was pioneered in the state of South Australia, which enacted the Native Vegetation Management Act in 1985 to stem the rapid destruction of the remaining native vegetation throughout its territory. Applications to clear native vegetation must be submitted to an independent Native Vegetation Authority and are then reviewed by the Native Vegetation Management Branch of the Department of Environment and Planning which advises the Authority. The Authority has full discretion to grant or to deny permits: however, it must refuse a permit where the application relates to land covered by a 'heritage agreement[43] unless the latter specifically provides for such clearance. Where a permit is denied, landowners are generally eligible for compensation unless the land concerned is not suitable for agriculture on a permanent basis. Compensation is only payable if the landowner agrees to enter into a heritage agreement concluded with the competent nature conservation authority. Under such an agreement, the owner agrees not to clear the land without the written consent of the Minister, not to plant either native or exotic vegetation and not to erect buildings or structures, graze stock or carry out any other activity which

[43] See also Chapter 18 below.

is likely to damage, injure, or endanger native fauna or flora. If the owner breaches the agreement and does not remedy the breach when required to do so, the total value of taxes from which he or his predecessors in title were exempted by virtue of the agreement becomes due immediately.

The Australian state of New South Wales has adopted recent legislation in this area. The 1998 Native Vegetation Conservation Act[44] was established after extensive consultation with community groups, industry and landholders and establishes a unified system for native vegetation management through a combination of regulatory and participative approaches. The Act requires the establishment of Regional Vegetation Management Plans which are developed by community-based Regional Vegetation Committees.[45] Each plan must classify areas into the following categories: areas where native vegetation may be cleared without a permit; areas where a clearance application is required; areas where the condition of native vegetation should be improved; and areas where it is recommended that revegetation take place. The region covered by a plan must be approved by the Minister for Land and Water Conservation and should include more than one government area. The Act provides for the establishment of a Native Vegetation Advisory Council to advise the Minister on the implementation of the Act.

In areas covered by an approved plan, clearing that is consistent with its provisions does not require development consent. In all other areas, native vegetation may only be cleared if this is consistent with certain exemptions laid down by the Act (including certain day-to-day farm management activities) and is not subject to other restrictions, such as local tree preservation orders. Any other clearance is subject to development consent by the Department. In cases of actual or anticipated violation, the Department may impose stop work notices to halt clearing or remedial notices directing that restoration work be carried out. Offences under the Act, including unauthorised clearing and failing to comply with a notice, may be prosecuted in the state's Land and Environment Court.

The Hungarian Nature Conservation Act of 1996 also contains extensive provisions for the preservation of natural vegetation. Natural vegetation must be conserved in the course of land and water management and agricultural practices and the use of chemical substances may be prohibited in natural areas. A permit is required[46] *inter alia* to cultivate reedbeds, burn reeds or any other aquatic vegetation, to modify wetlands (particularly lake shores and river banks and riparian vegetation), to use arable land for non-agricultural purposes, to recommence cultivation of land that has been set aside and to conduct mining operations.

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44 This consolidating text, in force since 1 January 1998, incorporates native vegetation clearance controls previously contained in the Soil Conservation Act 1938, the Western Lands Act 1901, the Crown Lands (Continued Tenures) Act 1989 and the Forestry Act 1916. Management agreements under this Act are discussed further in Chapter 20 below.

45 Each Committee should have 15 members representing local landholders, catchment management committees, conservation and Aboriginal groups and relevant government agencies.

46 Article 21. This Act is discussed further in Chapter 13.

Chapter 13
Integrating Wetland Conservation and Wise Use into Land-use Planning

Appropriate planning is recognised as fundamental to effective wetland management, but is often perceived in general rather than concrete terms. The Ramsar Convention broadly requires Parties to "formulate and implement their planning" to promote the wise use of wetlands in their territory.[47] The 1993 Additional Guidance goes into slightly more detail. It encourages Parties to include wetlands in the most protected zones of land-use plans as part of generally applicable legislation to promote wise use. The Strategic Plan builds on this recommendation. Parties should integrate conservation and wise use of wetlands *inter alia* into national, provincial and local planning and decision-making on land use, groundwater management, catchment/river basin and coastal zone planning and all other environmental planning and management. More specifically, they should promote the inclusion of wetlands in national, provincial and local land use planning documents and activities, and all relevant sectoral and budgetary provisions.[48]

Several other international instruments support the integration of environmental parameters into territorial and sectoral planning. At global level, these include the Convention on Biological Diversity and, perhaps more surprisingly, the 1972 World Heritage Convention. The latter recognises[49] that protected areas must be integrated with their socio-economic and physical surroundings and requires Parties to endeavour "to give the natural and cultural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes".

At regional level, two instruments contain particularly ambitious provisions. Articles 12.1-2 of the 1985 ASEAN Agreement provide that:

> the Contracting Parties shall, wherever possible in the implementation of their development planning, give particular attention to the national allocation of land usage. They shall endeavour to take the necessary measures to ensure the integration of natural resource conservation into the land use planning process and shall, in the preparation and implementation of specific land use plans at all levels, give as full consideration as possible to ecological factors as to economic and social ones. In order to achieve optimum sustainable land use, they undertake to base their land use plans as far as possible on the ecological capacity of the land;
>
> [In so doing..,] Contracting Parties shall particularly consider the importance of retaining the naturally high productivity of areas such as coastal zones and wetlands.

The 1992 EC Habitats Directive specifies that conservation measures for special areas of conservation may be integrated into other development plans.[50] In a broader perspective, it requires Member States to endeavour to encourage "the management of features of the landscape which are of major importance for wild fauna and flora", through their land-use planning and development policies where they consider it necessary and in particular with a view to improving the ecological coherence of the Natura 2000 network (Article 10). The same article defines such features as those which, "by virtue of their linear and continuous structure (such as rivers with their banks or the

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47 Article 3.1.

48 Operational Objective 2.2; Action 2.2.2.

49 Article 5 (a).

50 Article 6.1: see further Chapter 8.2.2 above.

traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species. This requirement is non-site-specific in character and directly relevant to the conservation and wise use of wetland components in a bioregional context.

Virtually all countries have developed some form of legal framework for planning and land-use. In addition to physical planning laws, such frameworks typically contain a hierarchy of planning documents for different administrative units. At the highest level, broad strategic or policy guidelines are defined by national government or, particularly in large and/or decentralised countries, by state/regional governments. At an intermediate level, districts may constitute planning units responsible for drawing up master or structure plans: they may be responsible for taking some sectoral planning decisions (e.g., for waste disposal or mineral extraction) and possibly for dividing land into broad use categories. At the lowest level, detailed local land use plans generally divide the territory concerned into specific use categories by means of zoning techniques. Zones may be designated for a range of different objectives and thus be subject to different conditions for development. Under most legal systems, planning documents must be formally approved by a certain tier of government and are then binding: exceptions may only be granted in accordance with procedures laid down by the relevant legislation. The land use classification specified in a planning document is presumed to be applicable until the plan expires.

Most modern planning laws seek to integrate environmental considerations into infrastructure development and town and country planning. Zoning techniques, which were originally used to safeguard residential areas from industrial development, are now used throughout urban and rural areas to prioritise defined zones for residential, industrial, agricultural, forest, recreational or nature conservation purposes. Subject to legislation, polluting industrial activities can be restricted to specified areas and planning consent may be made conditional on the installation or facility meeting certain design or process standards to minimize threats to human health and natural resources. Conversely, areas that are designated as important for environmental purposes can be specifically zoned for uses compatible with those purposes. Land use planning may operate in a purely restrictive way or be combined with more participative approaches: targeted planning measures therefore play a critical role in environmental law.[51]

A few countries have developed advanced conservation planning systems that seek to protect sensitive natural areas and ecological processes and to promote socio-economic activities that are beneficial to or compatible with environmental objectives. Their planning documents usually delineate protected areas and protected habitat types located on the territory concerned and, to widely varying degrees, confer certain safeguards against defined categories of development. However, effective land use controls for wetlands tend to be found in countries which also have strong wetland-related legislation as well as environmental impact assessment requirements and procedures. In many parts of the world, wetlands still have no specific status in planning documents. They consequently remain 'invisible' in planning terms unless they are directly protected under nature conservation legislation or indirectly protected by means of special planning controls in flood plains or coastal areas.[52] In the absence of other legal safeguards, development or changes of land use may be freely permitted in wetlands. It can also be legally impossible to assess and take action to control the cumulative effect of activities that affect wetlands and water systems.

There are several ways in which regional planning systems may confer special protection on wetlands: these are not mutually exclusive. A description of some of these techniques is provided in box 2.

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51 See for example Shelton D. 1997. *Techniques And Procedures In International Environmental Law.*

52 Untermaier, J. 1991. *Aires protégées et zones humides.*

Box 2. Wetlands and Regional Planning Systems

Protected Areas and Protected Habitats

Wetlands that have been designated as protected areas or that conform to a particular definition, habitat type or other criteria may automatically qualify for inclusion in the planning zone subject to highest protection. In Switzerland, the Physical Planning Act of 1979 as amended[53] provides that certain landscapes and natural habitats, including water-courses, lakes and their banks, must be protected by means of inclusion in the most protected zones of municipal zoning plans. In the Italian Region of Liguria, the Act of 3 April 1990 provides that listed karstic regions are subject to special restrictions laid down in regional Landscape Plans. The discharge of waste is prohibited in all listed areas.

In Denmark, special planning controls apply to all Ramsar sites and areas designated as special protection areas under the EC Birds Directive or special areas of conservation under the EC Habitats Directive. A Ministerial Order adopted in 1994[54] constitutes a master land-use plan which is binding on all municipalities and takes precedence over existing local land-use plans. The Order prohibits the establishment of new construction zones or quarries in such areas, the construction of major roads, the building or significant enlargement of airports, railways or ports, the building or erection of dykes, overhead electric power lines or wind farms and waste disposal operations. Recreational activities may only be authorised where they do not damage such areas or involve significant disturbance to the species for which the protected areas were designated. No public authority may grant a permit or a regulatory exemption for activities liable to damage such areas or disturb these species. This far-reaching rule is applicable not only to nature conservation authorities but also *inter alia* to the authorities responsible for implementing planning regulations, permit systems for the discharge of polluting substances and drainage operations.

Under the 1992 Water Act in France, master plans and detailed plans for water development and management have legal consequences for other areas of planning where these may affect wetlands.[55] Local land-use plans (*plans d'occupation des sols*) must take account of the provisions of the relevant water planning documents and take the necessary measures to protect wetlands delimited therein. Failure to comply with such provisions constitutes a breach of the legislation. Under a Decree adopted in 1995,[56] agricultural land consolidation procedures *(remembrement)* are subject to a consolidation impact assessment and the competent body *(Commission d'aménagement fancier)* must establish measures to ensure that the proposed consolidation conforms to the provisions of the Water Act. The Prefect of the *Département* may impose additional conditions and requirements.

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53 *Loi sur l'Aménagement du Territoire* of 22 June 1979.

54 Order no. 408 of the Minister of the Environment, adopted on 25 May 1994: this was issued in implementation of seven different laws, respectively dealing with land use planning, nature protection, quarries, environmental protection, watercourses, ochre and water supply.

55 Articles 3-5.

56 Decree no. 95-88 of 27 January 1995.

Box 2. Wetlands and Regional Planning Systems

continued from the preceding page

Buffer Zones

Legislation may systematically provide that all wetlands meeting certain habitat or size criteria must be protected by a linear or circular buffer zone in which prescribed activities are prohibited.[57] Groundwater protection zones may be established in a similar way. Buffer zones, which are commonly instituted under habitat-type legislation, provide additional spatial protection for wetlands delimited in land-use plans. They cannot safeguard wetlands against harmful processes generated at long distance, but contribute very effectively to the conservation of banks, shores and riparian vegetation and the control of point source discharges and loss of wetland area. They also provide important if limited protection against non-point source pollution.

Most laws lay down a fixed radius or width, although the distances selected vary greatly and can sometimes seem somewhat arbitrary. In Spain, regulations made under the 1985 Water Act provide that lands adjacent to wetlands may be subject to the same restrictions as the wetland itself. A 100-metre wide protection strip may be established in which land uses and activities are subject to special regulations. In Italy, the national Galasso Act of 8 August 1985 prohibits construction and certain other activities in defined zones around certain environmentally sensitive areas and habitat types, pending the adoption of landscape plans by the competent regions: a protective radius of 300m is established around all Ramsar sites.

In the United States, several state laws provide for the protection of an upland buffer around protected wetland habitat types. The width of the buffer may seem very small (the smallest being 25 feet in Maryland, 50 feet in Vermont's Class II wetlands and 25-50 feet in wetlands of "intermediate value" in New Jersey). However, legislation may provide for an extension around important wetlands in recognition of their vulnerability. In Vermont, Class I wetlands have a 100 foot buffer; in Maryland, the 25 foot buffer may be extended by regulations to 100 feet for "wetlands of special state concern"; in New Jersey, wetlands of exceptional value have a buffer of 75-150 feet; in New York, the statutory 100 foot buffer can be extended when this is necessary to protect the wetland; and in Pennsylvania, a 300 foot buffer may be established around important wetlands.

Swiss nature conservation legislation[58] is particularly interesting as it establishes a qualitative rather than a quantitative standard for buffer zones. Implementing regulations adopted in 1991 require buffer zones established around protected habitats to be "ecologically sufficient".

Administrative Discretion

The exercise of administrative discretion by the competent planning authority may be more tightly controlled with regard to applications in or around qualifying wetlands. One

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[57] The use of protection strips in integrated river basin management is discussed in Chapter 14 below.

[58] Nature and Landscape Protection Act of 1 July 1966 as amended.

Box 2. Wetlands and Regional Planning Systems

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possibility is to make planning applications affecting such areas subject to mandatory consultation with the competent nature conservation agency, as is the case for Sites of Special Scientific Interest or equivalent areas in the United Kingdom. Some laws[59] specifically empower the competent agency to veto an application when the proposed activity would involve serious harm to a wetland or to protected species or habitats. Another possibility is to issue technical directives or circulars to planning authorities to guide them in the exercise of their administrative discretion concerning applications affecting wetlands. Failure by the planning authority to take due account of such guidance may in certain circumstances provide a basis for judicial review of a decision to grant a permit.

Environmental Impact Assessment

Legislation may provide for stricter environmental impact assessment requirements[60] with regard to projects upstream of the wetland concerned, those in the wetland itself and any other projects which may affect the wetland. This can be done by requiring an EIA for a wider range of proposed developments or for smaller-scale developments than would normally be covered by the law.

As emphasised by the EC Habitats Directive, an important component of integrated spatial planning is the management of natural corridors and interconnected landscape features within the context of national or regional ecological networks. A small number of countries have developed special planning regimes for this purpose, which are often flexibly combined with private contracts and other incentives. Varied national approaches are briefly described below.[61]

In the Netherlands, the Nature Policy Plan approved by Parliament in 1990 provides for wetland issues to be taken into account in the drafting of all sectoral laws and at all levels of government. It establishes the basis for a National Ecological Network composed of *core areas* of existing international or national ecological value, *nature development areas* which offer realistic prospects for developing such features of ecological value, and *ecological corridors* linking these areas. The Network is being established over a thirty year period by combining a suite of existing legal instruments. The regulatory provisions of the Nature Conservation Act are to be systematically applied in existing areas of high ecological value. The Plan provides for the public acquisition of some 40,000 hectares of nature areas, forests and other rural land and of a further 50,000 hectares of land for nature development.[62] In addition, the acreage of environmentally sensitive areas designated under EC regulations is to be doubled to 200,000 hectares in and around the Network and additional management agreements are to be concluded with the farmers concerned. Specific

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59 E.g., the federal section 404 programme instituted in the United States and described in Chapter 12 above.

60 See further Chapter 17 below.

61 See further de Klemm, C. and Shine, C. 1996. *Legal Measures for the Conservation of Natural Areas.*

62 Where farmland is designated as a nature development area, powers exist under the Land Development Act to modify existing land and water uses to enable natural resources to be effectively managed and controlled and also to purchase and exchange land for this purpose.

attention is to be paid to management measures to safeguard the quantity and quality of shallow groundwater in recharge areas and special measures compatible with EC agricultural directives are to be taken in riparian areas, grassland areas on thick peat soils, stream valleys and hydrological buffer zones.

The Hungarian Nature Conservation Act of 1996 institutes protection measures for all natural or semi-natural areas. More specifically, it provides for the preparation of a National Foundation Plan for Nature Conservation which includes the establishment of a network of protected areas linked by ecological corridors and sensitive natural areas. Local authorities are required to prepare and implement conservation plans for natural areas of local importance. Provision is made for financial support for environmentally sensitive management of land within the network.

In December 1997, the Federal Council of the Swiss Confederation committed all relevant federal authorities to take into account the sectoral objectives of the Swiss Landscape Concept in carrying out their statutory duties. The Concept will initially run from 1998-2006. It was drawn up by the Swiss Agency for the Environment, Forests and Landscape (SAEFL) as lead agency and is intended to integrate nature and landscape strategies into thirteen policy areas of the federal government. The Concept does not create new regulations but instead constitutes a planning and coordination instrument. For this purpose, it sets out specific objectives and "binding directives" related *inter alia* to energy, tourism, national defence, agriculture, aviation, protection of natural and cultural heritage, area planning, regional policy, transport, forests, hydraulic engineering and hydraulic power. Federal agencies must therefore observe these provisions in their general operations and in any legal instruments they adopt. The Concept requires the federal agencies concerned to submit biannual reports on implementation to the SAEFL, which in turn must report every four years to the Federal Council. Measures taken to implement the Concept are, to the extent possible, to be submitted to quality control (environmental audit) procedures.

The Concept does not modify the division of jurisdiction between the Confederation and the Cantons. However, it specifically provides that where federal tasks are delegated to the Cantons, the Concept has the same binding force as for the federal authorities. When carrying out federal tasks, the Cantons must take the Concept into account in the same way as federal authorities. Where there is an overlap between federal and cantonal competence in the area of landscape policy, the equivalent cantonal instrument (structure plan, sectoral plan or regional landscape plan) should be examined for consistency with the Concept. In the strategic planning process, the Cantons should consider the aims of the Concept but are free to assess which aims of the Concept are important to their own needs and how these should be included in any amendments to their own structure plans. The Concept applies only indirectly to local authorities.[63]

In conclusion to this chapter, it should be emphasised that whilst integrated land-use planning systems represent a very important development, their effective application to water-based ecosystems remains highly problematic.

In the narrowest legal sense, the articulation between planning and wetland conservation regimes may be undermined by certain fundamental obstacles. In addition to the difficulty of defining dynamic and seasonal wetland units in planning documents and legislation,[64] it must be remembered that some national legal systems do not yet have adequate cadastral plans or land registration systems. This may lead to widespread uncertainty regarding the legal status or ownership of land and makes it difficult or impossible to institute effective planning controls for wetlands, especially in coastal areas. Moreover, the evolution of environmental protection schemes

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63 See generally Swiss Agency for the Environment, Forests and Landscape. 1998. *Swiss Landscape Concept.* Bern, Swizterland.

64 As discussed in Chapter 7.3 above.

and the involvement of additional layers and sectors of government means that planning and land use procedures can become extremely complex.[65]

More broadly, most land-use planning systems are of course limited in their scope. The majority of planning laws provide a basis for controlling construction and infrastructure, industrial and residential development, but do not extend to agriculture, forestry, water management and abstraction or mining operations. This means that a fairly high number of activities damaging to natural or landscape values in wetlands will fall outside the scope of such laws. Planning is thus an essential component of wise use legislation, but is rarely enough to ensure the maintenance or restoration of appropriate water quality or quantity. It is also not designed to deal with particular categories of activities, such as the introduction of alien species or living modified organisms. These potentially damaging processes and categories of activity require adapted legal techniques, as discussed in Part V of this book.

It is therefore essential to incorporate wetland conservation objectives and norms into other planning procedures and documents affecting landscapes and water systems, as already emphasised in Chapter 4 above. These include sectoral strategies covering drainage, irrigation, sewage treatment, agricultural and forestry development, tourism, hydraulic works and projects and infrastructure construction and management and local planning and building regulations. It is also necessary to promote integrated approaches to the management of river basins and catchments and coastal areas, as discussed in the next two chapters.

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65 Shelton D. 1997. *supra* n. 5.

Chapter 14
Integrating Wetland Conservation and Wise Use into River Basin Management

Inland water systems comprise a range of different wetland types that are now understood to constitute key components of the water cycle, in addition to their importance for biological productivity and diversity. The Ramsar Conference of the Parties has affirmed that wetlands can play a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system[66] and may possess important natural hydrological functions, such as groundwater recharge or water quality improvement.[67]

Rational management of watercourses and associated wetland units can only be carried out through an ecosystem-based approach to management. Since the waters in the same hydrographic basin are interdependent, they should be managed in a unitary way regardless of administrative jurisdictional boundaries. The Council of Europe proclaimed this principle as early as 1968 when it adopted the European Water Charter. However, whilst the concept of integrated water resource management (IWRM) has been endorsed by many different institutions over the last decade, the legal and institutional frameworks necessary for this purpose are either totally lacking[68] or in their relative infancy. The following chapter considers the issues and some possible strategies for implementing this new paradigm.

14.1 Specificity of River Ecosystems

Whilst rivers qualify as wetlands under the very broad Ramsar definition, they differ from better-known wetland types (marshes, swamps and so on) in both ecological and legal respects.

Rivers are complex ecosystems that include not only the bed, banks and water of watercourses, but also the associated groundwaters and the flood plain with its component types of river-related wetlands. These include oxbows, riverine marshes, alluvial forests and flood meadows, where some river fish species come to spawn during floods. From their source to their mouth and up to a considerable distance out to sea, rivers encompass a sequence of different ecosystem types. These range from fast flowing mountain torrents to slower waters downstream and estuarine habitats such as mangroves, each with its own ecological characteristics and associated flora and fauna. The conservation or restoration of wetland area and biodiversity along a river depends on the maintenance of essential ecological processes, such as periodic floods, minimum water flows and specific rates of sediment transport. These processes are often modified, notably by activities upstream that can have far reaching consequences on the state of downstream ecosystems.

From the legal point of view, rivers are generally public property. This is always true of large rivers because of their use for navigation. In some countries, rivers unsuitable for navigation may be privately owned. Ownership, whether public or private, is often limited to the bed and banks of a river, with the running water being considered common property. The adjacent flood plain and

66 Recommendation 4.2 (Montreux, 1990).

67 Resolution VI.3 (Brisbane, 1996).

68 Chapter 5 above discusses constraints on wise use that arise from the functional separation between legislation on wetlands and water resources and their corresponding institutions.

associated wetlands usually have no specific legal status: they can therefore be publicly or privately owned, as with any other real property.[69]

Irrespective of who owns a river, the state is almost always able to regulate water uses and activities affecting the bed and the banks pursuant to its public order powers. Where water is privately owned or private water rights exist, state-imposed use restrictions may give rise to compensation. In the flood plain, which is usually completely separate in legal terms from the river itself, the state's powers to control land-use are often the same as for any other land. Although nothing prevents the state from enacting special legislation to regulate specific activities or developments on the flood plain, this is extremely rare.

From time immemorial, rivers have been used for navigation, fishing, water extraction for domestic or irrigation purposes and the release of urban effluents. Until relatively recently, these activities had little impact on natural ecosystems because of their small scale. The situation began to change around the turn of the century with the emergence of two major factors that have significantly increased the rate at which rivers are transformed into artificial habitats. The first is the huge increase in water consumption for agricultural, industrial and urban uses, including for the production of hydro-electricity, and in the discharge of pollutants into some river systems. The second is the modification of flood plains for intensive agriculture, which has entailed widespread destruction of these habitat types, and for river engineering and flood control measures. These may involve the containment of rivers, the dredging of river channels and the destruction of riverine vegetation to prevent floods or at least to minimise their effects. In addition, the extraction of construction materials like gravel from riverbeds has increased considerably over past decades and now threatens the integrity of many river ecosystems.

As a result of such trends, the banks and beds of many rivers in industrialised and other countries are now largely artificialised or considerably distorted. The natural water regime has been altered by the construction of dams and the extraction of large quantities of water. The natural overflow of rivers has been stopped, their flood plains and associated ecosystems have been destroyed and pollution has in many cases altered water quality to such an extent that aquatic species have almost completely disappeared.

The long-term consequences of poorly adapted water policies and legislation may well be the near-total destruction of river ecosystems. Provided that pollution controls are effective, clean water would then flow in completely artificial river beds which would be little more than pipelines distributing water to its various users, almost totally devoid of aquatic life. From time to time, fish would be released for the enjoyment of anglers, but would not survive long, still less to breed, as their natural habitats would have disappeared.

Under most existing frameworks, there is generally an abundance of statutes dealing with many aspects of river use, management, development and 'improvement', flood protection and pollution control. The object of older laws is mainly to control the allocation of water between different users and minimise conflicts between them, to protect human settlements and activities in flood plains and to preserve human health by ensuring as far as possible the supply of unpolluted waters.

In parallel, there are usually several sectoral laws that are used to regulate specific activities, irrespective of whether these affect rivers. Alluvial forests and mangroves generally come under forest legislation and the extraction of gravel from riverbeds is covered by the legislation regulating mining. Older laws were not drafted for purposes connected to river conservation and wise use and they rarely provide a legal basis for taking account of the possible impact of the activity concerned

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69 The legal status of wetlands and water systems is also discussed in Chapter 2.3.2 above.

on the river and associated wetlands. For example, a forestry law can prohibit the clear-cutting of an alluvial forest but cannot prevent the destruction or alteration of the forest caused by dykes or other interventions that suppress periodic floods. Fisheries legislation is primarily concerned with the regulation of taking, the establishment of fishing seasons and the control of fishing gear. It rarely provides for the protection of spawning areas or essential fish habitats. Nature conservation legislation is often unable to address this weakness. Older laws tend to be restricted to the protection of certain species and the establishment of protected areas: these may include rivers or river-related habitats but usually in a limited way and provision is rarely made for the conservation of protected species' habitats.

The plethora of laws applicable to rivers has given rise to a large number of government agencies, each having jurisdiction over a specific aspect of water and watercourse management. These agencies generally come under different ministries or government departments, which often lack effective mechanisms to coordinate their actions. Jurisdiction over different areas of the same watershed or different segments of the same river is usually divided between several different administrations, at local, national and possibly international levels.

It is impossible for sectorally and territorially-fragmented laws and the numerous agencies in charge of their implementation and enforcement to address all the interrelationships between the diverse human activities and numerous ecological processes occurring in river basins. In view of the increasing importance now attached to the conservation of natural values, the development of legislation integrating all aspects of river conservation and management, including that of associated habitats, has become even more imperative.

The importance of non-consumptive uses of rivers for maintaining wildlife habitats, culturally important elements of the landscape and recreation amenity has only recently begun to be widely appreciated. Recognition of the existence of in-stream values has already led to certain changes in legislation. These may be timid but still constitute an important step towards more ecological management of rivers. They involve the listing of in-stream values amongst those which the legislation is designed to preserve and the requirement to take specific mitigation measures to reduce or eliminate some of the adverse effects of river development. Such changes are often introduced through new inland fisheries legislation, partly because they are assured the support of anglers who constitute a major interest group in many countries. The maintenance of this popular leisure activity, which makes an important economic contribution to many local economies, may well be seen as the only legitimate ground for conservation measures. Even so, the influence of fisheries legislation and the agency responsible for its implementation may be relatively weak in the face of major river development projects.

This gradual reassessment inevitably conflicts with laws that were enacted for very different purposes and with powerful and well-financed public agencies established to promote river development. Most activities directly affecting rivers are approved, carried out and financed by governments and/or through bilateral or multilateral funding agencies. Until relatively recently, large river works and costly flood control mechanisms were perceived as good in themselves and always beneficial to the economy and to the people. Such assumptions and vested interests are beginning, very slowly, to be questioned. Many of these activities are necessary and often indispensable, but there are clearly cases where the conservation of the national environment and its values should predominate. It is of course true that floods can ruin crops, contaminate water supplies and destroy communities and their inhabitants. On the other hand, flood protection and equivalent works are increasingly challenged on the ground that it is cheaper, more effective and less destructive of the environment to let rivers overflow and inundate the flood plain. Activities in the floodable area should therefore be restricted to those that are compatible with seasonal floods. Damage to human settlements and agriculture would thereby be minimised: indeed, many of the richest agricultural areas in the world owe their productivity to nutrient-laden river-borne sediments deposited by seasonal overbank flooding. Dams too may provide multiple benefits (recreation, water supply, hydroelectricity and flood control). However, their construction has

often involved the destruction of human settlements in natural areas, serious disruption for local communities and indigenous peoples, the loss of traditional resource management practices, permanent alteration of the downstream water regime and irreversible damage to aquatic biodiversity.

The environmental impacts of river development have been largely ignored or minimised until recently. Modern environmental impact assessment procedures should be designed to identify the direct and indirect consequences of proposed structural interventions in watercourses, to permit public participation in the consultation process, to require changes at project design stage and to provide an objective scientific basis for the grant or refusal of development consent. Whilst legal techniques for this purpose have developed rapidly in recent years, their scope, implementation and effectiveness varies widely. EIA techniques are not always systematically applied to projects deemed to be in the public interest and affected communities are not always adequately represented in the inquiry process.[70]

In parallel, economic evaluation techniques must be developed to provide an objective assessment of the costs and benefits (both short- and long-term) associated with structural interventions such as dams. This is a relatively young discipline but has already shown that non-structural approaches to watercourse management may be preferable for financial as well as environmental reasons. One view holds that "major investments in an effort to harness water resources are often poor investments. Instead, it is frequently both socially and economically preferably to invest in integrated management of those ecosystems that depend for their productivity on natural freshwater flow".[71]

River management agencies should be able to address all essential ecological processes that occur within a river basin and the whole of its catchment area. Wise use policies are bound to be ineffective until this has not been achieved. It is impossible to maintain protected areas or conserve important fish and wildlife habitats if they cannot be preserved from threats such as changes in the water flow, pollution or alterations to the sediment load originating upstream. Legislation should therefore make it possible to secure river inputs to and outflow from lakes; to connect flood plains to river systems through appropriate planning or other controls; and to protect wetlands from the effects of upstream activities. The system-wide impacts of various human activities must be understood in a holistic manner. Legal procedures need to ensure that a balance is struck between an acceptable level of human intervention in inland water ecosystems and the maintenance of their biological diversity: intervention must not exceed the threshold (non-return) point which would entail permanent damage to biodiversity and ecosystem functioning. Without a clear knowledge of such a threshold point, a precautionary approach must be employed.

In most parts of the world, national planning or legislation is a long way off providing for functional and territorial integration, taking into consideration all aspects of soil and water conservation and management within a whole catchment. However, a small number of laws have now been developed which embody this new awareness and positive momentum is developing quite rapidly. At international level, too, recent instruments provide a strong legal basis for developing integrated approaches to river basin management.

The Convention on Biological Diversity[72] requires the protection of ecosystems, natural habitats and the maintenance of viable populations of species in their natural surroundings. In 1998,

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70 See further Chapter 17 below.

71 Dugan, P.J. and Maltby, E. 1995. *Protected Areas and the Hydrological Cycle* at p. 111; see generally Barbier, E.B., Acreman, M. and Knowler, D. 1997. *Economic Valuation of Wetlands: A Guide for Policy Makers and Planners.*

72 Article 8(b).

its COP adopted a decision[73] on the maintenance of inland water biodiversity. Parties should encourage the adoption of integrated land and watershed management approaches, based on watersheds, catchments and river basins, for the protection, use, planning and management of inland water ecosystems (including associated terrestrial and inshore marine ecosystems). Specific recommendations focus on environmental impact assessment, introductions of alien species, transboundary cooperation and the involvement of local and indigenous communities. Parties should review the range and effectiveness of national incentives, subsidies, regulations and other financial mechanisms that may affect inland water ecosystems. They should redirect any measures that run counter to the CBD's objectives regarding inland water biodiversity and should implement targeted incentive and regulatory measures that have positive impacts in this respect. They should also encourage the identification of stressed rivers, the allocation and reservation of water for ecosystem maintenance and the maintenance of environmental flows as an integral component of appropriate legal, administrative and economic mechanisms.

Regional support for such approaches is found *inter alia* in the 1992 Helsinki Convention,[74] which expressly promotes sustainable water resource management based on the application of the ecosystem approach. At non-binding level, the Pan-European Biological and Landscape Diversity Strategy contains two Action Themes of relevance to river management. Theme 6, for which Ramsar is designated as the lead partner for implementation, centres on programmes for integrated management planning for rivers and their flood plains, the protection of natural and semi-natural rivers, the promotion of the reintroduction of species and the rehabilitation of their habitats. Theme 7 addresses the definition of guidelines for the rehabilitation of wetlands, the promotion of national and regional hydrological management plans and wetland conservation action plans and measures relating to peatbog conservation.

The Ramsar Bureau has recognized that principles for IWRM will take many years to be fully implemented into national legal and institutional frameworks.[75] Nevertheless, this may be seen as an incremental process and many interim actions can be acted upon in the medium term. The following sections briefly review some of the legislative options for this purpose, looking first at legislation on river channels, banks and, where it exists, flood plains before examining the rare examples of legislation aimed at the management of whole river basins.

14.2 Legislation to Protect the Natural Character and Multiple Use of River Channels

Several countries have developed legislation to support the functional integration of water and river planning and management, for both consumptive and non-consumptive uses. An innovative aspect of certain laws is that they require the development of new types of river planning instruments, which are specifically designed to address particular problems arising from the multiple uses of water. These plans are generally binding on all government agencies and sometimes on private

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73 Decision IV/4 on Inland Water Systems (Bratislava, 1998). The Seventh Meeting of the Ramsar COP (Costa Rica, May 1999) will consider draft guidelines for the integration of wetland conservation and sustainable use into river basin management.

74 Convention on the Pollution and Use of Transboundary Watercourses and International Lakes, adopted in Helsinki on 17 March 1992, at Art. 3(1)(i).

75 Ramsar Bureau. 1998. *The key role of wetlands in addressing the global water crisis*, Paper communicated to Contracting Parties by diplomatic notification on 19 February 1998 and presented to the delegates at an International Conference on Water and Sustainable Development, Paris 19-21 March 1998.

persons as well. The plans usually prevail as a matter of law over other physical planning instruments such as municipal land-use or zoning plans. In the case of a conflict between the river plan and another plan, the latter must be amended to conform to the river plan. Responsibility for developing such plans and implementing such legislation is usually conferred on water authorities or river basin authorities. A non-exhaustive list of such laws include the Spanish Water Act of 1985, the amendments adopted in 1986 to the German Federal Water Act, the Dutch Water Act of 1989, the Italian Soil Protection Act of 1989 and the French Water Act of 3 January 1992 as amended.

In many cases, however, the requirement to preserve the river environment by maintaining in-stream values, important habitats and essential ecological processes remains very sketchy and legally imprecise.

As a first step, it should be a legal requirement to balance the advantages and disadvantages of every major river project under consideration. Such projects are almost universally subject to the permit system, whereby the permit-issuing authority is empowered to weigh up the various issues in question and to deny permits where it is clear that the environmental damage will outweigh the benefits of the operation. However, the obvious difficulty with this approach is that dam construction, river channelling and other large works are entirely matters of government policy, carried out for the most part in public rivers under government contracts and pursuant to special government decisions. Traditional permit systems may therefore be ineffective as this effectively amounts to the government authorising itself to do the work. Although legislation sometimes provides that the national conservation agency must be consulted before a permit can be issued, the permit-issuing authority is very rarely bound to follow the former's advice. Moreover, legislation rarely provides the competent authority with any indication of the criteria to use when deciding whether to grant a permit.

This situation is evolving quite fast as water laws are progressively amended to incorporate the objectives set out in nature and landscape conservation laws or general environmental protection legislation. A relatively early example of legislation embodying a multi-purpose approach is provided by New Zealand's Soil and Water Conservation Act of 1967 as amended. One of its objectives is to recognise and sustain the amenity afforded by waters in their natural state: for this purpose, due regard must be paid to recreational needs and the safeguarding of scenic and natural features, fisheries and wildlife habitat. This type of provision obliges the permit-issuing authority to consider the effects of the proposed works on natural values, which might otherwise be overlooked by river development agencies.

However, legislation needs to go further in order to provide legally precise guidance[76] to the competent agency on how to choose between possibly conflicting objectives. Failing this, a development-orientated agency will consequently consider it almost a duty to decide in favour of development. One way of addressing this issue is to amend the statutory duties of the relevant public agencies to require them to take certain objectives and values into account in the exercise of their functions. The Spanish Water Act of 1985 expressly provides that the exercise of the State's functions in relation to water must be compatible with the conservation and protection of the environment and the restoration of nature. Another complementary approach, used only in a small number of laws, is to establish general principles to guide decision-makers as to when maintenance of natural or landscape values should be prioritised and when artificialisation must be avoided or mitigated. In Germany, the Nature Conservation Act of 1976 as amended specifies that where possible, systematic development of watercourses from a purely technical point of view should be avoided and replaced by biological water engineering methods.

In general terms, all decision-making authorities must be able to ensure that proposed projects are compatible with the objectives of the relevant legislation. For this, they must have timely access

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[76] On the issue of decision-making criteria in permit systems, see further Chapter 18 below.

to information *inter alia* about the natural values that could be destroyed or impaired if a project is allowed to proceed. The development of comprehensive and legally precise EIA techniques is therefore of great importance. EIAs are becoming a mandatory element of most permit-issuing procedures for large-scale projects.[77]

Some countries have included special rules for river protection in their nature conservation or wetland legislation. Under these laws, rivers are considered to be protected habitat types, which means that activities affecting them are subject to a permit from the conservation authorities. This obligation is usually additional to permit requirements laid down by other relevant texts such as water legislation, which ensures that full account is taken of nature conservation considerations before a permit may be granted. In Denmark, for example, the nature conservation legislation imposes a permit requirement upon any activity affecting public rivers as well as many private rivers. This provision has been interpreted very broadly in practice to cover all potentially damaging activities, including the introduction of alien species into river waters. In Luxembourg, the Nature Conservation Act requires a permit from the Minister for any works liable to alter the water regime or have any adverse influence on aquatic fauna and flora and landscape values. These include the straightening of river channels, bank consolidation, dredging and channel deepening and water derivations. In the United States, many state laws protecting wetlands also apply to rivers and thus establish a permit requirement for activities that may affect riverbeds and banks and the water flow. In Venezuela, the Environment Act provides *inter alia* that activities resulting in harmful alterations of river flows or riverbeds must be controlled and may only be authorised where the alterations are not irreparable, the economic and social benefits of an activity are evident and mitigation measures are prescribed.

Rules of this kind establish a strong framework for regulatory control of certain activities, but usually leave permit-issuing authorities a certain amount of discretion. The breadth of this discretion depends of course on how they are drafted. Some laws specify that permits must be denied when unacceptable damage to certain natural values would result from a project. In the United States, the federal Endangered Species Act of 1973 is unusually rigourous. It prohibits federal agencies from carrying out, authorising or financing any activity or project that would jeopardise a listed endangered species or its designated critical habitat.[78] The Colombian Natural Resources Code provides that a permit must be refused for projects liable to have an adverse effect on the riverbed, the water regime or water quality or where the proposed works would threaten natural resources. The Spanish Water Act leaves more room for administrative discretion. A study of the effects of any proposed project affecting a public river or body of water must be carried out when, in the opinion of the competent river basin authority, such a project may result in significant pollution or degradation of the environment. This provision is applicable to both private persons and government agencies. However, these rules are very general and do not actually require much more than a well-informed and *bona fide* balancing test.

Another approach is to establish precise and binding rules governing specified activities within river systems. One example concerns the design and construction of dams, discussed only briefly here for reasons of space. Because dams may be a major cause of destruction of river ecosystems, there should be cases where the maintenance of a free-flowing river of ecological value takes precedence over the construction of dams. This type of protection can be achieved by designating specific rivers or river stretches in which such construction is prohibited.[79] Another

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77 See further Chapter 17 below.

78 In a famous case, the U.S. Supreme Court ruled that the completion of a dam could not proceed as it would lead to the extinction of a small fish, the Snail Darter *Percina tanasi* (*T. V.A. v. Hill*, 437 US 153(1978)).

79 As discussed in Chapter 11.1 above.

approach is to make it possible to deny a permit for dam construction on any river where it is shown that the resulting damage to the natural environment will be unacceptably high.

One of the adverse effects of dams is that they can constitute an insurmountable obstacle to the migration of fish. This is particularly serious in the case of anadromous fish, such as salmon, which spend their adult life at sea but return to the river where they were born to spawn upstream, sometimes at considerable distance from the river mouth. Several laws therefore also lay down requirements concerning the design and operation of dams. In the Australian State of Victoria, the Conservation, Forest and Lands Act of 1987 provides that prior to the construction of dams, weirs or other structures in or across watercourses which potentially interfere with the passage of fish or the quality of aquatic habitat, the public authority concerned must submit a plan of works to the Director of Conservation for comments. The Director's comments will be binding unless there is no possible or prudent alternative and all measures that can reasonably be taken to minimise the adverse effect of the dam or structure have effectively been taken. Other laws take a slightly different approach by specifying that dams be equipped with suitable fish passes. French law requires all dam operators to install such passes in all dams constructed in rivers where migratory fish spawn. Provisions of this type bind the operators concerned to achieve a particular result, namely to enable fish to use the passes effectively.

The body of water retained behind dams must be emptied periodically, but the volume of silt released as a result of this operation may have devastating effects on downstream ecosystems. The Swiss Water Protection Act of 1991 requires a permit for any such emptying operation and the operator must ensure as far as possible that fauna and flora downstream will not be harmed. French law has laid down similar requirements.

Another type of activity that must be regulated to prevent damage to the river environment is the extraction of materials from the riverbed. In many countries this is subject to a permit requirement. An interesting approach is used in Switzerland, where the federal Water Protection Act of 1991 establishes a performance criterion. Permits may only be issued if it is shown that the amounts of sand or gravel extracted will be replaced naturally by equivalent quantities brought by the river flow.

In Switzerland, the corpus of federal laws enacted since 1991 on water protection, fishing and watercourse management constitutes one of the most advanced legal regimes in the world for the preservation of the natural character and ecological functions of inland water systems. In addition to the various sectoral measures mentioned above, these laws lay down a number of highly innovative principles that should reverse the trend towards ever-increasing artificialisation of rivers and streams. These principles, supported by the 1998 Swiss Landscape Concept mentioned in Chapter 13, may be summarised as follows:

- The natural diversity of watercourses and their water-related ecological qualities (breadth, flow conditions) should be maintained and restored as far as possible: they should only be reduced in justified cases after due balancing of interests.

- The straightening or dyking of river channels may only be authorised where essential for the protection of persons or important property, necessary for the development of navigable waterways or the use of hydro-power in the public interest or as part of operations to restore a previously straightened watercourse to a more natural state. In all these cases, the natural channel of the watercourse concerned must be maintained or re-established as far as possible. The water and riverbanks must be able to harbour diversified fauna and flora and the natural interactions between surface and ground waters must as far as possible be maintained.

- No watercourse may be covered or put underground, with minor exceptions. Stream and river segments that have already been covered or put underground must be restored to their

natural state, except when this is not feasible or would result in significant damage to agriculture.

- Waters, the water regime, watercourses and riverbanks cannot be altered or modified in any way except under a permit from the authorities in charge of fishing. Where natural conditions permit, free passage for fish should be ensured.

Swiss legislation also takes into consideration the need to protect the flood plain (see below). However, it does not provide for the unitary management of entire river basins, presumably because the federal structure of the Government makes this impossible.

14.3 Legislative Protection of Environmental Flows

Serious damage to river ecosystems can result from major water impoundments or large-scale abstraction for irrigation or other purposes, particularly in times of drought. If the flow rate downstream of the dam, derivation or pumping station is significantly reduced, this may lead to the loss of wetland area and functions and the reduction of wetland biodiversity. Such changes in the water regime are also likely to have adverse socio-economic impacts for communities dependent on these wetland resources.

As mentioned in Chapter 2, there are two categories of water use. Out-of-stream (consumptive) uses involve the removal or diversion of water from a watercourse to the place of use (irrigation, livestock watering, industrial water use and residential use). In-stream (non-consumptive) benefits are derived from the water while it is still flowing in the stream (navigation, recreational uses, maintenance of water flows for aesthetic and ecological purposes).[80] In most countries, different institutions deal with these separate sets of interests and for historic and commercial reasons, out-of-stream interests tend to prevail. In the face of the multiple demands on freshwater resources, maintenance of appropriate water supply to wetlands has not been considered as much of a priority. It is still rare for legislation to provide in a systematic way for the environment's own needs as a user of water. "Some water managers still have difficulty understanding that the allocations for human use can only be satisfied in the long term by first ensuring the 'environmental allocation' that the systems require to continue to perform."[81]

A few countries and some Australian states have developed legislation that recognizes the public interest in non-consumptive uses by giving statutory recognition to in-stream water rights or the management of environmental flows. The method generally used consists of defining a minimum value, which may vary from one watercourse to another. If this value is not achieved the operator of the dam or derivation is in breach of the law. In Switzerland, the Water Protection Act of 1991 lays down specific minimum flow values for different average flow rates. These figures must be increased in certain cases, particularly in the vicinity of rare habitat types whose maintenance is directly or indirectly linked to the nature or size of the watercourse concerned. Where the average flow rate is smaller than 40 litres per second, the river is at an altitude lower than 800 metres or contains fish spawning areas or nursery areas, the natural flow rate must be maintained. The Swiss Act treats the flow values it establishes as minimum values only and therefore provides that the actual values should be set at as high a level as possible in each individual case by the competent authority. This is to be achieved through a balancing exercise in which the

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80 Butler, L.L. 1990. *Environmental Water Rights: An Evolving Concept of Public Property* at p. 324.

81 Ramsar Bureau. 1998. *The key role of wetlands in addressing the global water crisis, supra* n. 10.

public interest in water extraction is weighed against the landscape value of the watercourse and its importance as a natural habitat, for the maintenance of biological diversity and for fishing.

French legislation requires dams to be equipped with devices designed to ensure a minimum flow of one tenth of the average regular flow, in order permanently to maintain the living conditions, movement and breeding of the species which inhabit the waters concerned.

Rules of this kind are of great importance, as they require specific measures to be taken to mitigate the adverse effects of certain activities or projects on river ecosystems. In some cases, the permit-issuing authority is obliged to deny a permit if certain conditions are not met. Because these obligations are quantifiable, this may facilitate the task of implementation and enforcement. However, it is essential that minimum flows are not set too low: they must be calculated through an ecological approach that establishes the environmental flow necessary to sustain fish, vegetation and other aquatic wildlife.

Variations on minimum flow legislation that have been developed in the United States include withdrawal programmes, whereby rights to divert or appropriate water are suspended under certain conditions, and reservation provisions. Under the latter approach, water is 'reserved' for specific uses including the protection of aquatic life. These reserved uses then take priority over subsequently acquired water rights or the rights of other riparian users. An alternative approach is to incorporate a public interest standard into the water allocation process. The State of Florida has developed a state water use plan that incorporates economic and environmental considerations, whilst the State of Virginia has redefined 'beneficial uses' of water to include in- as well as out-of-stream uses. It should be emphasized that measures of this type need to be legally precise if they are to be capable of application on a case-by-case basis.

In the absence of minimum flow legislation, there may be scope for judicial creativity on behalf of wetlands. In limited cases, American courts have interpreted nature conservation legislation so as to imply intent by the legislature to reserve environmental water rights. One 1985 judgment concerning the federal Wilderness Act[82] ruled that Congress intended the protection of watersheds and the preservation of water flows to be a primary purpose of that Act. This purpose could not be fulfilled without reserving certain water rights; there was accordingly an implied reservation of federal water rights in *previously unappropriated* water (italics added). This is an important decision because it protects certain in-stream uses that might not otherwise be protected under state legislation. Under this federal reserved water rights doctrine, government action to withdraw land from the public domain and sets it aside for a particular purpose may thus be implied to reserve water to carry out that purpose. However, there are limits to how far this judicial doctrine can be extended. Federal wilderness areas are usually at the top of watersheds, far from farms, factories and other water users: their uses are non-consumptive and downstream users do not feel the impact. Resistance is likely to be much greater if designations are proposed for natural areas located downstream from other appropriators whose existing rights would normally take precedence.[83]

American courts have flexibly interpreted the public trust doctrine[84] to protect water supply to certain important wetlands. The doctrine originally developed to secure public access to and integrity of certain important natural resources associated with navigable waters under federal jurisdiction. Resources protected under this doctrine effectively acquired the status of common heritage or public trust assets, linked to the concept of public stewardship for such resources.

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82 *Sierra Club v. Block* 622 F. Supp. 842 (D.Colo. 1985).

83 Hansen, B.T. 1990. *Reserved Water Rights for Wilderness Areas - Current Law and Future Policy* at p. 428.

84 A legal doctrine stemming from the Roman law concept of private property.

Initially the public uses protected by the doctrine were directly linked to navigable waters (navigation, commerce, fishing), but case-law has progressively extended its scope to include tidal areas, lands under navigable rivers and natural resources landward of navigable waters. The doctrine provides a basis for refusing consent for certain developments or activities. In a well-known case,[85] the Court held that rights to appropriate water from non-navigable creeks were subject to limitation to serve public trust values. This ruling was based on the finding that such appropriation would adversely impact on Mono Lake, a navigable body of water whose recreational and ecological public trust values were being harmed by the diversions. The State of California was held to have a duty to protect the people's common heritage of streams, lakes, marshlands and tidelands. This means that the doctrine may be applied to activities in non-navigable waterways to the extent that these activities harm the public trust values of associated navigable waterways.[86] There are also precedents for applying the doctrine even where there is no obvious link to navigable waters, to promote recreational pursuits, environmental protection and the enhancement of aquatic and marine life.[87]

14.4 Transverse Integration: Conservation of Riverbanks and Flood Plains

Since river ecosystems include banks, riparian vegetation and flood plains, integrated legislation should logically embrace these components of biodiversity. In practice, the reverse is often true as noted in Chapter 2.2 above: the constituent parts of inland water systems often come under separate laws or fall into a legal vacuum.

In many countries, clearance of bank vegetation was or is still required under river management policy and legislation. In many parts of Europe, barges were towed by horses along towpaths along riverbanks. This made it necessary to establish a public right of way along navigable waterways, in which water diversion, fences and other obstacles were prohibited and trees were not allowed to grow. In addition, the presence of riverine vegetation is widely considered to be an obstacle to the free flow of water in the event of a flood. Because it is often necessary to dredge a riverbed for the purpose of channel maintenance, heavy equipment may necessitate an obstruction-free strip of land along the banks to allow for its passage.

On the other hand, it has been increasingly realised that the maintenance of riverbanks in a natural state has many ecological advantages as well as contributing to landscape quality. Vegetated river banks form part of the habitat of many water-dependent species, such as otters; the banks constitute natural corridors for wildlife; they preserve river waters against pollutants, particularly fertilisers and pesticides originating from neighbouring land areas, and therefore act as buffers protecting rivers against adverse outside influences. River ecosystems are thus essential for maintaining or restoring ecological continuity. Legislation has therefore progressively incorporated more conservation-oriented measures in the form of controlled land-use zones along rivers, as briefly described below.[88] This type of regulation makes it possible to allow riparian strips to remain in or revert to their natural state.

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85 National Audubon Society v. Superior Court *(Mono Lake)*, 33 Cal. 3d 419,658 P.2d 709,189 Cal. Rptr. 346, *cert, denied*, 464 US 977 (1983).

86 See generally McCurdy, M.C. 1989. *Public Trust Protection for Wetlands* in *Environmental Law*.

87 *Marks v. Whitney*, 6 Cal. 3d 251, 491 P.2d 374, 98 Cal Rptr. 790 (1971).

88 For a discussion of protection strips under conventional land-use planning, see Chapter 13 above.

A first possibility is to establish a vegetation protection strip along rivers, the width of which varies from country to country and according to the width of the watercourse concerned. Within the protection strip, tree felling and the clearing of vegetation are prohibited or subject to strict controls: grazing may also be controlled in such zones. Provisions of this kind are generally included in forestry or nature conservation legislation, but seldom in laws dealing with water or rivers.

By way of example, Cameroon's legislation on forestry, fauna and fisheries prohibits the destruction of the environment within a 50-metre strip on either side of watercourses and within a 100-metre radius around their source. Costa Rica's forestry law establishes a protection strip on both banks of all rivers, whether public or private: the strip is 10 metres wide in flat areas and 50 metres wide in hilly or mountainous zones. In Brazil, several of the state constitutions adopted in 1989 provide for the establishment of protection strips along watercourses and the preservation of riverine forests (these include the States of Bahia, Goias, Rio de Janeiro, Santa Caterina and Sao Paolo). Brazil's federal Forest Code[89] provides permanent protection to forest and other forms of natural vegetation along watercourses. The protected strip must be at least 30 metres for rivers less than 10 metres wide, 50 metres for rivers which are 10 to 50 metres wide, 100 metres for rivers which are 50 to 200 metres wide, 200 metres for rivers which are 200 to 600 metres wide, and 500 metres for rivers wider than 600 metres.

Other countries have instituted riparian vegetation protection measures under their nature conservation legislation. In Luxembourg, for instance, it is prohibited to clear vegetation or to uproot trees and shrubs along the banks of any river or body of water without a permit from the Minister. The destruction of reed beds is prohibited under special provisions. Portugal's environmental protection legislation also prohibits the clearing of riverbank vegetation. In Switzerland, federal legislation prohibits the destruction of all forms of riparian natural vegetation including reed beds and alluvial formations.[90] The Fisheries Act of 21 June 1991 requires a permit from the authority responsible for fisheries for any alteration of riverbanks and clearing of riverine vegetation. The 1991 Water Act provides that riverbanks, including their fauna and flora, constitute an integral part of the river ecosystem and should be preserved as far as possible. The Cantons must, as far as possible, ensure that riverbanks remain covered by sufficient vegetation, or at least that the conditions which are necessary for the development of that vegetation are fulfilled. However, the elimination of riverbank vegetation may be authorised in respect of projects that do not contravene water legislation and cannot be carried out elsewhere.

A second option is to institute more extensive land-use controls, particularly on construction, within protection strips along riverbanks. Italy's Galasso Act of 8 August 1985 establishes a 150-metre wide protection strip along certain watercourses in which construction and other activities are prohibited except under permit: detailed regulations to control land uses in these protection strips must be adopted under regional landscape plans. The 1985 Spanish Water Act provides for the establishment of a 100-metre wide strip along rivers in which construction, quarrying and earth movements require a special permit from the river basin authority. The Autonomous Communities may enact their own laws to supplement this Act. The Autonomous Community of Navarra[91] has established a protection strip equal to the width of the river channel on either side of all rivers, with a minimum width of 5 metres and a maximum of 50 metres. In the first 5 metres of the strip along the watercourse, the clear felling or exploitation for timber of any trees is prohibited together with the burning of the vegetation. In the rest of the protection zone, construction is severely limited and earth movements and land clearing are subject to a permit.

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89 Adopted on 15 September 1965, as amended on 15 July 1989.

90 Article 21, Federal Nature Protection Act of 1 July 1966 as amended.

91 Land-use Planning Act of 10 April 1987 as amended.

The third approach involves the extension of legal protection to flood plains. Until quite recently, these were widely perceived as areas that merely needed to be drained, developed and protected from floods. The ecological importance of flood plains is now recognized and they are increasingly used as a management tool for flood absorption. In legal terms, however, there is often still no direct link between a river and its flood plain, whether under water legislation or under planning legislation in the form of special land-use restrictions in flood plains. Many countries therefore apply the same rules to development and human activities in flood plains as in the rest of national territory. By way of exception, limited protection of the flood plain may be possible under habitat-type legislation, where the latter applies to wetlands associated with periodic floods, such as marshes, oxblows, alluvial forests and all alluvial formations.

An interesting and far-reaching provision is included in the 1989 Constitution of the Brazilian State of Sao Paolo, which requires that measures be taken to adopt special land-use control rules in flood plains. Only those activities that are compatible with periodic floods may be authorised in those areas. The Spanish Water Act provides that the government may make regulations for the purpose of restricting land uses in floodable areas where they are necessary for the safety of persons and property. The implementing decree[92] defines floodable areas as those that are affected by the highest level of waters occurring within a period of 500 years, but other criteria may be adopted in specific cases. In Portugal, a Law-Decree of 1990 prohibits construction, public works or clearing of the vegetation cover in flood plains up to the limit of the one hundred year flood. Exceptions may be made for works of public interest, provided that there is no economically practicable alternative. Areas subject to these restrictions are to be delineated in all land-use plans. Flood plain planning measures have also been developed in France (see next section).

In the United States, all federal agencies have been instructed by presidential order[93] not to carry out, authorise or finance development in flood plains where there is a practicable alternative. This Order is only binding upon federal agencies, but several states have also adopted legislation to regulate activities in flood plains. The law of Massachusetts, for instance, defines all lands subject to flooding as wetlands, which automatically includes all flood plains. The proposed alteration of a flood plain is therefore prohibited except under permit. Another method of protection consists of including flood plains in those zones of municipal land-use or zoning plans where no building is allowed.

In Switzerland, the federal water and river management laws, supported by the Swiss Landscape Concept, establish certain links between these components of inland water systems. Flood protection should be ensured through semi-natural water management and suitable land-use planning measures: this means that planning controls in the flood plain should prohibit categories of development that might subsequently need to be protected by means of flood protection works. Artificial (structural) flood-control interventions should be minimised. Only when these measures prove insufficient may other measures be taken, such as dyking of banks, channel straightening or the construction of floodwater reservoirs. Whenever possible, environmentally harmful flood protection structures should not be renewed, or alternatively be replaced by more ecologically oriented structures.

14.5 Towards the Unitary Management of River Basins

Several of the countries mentioned in this chapter have instituted unitary systems of river basin planning and management which seek to combine water management, nature conservation and

92 The latest decree known is the Royal Decree of 11 April 1986.

93 The first being Presidential Executive Order issued in May 1977.

socio-economic parameters on a sustainable basis. Watersheds, catchments and river basins can provide a sufficiently large scale of management intervention to address the activities and processes which affect ecosystem structure and functioning,[94] including activities external to conventional protected areas. Management regimes for individual river basins are themselves a variant of site-specific mechanisms, but instituted at a different geographic scale. Their boundaries are delineated in accordance with hydrological rather than administrative criteria and they require adapted institutional arrangements.[95] The following section illustrates the diversity of legal systems developed so far around the world.

Australia has a long history of river basin planning across internal jurisdictional (state) boundaries. Its biggest catchment is the Murray-Darling River Basin, which flows through several states although most of the river system is in New South Wales: the Chowilla Anabranch within this basin covers approximately one seventh of the surface of Australia. The Murray-Darling Commission was established in 1914 to ensure integrated water development and use, but it was gradually recognized that in order to control water quality and specific problems of salinisation, the Commission would also need to address land uses in the basin. Following institutional reforms, the Murray-Darling Ministerial Council was established in 1985. Its members include federal and state ministers for land, water and the environment and it sets policy for all natural resource use in the basin, promoting equitable, efficient and sustainable use. Its technical responsibilities include managing the river, monitoring water quality, maintaining water supplies for homes, livestock and irrigation and managing land resources, nature conservation and community relations.[96] Subcommittees have been established to implement different aspects of this very broad mandate. Elsewhere in Australia, river management committees have been established for the Barwon Darling, Gwydir, Hunter, Lachlan, Macquarie, Murrumbidgee and Namoi Rivers.

A characteristic of Australian integrated management initiatives is the systematic involvement of all stakeholders, from communities and interest groups to governments. The water legislation of several states provides for the establishment of multidisciplinary groundwater and/or catchment committees that include representation from local communities. Key elements of selected laws are briefly summarised below.

The Northern Territory's Water Act, which came into effect on 1 July 1992, is a consolidating instrument that provides for the investigation, use, control, protection, management and administration of water resources within the state, including on Aboriginal and Commonwealth lands. The Act applies to both surface and ground water, setting general principles and quantitative standards for extraction: it also covers water discharged from mine sites, although mines *per se* are covered by sectoral mining legislation. The Act provides for the appointment of a Controller of Water Resources, who has a wide range of powers and can intervene in the case of groundwater pollution, deterioration, depletion of water or inequitable distribution. It also establishes an innovative regime for the definition of water quality objectives in different areas, based on five categories of *beneficial uses:* aquatic ecosystem protection, recreation and aesthetics, raw water for drinking water supply, agricultural water supply and industrial water supply. Beneficial uses are declared for river sections after consultations with government, industry, landholders, NGOs and the community to establish the community's preferred usage of the water resources concerned. They have so far been declared for about twenty individual creeks, sub-catchments, harbours or island areas. Declaration of a

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94 IUCN Commission on Ecosystem Management. 1997. *Biodiversity of Inland Waters* (Report of Workshop held in Wageningen, The Netherlands, from 10-12 July 1997 at p. 4).

95 See further Burchi, S., 1991. *Current Developments and Trends in the Law and Administration of Water Resources - A Comparative State-of-the-Art Appraisal.*

96 Acreman, M., Howard, G. and Pirot, J-Y. 1996. *Reconciling Water Resources Management and Wetland Conservation: A Key Challenge for Ramsar in the 21st Century*, in *Themes for the Future: Special Interventions*, (Proceedings of COP6, Brisbane 1996: Vol. 9/12, pp. 1-7).

beneficial use is accompanied by the determination of land and water use practices necessary to achieve these agreed objectives.

The State of New South Wales initiated a programme of water law reforms in 1997. These are intended to support improved quality of all surface and ground water in the state and to increase water security for all users and regional communities. A Flood Plain Management Programme has been established to provide technical and financial assistance to local authorities to develop and implement local flood management plans. The Department of Land and Water Conservation has instituted a state-wide programme for *total catchment management*,[97] which is intended to provide a coordination mechanism for communities and government agencies within each catchment. All catchments in the state now have a *catchment management committee* with membership drawn from communities, user groups and government. These committees are required to prepare regional strategies to coordinate community and government action related to water resource management.

In the United States, the federal Clean Water Act[98] promotes two types of integrated approaches to water resource management. The Clean Lakes Programme (section 314) is a federal grant programme established in 1972 that provides financial and technical assistance to States in restoring publicly owned lakes. Its scope has gradually been extended[99] to cover the assessment of individual lakes and their watersheds, the determination of sources and extent of pollution and the development of lake restoration and protection plans. States are encouraged to use *Lake Water Quality Assessment* grants to fund the development of institutional and administrative capacity-building to support the implementation of these programmes. The second mechanism is the Nonpoint Source Management Programme (section 319), established in 1987: this is discussed further in Chapter 19 below.

At state level, Maryland's Non-Tidal Wetlands Protection Act of 1989 authorises the competent authority, in cooperation with federal, state and local agencies, to prepare comprehensive watershed management plans which must take into consideration many aspects of water resource management, including flood protection, water supply and wetland conservation. The cumulative effects of human activities must also be taken into account. Once a plan has been made, permits cannot be issued unless they are consistent with the plan.

The concept of unitary management of river basins is supported by the constitutions of several Brazilian States. The constitution of Rio de Janeiro requires legislation to be developed to institute an integrated system for the management of water resources. This system should be structured around each river basin and provide for the unitary administration of water quantity and quality.

In Europe, several comprehensive laws have now been enacted. The Spanish Water Act of 1985 is based on the stated principles of unitary management of river basins and the compatibility of such management with physical planning and environmental protection. The Act requires the development of basin-wide hydrological plans dealing with the allocation of water resources, the conservation of natural habitats, soil protection and criteria to determine use priorities in the different parts of the basin. These are legally binding documents that prevail over any other land use plan: coordination between basin-wide hydrological plans is ensured by means of a National Hydrological Plan. The Act establishes a management body for each basin, which is empowered to grant the permits, required under the Act. Special protection areas may be established for the

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97 All land within the state is considered to be a groundwater catchment because all surface runoff has some connection to groundwater systems. The land around the state's estuaries, lakes and wetlands constitute the catchments for these areas.

98 Formerly known as the Federal Water Pollution Control Act.

99 1980 Clean Lakes Programme Regulations (40 CFR 35 Subpart H); 1987 amendments to the Clean Water Act.

preservation of natural habitats and, as mentioned earlier, many activities are subject to special regulations within a 100m strip either side of watercourses.

At subnational level, the environmental agency of the Autonomous Community of Madrid is required[100] to prepare binding wetland land-use plans which take precedence over other planning instruments in the region. It must also prepare management plans providing for the control of activities in wetlands, necessary conservation measures and the monitoring of water quality and enforcement.

In Italy, the Soil Protection Act of 1989 institutes an integrated soil and water conservation, use and management system at the scale of river basins: the stated objectives include economic and social development and environmental protection, including the conservation and restoration of watercourses, wetlands and flora and fauna. These aims are to be achieved by coordinating the activities of all public agencies concerned, under the supervision of a specially established Natural Commission. A Basin Authority must be appointed for each river basin, with responsibility for preparing a basin plan setting out specific rules and an action programme. Basin plans are to be based on the physical and environmental characteristics of the territories concerned and may define special zones in which certain uses are subject to particular restrictions adopted by Government regulations. Once approved, the regulatory provisions within basin plans are binding upon public agencies and private persons. They prevail over any other land-use plans or regional programmes, which must be amended in the event of discrepancy.

In France, the 1992 Water Act as amended provides that water is part of the common national heritage and that its protection, enhancement and development, consistently with maintenance of natural balance, are in the public interest. A water development and management strategy or master plan[101] must be prepared for each of the six major river basins in France, each of which is administered by a special river basin authority funded partly by a tax levied on water consumption. These master plans are intended to provide broad strategic principles for the quantitative and qualitative management of water resources and must identify and provide for the conservation of the main wetlands within each basin. At a more detailed local level, water development and management plans[102] must establish general objectives for wetland conservation. All public programmes and administrative decisions related to water management must be compatible or be made compatible with the provisions of these planning documents and other areas of administrative decision-making must also take account of these provisions.

The Act institutes permit-based controls[103] for certain types of activity. In a far-reaching provision, where the competent authority is informed of an incident or accident that may threaten the quality or the conservation of water in a wetland, it may require the person responsible to take all possible measures to halt the damage to the aquatic habitat concerned. Where such person fails to act, the authority may take the necessary action at the expense of that person (Article 18).

The Act contains specific provisions for the conservation of flood plains (Article 16). The 'risk prevention plans' instituted under the 1995 Law to Strengthen Environmental Protection must specify prohibitions and technical conditions necessary to ensure the free flow of water and the conservation, restoration or extension of flood plains. Interestingly, this already represents a development beyond the 1992 Water Act, which provided for conservation but not for restoration and extension. Local authorities may carry out works for the protection and restoration of sites,

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[100] Act of 28 June 1990 which contains measures for the protection of wetlands and artificial water impoundments.

[101] Article 3, on *Schémas directeurs d'aménagement et de gestion des eaux* (SDAGE).

[102] Article 5, on *Schémas d'aménagement et de gestion des eaux* (SAGE).

[103] Article 10: see Chapter 18 below.

aquatic ecosystems and wetlands as well as wooded riparian vegetation (Article 31). These measures are supported by a ten-year plan for the restoration and maintenance of rivers, which is intended *inter alia* to restore the functioning of tributaries and the preservation of natural flood absorption areas. The Minister of the Environment may make river contracts[104] to fund the maintenance, restoration and rehabilitation of the natural character of riverbanks, riverbeds and wetland conservation. One example of a large-scale river contract concerns the restoration of the Viosne watershed in the Val d'Oise (200 km^2). The anticipated investment of around 190 million francs is jointly financed by the state, the Seine-Normandie river basin authorities and various local authorities and commercial users.

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Many of the approaches described help to flesh out the rather vague concept of 'integration'. They include but go beyond protection measures for certain areas, habitats or landscape features to impose binding requirements for coordination of sectoral policies at the scale of an ecological unit (the river basin, watershed or other catchment). The development of linkages between watercourses and associated wetlands and flood plains shows how law can begin to treat hydrological systems and ecological networks as the natural counterpart to manmade infrastructure. Some of the laws described, particularly the Australian examples, show how local communities and user groups can share in decision-making relating to land and water use planning at a catchment scale. Both of these trends are extremely promising and deserve more detailed scrutiny.

The scope and potential benefits of integrated approaches to river management do not stop at the freshwater limit. Such regimes may have wider benefits for the marine and coastal environment. Much of the surface water eventually reaches the sea, leading to an accumulation of pollutants attached to silt and clay particles. In estuaries, which are often rich in biodiversity, this can have unfavorable consequences even in the short term. Sludge and other contaminated spoil deposited in brackish waters causes a specific pollution problem and, when dredged for navigational purposes, may be difficult to dispose of safely.

International law has recently given much greater prominence to the relationship between inland and marine waters, in terms that are directly relevant to implementation of the Ramsar Convention. The 1997 Convention on the Law of the Non-navigational Uses of International Watercourses[105] requires Parties to take all measures with respect to an international watercourse that are necessary to protect and preserve the marine environment, including estuaries. The non-binding Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities,[106] adopted in 1995 by more than 100 governments, promotes the integration of watershed and coastal zone management policies. States are encouraged to develop or adapt existing regional and national action programmes and to promote measures for wastewater treatment and management and reduction and elimination of pollution by persistant organic pollutants. The Programme supports the application of preventive, precautionary and anticipatory approaches to reduce the risk of long-term or irreversible adverse effects of land-based activities upon the marine environment.

The following chapter therefore considers ways in which law can be used to promote the wise use and conservation of wetlands within coastal management units.

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[104] Ministerial Circular of 24/10/94 on the *Plan décennal de restauration et d'entretien des rivières.*

[105] Opened for signature in New York on 21 May 1997; not yet in force. The provision cited is part of Article 23.

[106] UNEP(OCA)/LBA/IG.2/7, adopted pursuant to the Washington Declaration on Protection of the Marine Environment from Land-Based Activities, 3 November 1995.

Chapter 15
Integrating Wetland Conservation and Wise Use into Coastal Area Management

Coastal zones face complex and intensifying demands. An estimated 60% of the world's population and many development activities are concentrated along the coastal strip extending from shoreline to less than 60km inland. Increasing population and development pose immense pressure on coastal wetlands (depletion of living resources, pollution loads, reclamation, land fill, and other uncoordinated development). The Ramsar COP has therefore recommended that Parties apply strategic planning and integrated coastal zone management principles to assist sound decision-making on the conservation and wise use of coastal wetlands and other key environment components. Strategic planning and environmental impact assessments for this purpose should be carried out competently and in a timely fashion.[107]

The term 'integrated coastal zone management' (ICZM) features in countless reports and recommendations from organisations of all kinds but, curiously, is rarely defined with precision. ICZM should be considered to cover the whole of the land-sea interface, on either side of the high water mark, and all processes likely to damage the integrity of the coastal environment, whether terrestrial or marine. This is supported by the 1993 Additional Guidance, which emphasizes the need to manage coastal wetlands as single units, irrespective of the usual division between land and sea. ICZM presents many practical difficulties, largely due to legal and institutional obstacles that are rarely mentioned in official reports and texts.

At international level, several institutions have identified ICZM as a leading priority. Under the CBD's Jakarta Mandate on Marine and Coastal Biological Diversity, a work programme[108] sets out detailed measures for five programme elements, including the sustainable use of biological components. Sectoral planning for construction, mining, shipping, agriculture, tourism and fishing should adequately incorporate concerns for coastal and marine biodiversity. Changes in policies or practices in one area must be consistent with and complementary to those adopted in another. The precautionary approach should be used to guide all activities affecting marine and coastal biological diversity.

Other examples include the 1995 Barcelona Protocol applicable to the Mediterranean requires Parties to undertake environmental impact assessments, and to promote the integrated management of the coastal zones, taking into account the protection of areas of ecological or landscape interest and the rational use of natural resources. The 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area[109] also supports a comparable approach to coastal management. Parties must individually and jointly take all appropriate measures with respect to the Baltic Sea Area and its coastal ecosystems influenced by that sea to conserve natural habitats and biological diversity and to protect ecological processes. A working group on the management of coastal lagoons and wetlands has been established under the Convention. Guidelines developed

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[107] Recommendation 6.8 (Brisbane, 1996).

[108] See further Annex to Decision IV/5 (Bratislava, 1998). The Mandate was adopted under Decision II/10 (Jakarta, 1995), as mentioned in Chapter 3.3 above. Its recommendations on coastal and marine protected areas are discussedin Chapter 8.2 above.

[109] Helsinki, 9 April 1992; see Article 15.

under the 1982 UN Convention on the Law of the Sea[110] mainly cover pollution from land-based sources but also recommend that states should establish specially protected areas, including environmental quality objectives, and develop a comprehensive management approach.

In Europe, the ICZM concept was endorsed by the EU's Fifth Environment Action Plan, *Towards Sustainability*, and a ICZM demonstration programme with pilot projects will be completed in 1999. The European Conference of Environment Ministers[111] approved two documents related to ICZM in 1998. The first is a comprehensive model law on coastal conservation.[112] The second is a European coastal code[113] intended to provide practical guidance to local authorities and coastal users on sustainable development in the coastal zone. The Coastal Code identifies specific issues that may need to be addressed:

- the problem of cumulative impacts (where many small decisions made by different levels of government add up to major problems for the coastal environment);
- the transfer of problems from one sector to another;
- the predominance of short-term economic interests, which often damage the environment and incur economic costs in the long-term;
- fragmented geographical planning and lack of coordination between neighbouring coastal communities;
- terrestrial plans and policies that are poorly adapted to the dynamic nature and ecological functions of coastal areas (storm absorption, natural flood defence, erosion and sedimentation processes); and
- the importance of applying the principle of prevention and the precautionary approach to maintain the ecological character of coastal wetlands, *inter alia* against sea level rise predicted as a consequence of global climate change.

ICZM programmes need to be focused on three basic principles: the coastal zone should be the unit for planning purposes; management of coastal land and waters must be dealt with together; and the coastal zone needs special attention. Ideally, territorial planning should cover both terrestrial and marine parts of the coast. Appropriate institutions should have jurisdiction over both sides of the land-sea divide and be equipped with powers to regulate and manage activities that generate processes destructive to biological diversity and other properties of the maritime-terrestrial zone. This is a distant prospect almost everywhere in the world: many countries are still seeking to define the implications of this concept for their own administrative regimes and institutional resistance to change is often deeply entrenched. In most cases it will be necessary to progress towards ICZM through incremental stages. Possible options for this purpose are outlined below.

In a first phase, planning controls need to be adapted to promote the conservation of natural coastal areas. Regulatory measures applicable to the coastal zone include, as everywhere else, the creation of protected areas, the protection of certain habitat types and certain species, planning controls and the regulation of certain activities liable to damage natural habitats and biological diversity. However, there is often a need to extend or strengthen such rules because of the fragility of the coastal zone. Few fisheries laws, for instance, take account of the need to conserve non-target species and marine and coastal habitats in the broad sense.

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110 1985 Montreal Guidelines on the Protection of the Environment against Pollution from Land-Based Sources (24 May 1985: UNEP/GC/DEC/13/1811), developed on the basis of Art. 207 of UNCLOS.

111 Åarhus, Denmark, June 1998.

112 Prieur, M. 1997. *Model Law on Sustainable Management of Coastal Zones (Draft 3).*

113 Drafted by the non-governmental European Union for Coastal Conservation: see Rigg, K. 1997. *European Code of Conduct for Coastal Zones (Draft 3).*

Several countries have enacted special coastal regulations, but these almost always apply only to the landward side of the land-sea interface. In the Philippines, a Presidential Decree requires that a mangrove strip at least 100m deep be maintained along the sea to protect the shoreline. Many laws establish a no-building zone along the coast, outside zones that have already been urbanised (an approach similar to river protection strips). In Denmark, the construction of buildings within 100m of the shore has been prohibited since 1937. Italy has a deeper protection strip of 300m along the coast (1985 Galasso Act). The Balearic Islands in Spain prohibit new construction in all dunes and coastal wetlands, on cliffs and within 100m of the shore. In France, the width of protection strips varies depending on the activity: new transit routes may not be built within 2 kilometres of the shore.

Indian regulations are broad in scope. The federal Coastal Regulation Zone Notification was issued under the framework Environment Protection Act of 1986 and applies throughout national territory. The Notification imposes restrictions on industries, operations and processes in the coastal zone, which stretches from 500m above the high tide line and includes the area between the high and low tide lines. It is designed to provide a legal basis for controlling the development of ports, harbours, thermal power plants and industries in fragile coastal areas. Although enforcement of the Regulation by competent agencies has proved difficult, the courts have on several occasions interpreted the Notification broadly to confer protection on coastal wetlands against inappropriate development.[114]

Another possibility is to develop a special planning regime for the coast, which takes precedence over other land-use plans. Portugal[115] has established a National Ecological Reserve to maintain the ecological functions and the social, economic and cultural values of certain areas. Beaches, dunes, cliffs, estuaries and coastal wetlands, amongst others, all form part of the Reserve. Residential and other development, construction of roads and hydraulic works, excavation and the destruction of vegetation cover are prohibited in these areas. Derogations are only permitted for reasons of recognized public interest where there are no economically acceptable alternatives. All areas in the Reserve must be delimited in land-use plans. The plans of neighbouring communes must be coordinated in order to ensure the continuity of protected areas from one commune to another.

In France, the 1986 Coastal Planning and Protection Act establishes detailed measures to protect the coast generally and areas of ecological interest in particular.[116] Planning controls vary according to whether a coastal area is already urbanised or remains in a natural or semi-natural state. These rules are binding on the municipalities *(communes)* whose territory borders the sea, salt lakes and estuaries and deltas up to the salinity limit and under certain conditions by other municipalities. Land- or sea-use plans and development permits must ensure the preservation of natural areas that are remarkable or characteristic of the natural heritage, and the habitats necessary for the maintenance of the ecological balance. The Coastal and Lakeside Conservancy[117] has powers to acquire land of ecological value in the coastal zone, including through the exercise of powers of preemption: the management of such areas is generally carried out under contract by municipalities.

The United States adopted federal legislation for comprehensive coastal management planning nearly 30 years ago (Coastal Zone Management Act in 1972 as amended). The Act recognizes

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[114] See Chapter 21 below and generally Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

[115] Legislation of 1983, as amended in 1990.

[116] These are listed in Chapter 12.4.5 above.

[117] This was established under separate legislation: for a discussion of its powers, see Chapter 11.3 above.

the multiple demands on coastal areas and the risk of conflict between important and competing uses and values in coastal and ocean waters. It sets out detailed objectives and criteria[118] to assist states to develop and implement management programmes to achieve wise use of the land and water resources of the coastal zone and for the making of special area management plans. These include:

- the protection of natural resources, including wetlands, flood plains, estuaries, beaches, dunes, barrier islands, coral reefs and fish and wildlife and their habitat within the coastal zone;
- the management of coastal development to minimize the loss of life and property caused by improper development in flood-prone, storm surge, geological hazard and erosion-prone areas or areas likely to be affected by or vulnerable to sea level rise, land subsidence and saltwater intrusion and by the destruction of natural protective features such as beaches, dunes, wetlands and barrier islands;
- public participation in coastal management decision-making
- comprehensive planning, conservation and management for living marine resources, including the siting of pollution control and aquaculture facilities in the coastal zone
- the need to improve coordination between state and federal coastal zone management agencies and wildlife agencies.

It is clearly easier to develop planning regimes for the terrestrial part of the coastal zone, where local authorities usually have planning competence, than for the public maritime domain (PMD) and territorial waters, which usually come under the control of the national government. Special laws and/or institutional arrangements are almost always necessary to develop unified planning systems that bridge the land-sea interface. Where this is not possible, at least in the short term, there are various ways in which powers may be strengthened over the PMD and the marine side of the land-sea interface.

One possibility, though limited in scope, is for legislation to provide that powers over the public maritime domain may be devolved to the administration responsible for nature protection. In Ireland, wildlife legislation authorises the competent minister to regulate public access to the domain and permitted uses therein, where this is considered necessary for the conservation of fauna and flora. In Italy, the framework Protected Area Law of 1991 provides that land in the public maritime domain that is included in a protected area may be conceded to the Management Authority of the reserve, under an Order of the Minister of the Merchant Navy.

The Spanish Coastal Law of 28 July 1988 goes further by establishing the concept of the maritime-terrestrial domain which covers the whole of the land-sea interface and is intended to guarantee both the public character of these areas and the conservation of their natural character. The public maritime domain of the state is defined to include all lands that can be covered by seawater at high tide, storm waters or infiltrating seawater: it therefore includes all coastal marshes and wetlands, saltwater meadows and dunes. Occupation of the public maritime domain may only be authorised for activities or installations which, by their very nature, cannot be carried out or located elsewhere. The domain is extended to the landward side by a protection zone 100 metres wide (which in certain cases may be increased in 200 metres) in which the construction of buildings, roads and electric lines is prohibited.

Another possibility is to create a special institution with management powers that extend to the PMD. In Tunisia, the Coastal Protection and Planning Agency (APAL)[119] is a public body created in 1995 within the Ministry for Environment and Territorial Planning. Nearly a quarter of

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[118] See generally §1451-2 *et seq.*

[119] *Agence de protection de d'Aménagement du Littoral en Tunisie.*

its membership is drawn from the Infrastructure Ministry, which has jurisdiction over the PMD. APAL's statutory duties are to implement government policy for coastal protection and planning, with specific regard to the public maritime domain, which must be protected against encroachments and unlawful occupation. All planning and development along the littoral is subject to permit from APAL, which must prepare an audit of existing land ownership and uses and carry out measures to identify, protect and restore natural and sensitive areas, including wetlands, coastal forests and islands. Provision is made for monitoring procedures and for the establishment of a coastal observatory. The APAL carries out its functions in accordance with a detailed five-year plan.

Legislation may provide for the development of marine planning instruments that are parallel to and compatible with the corresponding terrestrial plans. It is now possible in France to adopt 'sea enhancement master plans.'[120] A master plan may be developed for a geographic-maritime unit that presents related, competing or complementary interests with regard to the protection, exploitation and development of the shoreline. These plans establish basic principles for such protection, exploitation and development and also institute zones for industrial and port development, mariculture and recreational activities. They may impose specific constraints for adjoining maritime or terrestrial areas necessary for the preservation of the marine environment and coast. Master plans are developed by the national government after consultation with local and regional authorities: once approved by the *Conseil d'Etat,* they take precedence over existing land-use planning documents. Very few of these master plans have been adopted to date.

Another option is to improve and extend marine legislation to make it an instrument for integrated management of the PMD and marine waters. The Australian state of New South Wales provides a good example through its Fisheries Management Act of 1994, as amended in 1997. This text functions as a conventional law to regulate fisheries and aquaculture and also as a nature protection law equivalent to the endangered species law applicable to terrestrial species. It provides for the protection of aquatic habitats, institution of habitat protection plans, creation of marine reserves, regulation of dredging and dyking operations and protection measures for mangroves and seagrass beds. It also prohibits the introduction of alien species and lays down strict protection measures for threatened species and their critical habitats. These include the obligation to prepare recovery plans for these species as well as plans to reduce threats to biological diversity caused by destructive processes.

On the marine side, Canada's Oceans Act of 1996 also provides for the development and implementation of a national strategy for the integrated management of estuarine, coastal and marine ecosystems, based on the principles of sustainable development and the precautionary approach. Integrated management plans must be drawn up on the basis of vertical and horizontal consultancy and cover all activities or measures in or affecting estuaries, coastal waters and marine waters. The Act also provides for the establishment of marine environmental quality guidelines, objectives and criteria respecting estuaries, coastal waters and marine waters.[121]

Coordination of land-sea planning may also be promoted through non-statutory approaches, at least during an experimental period. In England, the department responsible for environmental protection established thirteen 'marine consultation areas' (MCAs) in 1992 on the recommendation of English Nature. These run from high water mark to 2 miles out to sea. Although such areas are not formally designated by statute, local planning authorities are required to consult with English Nature on all planning applications, including those for land adjacent to MCAs, which are likely to affect the flora and fauna within the MCAs. Other non-statutory initiatives to promote

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[120] *Schémas de mise en valeur de la mer,* which constitute 'territorial planning directives' within the terms of planning legislation adopted on 4 February 1995.

[121] Articles 31-32.

coordinated planning and management include the establishment of 'estuaries management plans' for individual estuaries and 'shoreline management plans', which are intended *inter alia* to promote a strategic approach to coastal defence planning.

Precedents for truly integrated coastal management, delivered through appropriate legislation and institutions, remain very rare.

In the American State of California, the California Coastal Act of 1976 is intended to promote multiple use coastal management with regard to industry, ports, tourism, recreation, fisheries and nature conservation. The Act lays down certain rules that are binding on local planning authorities: these must be followed when adopting land-use plans and issuing regulations. The California Coastal Commission has been endowed with jurisdiction over the territorial sea and all the islands, as well as in a terrestrial strip 1000 metres wide along the coast (more in certain areas), except in already urbanised zones. All works or projects within the zone under the Commission's jurisdiction are subject to a permit from the latter. The Commission reviews land-use plans and regulations issued by local planning authorities.

The State of Southern Australia has enacted legislation to establish the Coast Protection Board, which has jurisdiction over the three nautical miles of the territorial sea and over a terrestrial strip 100m wide along the coast. All works in these areas are subject to a permit from the Board. The Board may prohibit access to any part of the public maritime domain.

* * *

In conclusion, it should be emphasised that coastal management planning will only be perceived as legitimate if inhabitants, users and other interested parties have access to relevant information and can participate actively in the consultation process. Coastal zones are subject to more intense and competing demands than any category of geographic area. Modern laws and institutions must be designed to address and resolve jurisdictional and resource-based conflicts that work against wise use of the coastal environment.

Integrated coastal management should provide for physical planning instruments applicable to the sea as well as to the land. There should be consistency in decision-making, linked to strategic environment impact assessment carried out at the level of the coastal zone which incorporates the precautionary approach.[122] Management of coastal wetlands should be fully coordinated with regional coastal management administration policies. Where possible, the nature park concept should be developed to promote the wise use of mixed land-sea areas, equipped with appropriate management institutions. The conservation and management of marine and terrestrial species and habitats should be linked or fully integrated under revised institutional arrangements. Changes of this kind will require close collaboration between decision-makers and scientists at all stages of the formulation of management policies and programmes.

[122] See Chapter 17 below.

PART V

MANAGING ACTIVITIES AND PROCESSES DAMAGING TO WETLANDS: TOOLS, TECHNIQUES AND PROCEDURES

Chapter 16
Overview of Process-based Legislation

The conservation of wetland area and function depends on the ability to control activities which, by their very nature, may cause major alterations to water-based ecosystems and aquatic and marine biodiversity. The following chapters consider ways in which legislation can take better account of linkages between cause and effect and can promote the maintenance or restoration of normal ecological processes.

Several modern treaties establish requirements for the control of processes damaging to the environment. The 1992 Convention on Biological Diversity[1] requires Parties to identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity. Activities which generate such impacts must be regulated or otherwise managed so as to reduce these impacts as far as possible. The requirement is not geographically restricted.[2] It therefore provides a legal basis for managing long-range activities as well as wetland-based activities which are either inherently destructive of wetland biodiversity or which have negative impacts if they exceed the limits of sustainable use.[3]

The 1994 Desertification Convention generally addresses the damaging processes that contribute to desertification, with more detailed provisions being laid down by regional annexes. The Northern Mediterranean Annex, for example, specifies processes and activities which degrade the ecological character of wetlands and should therefore be controlled: these include "unsustainable exploitation of water resources leading to serious environmental damage, including chemical pollution, salinization and exhaustion of aquifers; and irrigated agriculture".[4]

The 1997 Convention on the Law of the Non-navigational Uses of International Watercourses[5] also lays down process-based obligations relevant to wise use. Article 27 requires watercourse States "individually and, where appropriate, jointly, [to] take all appropriate measures to prevent or mitigate conditions related to an international watercourse that may be harmful to other watercourse States, whether resulting from natural causes or human conduct, such as flood or ice conditions, water-borne diseases, siltation, erosion, salt-water intrusion, drought or desertification". The identification of causative activities and the selection of appropriate legislative and other management measures is a matter for each state. This requirement, if properly implemented, would involve the comprehensive review of land-use in watersheds and drainage basins, including by the agricultural and forestry sectors.

Broad obligations of this type potentially apply to a large number of activities for which legal control mechanisms may be very variable. In inland water systems,[6] degradation is linked *inter alia*

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1 Articles 7c and 8(1): see Chapter 3.3 above.

2 C.f. treaties that link process-based obligations to protected areas: the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan, 23 March 1981, in force 5 August 1984) requires Parties to prohibit or control any activity likely to have adverse effects on the species, ecosystems or biological processes in protected areas established pursuant to the Convention (Article 11).

3 This distinction was discussed in Chapter 2.2 above.

4 Article 2.

5 See further Chapter 22 below.

6 Discussed more fully in Chapter 14 above.

to excessive water abstraction, unsustainable fishing, farming or forestry practices, different forms of pollution, river engineering, dredging or hydropower generation. In coastal ecosystems, destructive processes include the modification of benthic habitats by large-scale trawling, dredging, the extraction of sand and gravel or the dumping of waste or rubble. Coastal erosion can result from installations such as river dams which prevent the supply of sediments to the sea. Coral reefs may be degraded by the extraction of materials for construction or lime, the use of toxic substances to collect tropical fish for aquaria or the deposition of sediments caused by upstream deforestation: this may in the long term lead to the death of the reef through silting up or the reduction of light supply necessary for the photosynthesis of symbiotic algae of polyps.

Comprehensive legislation to regulate or manage damaging activities should make it possible to minimise the generation of processes destructive to wetlands. This in turn should reduce the need to rely primarily on the protection of individual wetlands to promote wise use. The problem is that such activities often fall outside the scope of ordinary land-use planning or area-based regulatory measures. Of course some activities (e.g., mining, quarries, building regulations, various categories of public or private works) are subject to special controls wherever they take place and the relevant legislation usually seeks to limit destruction or artificialisation of natural areas. However, this type of legislation is sector-specific and is usually not inclusive in scope: in other words, it only covers designated activities or operations. It is much more unusual for legislation to start from the damaging impact or process and work backwards to cover any activity or operation that may have these harmful consequences. A holistic perspective of this kind is particularly well-suited to addressing the side-effects of non-wetland activities that may have major cumulative impacts on wetland ecosystems.

Germany has established an activity-based control system based on the concept of adverse impact *(Eingriff)* to nature or landscapes. The Federal Nature Protection Act of 20 December 1976[7] as amended defines an adverse impact as any change to the appearance or use of an area that involves a significant or long-term deterioration of the natural equilibrium. All avoidable impacts are prohibited, whilst those which are unavoidable must be the subject of compensation measures. The Act specifically excludes agricultural and forestry activities from its terms, irrespective of their environmental impacts. Individual *Länder* are free to adopt stricter measures if they choose: most have incorporated the impact concept into their own legislation. The *Land* of Thüringen[8] has, for example, drawn up a broad list of activities considered to have harmful impacts, wherever they occur. These extend beyond activities covered by conventional planning systems to include modifications to the water regime, earth movements and excavations that may significantly affect natural equilibrium, drainage of wetlands, afforestation of meadows in valley floors, vegetation clearance in non-farmed areas above $100m^2$ and any modification of riparian vegetation or reedbeds. All listed activities are subject to permit (see Chapter 18 below). The Act specifically exempts building developments that are authorised by a local land-use plan as well as agricultural and forestry practices consistent with relevant sectoral legislation.

Australia has gone considerably further and now has probably the most innovative process-based legislation in the world. The State of Victoria pioneered this approach with its 1988 Flora and Fauna Guarantee Act, which provides that processes potentially damaging to biological diversity which must be regulated or managed. A list of such processes is contained in an annex to the Act which may be amended by regulations. These include river straightening, use of leadshot in wetlands, felling of hollow trees, overgrazing of upland meadows and freshwater pollution. Activities that may generate any of these listed processes are thus subject to the provisions established by the legislation, without being individually listed.

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7 This is directly applicable only to federal authorities: it provides a framework for equivalent legislation by individual *Länder*.

8 Act dated 28 January 1993.

The State of Queensland has incorporated the concept of 'threatening processes' into its 1992 Nature Conservation Act.[9] Such processes are defined to include any process that may threaten the integrity of a protected area, an area of significant natural interest, a protected species, a community of native species or the habitat of a native species. At federal level, the 1992 Endangered Species Act contains similar provisions. A threatening process may be categorised as a 'key threatening process' if it affects at least two species or two communities of species included in the list of endangered species or communities or could result in unlisted species or communities becoming endangered. Process management plans must be adopted in such cases to prevent this eventuality. This is an interesting practical application of the precautionary principle.

Variants of this type of approach exist under a few other laws, although they are not always labelled as processes. In Belgium, for instance, an executive order of the Flemish Region requires a permit for modifications to natural vegetation cover. It establishes a list of controlled actions which are more closely tied to damaging processes (drying out of wetlands, land clearance, ploughing of meadows, plantation, modification of contours) than to specific sectoral activities. The United Kingdom uses such techniques in a geographically limited way: the 1981 Wildlife and Countryside Act as amended provides for the control of 'potentially damaging operations' within sites or areas of special scientific interest.

Modern laws of this type commonly combine an obligation of result (to maintain or restore the species, habitat type or ecosystem concerned to a favourable state of conservation) with regulatory or other techniques to control processes that may adversely affect this state of conservation. Well-designed systems support the legal principle of preventing irreversible harm to natural systems and biological diversity through human actions and incorporate a precautionary approach.

An important element of such approaches is flexibility. The CBD's terminology of "regulate or manage" recognizes that prescriptive approaches are unrealistic and inappropriate. Suitable approaches vary between countries according to legal and socio-cultural traditions and capabilities. As a minimum, the aim must be to identify harmful practices wherever these take place and to design measures to phase them out or subject them to stricter environmental conditions or restoration requirements. This may be best achieved by combining basic regulatory controls with contracts or other types of incentives to encourage best practice in land and water management. Legal techniques for this purpose may be designed for different scales of application. They are likely to be most effective if they are planned and implemented for whole ecological units (river basins, watersheds, catchments, coastal units). They also depend on strong institutions. Competent authorities must be empowered to assess and control environmentally adverse actions, to set standards to prevent or minimize impact of actions on wetland resources, to monitor compliance and enforce regulations and to provide for environmental incentives and other non-regulatory measures and partnerships.[10]

Laws of the type described above provide effective mechanisms for future control of new activities. The position is much more difficult where sectoral activities are lawfully carried out under long-established concessions or permits. For process-based controls to achieve legitimacy, an acceptable balance must be found between established economic activities and more recent environmental objectives related to the limited carrying capacity of natural systems. Legislative development in this area needs to be seen as a incremental process in which negotiation and building of relationships with the private sector must play a large part.

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9 This concept is also embodied in the endangered species legislation adopted by New South Wales in 1995.

10 Personal communication, Larry Mason, formerly US Fish and Wildlife Service.

In many wetland systems and watersheds, mineral, aggregate or peat extraction, forest plantation and large-scale water abstraction were authorised by sectoral departments without reference to the relatively new discipline of wetland ecology. The operators concerned have enforceable rights to carry out such activities and are rarely bound by environmental management conditions or restoration requirements. Concessions or permits for exploitation of wetland areas and resources may still have years to run and in most countries, termination of such rights would give rise to claims for prohibitive levels of compensation. On an interim basis, intersectoral collaboration can be promoted in non-binding ways that include the development of codes of conduct, based on scientific guidance from the competent environmental body. In the longer term, legal frameworks for wise use should establish binding requirements which apply when such concessions come up for review and possible renewal. There should be mandatory consultation between environmental and sectoral agencies: in the context of river basins or coastal areas, it is of course preferable that such decisions be taken by special institutions with competence over the whole ecological unit. Legislation should expressly provide that any renewal of permits may be made subject to strict environmental conditions or rehabilitation requirements.

Activity-based legislation, like that related to wetland areas, needs to be legally precise in its scope and decision-making criteria. Chapters 17 and 18 below consider these issues in the particular context of environmental impact assessment procedures and the operation of permit systems.

Chapter 17
Environmental Impact Assessment of Programmes and Projects

17.1 Outline of EIA Provisions and Techniques

Environmental impact assessment is a procedure which seeks to ensure that adequate and early information is obtained on the likely environmental consequences of development projects, possible alternatives and measures to mitigate harm.[11] EIAs are usually a prerequisite for administrative decision-making on whether to undertake or authorise particular categories of construction, development or other activities. Whilst systems vary, the relevant legislation generally requires the developer to submit a written document (with a prescribed form and content) to a designated agency or decision-making body, describing the probable or possible future environmental impact of the intended action. The importance of EIA as an integral part of project planning was recently highlighted in Laos, where an EIA undertaken in 1996-7 for a proposed dam discovered some 60 species of fish previously unknown to science.[12]

Strategic environmental impact assessment is a more recent policy tool. It supports advanced integrated planning techniques, as opposed to case-by-case decision making. It may be applied to whole sectoral programme or policy or to cross-sectoral planning across a defined geographic unit as part of the preparation of a land-use plan, watershed management plan or coastal area management plan. In each case, strategic EIA should make it possible to anticipate cumulative impacts of individual projects and activities and to adjust or set limits to anticipated territorial or sectoral development in accordance with environmental considerations.

Although the Ramsar Convention predates the development of EIA techniques, the Ramsar COP has now adopted several recommendations with regard to EIA at both strategic and project level.

The 1990 Guidelines specify that where proposed developments may destroy important wetland values at particular sites, environmental considerations should be integrated from the outset. Assessment of project impacts should take place and there should be continuing evaluation during the execution of the works and full implementation of necessary environmental measures. These planning, assessment and evaluation procedures should cover projects upstream of the wetland concerned, those in the wetland itself and other projects which may have significant effects on the wetland. The 1993 Additional Guidance recommends that EIA should also cover the long-term and cumulative effects of proposed activities, projects, plans and programmes as well as interactions between all components of the water system at the catchment level. Stricter rules should be applied to important wetlands in view of their particular environmental sensitivity: authorisation should be granted only if it is shown that no significant damage to the area will occur.

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11 For more information, see for example Shelton D. 1997. *Techniques and Procedures in International Environmental Law* and Sands, P. 1995. *Principles of International Environmental Law: Volume I (Frameworks, Standards and Implementation)* at pp. 579-595.

12 *Biological Diversity of Inland Waters,* Note by the Executive Secretary to the Convention on Biological Diversity, UNEP/CBD/SBSTTA/3/2, 30 June 1997 at p. 3.

The Strategic Plan[13] recommends the use of integrated environmental management and strategic EIA (at local, provincial and catchment/river basin or coastal zone levels) when assessing impacts on development proposals or changes in land/water use. In a project-specific context, where proposed developments or changes in land/water use might change the ecological character of Ramsar sites, the Strategic Plan calls on Parties to ensure that EIAs are carried out with due consideration of economic evaluations of wetland benefits and functions. The resulting conclusions should be communicated to the Ramsar Bureau and "fully taken into account by the authorities concerned". Parties should also carry out EIAs at other important sites where wetland resources may be adversely affected by a development proposal or change in land/water use.

Project and/or strategic EIA is supported by all modern environmental agreements, whether global or regional in scope.[14] The Convention on Biological Diversity requires Parties[15] to introduce appropriate EIA procedures for proposed projects likely to have significant adverse impacts on biological diversity as well as appropriate arrangements to ensure that the environmental consequences of their programmes and policies likely to have such impacts are duly taken into account. This obligation applies even where such impacts occur solely within the competent state. They should be implemented consistently with the precautionary approach.[16]

Two instruments address particular aspects of EIA implementation that are relevant to wetlands. The 1991 Espoo Convention[17] establishes detailed EIA requirements for activities that may have a significant transboundary impact and makes express reference to activities in or close to environmentally sensitive areas such as Ramsar sites. In the financial arena, the World Bank has adopted an Operational Directive on Environmental Assessment[18] that lays down conditions for borrowing countries with regard to the content and procedure of EIA, project design, compliance and monitoring.

A growing number of countries now have EIA legislation in place, although this is often restricted to individual projects and does not extend to strategic assessment. Most of these laws establish substantive and procedural requirements that apply only to large projects. This means that many of the activities that affect wetlands are exempt from EIA requirements. Even where the legislation is potentially applicable, there are rarely specific criteria or guidance on the standards that should be applied to fragile wetland ecosystems.

For practical reasons, EIAs cannot be prepared for all projects. Many international and national instruments therefore limit the range of projects covered by establishing different

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13 Operational Objective 2.5 and specific Actions laid down under this heading: see also Recommendation 6.2 (Brisbane, 1996). A draft resolution on guidelines for environmental impact assessment will be considered by COP7 (Costa Rica, May 1999).

14 A non-exhaustive list includes the 1982 UNCLOS, the 1992 UN Framework Convention on Climate Change, the 1985 ASEAN Agreement, the EC/ACP Fourth Lome Agreement (15 December 1989), EC Council Directive 85/337/EEC of 27 June 1985 on the Assessment of the Effects of Certain Public and Private Projects on the Environment and the 1992 EC Habitats Directive.

15 Article 14.

16 In accordance with the Preamble to the CBD. EIA has been identified by the COP to the CBD as a cross-cutting (inter-sectoral) issue on which the Subisdiary Body for Scientific, Technical and Technological Advice is to develop further guidance (Decision IV/10, Bratislava 1998).

17 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, Finland, 25 February 1991), developed under the auspices of the UN Economic Commission for Europe: see also Chapter 22.

18 ODEA 4.00 (October 1989, as revised in 1991 (Annex A)): see also Chapter 25.

categories of development, based on the likelihood of significant environmental impacts. Depending on the activity, an EIA will always, sometimes or only exceptionally be required. Many of the developments for which an EIA is almost always required are directly relevant to inland water or coastal ecosystems. They include *inter alia* port and harbour development, dam and reservoir construction, land reclamation, flood control operations and thermal and hydropower development.

Legislation is often less precise with regard to smaller-scale activities or activities which may have more limited environmental effects. Typically, it provides that an EIA must be prepared where a proposed project may 'significantly' affect the natural environment. However, it can be somewhat arbitrary to determine - in advance of an EIA - that an activity will *not* have such adverse impacts. This test often ignores the possible cumulative impacts of other small-scale developments within the same category. It also does not cater for the fact that certain activities may be relatively benign if carried out in one area but are likely to have severe impacts if carried out close to certain wetlands.[19] Another difficulty is that competent authorities may restrictively interpret the 'significant impact' threshold to limit the number of projects for which an EIA is required. This filtering process is often hard to challenge, particularly under older laws that do not specify clear criteria for administrative decision-making.

In the light of these general observations, it is important for every country to ensure that decision-making processes take account of the specificity of wetlands and the need for consistency with wise use policies. The following section highlights some ways in which national measures may be adapted for this purpose.

17.2 Adapting EIA Legislation to the Needs of Wetlands

The first requirement is for legislation to broaden the EIA 'screening process' by including specific considerations linked to the sensitivity of wetlands. Framework environmental legislation can specifically provide for this possibility. Under the Republic of Yemen's Environment Protection Act,[20] regulations must be issued to determine standards and criteria to ascertain whether or not a proposed project may significantly affect the environment. These criteria must cover proximity to wetlands, coral islands and natural protected areas.

The importance of strategic environmental assessment in wetland ecosystems has already been emphasized. In addition, stricter EIA requirements may be established in or around some or all wetlands. In the Spanish Autonomous Community of Madrid,[21] an EIA is required for any change in land use, extraction of minerals or infrastructure works in wetlands as well as for their filling or drainage. These requirements go even further than the enabling national Water Act, which requires an 'evaluation' of the ecological effects of proposed activities within a wetland or its buffer zone. In the Philippines, an environmental impact assessment is required for projects located in environmentally critical areas: these include mangrove areas with primary pristine and dense young growth, those adjoining the mouth of major river systems and those near or adjacent to traditional productive fishing grounds.

EIA requirements may be adapted to specific categories of natural areas. The EC Habitats Directive requires an appropriate assessment of any project not directly related to the management

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19 Adapted from Rigg, K. 1997. *European Code of Conduct for Coastal Zones (Draft 3)* at pp. 14-15.

20 Article 37(1), no. 26 of 1995.

21 Environmental Protection Act of 4 April 1991.

of a specially protected area or special area of conservation and likely to have a significant effect on such a site, individually or in combination with other plans or projects. Some Member States[22] have implemented stricter EIA controls in and around these European sites. In Norway, land-planning legislation adopted in 1995 establishes mandatory EIA requirements for certain projects within protected areas. Interestingly, these also apply to proposed projects outside such areas that are in 'direct conflict' with the objectives for which the protected area was established. EIAs are also required for development projects within cultural landscapes of national importance that are included in an inventory drawn up in 1994. In Australia, the federal Protection (Impact of Proposal) Act of 1974 is designed to control the impact of Commonwealth actions potentially impacting on sites listed as nationally important under this Act.[23]

Secondly, EIA legislation should be applicable to both public and private projects and developments. Relevant decisions adopted by the Ramsar COP make no distinction between public and private projects or between public and private land. This inclusiveness needs to be reflected in domestic legislation. In some countries, environmental assessment of public projects may be the only 'control filter' for government-backed developments if these are not covered by permit systems.[24] In Australia, the federal Foreign Acquisitions and Takeovers Act of 1975 provides that an EIA may be required for development proposals with foreign interests above a certain investment level.

Thirdly, legislation should clearly specify substantive requirements to circumscribe the exercise of administrative discretion and make it easier to verify the adequacy of EIAs. Failing this, there is sometimes little to stop EIAs being misleading or subject to manipulation in order to hasten clearance of development proposals. Terms of reference laid down by regulations must be scientifically comprehensive. They must ensure that consideration is paid not only to individual sites but also to associated wetlands and to possible impacts elsewhere in the catchment area. The Yemeni Environmental Protection Act specifies minimum requirements for the content of EIAs: the developer must specify *inter alia* the project's requirements for water, energy, drainage and roads, the safety risks and waste disposal arrangements and an analysis of the direct and indirect, short and long-term effects.

Several laws now go further by providing for 'risk assessment': in the context of water systems, this includes the modern French water legislation. Risk assessment is a specific application of the precautionary principle that looks not only at likely or known impacts but also considers the probabilities of possible harm from a proposed activity. It provides a procedure for addressing the problem of scientific uncertainty. If the existence of a risk is identified, the burden should be on the applicant to modify the project design to minimise or eliminate the risk. Whenever certain risks are established, prevention should be mandatory, even when no cause-effect relationship between an activity and environmental effects has been established.[25]

Fourthly, procedural requirements for public consultation and participation are of great importance to EIAs. Modern laws generally provide for EIA studies to be advertised and available for public comment (written and/or oral) during a defined period: the right to comment must not be limited to those potentially affected by the project. Decision-making authorities must be obliged

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22 United Kingdom (The Conservation (Natural Habitats &c.) Regulations S. I. no. 2716 of 1994) and Denmark (Ministerial Order no. 847 of 1994 which also implements the EC Directive on EIA).

23 Phillips, B. 1998. *Reviewing Laws and Institutions relevant to wetlands in Australia* at p. 6.

24 As discussed in Chapter 14 in the context of river engineering works.

25 Shelton, *supra* n. 1.

to take into account all public comments received. The World Bank's Directive[26] emphasises the importance of involving NGOs "in order to understand both the nature and extent of any social or environmental impact and the acceptability of proposed mitigatory measures, particularly to affected groups". It specifies that consultations do not reduce the decision authority of the borrower, but are a valuable way to improve decision-making, to obtain feedback on the EIA process and to increase community cooperation in implementing the recommendations of the EIA.

A final consideration relates to the identity of the authority responsible for assessing the EIA and deciding whether or not to issue a permit or concession. Decision-making authorities are often quite separate from the conservation or environmental authority (which often lacks the manpower or financial means necessary to perform this task). Legislation should provide for mandatory consultation with competent bodies and the decision-making authority should be required to take into account, and respond to, such opinions.

In some cases, it may be appropriate to develop a special evaluation procedure for smaller developments around sensitive areas for which a full EIA would be impracticable. This could be carried out by the conservation agency and financed by the applicant: alternatively, it may be prepared by the applicant and reviewed by the conservation agency. Ecological evaluations of this type could then be submitted to the permit-issuing authority.

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[26] Operational Directive on Environmental Assessment 4.01, paragraph 19.

Chapter 18
Designing Permit Systems to Minimise Loss of Wetland Area and Function

The 1993 Additional Guidance recommends the institution of permit systems for activities affecting wetlands, without providing more detailed indicators. As illustrated earlier in this book, these provide an important regulatory tool for controlling activities in protected wetland habitats or throughout a watershed or national territory.

A permit system can be used to deliver 'no net loss' policies[27] to maintain wetland functions and values, to reduce the rate of wetland loss and to increase the rate of wetland restoration and creation. To do so, it must clearly define to which wetlands it applies, when wetland loss is acceptable and under what conditions. Scientific monitoring of trends in wetland acreage and function and regular updating of operational guidance are likely to be essential to effective implementation.

It should again be emphasised that all permit systems depend on the existence of a clear definition of wetlands. Owners or occupiers need to know whether the law applies to their wetlands and when to apply for permits if they intend to undertake activities that will alter or destroy those wetlands. This certainty can be achieved by incorporating precise definitions and delineation criteria into legislation, making accurate maps, a notification system or any combination of these methods.[28]

18.1 Scope of Permit Systems

Just as it is almost impossible to apply protection measures to all wetlands, it is equally difficult for political and practical reasons to apply regulatory controls to all activities that may affect them. The burden on environmental agencies and wetland owners and occupiers would in most cases be considered unacceptable and counter-productive.

Many laws accordingly exempt certain activities or categories of activities from the permit requirement and/or identify threshold levels below which no permit is required. Legislation often sets out a list of controlled activities (which implicitly exempts all other activities) or a list of permitted uses (any use not listed is consequently subject to a permit). Confusion commonly arises where exemptions or permitted uses accumulate over the years under a series of different regulations. Such complexity can impede the setting of strategic goals, monitoring and consistent enforcement.

Wetland permit systems often run in parallel with certain sectoral controls. Certain activities (e.g., discharge of pollutants) may be specifically controlled under other statutes. In such cases, they may be implicitly exempted from the scope of wetland legislation.

18.1.1 Exemptions for Agricultural and Forestry Activities

Agriculture and forestry are exempted from wetland permit systems in several countries, often together with certain categories of public works. In such cases, there is nothing to stop wetlands

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27 Policies for this purpose are discussed in Chapter 4.3 above.

28 See Chapter 7.3 above.

being converted or otherwise modified for agricultural, forestry or other permitted purposes. Such exemptions are a controversial issue. It is socially and politically difficult to deprive farmers and other land managers of the right to develop their own land, especially if no fair compensation is provided under the law. On the other hand, drainage and unsustainable farming and forestry practices constitute the most serious threats to wetland systems in many parts of the world.

The legal treatment of such activities varies widely. At one end of the spectrum, the German Nature Protection Act and statutes in some American states exempt all agricultural and forestry activities. At the other end, recent laws in many parts of Europe[29] do not exempt such activities: the Danish legislation goes furthest in this respect, given its extremely wide coverage of protected habitats. The exemption may be linked to habitat type: the *Land* of Upper Austria exempts agricultural activities except in particularly endangered wetlands such as peatbogs, marshes and alluvial forests.

In the middle ground, legislation often attempts to qualify the exemption for agriculture and forestry. However, the terms of these exemptions are often imprecise or far too general. Federal American legislation[30] exempts "normal" agricultural and forestry activities, which has been interpreted to apply to ongoing activities but not to new development on farmland. Drainage, including for agricultural development, is generally exempted from the legislation. Other laws seek to limit the agricultural exemption to existing activities or to activities that are compatible with the maintenance of the wetlands concerned. The State of Vermont limits its exemption to agricultural activities already being carried out when the Act was adopted. The Swiss constitutional amendment[31] explicitly exempts installations necessary to the continuation of agricultural production.

Certain laws do require the owner or occupier to notify permit authorities before undertaking exempted activities. This procedure has several advantages. It allows the competent authorities to check whether a proposed activity is actually exempt and, at the same time, to monitor activities affecting wetlands. Information thus obtained can be used to support future amendments to strengthen the legislation, if necessary. The State of New York operates a system of 'notification letters' that must be approved by the competent authorities before exempted activities may be started. Another means of controlling permitted activities is to establish conditions that must be met when the activity is carried out. In Maryland, agricultural and forestry activities are exempt from the permit requirement, but innovative legislation[32] provides for the development of "best management practices" which are mandatory for all farmers.[33]

18.1.2 Exemptions for Activities Falling Below Certain Thresholds

Area-based thresholds can provide a cost-effective and practical way to streamline the administration of permit systems and to promote clarity. Thresholds may also help to make wetland conservation legislation politically more acceptable. However, they should be established for

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29 These include Luxembourg; Spain and some Autonomous Communities; Swiss Cantons such as Zurich and Aargau; Austrian *Länder* such as Carinthia and Tyrol.

30 Section 404 of the Federal Water Pollution Control Act, as amended by the Clean Water Act.

31 Under the constitutional amendment related to the protection of marshes of national interest: see Chapter 12.1 above.

32 Freshwater Wetlands Law.

33 In the State of New Jersey, state-wide permits may be issued by the Department of Environmental Protection: persons intending to undertake activities authorised by this general permit are bound by a reporting requirement and may not start work before a letter of authorisation has been sent by the Department.

scientifically justifiable reasons (not political compromise) and regularly revised in line with ongoing wetland monitoring that takes account of cumulative impacts of such exemptions.

Denmark has progressively tightened its thresholds through a series of amendments.[34] The first threshold set for lakes ($1000m^2$) actually exempted most lakes in the country from the scope of the legislation. Monitoring revealed that many populations of amphibians were declining due to the gradual loss of the small lakes and ponds where they bred: the regulatory threshold now stands at a tenth ($100m^2$) of the original size. Wetlands that fall below the various size thresholds are protected by 'catch-all' provisions of the 1989 Forest Act, which prohibits the drainage, or alteration of watercourses, lakes, bogs and marshes in public and some private forests.

Some laws eliminate the threshold rule for sites of particular biological value. In Maryland, sites under the statutory size of one acre are still covered by the permit requirement if they contain significant plant or wildlife values. Vermont adopted a similar approach in 1990 in order to protect amphibian populations in small vernal ponds.

Under the 1992 French Water Act, a proposed operation may be subject either to *autorisation* or to the administratively lighter process of *déclaration*,[35] depending on its size and a risk assessment of its the possible consequences for the wetland concerned. By way of example, the filling or lining of wetlands or marshes of 2,000-10,000m^2 is subject to administrative declaration, whereas full authorisation is required for areas above one hectare. Where a proposed activity is not exempt, the competent authority must ensure that it is not contrary to the conservation of the wetland concerned and that it conforms to the basic requirements laid down by the relevant river basin development and management plan (if one exists). All applications must include an assessment of their potential impacts upon wetlands and specify the ways in which they are compatible with the SDAGE and SAGE plans.[36]

Experience has shown that permit-issuing agencies, constrained by political pressures, staff shortages and budget restrictions, sometimes set their own administrative thresholds (even where this is contrary to the intent of the legislature). This can be done by the agency granting a 'general permit', under which a permit is deemed to have been automatically granted for certain sizes or categories of wetlands. In the 1980s, for example, the US Army Corps of Engineers approved several general permits for wetlands subject to federal legislation. One of these authorised the filling of isolated wetlands under one acre, without any review by the Corps. It also imposed a reporting requirement for filling of wetlands of one to ten acres, but the Corps rarely exercised its powers to stop such operations. The effect of this administrative policy was to exempt all small or seasonal wetlands (e.g., vernal pools and over 35% of prairie wetlands) from the protective provisions of section 404. The damage resulting from such an exemption could therefore be very extensive in the long term.[37] This case illustrates the problems of managing cumulative impacts of small-scale exemptions, but also the value of monitoring and legal review. The Corps' permits were 'reauthorised' in 1991 and the scope of such exemptions was significantly reduced consistently with the no net loss policy adopted by the US government.[38]

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34 Discussed in Chapter 12.3 above.

35 Article 10 and Decree no. 93-743 of 29 March 1993.

36 See Chapter 14.5 above.

37 U.S. Department of the Interior. *The Impact of Federal Programmes on Wetlands: A Report to Congress, (Vol. 1: The Lower Mississippi Alluvial Plain and the Prairie Pothole Region, Washington D.C., 1988)* at p. 112.

38 The UK provides another example of tightening-up general exemptions for particular categories of sites. It is now prohibited to use 'general development orders' issued under planning legislation to exempt activities that may adversely affect European sites, including many wetlands (Conservation (Natural Habitats & c.) Regulations S. I no. 2716, 1994).

18.2 Decision-making Criteria to Implement No Net Loss Policies

A permit is required for all non-exempt activities that are not prohibited by other laws. Activities subject to permit may be authorised outright, authorised subject to certain conditions or prohibited by permit-issuing authorities. However, legislation often provides little or no guidance on the standards they should apply when approving or denying a permit application. Such authorities therefore enjoy broad discretionary powers, subject to mandatory consultation requirements[39] with conservation agencies, possible judicial review if they exceed these powers and any limitations they may themselves adopt as a matter of policy. Permit systems should therefore be designed to establish whether any proposed activity is genuinely *compatible with the objectives laid down by* legislation.

Newer laws generally limit and guide the exercise of this discretion. Such limits may be complete (where the statute lists the cases in which permits must be denied) or partial (guidelines are supplied to the permit-issuing authority). In the latter situation, the authority must usually carry out a balancing exercise between all the interests at stake in accordance with these guidelines. Standard tests include the water-dependency of the proposed activity and the existence of practicable alternatives. Activities or uses that could be carried out elsewhere should normally not be approved, whereas a permit may be granted if there are no other practicable alternatives outside wetlands. Other factors which must usually be taken into consideration by the permit-issuing authority include the suitability or unsuitability of the activity for the area for which it is proposed, the environmental impact of the activity on waters, soil, fauna and flora, endangered species and recreation. In Maryland, applicants must show that the proposed activity will minimise any alteration of the wetland concerned and will not cause or contribute to the degradation of groundwater or surface waters.

Another ambitious method is to set out detailed standards for different wetland categories. This can be done at national or state[40] level, or under local wetland management plans. One Alaskan city[41] has classified wetlands into six different types:

- Restricted land use (land not subject to development at all)
- 'A' wetlands (no development unless no net loss of individual functional values in the drainage basin);
- 'B' wetlands (no development unless no net loss of individual functional values in the community);
- 'C wetlands (no development unless no net loss of aggregate functional values in the community);
- 'D' wetlands (can be developed using best management practices);
- Mitigation wetlands (available for enhancement projects).

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39 In the US, for example, the Corps must consult with the Fish and Wildlife Service before deciding whether to grant or to deny a permit. The Environmental Protection Agency has certain rights of veto over the issue of permits (see Chapter 12.3 above).

40 New York's legislation on tidal and freshwater wetlands provides an ambitious example of this comprehensive approach. It classifies activities as "compatible", "usually compatible", "incompatible" or "exempted", according to the category of wetland for which they are proposed.

41 City & Borough of Juneau, Alaska: after Lynch-Stewart P. 1992. *No Net Loss: Implementing 'no net loss' goals to conserve wetlands in Canada*. North American Wetlands Conservation Council (Canada), Sustaining Wetlands Issues Paper no. 1992-2.

Consistently with the 1993 Additional Guidance, the issue of permits should also be governed by the precautionary approach where comprehensive knowledge of the ecological constraints of the wetland ecosystem is not available. If the impact of specific actions is not clearly understood, then these actions should be prohibited even if there is insufficient evidence to prove a direct link between the activities and resulting wetland degradation. However, this approach is rarely reflected at operational level in implementing regulations or guidance.

Legislation should also specify the grounds on which the final decision may be taken. Most commonly, an authority may only grant the permit if it is satisfied that the interest of the proposed activity outweighs all other considerations. Under the EC Habitats Directive,[42] Member States may only permit damaging plans or projects for "imperative reasons of public interest, including those of a social or economic nature" and must take all compensatory measures necessary to ensure the overall coherence of the Natura 2000 network. Restrictions are even more stringent where the site hosts a priority natural habitat type or priority species. Similar provisions exist in the legislation of Switzerland, Germany and some Austrian *Länder*: their effect is always that the public interest of conservation is outweighed by the public interest of the proposed project.

18.3 Options for Wetland Mitigation, Compensation and Restoration

Where permits are approved, most laws make it possible to attach conditions to reduce or 'mitigate' the environmental impact of the authorised activity. Mitigation involves a dynamic decision-making process, which begins with the ideal, and moves through a sequence of less and less preferred options when the ideal cannot be implemented.[43] It should produce the best possible compromise between conservation interests and those of the owner or developer.

Many laws are silent on the ways and means to secure mitigation: for example, Swiss federal nature protection legislation simply states that federal agencies may attach conditions when issuing permits affecting the landscape or objects of natural importance. However, there is now a positive trend to define the sequence of mitigation and compensation options that must be considered. Such sequences are usually defined within departmental policies or internal guidelines but should legally backed.

Mitigation measures[44] can basically take five different forms:

- avoiding the impact;
- minimising the impact;
- rectifying the impact;
- reducing or eliminating the impact; and
- compensating for the impact.

Several laws[45] require permit-issuing authorities to follow the full mitigation sequence before resorting to compensation. In Indiana, mitigation first requires on-site restoration, then restoration

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42 Taken from Article 6.3-4. Article 4.2 of the Ramsar Convention takes a similar though less detailed approach.

43 Huggett D. 1997. *Developing a No Net Loss Policy for Coastal Wetlands.*

44 As defined by the US Council of Environmental Quality. Fisheries and Oceans Canada has a similar hierarchy of preferred mitigation options.

45 E.g., the American States of Maryland and Vermont.

of an adjacent site and finally the creation of replacement wetlands elsewhere. The State of Minnesota prohibits the draining or filling of wetlands unless they are replaced under an approved plan guided by a hierarchy of mitigation measures: avoid the impact, minimise the impact, rectify the impact, reduce the impact over time and finally compensate for the impact. There are no permits, since the approval of the replacement plan is a pre-condition to exercising the right to drain or fill. Wetlands on non-agricultural land must be replaced at a 2-to-l ratio and on agricultural land at a 1-to-1ratio.[46]

Decision-making sequences have also been developed for compensation, which may be seen as payment for any remaining impacts after all steps to mitigate have been taken.[47] The issue of wetland compensation is controversial. Wetlands are rarely interchangeable: this is particularly true of climatic wetlands, such as vernal pools with their rare flora, which cannot be re-created once destroyed. Although a no net loss objective may be achieved with regard to total wetland area, artificial wetlands seldom have the full range of wetland benefits or functions provided by a natural wetland. It is therefore difficult to estimate how much 'new' wetland should be equivalent in function to the 'old' wetland.

Detailed criteria exist in both Canada and the United States concerning the form and location of replacement habitat. In summary, preferred options for replacing natural habitat range from habitat restoration to wetland creation, enhancement and 'preservation' (legal protection of wetlands that might otherwise have been lost to other lawful activities). Preference is given to on-site compensation measures, then to similar habitat types near the site of the affected wetland, and, in the last resort, to dissimilar habitats off-site. Criteria related to wetland function are less well developed: most systems still rely primarily on measures of wetland area and type.

The law of Vermont[48] specifically seeks to safeguard wetland function. Listed wetland functions, other than stormwater or sediment retention, waterfowl habitat and open space and beauty, are not deemed to be replaceable by artificial means and compensation should not normally be allowed (the burden of proof in this respect lies with the applicant). Where compensation is permitted, compensation plans must provide for no net loss of function or acreage of significant wetlands, occur contiguously to the affected wetland where practicable, and ensure the permanent preservation of the replacement wetland through a conservation easement or equivalent restriction in the land deeds.[49] Compensation is prohibited for activities in Class I wetlands, except in cases of compelling public need. Elsewhere, compensation is allowed under strict conditions if other methods of mitigation are not feasible.

In the German *Land* of Thiiringen,[50] a permit holder is required to replace 'lost natural elements' resulting from the grant of a permit. If no compensation or replacement measure is possible, they must pay a levy in proportion to the level of the environmental impact. The sums involved must be attributed to nature protection measures in the same landscape unit. In the event of an unauthorised impact, the person responsible is legally bound to restore the site. Where restoration is impossible, a fine equivalent to the cost of rehabilitation must be paid.

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46 Wetland Protection Act of 1991. See also Helland J. *Protecting the Land or Lakes.* National Wetlands Newsletter: Vol. 13, no. 5, Sept-Oct 1991 at p. 11.

47 Huggett, *supra* n. 17.

48 See also Chapter 12.3 above.

49 Conservation easements are discussed in Chapter 11.4 above.

50 Act dated 28 January 1993.

Mitigation land banking can support a more proactive approach to wetland restoration[51] or creation[52] within strategic wetland planning. Several American states provide for such banks, through which larger off-site wetland areas are permanently conserved to mitigate for a number of independent damaging developments. Developers do not restore or create wetlands themselves, but purchase credits for this purpose. In New Jersey, for example, a developer may be required to donate land or money to the mitigation bank to cover the cost of restoring or creating wetlands of similar value to those destroyed. The bank then finances restoration projects or acquires other wetland sites for protection. A mitigation bank of suitable wetlands can be constructed in advance by an entrepreneur or land development agency, and credits sold or withdrawn as necessary.

Legal research[53] has concluded that mitigation banking techniques can, as part of the sequenced decision-making process, provide ecologically sound and viable compensatory mitigation. They can be designed to maximise ecological benefits for the following reasons:

- habitats are restored/created in locations which advance regional/landscape ecological goals;
- habitat restoration/creation can be larger than is often feasible on-site. Buffer zones can help to ensure greater resilience to change which might otherwise cause mitigation failure;
- habitats can be restored/created in advance of wetland loss, thus providing temporal advantages over on-site creation; and
- they can deliver economies of scale.

Siting criteria should emphasise ecological goals and site viability. Suitable criteria may include consistency with regional wetland plans; sufficient buffer zones; adequate hydrology; distance from impact site; jurisdictional powers and site ownership; and mitigation bank size and number.

The same research emphasised the need for mitigation banking to be anchored within a legally enforceable regulatory framework. National guidance should lay down clear standards for mitigation banking (without prioritising banking over on-site mitigation) and for successful habitat restoration or creation. Legislation should require the production of wetland conservation plans that establish specific goals for habitat restoration and creation. There should be strong and consistent enforcement of developments proposing wetland habitat loss: the terms and conditions of on-site mitigation and off-site banking should be closely supervised. There should be clear institutional lines of responsibility for establishing and operating such a bank.

Because wetland functions take time to evolve, the full functional performance of mitigation bank wetlands is often not established before they are used in mitigation. It is therefore important that legislation should provide for financial assurances to ensure successful completion of the bank. 'Refundable deposit bonds' are often used to ensure compliance with mitigation conditions particularly for large-scale projects. The permit applicant deposits a performance bond as a surety, which may only be reimbursed after the permit-issuing authority is satisfied that all permit conditions have been met. The bond may be confiscated if the developer does not perform

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51 The improvement of the condition of existing degraded wetlands so that the functions they provide are of higher quality: it normally involves the re-establishment of wetlands where they formerly existed (after Huggett).

52 The creation of new wetlands where they do not currently exist and have not existed in recent times *(ibid.)*.

53 Environmental Law Institute. 1993. *Wetland Mitigation Banking*. Publication of the Environmental Law Institute, Washington D.C.

properly.[54] In Maryland,[55] developers must monitor mitigation projects for five years, provide long-term protection for mitigation projects and file a 'mitigation performance bond' of $20,000 per acre (0.4 ha)

In conclusion, mitigation banks are a fairly recent innovation that remains controversial in some quarters. Mitigation bank wetlands are almost never superior to natural wetlands, although they may eventually achieve high levels of function and value at a management cost. Without mitigation banks, however, some consider[56] that implementation of no net loss policies would require much higher skills from planners and developers and much greater vigilance of enforcement agencies. Mitigation banks are a valuable component of the regulatory process but should not be considered as a substitute for conservation and wise use of natural wetlands.

18.4 Future Development of Permit Systems

Wetland permit systems have many advantages linked to their in-built flexibility. In principle, the competent authorities do not need to exercise their powers to acquire land or impose regulatory measures until an application is made to develop an area or habitat type covered by the law. When this happens, the authority simply denies the permit or grants it subject to mitigation conditions designed to secure the ecological integrity of the site. Permit-issuing procedures can be fine-tuned to protect any development in the most important wetland habitats.

As emphasised above, the competent agency should be required to exercise its powers in accordance with detailed legal rules and criteria. Individual decisions should, as far as possible, be consistent with one another and with applicable wetland strategic plans. Care should be taken to limit or supervise the use of general exemptions by permit-issuing authorities and to ensure that these are made for scientific, not political reasons. Legislation should provide for an adequate monitoring and enforcement procedure and the authority must be entitled to initiate remedial action if these performance standards are not met.

Permit systems are capable of much wider application. Framework environmental legislation in many countries already provides a broad legal basis for regulatory powers of this kind: however, subsidiary regulations will usually be necessary to make such approaches operational. For example, the central Government in India has general powers to take to prevent, control and abate environmental pollution and to protect and improve the quality of the environment. Such measures may include "restrictions of areas in which industries, operations and processes or classes of industries, operations or processes shall not be carried out or carried out certain safeguards".[57] This section provides a mechanism for regulating or managing activities in areas identified as ecologically fragile. It was used as the legal basis for issuing the Coastal Regulation Zone Notification under which aquaculture in coastal areas is now controlled.[58]

It is a matter of national policy whether compensation should be paid to landowners where the refusal of a permit denies them the right to a profitable use of their land. In some cases, this issue is governed by constitutional provisions on the protection of property rights, as interpreted by the

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54 More general issues of citizen action and enforcement are discussed in Chapter 21 below.

55 Non-tidal Wetlands Protection Act 1989.

56 E.g., the lively exchange of views reported in the electronic Ramsar Forum in May 1998.

57 Environment (Protection) Act of 1986; see in particular s. 3(v).

58 Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India:* see also Chapter 21 below.

national courts. Many countries do not provide compensation because they treat activity-based permit systems in the same way as land-use planning procedures. Denmark, for instance, does not provide for compensation as the legislative restrictions on the use of private property apply without distinction to all habitat types in that category on national or provincial territory.

Permit systems are negative (regulatory) tools that can be made more palatable and achieve wider benefits when combined with incentives for positive management practices. The prohibition on destroying or altering wetlands without a permit provides a basic guarantee (no system is infallible) that no action affecting such sites will be taken until the competent authorities have had an opportunity to consider the case and decide whether an area should or should not be preserved. Where a permit is denied, the competent authority can exercise a range of site-specific powers that include land acquisition or rental, the conclusion of a management agreement, special tax relief or subsidies.[59] In South Australia for instance, wetlands and other areas covered with native vegetation are subject to a permit system. Permits have been denied for about 95% of the total area for which they were requested. This is due partly to the existence of political will and largely favourable public opinion and partly to the existence of financial compensation provisions ('heritage agreements') to complement the regulatory framework.[60]

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59 See Chapter 20 below.

60 1985 Native Vegetation Conservation Act: see Chapter 12.4.6 above.

Chapter 19
Developing Legal Techniques to Regulate or Manage Damaging Processes

19.1 Nonpoint Source Pollution

The Ramsar COP[61] has called on Parties to recognize that toxic substances compromise the ecological character of wetlands and that such threats are incompatible with the wise use concept. Pesticides and other toxic chemicals can threaten the survival of populations dependent upon wetlands, including populations of many bird species, amphibians, reptiles, fish and mammals through many lethal and sub-lethal impacts. Some synthetic chemical substances regularly released into the environment can interfere with the endocrine systems of wildlife and humans, whilst there is international consensus on the need for international action on certain organic pollutants.

Pollution can be classified as "point source" or "nonpoint source".[62] Legal techniques for controlling point source pollution are well developed and include quantitative permits, discharge consents and emission limits, usually adapted to the nature of the polluting substance or facility. Several countries have incorporated the polluter pays principle into the control regimes for polluting processes.

The control of nonpoint source pollution presents much greater technical and legal difficulties, as its pathways are by definition diffuse and non-identifiable and often influence large areas. The following sections briefly consider the development of legal techniques to control two types of pollution that is particularly harmful to wetland biodiversity.

19.1.1 Agricultural Sources

Intensive agricultural and forestry practices lead to sediments, nutrients and agrochemicals entering surface or groundwater systems that feed wetlands. The nutrient load may result from a combination of intensive livestock farming in the upper catchment and arable farming in the lower catchment. In countries with many small agricultural holdings, there are often a high number of small point sources (cow-sheds, pig-farms) that each produce fairly low quantities and are not subject to regulation: however, the cumulative effects may be very significant. Large-scale forestry replanting can exacerbate environmental stress as it may involve near-total land clearance, with associated problems of soil erosion and siltation. Downstream wetlands and coastal zones may be severely degraded by eutrophication and sedimentation changes.

Within the perspective of sustainable resource management, agricultural and forestry practices need to be adapted over time to minimise all types of pollution[63] and to promote public and

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61 Recommendation 6.14 (Brisbane, 1996).

62 See Chapter 2.2 above. It is beyond the scope of this book to discuss pollution control techniques in detail: these are a specialist subject in their own right.

63 Promising technical trends include 'in-field' solutions such as nutrient management plans and/or integrated crop management plans that help fanners to use natural pest or weed control techniques and thus to save money as well as reducing pollution risks.

environmental health. This objective is widely supported but methods for achieving it are often rudimentary or non-existent. It is essential to promote long-term change at all levels, through a combination of information and education elimination of perverse subsidies,[64] appropriate pricing systems and responsiveness to consumer demand. Within this broad picture, legal tools can be targeted to make an effective contribution.

Where a product is known to be particularly toxic, a general ban may be imposed. In the United States, for example, the populations of peregrine falcons and bald eagles increased considerably after the introduction of the ban on DDT. For the vast majority of agricultural chemicals, however, it is politically and practically impossible to apply universal restrictions with the specific intention of protecting water quality and wetland biodiversity.

Zoning instruments and other spatial planning controls may be targeted along or around wetlands specifically to confer protection against agricultural pollution. As discussed earlier in this book,[65] legislation may provide for the establishment of riparian buffer strips in which ploughing, planting, vegetation clearance and the use of nutrients and pesticides are strictly controlled This type of strip allows for the maintenance or restoration of natural vegetative filters to remove sediments from runoff waters and to prevent bank erosion: in some cases, the owner or occupier may be required to erect stock-proof fencing near to the bank. Groundwater protection zones may be established around water abstraction points in which the use of fertilisers and pesticides is controlled. These freshwater protection instruments go under a variety of names. They are used systematically or in a site-specific way in several countries, including Denmark, Switzerland and Hungary, and are frequently combined with conservation payments to encourage farmers to carry out sustainable farming practices in the areas concerned.[66]

In England and Wales, 68 'nitrate vulnerable zones' have been designated, covering around 600,000 hectares. Farmers within such zones are required to comply with action programme measures to reduce nitrate pollution: these include restricting the amount of nitrogen which may be applied to the land and imposing certain closed periods during which the application of nitrogen fertilisers and certain manures is prohibited. These zones were designated two years in advance of such measures coming into force in December 1998.

Such techniques are valuable but like all site-specific instruments, cannot protect surface and groundwater against the impacts of external activities. For this reason, a few countries or regions have developed programmes to control nonpoint source pollution at bioregional scale, linked to the watershed or catchment unit. One example is given below.

The US Nonpoint Source Management Programme was established in 1987.[67] It is designed to help states, territories and Indian tribes to identify problems arising from nonpoint source pollution and to develop management programmes to implement nonpoint source controls. The legislation prescribes key elements that must be incorporated into approved management programmes. The allocation of certain funds is conditional on compliance with these nationally

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64 See Chapters 2.3.1 above and 20 below.

65 See Chapters 12-14.

66 See Chapter 20 below for a brief discussion of agri-environment measures within the European Union. The EC has adopted many directives relevant to this subject, covering different types of pollution, including that generated by nitrates; the protection of groundwater against dangerous substances; waste water treatment and integrated water policy.

67 Under section 319 of the federal Clean Water Act, formerly known as the Federal Water Pollution Control Act.

defined requirements,[68] which provides the local authorities and tribes concerned with a financial 'carrot' or incentive to implement fully the provisions of federal legislation.

Where necessary, Watershed Restoration Action Strategies should be developed to provide a holistic approach to restoration and to involve interested and affected groups and individuals in a substantive way.[69] Management measures that should be implemented under these strategies include measures to limit pollution in the area covered by the Strategy to 'total maximum daily loads'[70] of pollutants (including nonpoint source components). Special funding for this purpose is made available to states and territories that have completed a Unified Watershed Assessment. Tribes that have carried out similar assessments are eligible for special grants. Under the legislation, watersheds are divided into three categories and additional funding may be targeted at Category I watersheds

Cross-sectoral measures and programmes of this kind can only be developed through close collaboration between agricultural, water and conservation departments at national or subnational level. These departments are often part of the same ministry, for example in the Netherlands. Such initiatives also require effective advisory services to be provided for land managers, at least in a transitional phase.

19.1.2 Lead Poisoning Resulting from Hunting and Fishing

Research[71] into the effects of lead on wetland-dependent species has indicated high levels of waterfowl mortality from lead poisoning in many parts of the world. Waterfowl die after ingesting lead shot used in hunting and also in anglers' lead weights. One estimate states that for every waterfowl directly killed by a hunter, some 1000 shot (3 cartridges) end up in waterfowl feeding sites.[72] The abandoned lead pellets are apparently mistaken by waterfowl, raptors and game birds for food or grit and, once consumed, are retained in the gizzard for varying amounts of time. Stomach acids dissolve the lead shot, forming toxic lead salts which are absorbed into the blood stream as mobile lead damaging to most body functions. Terrestrial species may be poisoned by the same lead deposits.

It is difficult to be precise about mortality rates, which do not in any event include the increased vulnerability of poisoned birds to hunting, disease and predation. By 1986 (before federal legislation was enacted), it was estimated[73] that 2-3% of the autumn population of all waterfowl were lost annually in America as a direct result of lead poisoning (2-3 million duck deaths per year). Death rates are probably as high in Northern Europe as in America and quite possibly higher in

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68 Pursuant to the federal Clean Water Action Plan.

69 *Funding the Development and Implementation of Watershed Restoration Action Strategies under Section 319 of the Clean Water Act.* Guidance signed on 4 December 1998 by the US Environmental Protection Agency's Office of Water.

70 These TDMLs must be approved under section 303(d) of the Clean Water Act.

71 For a more detailed discussion, see Pain D. (ed.). 1992. *Lead Poisoning in Waterfowl* (Proceedings of a Workshop, Brussels, 13-15 June 1991: IWRB Special Publication No. 16) and the Update Reports issued in 1995 and 1997.

72 Exposure to lead shot is greatest in the presence of three conditions: high shot density; environmental conditions that increase the shot's availability to birds (e.g., unusually low water levels, drainage projects that expose lead deposits on a lake bed, proximity of clay pigeon shoots); and feeding habits that result in shot ingestion.

73 U.S. Fish and Wildlife Service, 1986.

Mediterranean regions. Lead shot is very persistent, remaining intact in the natural environment for many years. In 1991, it was estimated that about 4,000 tons of lead shot is deposited annually in Europe.

Legal measures to curb the use of lead shot have to strike a balance between the social, economic, cultural and recreational values associated with hunting (and its powerful lobbies) and the mounting proof of environmental damage. Several countries have prioritised a voluntary ban in order to promote collaboration between government, conservation, field sports bodies and the gun industry: these include the United Kingdom and Sweden. An alternative approach has been to ban lead shot in Ramsar sites as a first step.

Technical difficulties in replacing lead shot[74] have also meant that legislation to ban its use had to be phased in gradually to allow for the commercial development of acceptable alternatives. Factors that continue to impede the common use of alternative ammunition include the relatively high cost, limited availability, effective lethality, potential toxicity, safety, inferior ballistics and problems associated with the disposal of existing lead stocks.[75] A European Forum on the Use of Non-Toxic Shot was established in 1992 *inter alia* to assess the technical and safety aspects of alternative ammunition as well as the economics of manufacturing and marketing. It is composed of representatives of hunting and shooting associations and promotes the use of voluntary phase-outs and the provision of incentives for user groups to adopt alternatives.

The United States was the first country to take action against the use of lead shot, adopting limited site-specific restrictions in 1976.[76] Hunters and shooting retailers in several states filed lawsuits to contest the arbitrary nature of the regulations: none succeeded but they created a climate hostile to a total ban. Federal legislation adopted in 1978 specifically prohibited the US Fish and Wildlife Service from using appropriated federal funds to implement steel shot regulations against the will of individual states.[77] A more conciliatory mood developed during the 1908s and legislation for a phased nationwide ban was enacted in 1986.[78] The ban was implemented first in designated 'non-toxic shot zones' and became applicable throughout the country in 1992. The relevant regulations prohibit any person to take migratory game birds while possessing shot other than permitted alternatives to lead shot. The effect of these combined measures is to prohibit both the use and possession of lead shot during waterfowl hunting. Federal legislation on wetlands[79] has been correspondingly amended to cover the presence of lead in sediments and wetlands, by extending the definition of "pollutants" to include "munitions". This means that the Act can be used to restrict the activities of shooting ranges discharging into wetlands or over water.

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74 Permitted alternatives usually include shot composed of bismuth, bismuth-tin, 'molyshot', steel and tin. Steel shot is lighter and harder than lead and has different ballistic characteristics: it loses velocity and penetration over longer range, which can increase crippling rates amongst target birds. The use of steel shot in commercial forests has been prohibited in several Scandinavian countries. Guns designed for use with lead shot may need internal modification to avoid barrel damage (more of a problem in Europe where double-barrelled guns are traditional). are therefore an integral part of phasing out reliance upon lead shot.

75 Kuivenhoven, P., van Vessem, J. and van Maanen, E. 1997. *Lead Poisoning in Waterfowl: International Update Report 1997*. Wetlands International publication at p. 2.

76 Regulations adopted on 28 July 1976 (41 Fed. Reg. 31386).

77 US Department of the Interior Appropriations Act, in force from 1978 to 1986 (commonly known as the 'Stevens Amendment').

78 Federal Regulations on Migratory Bird Hunting, enacted on 21 November 1986 (51 Fed.Reg. 42107, published in Code of Federal Regulations 50, Ch.l, § 141). Waterfowl are defined as *Anatidae* (ducks, geese (including Brant) and swans) and coots *(fulica americana).*

79 Water Pollution Control Act of 1972, as amended in 1992.

A growing number of other countries have now totally or partially restricted the recreational use of lead:

- Australia (State competence for waterfowl protection): South Australia imposed a statewide ban in 1994; a similar ban is currently being phased in the Northern Territory. All recreational waterbird hunting, with few exceptions, is prohibited in Western Australia, New South Wales and the Australian Capital Territory.

- Canada (federal competence): federal regulations adopted under the 1985 Migratory Birds Convention Act establish a nation-wide ban by the end of 1997. The ban does not apply to migratory upland game birds such as woodcock *(S.minor).*

- European countries with a total ban in force include Denmark (since April 1996: the ban extends to possession); Finland (since August 1996); Norway (except for woodcock *Scolopax rusticola);* and the Netherlands (January 1998). Certain other countries are drafting legislation intended to impose a total ban (e.g., Switzerland, United Kingdom) or a partial one (Latvia for Ramsar sites).

Since waterfowl are migratory species, effective action against lead poisoning has to be taken by all countries along migratory routes. This is recognised by the explanatory notes accompanying Dutch legislation, which emphasise that the ban supports the country's international duty to protect bird populations that breed in and migrate through the Netherlands in significant numbers. The 1995 African-Eurasian Waterbird Agreement requires its parties to "endeavour to phase out the use of lead shot for hunting in wetlands by the year 2000".[80]

Lead poisoning from anglers' weights causes less mortality amongst waterfowl but is still a cause for concern, notably for mute swans *(Cygnus olor).* Very few countries have developed legislation to address this threat. The United Kingdom adopted a voluntary code of conduct for anglers to encourage a switch to non-toxic weights and the use of spill-proof containers, but this had few results. Regulations were therefore enacted in 1986,[81] which made it a criminal offence to import or supply lead weights for the purpose of weighting fishing lines, with certain limited exceptions.

Internationally, the OECD has addressed problems associated with lead since 1991, as part of its Risk Management Programme. It adopted a Declaration on Risk Reduction for Lead in 1996, which recommends that member countries "promote the use of alternatives to lead sinkers in shallow waters". The Declaration contains measures to promote voluntary programmes to reduce lead exposure in collaboration with relevant industries.

19.2 Overexploitation of Wetland Products

Regulatory controls on taking of and trade in biological resources are a well-known mechanism for conserving natural habitats and species. Well-designed regulations can be used to prevent damage to critical habitats at certain times of the year (e.g., fish nurseries, reproduction or nesting sites for migratory birds) or permanently (floodplain forests). They also establish catch or harvesting limits and prohibit certain methods of taking.

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80 Section on Management of Human Activities, Action Plan: this Plan will be legally binding when the AEWA comes into force, probably in late 1999. See further Chapter 24 below.

81 The Control of Pollution (Anglers' Lead Weights) Regulations S. I. 1986 No. 1992.

A common problem is that conservation-oriented instruments are usually restricted to non-commercial biological resources. Extractive resource legislation (fisheries, forestry and so on) often predates nature conservation legislation, is separately administered and does not take account of the need to maintain essential ecological processes. Decision-makers in each of these sectors have usually been trained in single-purpose resource management rather than multiple-use planning and management. Consensus on the importance of sustainable use of biological resources is increasingly widespread: the statutory mandate of some ministries has been amended to require competent authorities to consider the need to conserve and sustainably use biological diversity when exercising their functions. However, changes of this type take a long time to filter through to operational level.

Commercial fisheries treaties and national laws[82] have traditionally been limited to controlling the catch or collection of and domestic trade in a small number of organisms. They rarely deal with other aspects of aquatic species conservation or habitat preservation, even though industrial fisheries may have serious direct and indirect effects on birds, predator fish and benthic communities.[83] Coastal wetlands tend to be invisible under such instruments, yet many commercial fisheries depend for their future viability on the maintenance of spawning areas and nurseries in the coastal zone.

Some modern instruments provide useful precedents for new approaches. The 1985 Fisheries Act in Canada requires a permit for any work or undertaking resulting in the harmful alteration, disruption or destruction of spawning grounds and nursery, rearing and food supply areas on which marine animals depend directly or indirectly to carry out their life processes. The impact of projects potentially affecting fish habitats must be considered before an activity may begin. In the European Union, regulations[84] lay down certain technical measures for the conservation of fishery resources in the Mediterranean. Member States must pay attention to the conservation of "fragile or endangered environments" (coastal wetlands and beds of marine phanerogams) as well as endangered species.[85]

The Australian State of New South Wales has adopted particularly ambitious legislation that incorporates measures to control processes damaging to marine biodiversity. The 1994 Fisheries Act, as amended in 1997, aims to promote the conservation of fish stocks, key fish habitats, threatened species, populations and ecological communities of marine animals and vegetation. It supports ecologically sustainable development, including the conservation of biological diversity, and consistently with these objectives, promotes viable commercial fishing and quality recreational fishing opportunities. The Act provides for the listing of threatened species and key threatening processes; protection of critical habitats of endangered species; conservation of certain habitat types; establishment of aquatic reserves; control of the introduction of non-native species; preparation of threat abatement plans; and regulation of particular activities, such as mining and dredging, which may threaten marine biodiversity.

In India, most coastal states have enacted state legislation on fisheries. The states of West Bengal and Tamil Nadu[86] have enacted special legislation recognising the value of coastal

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82 See generally Chapter 5.2.4 above.

83 See *inter alia* the European Commission report to the European Council (COM(95)40) on the *Evaluation of the Biological Impact of Fisheries.*

84 Council Regulation (EC) No. 1626/94 of 27 June 1994 as amended.

85 Marine species of mammals, birds, turtles and fish present in the Mediterranean and indicated in Annexes I and II to the Bonn Convention or Annex II to the Bern Convention.

86 West Bengal Inland Fisheries Act (amended in 1994); Tamil Nadu Aquaculture Regulation Act 1995.

wetlands and the fisheries they sustain, and laying down certain restrictions on the use of certain wetland areas.[87]

Aquaculture and mariculture facilities have often been developed without adequate safe-guards for existing wetland areas and functions. Licensing and management systems should be modified as necessary to ensure that as far as possible, natural ecosystems like mangrove forests and vulnerable farm ponds are not lost to aquaculture.

International and national forestry policy also places great emphasis on the importance of conservation and sustainable use of forest products, although practice on the ground lags behind in many parts of the world. Some laws are particularly well adapted to the needs of wetland forests. In Venezuela,[88] specific regulations have been issued to protect biodiversity in mangrove swamps: these extend beyond building controls to cover pesticide use, replanting with alien species, polluting discharges and any other activity which is deemed potentially damaging to mangroves or their associated or dependent species. The Australian State of Victoria[89] includes the felling of dead or hollow trees in the list of processes potentially damaging to biological diversity. In France, the Agriculture and Environment ministries issued joint directives in 1998 requiring departmental *Préfets* to ensure that peatbogs are safeguarded against afforestation projects and that poplar planting operations take better account of wetland conservation.

Forestry concession and licensing systems may be specifically designed to ensure that resource management practices maintain essential ecological processes. Woody debris in rivers and streams provides shelter and habitat for fish, beavers and other species: it also serves as cover and food for aquatic insects. It can slow river velocity, decrease the rate of erosion of the channel bed and banks and contribute to effective absorption of flood flows in the flood plain. These processes are vital to a healthy aquatic ecosystem. In parts of the United States, logging concessions now contain enforceable standards that require logging operators to maintain a certain quantity of streamwood or 'large woody debris[90] per stream mile.[91]

19.3 Introduction of Living Modified Organisms and Alien Species[92]

The 1993 Additional Guidance recommends that Parties prohibit the introduction of invasive alien species and take preventive measures to minimize the risk of accidental introductions. They should also take all appropriate efforts to eradicate introduced and translocated species, which may cause significant ecological disturbance in water systems.

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87 Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

88 See Chapter 12.4.5 above.

89 1988 Flora and Fauna Guarantee Act, mentioned in Chapter 16 above.

90 Large woody debris is *critical* to aquatic species habitat: it helps to regulate water temperature and provides a source of falling insects, which are a major food source for salmonids and other aquatic biota. It also supports maintenance of the detrital pool and therefore contributes to organic carbon export.

91 This brief summary is based on scientific information supplied to the electronic Ramsar Forum in April-May 1998, notably by Eric Somerville.

92 The economic and ecological damage that such introductions can cause in wetlands is outlined in Chapter 2.2 above.

All modern environmental treaties establish obligations consistent with these recommendations. At global level, these include the Convention on Migratory Species, the UNCLOS, the Convention on the Law of Non-Navigational Uses of International Watercourses and the Convention on Biological Diversity.[93] The latter recommends the use of regulations or other techniques to manage the risks associated with the use and release of living modified organisms (LMOs) resulting from biotechnology. Prevention and mitigation of impacts caused by the introduction of alien species has been identified as a cross-cutting issue under the CBD. Parties should therefore incorporate measures related to alien species into their national strategies, programmes and action plans.[94]

Many regional instruments contain similar provisions. These include the EC Birds and Habitats Directives and some of the protected area protocols to the regional seas conventions. The Standing Committee to the 1979 Bern Convention has gone furthest, adopting recommendations for the re-introduction of species which have become extinct and the strict control of introduction of non-native species to be strictly controlled. At non-binding level, a code of best practice on introductions of aquatic organisms has been jointly adopted by the International Council for Exploration of the Sea and the European Consultative Committee for Inland Fisheries and updated in 1994.

The scope and effectiveness of existing legislation to control introductions is very uneven. Specific measures to control introductions of LMOs are still relatively rare and marine species are commonly ignored or under-represented (presumably because of the institutional barriers mentioned in Chapter 5.2.4 above).

The key components of legislation on intentional and accidental introductions are briefly discussed below, together with selected examples particularly relevant to wetlands and water systems.

19.3.1 Intentional Introductions

The classic approach consists of submitting intentional introductions to prior authorisation. Intentional introductions of alien species and LMOs should generally be prohibited without a permit and should be subject to a high-level environmental impact assessment to determine possible consequences of the introduction in accordance with the precautionary approach. The decision whether to grant a permit should therefore be based on the best available scientific information and a permit should be refused unless there are good reasons to believe that the proposed introduction will not be dangerous for native species and ecosystems.

Australia, a country that has experienced the devastating consequences of certain introductions, has adopted some of the strongest laws in the world. The Northern Territory's 1979 Fisheries Act prohibits the issue of a permit except where the proposed introduction relates to native species or species that are listed by regulations. With regard to listed species, the Director of Fisheries must expressly take into consideration the environment, prevention of disease and the background, experience and motivation of the permit applicant. Permits may be issued to such conditions as the Director deems necessary.[95]

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93 Article 8(g)-(h) which do not differentiate between intentional and accidental introductions.

94 Decision IV/1 (Bratislava, 1998).

95 See also Pech R. 1996. *Managing Alien Species: the Australian Experience* in *Proceedings of Norway/UN Conference on Alien Species*, (Trondheim, July 1 -5,1996). Directorate for Nature Management and Norwegian Institute for Nature Research, Trondheim, 1996 at pp. 198-203.

In Uganda, the introduction of any non-native plant or animal into a wetland is strictly prohibited.[96] Danish law also prohibits the introduction of exotic aquatic species in habitat types protected under nature conservation legislation: any change in the equilibrium of natural lakes is subject to a permit from the nature conservation authorities.

19.3.2 Accidental Introductions Linked to Escapes of Captive Specimens

Escapes from captivity are now recognised as inevitable. Legislation must reduce this risk as far as possible by imposing strict operating controls and plant hygiene or veterinary regulations on the relevant installations. It should also regulate the possession, sale and transport of live alien species. In the Northern Territory, the sale of any live exotic animal is prohibited, except for a list of species drawn up by regulations. Within State territory, a permit is required for the transportation of any live mammal, amphibian or reptile. The Territory, like the United Kingdom, provides that the intentional or negligent release of an alien animal constitutes a criminal offence.

In Tasmania, it is prohibited to keep any fish, amphibian or living vertebrate in a bait box or any other container on or near to riverbanks or lakeshores where the species concerned is not already present in the watercourse or lake in question. This measure is designed to prevent accidental introductions arising from the use of live bait in the course of line fishing.[97]

The risk of accidental releases from aquaculture and mariculture facilities particularly high, as recognized in the CBD's Jakarta Mandate. The FAO's Code of Conduct for Responsible Fisheries adopted in 1995 recommends *inter alia* that efforts be taken to minimise the harmful effects of introducing non-native species or genetically altered stocks used for aquaculture into waters, especially where there is a significant potential for the spread of such organisms.

Regulations of this type reduce but do not remove the risk of accidental introductions, which may result from fires, earthquakes, floods or sabotage. Comprehensive legislation should therefore prohibit the importation of any live exotic animals unless it is certain that such animals cannot survive in the wild if they escape. This is the approach used in New Zealand and the various Australian states: for example, Tasmania prohibits the importation of live fish capable of surviving in captivity in water below 10°C.

Western Australia classifes alien species into various categories: species for which the import is totally prohibited except for scientific or educational purposes or under special permit; species which may only be kept under special licence; and species for which an ordinary permit procedure is sufficient. Animals imported or kept in breach of these provisions may be confiscated and destroyed. If an animal escapes from a vehicle, the burden of proof is on the driver to show that he was not responsible. Landowners must declare the presence on their land of alien species contained in a list drawn up by regulations and carry out operations to eradicate them. The State may carry out such operations at the owner's expense. A special tax is levied to fund the eradication of alien species.

In the United Kingdom,[98] the competent minister may prohibit or require a permit for the importation or release of non-native fish or shellfish as well as the eggs and spawn of such species.

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96 Section 37, National Environment Statute.

97 Section 17, Inland Fisheries Regulations 1973.

98 Import of Live Fish Act 1980.

Consideration may need to be given to controlling trade in pet aquatic species which, if abandoned, can become invasive and alter the aquatic balance.

19.3.3 Accidental Imports of Alien Species

This third category covers purely accidental imports which may occur through various pathways, most often where alien species escape from boats or other forms of transport. Such introductions are by definition difficult to control effectively because adequate control measures on a large enough scale may amount to a restriction on the free movement of people and goods. On the other hand, certain pathways have been identified and these at least can be subjected to particular precautions. The CBD's Jakarta Mandate recommends that regulatory and technical measures should be strengthened to prevent accidental releases via pathways such as the release of ballast water from ships which can enable species to move rapidly between different parts of the world.

A few countries or states, including Western Australia, specifically provide for the inspection of cargoes, (seeds, food preparations, flour etc.) to prevent such introductions as far as possible. The United States has adopted legislation for the prevention and control of alien aquatic nuisances, which mainly concerns accidental introductions. This establishes a national control programme for ballast waters and calls for increased monitoring and surveillance of species that may have already been introduced.

Where practicable, legislation should require all appropriate efforts to eradicate introduced or translocated invasive species that may significantly disrupt water systems. Legislation should make it possible for civil damages to be claimed from those responsible for unlawful introductions. Criminal penalties should also be considered. As these complex issues are not wetland-specific, they are not discussed further for reasons of space.

Chapter 20
Using Economic Incentives and Contractual Agreements to Promote Wise Use

Using regulatory methods as a single track strategy can present real difficulties for bridge-building with the private sector, communities and individuals. Around the world, legal and institutional systems are slowly beginning to recognise the positive contribution that such actors can make to conservation and wise use, although there is still a very long way to go. Modern laws now seek to incorporate techniques to encourage positive land management practices and broad community participation, in defined areas or at a bioregional scale. These moves should be linked to broader education and public awareness programmes, which are not discussed below for reasons of space.

The basis for this evolution is economic, pragmatic and philosophical. Exclusive reliance on regulatory techniques is expensive in terms of monitoring, enforcement and manpower. In the field of environmental protection, prevention benefits everyone and violation of laws is in no-one's interest. Well-designed policy and market incentives can provide essential alternatives to unsustainable and short-term practices. In practice, such incentives are thin on the ground. Many land managers undertake positive land and water conservation measures that benefit the general public, but receive little financial or equivalent return. The cost of conservation therefore falls to the individual, even though the costs of future wetland loss will be borne by the public. Laws, subsidies and tax provisions will often need to be adjusted to correct this imbalance so as to deter unsustainable activities and reward land managers for the environmental benefits they supply to the wider community.

A working definition of incentive measures describes them as specific inducements designed and implemented to influence government bodies, business, non-governmental organisations or local people to conserve biological diversity or to use its components in a sustainable way. Incentives measures usually take the form of a new policy, law, or economic or social programme. *A single incentive measure functions within the broader set of incentives governing human behaviour, and its effectiveness depends on support from the existing social and economic environment* (italics added).[99]

All incentives are country-specific. Each country has a unique institutional environment which defines the opportunities for and constraints on policy measures. General measures to improve incentives for biodiversity management cannot be prescribed.[100] The following sections draw on examples from around the world, but these are of course non-exhaustive.

20.1 Tax Benefits and Other Economic Incentives

The 1993 Additional Guidance supports the provision of financial incentives, including taxes and subsidies, to encourage wetland conservation and management. It also addresses the knotty problem of perverse incentives by providing that incentives should not be available for activities which have detrimental effects upon wetlands. Complementary requirements are laid down by the

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99 See generally *Sharing of Experiences on Incentive Measures for Conservation and Sustainable Use* (Note by the Executive Secretary to the CBD UNEP/CBD/COP/3/24 dated 20 September 1996), particularly the detailed tables of laws, policies and market-based incentives as well as case studies and practical guidance.

100 *Ibid.*

Convention on Biological Diversity: Article 11 requires Parties to adopt incentives for the conservation and sustainable use of components of biological diversity which are economically and socially sound.

A first step is to identify and eliminate economic and fiscal provisions that are inconsistent with wetland conservation and wise use.[101] Many laws have long provided incentives to drain, fill or convert wetlands, especially for agriculture. The legitimacy of these incentives was based on the idea that wetlands were areas that were wasted for production: it was therefore in the public interest to encourage their conversion to economic uses. The cost of conversion was generally high, which made it economically unprofitable without some assistance from the state. Because market forces alone were not enough to encourage wetland conversion, they had to be influenced by the use of tax incentives, grants or subsidies. It was generally considered fair to promote conversion at the taxpayer's expense as this was considered to be a public good in itself.

Attitudes and policies of this type have evolved rapidly with growing consensus on the ecological importance of wetlands, but they have by no means disappeared from all legal systems. Economic evaluation techniques[102] can play an essential role in the reassessment of long-established funding policies. In some areas of the world, it has been realised that incentives to bring more land into production only contribute to the accumulation of agricultural surpluses which have to be stored and disposed of at great cost. Paradoxically, the taxpayer may simultaneously be paying for direct incentives to destroy wetlands, indirect measures such as price support systems that encourage wetland conversion, and conservation measures such as land acquisition to protect wetlands from these threats.

With the near-universal trend toward economic liberalisation and the elimination of constraints upon market forces, removal of incentives to wetland conversion is now seen as a matter of public interest and economic common sense. There are two components of this task: firstly, the elimination of inappropriate incentives and the institution of disincentives for conversion; and secondly, the establishment of positive measures to support wetland conservation and wise use. The following paragraphs outline a small number of examples.

20.1.1 Eliminating Incentives for Wetland Conversion

Tax systems may provide special benefits for farmers who convert wetlands for agriculture. Until 1990, farmers in France who drained wetlands to bring them into cultivation were entitled to a partial exemption of land tax for twenty years. Another type of tax benefit provides that expenses incurred in the conversion of wetlands are totally or partially tax-deductible: alternatively, these expenses may be the subject of a tax credit or be eligible for accelerated depreciation. In the United States, the 1986 Tax Reform Act eliminated tax incentives that could be used to encourage wetland conversion.

Economic instruments favouring drainage and conversion include special subsidies, grants, low interest loans and technical assistance. For example, free or low-cost flood insurance is a form of disguised subsidy that encourages the development of wetlands in areas that would otherwise

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[101] See further Chapter 2.3.2 (market and policy failures) and Chapter 5.1 -5.2.1 on reviewing laws and institutions for this purpose.

[102] See Chapter 1.3 above and generally Barbier, E.B., Aereman, M. and Knowler, D. 1997. *Economic Valuation of Wetlands: A Guide for Policy Makers and Planners* and Turner, K. and Jones, T. (Eds.). 1991. *Wetlands: Market and Intervention Failures.*

be unsuitable, especially floodplains. Incentives in these broad categories are still available in many countries. Most have been systematically repealed in the United States by a series of laws:

- the Farmers' Home Administration, a federal lending agency, no longer provides loans for activities that directly or indirectly affect wetlands, unless there is no practical alternative;

- the federal Soil Conservation Service (established to provide technical assistance to farmers, particularly for drainage) is prohibited[103] from providing such assistance for activities affecting certain types of wetland. For other wetland types, assistance is subject to an evaluation which must conclude that there are no practical alternatives to the proposed activity;

- all federal expenditures, financial assistance and flood insurance are prohibited[104] in designated barrier islands, including adjacent wetlands and aquatic habitats along the US coastline. The system's coverage was more than doubled in 1990 to include nearly 550,000 hectares: most of the new areas brought under the Act were coastal wetlands. Within these defined areas, all federal subsidies which may be used for the development of undeveloped shorelines and coastal barriers, including disaster relief and water treatment grants, remain prohibited;

- federal assistance for the acquisition or construction of immovable property is prohibited[105] in areas identified by the federal government as subject to particular flood hazards. The only exception is where the local communities affected have adopted land-use regulations complying with federal standards and have specifically prohibited construction in the most vulnerable areas. Such areas are delimited by the federal government, based on the 100-year flood in river floodplains and the identification of "coastal high hazard areas" on the coast. The Federal Emergency Management Agency was established to implement the programme. It draws up land-use regulations which must be applied by the local communities participating in the scheme. If they do not implement these regulations, their participation in the programme may be suspended and insurance cover may accordingly be withdrawn.

Another form of indirect subsidy involves the construction of flood-protection structures which encourage settlements and agricultural development in floodplains. Publicly-funded road and infrastructure construction can facilitate access to previously undeveloped areas and make it cheaper to undertake residential and other development. The US Coastal Barrier Resources Act takes an effective approach by prohibiting the use of any federal funds for the construction of structures in coastal areas included in the system.

Another important step is to provide specific disincentives to wetland destruction or conversion.

The most famous example of a legally-backed disincentive for this purpose is again from America. The 'Swampbuster' provisions of the 1985 American Farm Act deny a large number of important federal benefits to landowners who have drained or otherwise converted their wetlands for the production of annual crops. These farmers lose the right to receive price support payments for any of the farm's production (not just the crops grown on the converted wetland); income support payments; crop storage payments; crop insurance; and disaster payments. Loans may not

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[103] Regulations made under the Presidential Executive Order on Wetlands of 1977.

[104] The 1982 Coastal Barrier Resources Act, as amended by the 1990 Coastal Barrier Improvement Act.

[105] 1968 National Flood Insurance Act 1968; 1973 Flood Disaster Protection Act.

be insured or guaranteed by the federal government if they are intended to be used for any purpose contributing to the conversion of wetlands. The legislation provides a definition of wetlands, supported by maps, to show farmers which areas are covered by the Act.

Pursuant to amendments to the Act in 1990,[106] subsidies may not be denied where the effect of an activity on wetland values is minimal[107] or where the damage caused to a wetland may be compensated by restoring an already-converted wetland in the same general area. Restored wetlands must comply with a mitigation plan, to be approved by the federal Soil Conservation Service and Fish and Wildlife Service *before* the conversion is undertaken. Federal funding is not available for wetland restoration in these circumstances. The restored wetland must have equivalent functions and values to those of the wetland which has been destroyed.

Swampbuster-type programmes involve the withdrawal of financial assistance for some wetland cultivation. An alternative kind of disincentive could be the levying of a special tax on the draining or filling of wetlands. It is not known whether such taxes have been imposed in any country. France does levy a tax on the clearing of forests or wetlands.

Effective implementation of disincentive systems depends, like permit systems,[108] on a number of factors. For the system to operate equitably, precise definitions are needed together with maps showing the areas in which benefits may be removed if wetlands are converted. Similar problems arise with regard to defining thresholds and putting adequate monitoring and enforcement procedures in place. Despite these difficulties, such systems have several advantages. They significantly reduce public subsidies for the degradation or destruction of natural resources, without it being possible to claim that there has been an unconstitutional 'taking' of property by the government. Although the value of the land concerned is generally reduced because its development costs more without incentives, this can be seen as a reminder that its earlier value was artificially inflated by the existence of government subsidies.

Market and policy instruments should not be exclusively relied on for the conservation of important wetlands. There will be many cases where the draining of wetlands is still profitable, even without the range of government subsidies described above. This will depend on the market price of certain products or on the demand for certain kinds of land. Waterfront property, whether inland or in coastal areas, will often be worth developing even if no subsidies are available. In such cases, the removal of incentives and the establishment of disincentives cannot provide a substitute for regulatory tools such as planning controls.

20.1.2 Introducing Positive Incentives for Conservation

Legislation can support measures to correct market failures by authorising the use of fiscal or monetary incentives to conserve wetlands. These incentives can take the form of tax reductions or subsidies applicable to all wetlands or, more commonly, to specific sites. Relatively few countries have instituted tax exemptions or reductions for the conservation of natural habitats. In Brazil, lands included within the Brazilian Private Natural Heritage Reserve are eligible for a total exemption from rural land taxes as well as priority financing of environmental projects. In Costa Rica, the

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106 1990 Food, Agriculture, Conservation and Trade Act.

107 'Minimal effect determinations' are made jointly by the local offices of the Department of Agriculture and Fish and Wildlife Service.

108 See Chapter 18 above.

109 Source: Newsletter of the IUCN Environmental Law Programme, January-March 1997.

Forestry Law (which covers mangroves) establishes certain land tax exemptions for conservation reasons as well as instituting a system of certification of forest conservation.[110]

In South Australia, a landowner who concludes a heritage agreement[111] with the competent nature conservation authority becomes eligible for certain tax exemptions. If they sell the land, the benefits are available to successors in title, provided of course that they comply with the provisions of the agreement. If the owner breaches the agreement (by unauthorised land clearance, planting, stock grazing, etc.) and does not remedy the breach when required to do so, the total accumulated value of the exempted taxes becomes payable with immediate effect. In the Australian state of New South Wales, voluntary property agreements[112] for the management of native vegetation are concluded between one or several landholders and the Department of Water and Land Conservation. These agreements involve fiscal and economic advantages, including eligibility for financial assistance under the Native Vegetation Management Fund.

In Canada, the province of Ontario grants a complete exemption from property tax to the owner of "significant" wetlands or designated areas of natural and scientific interest. In return, the landowner must comply with guidelines aiming at the maintenance of these areas in their natural state. "Significant" wetlands are those which have been designated as such by the competent government agency on the basis of biological, social, hydrological and special features.

Many tax benefits for wetland conservation have been instituted in the United States. Significantly, these are often linked to the operation of regulatory permit systems or other types of land-use restriction. By way of example, where a development permit is refused under Connecticut's inland wetlands legislation, the tax base of the affected property may be reevaluated. In Indiana, the State Department of Natural Resources may designate natural areas, including wetlands, as "classified wildlife habitat" or "classified riparian habitat": following this restrictive designation, the assessed value of an area for tax purposes is reduced to $1 per acre.

Some states combine land tax exemptions with tax credits for positive management practices. Minnesota exempts the owners of certain types of wetlands from land tax and has instituted a tax credit in favour of landowners who agree to maintain their wetlands in their natural state. A tax credit agreement are concluded for a period of one year, renewable automatically: it can be terminated by the owner at any time. The land concerned must be water-covered, valuable for wildlife habitat and water conservation and capable of being drained for agricultural use. The 1991 Wetlands Conservation Act extended the property tax exemption to other categories of wetlands in designated high-priority wetland regions.

Interestingly, the State of Oregon combines conventional tax exemption systems with a contractual management agreement (in other words, payment is made in the form of tax benefits). Private landowners who agree to preserve, enhance or restore riparian vegetation up to a distance of 100 feet from the line of non-aquatic vegetation are entitled to a total exemption from property tax. A state income tax credit of 25% is also available to landowners who completed a project, certified by the Department of Fish and Wildlife, to improve fish instream habitat. The legislation designates certain activities as incompatible with the programme, including cultivation, livestock grazing, burning, herbicide spraying, channel or stream bank alteration, construction, gravel, mineral or soil removal and clearing of vegetation. The owner automatically loses the above-

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[110] Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica*.

[111] Concluded pursuant to the 1985 Native Vegetation Management Act: see Chapters 12.4.6 and 18 above.

[112] Concluded pursuant to the 1998 Native Vegetation Conservation Act: see Chapter 12.4.6 above.

mentioned tax benefits unless such activities have been specifically prescribed and approved by the management plan.

Many laws generally empower the competent nature conservation agency to provide grants, loans or subsidies, subject to appropriate conditions, to further the objectives of environmental or conservation legislation. This provides a legal basis for assisting landowners who manage their land to ensure the maintenance of the natural environment or certain particular features. Countries with general legislative authority of this kind include Switzerland (both the Confederation and several Cantons), the United Kingdom and the Australian State of Victoria. Regulations or policy guidance adopted under such provisions can be designed to provide targeted incentives for wetland conservation. In Luxembourg and Belgium, for example, nature protection legislation specifically authorises the payment of grants for the conservation of riparian vegetation and peatlands.

Lastly, legislation should where possible make economic incentives available to the public as well as the private sector. This is of particular importance since primary responsibility for conservation and wise use often rests with public authorities[113] (directly where they carry out works damaging to wetlands; indirectly where they authorise or subsidise unsustainable development in ecologically fragile areas). Techniques for this purpose are relatively new, but at least three possibilities may be identified:

- the first is to provide extra public funding to local authorities (or equivalent bodies) conditional on the preparation or implementation of an approved watershed management plan or other strategic tool: this approach is used in the United States under its Nonpoint SourceManagementProgramme;[114]

- a second consists of building formal partnerships[115] between different public agencies or between the public and private sectors (possibly incorporating financial provisions). The Netherlands uses public-private partnerships and agreements to support implementation of the national Nature Policy Plan.

- the third is to levy a special tax, the proceeds of which go to public authorities and must be dedicated to particular environmental purposes (a technique sometimes known as 'ringfencing'). This approach has been used in France, where a sensitive natural areas tax *(taxe départementale d'espaces naturels sensibles)* is levied on construction in certain areas and the proceeds used to fund public acquisition of coastal areas.[116] In the Austrian *Land* of Vorarlberg, the proceeds of a tax on gravel extraction are paid into a Fund which is used by government to fund acquisition of the most ecologically valuable wetlands and to pay farmers to protect and manage their wetlands.

Brazil[117] provides a good illustration of linking tax incentives to protected areas and water supply. The federal government redistributes the value-added tax (ICMS) to the 26 states on the basis of the added value each state has generated. States with large-scale land-use restrictions due

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113 See Recommendation 6.12 *Conservation and Wise Use in Private and Public Funded Activities* (Brisbane, 1996).

114 See Chapter 19.1.1 above.

115 Through a whole range of instruments such as memoranda of understanding, statements of intent or environmental concordats.

116 See Chapter 11.3 above.

117 See *Sharing of Experiences on Incentive Measures for Conservation and Sustainable Use. supra* n. 1 at p. 11, citing Loureiro W. *Eological [CMS: Economic Incentives Toward Biodiversity Conservation: A Successful Experience in Brazil.*

to protected areas and water supply areas are therefore at an economic disadvantage because of the constraints on their development. For this reason, an Ecological ICMS has been instituted in four states to provide extra fiscal compensation for protected areas and/or water supply sources. This public incentive scheme was first instituted in Parana state and was developed jointly with federal, state and municipal bodies and NGOs. The results have been an increase in the number and size of protected areas, increased revenue for participating states, reinvestment of revenue into protected areas and the adoption of the ecological ICMS by other states. The incentive programme is reviewed annually to ensure that it continues to meet its objectives.

20.2 Contractual Mechanisms to Promote Wetland Stewardship on Private Land

20.2.1 Management Agreements

The 1993 Additional Guidance supports the institution of a system of management agreements between relevant government agencies, landowners and landusers under which the latter take positive management measures to maintain the ecosystem.[118]

Under such contracts, owners or users generally undertake to manage land in a specific way in return for some form of remuneration, probably in the form of annual payments. The contractual conditions usually include negative and positive obligations. Negative obligations are undertakings not to do certain things (draining or filling wetlands, destroying natural vegetation, using fertilisers or pesticides). Positive obligations require owners or users to carry out certain practices to maintain or restore the site to a favourable state of conservation (e.g., removal of encroaching woody vegetation, mowing of reeds or grasses before or after certain dates, maintenance of the water table at a certain level). Such practices are especially important where it is necessary to maintain the site at a particular stage of the natural succession.

A management agreement system can have many advantages. It allows public agencies (and sometimes local authorities) to select natural areas in or outside the protected area estate where subsidies are likely to be most effective. It provides landowners with financial incentives to carry out positive site management which would be impossible to achieve under a purely regulatory system. It establishes clear obligations for the landowner who, having signed a contract, cannot claim ignorance about his obligations. Significantly, agreements are purely voluntary: they do not constitute an unconstitutional 'taking' or found claims for compensation over and above the financial payments provided for in the agreement.

Well-designed systems should provide that other government agencies and local authorities, cannot carry out development work in an area covered by a conservation agreement without prior consent from the competent conservation authority. Legislation should incorporate a precautionary approach by providing that consent may only be given where the director of the authority is the opinion that the proposed development will not affect the area concerned, where there is no other practical alternative, or where the proposed development of that specific area is necessary for an essential public purpose.

Management agreement systems may have certain disadvantages, related to cost and to duration. Where the contract is only concluded for a limited period of time or where the owner dies

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[118] See also Recommendation No. 71 *(Guidelines for the protection and management of habitats through private and voluntary systems)* adopted in December 1998 by the Standing Committee to the Bern Convention.

or sells the property, the agreement is usually terminated. Unless it is renewed or a new agreement is signed, the conservation of the area is no longer assured and the money spent may thus have been wasted. A few countries therefore provide for the conclusion of long-term contracts that run with the land concerned and bind successors in title (although landowners may not always wish to bind themselves in this way). These include the Australian State of New South Wales, Switzerland and the United Kingdom,[119] which has developed a Wildlife Enhancement Scheme for simplified fixed-term management agreements in Sites of Special Scientific Interest. Nearly one hundred management agreements have now been concluded in river SSSIs.[120]

In some countries, management agreements are now the preferred system for promoting voluntary nature and landscape conservation by farmers and other landowners and users. Swiss legislation contains formal provisions to this effect. The competent federal or cantonal authority is required[121] to designate natural areas of national, regional or local importance. Protection and management of such areas must, as far as possible, be ensured through the conclusion of agreements with the landowners. These should provide for agricultural and forestry practices to be adapted for conservation requirements, and owners or users must be compensated accordingly. Several Swiss cantons have developed management agreement systems applicable to certain wetland habitats, including wet meadows. Spanish and Italian legislation permits the conclusion of such agreements within regional nature parks. Sweden and the Netherlands have also instituted management agreements for wet meadows and other wetlands. In the Netherlands, the Nature Policy Plan supports the payment of 'encouragement premiums' in certain circumstances.

Under a management agreement, the delivery of financial support is conditional on compliance with prescribed practices, which are individually tailored to the needs of each site. The payment of subsidies is therefore site-specific. Increasingly, such agreements are designed to secure multiple objectives. In addition to biodiversity conservation, these might include environmentally sensitive agricultural practices, protection of water quality, preservation of attractive landscape features, enhanced provision of public access and even provision of educational opportunities. Some examples are outlined in the next section.

20.2.2 Conservation Payment Schemes and Agri-environment Measures

Broadly-based contractual agreements can provide a mechanism for integrating environmental considerations into other areas of public policy, particularly agricultural policy. The concept of 'cross-compliance' has been developed, notably in northern America and the European Union, to denote the attachment of environmental conditions to agricultural support policies. This approach can have significant benefits for wise use implementation, to the extent that funding is provided from other sectors to promote more sustainable land management practices. Cross-compliance initiatives can therefore help to achieve a better balance between development demands and environmental stewardship. In most countries where such policies have been established, however,

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[119] Management agreements are legally backed by enforceable regulatory measures and may be concluded *inter alia* in statutory protected areas and sites of special scientific interest (1949 National Parks and Access to the Countryside Act; 1981 Wildlife and Countryside Act as amended; for European sites, The Conservation (Natural Habitats &c.) Regulations S.I. no. 2716 of 1994). Unless they provide to the contrary, these management agreements are binding upon successors in title.

[120] See Chapter 11.2 above.

[121] Under amendments to the federal Nature and Landscape Protection Act adopted in 1987.

the percentage of sectoral spending devoted to environmentally sensitive incentives is still very low in comparison to that devoted to support of intensive practices.[122]

Binding legislation adopted by the European Union[123] authorises member states to introduce national schemes to support environmentally friendly farming and land use. Many European countries therefore have developed contractual incentives to support the extensification of agricultural activities and other agri-environment measures in environmentally sensitive areas (ESAs) or other areas.[124] Contractual agreements must stipulate *inter alia* that there will be no further intensification of agricultural production and that livestock density will be compatible with the specific environmental needs of the area concerned. Conservation payments to farmers are jointly financed by the EU and the country concerned.

The United Kingdom has implemented several agri-environment schemes relevant to wetlands: some of these are open to NGOs that own or manage wetlands. Forty-three Environmentally Sensitive Areas have been designated on the advice of English Nature,[125] several of which contain important areas of grazing marsh. A particularly interesting programme is the Countryside Stewardship Scheme, which was initiated in 1991 on an experimental basis by the Countryside Commission[126] but is now run nationally by the ministry responsible for agriculture. The Scheme provides incentive payments for farmers and landowners for prescribed management practices, which include measures to create, restore, improve and conserve waterside land and features, such as wetlands, ponds, marshes, reedbeds, ditches and margins. The amount of the premium is not based on profits foregone by the farmer: instead it is viewed as remuneration for the public benefits provided and payments may be increased in accordance with the level of management intervention demanded. A third programme, the Habitats Scheme, was introduced in England in 1994 to provide incentives for the creation or enhancement of saltmarshes on suitable coastal land as well as waterside habitats along designated watercourses or lakes. In Wales, new agri-enyironment measures provide for the making of ten-year agreements applicable to whole farms.[127]

Several German *Länder* provide for agricultural extensification under special contract. In Bavaria, management agreements may apply to wetlands and to the preservation of the habitat of ground-nesting birds. In Schleswig-Holstein, agreements can be made for the protection of small streams and ponds and for the preservation of aquatic plants.

France has implemented the EU Regulations through localised agri-environment schemes (OLAE) in areas selected by the state. By the end of 1998, OLAE now cover 550,000 ha of

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122 This is a complex and hotly-debated subject, which is constantly evolving. For a helpful introduction and comparative overview, see generally Baldock, D. and Mitchell, K.1995. *Cross-Compliance within the Common Agricultural Policy: A Review of Options for Landscape and Nature Conservation.* Institute for European Environmental Policy, London.

123 Article 19, EC Regulation no. 797/85, as amended by EU Regulation no. 2328/91 of 15 July 1991 on Improving the Efficiency of Agricultural Structures and EU Regulation no. 2078/92 of 30 June 1992 on Agricultural Production Methods compatible with Environmental Protection Requirements.

124 It is impossible for reasons of space to review these in detail: see further Baldock, D. and Mitchell, K.1995. *supra* n. 19, Shine, C, 1996. *Private or Voluntary Systems of Natural Habitat Protection and Management* and de Klemm, C. and Shine, C. 1996. *Legal Measures for the Conservation of Natural Areas.*

125 Or the competent agencies for Wales, Scotland and Northern Ireland.

126 Fused in 1999 with the Rural Development Commission to form the Countryside Agency.

127 Under the *Tir Gofal* agri-environment programme for Wales.

agricultural land in France, 150,000 ha of which are wetlands. As in the United Kingdom, the geographic coverage of these contractual programmes is being progressively extended. OLAE payments will in the future be incorporated into new land management contracts *(contrats territoriaux d'exploitation)* which will be available to all farmers, irrespective of special zoning.

In the United States, the federal Water Bank Act of 1970 provides for annual payments to landowners or farmers in return for contractual undertakings not to drain, fill, level, burn or otherwise destroy wetlands. Farmers must also maintain vegetation cover on adjacent areas. These contracts are concluded for a ten year duration and are renewable if the owner so wishes. Agreements are transferable when the land is sold. If the owner terminates the agreement, s/he must reimburse all the payments he has received. The programme is administered by the Secretary of Agriculture and has been targeted in particular at the vulnerable prairie-pothole region in northern coastal states.

The 'Reinvest in Minnesota' scheme provides incentives for the management of set-aside land and the restoration of wetlands converted to agriculture before 1985. A conservation easement[128] must be established on the set-aside land: the farmer is paid a lump-sum payment equal to 70% of the average market value of the land and also receives certain tax credits. The farmer must comply with certain measures to establish permanent vegetation cover around wetlands to reduce soil erosion, improve water quality and restore fish and wildlife habitat.

Lastly, some laws make it possible to include environmental management measures in property law contracts. In the United Kingdom,[129] for example, statutory restrictions on the content of agricultural tenancies have been abolished. The lessor may include detailed management prescriptions in the lease, even on a field by field basis: where these are not observed by the tenant, the lessor is free not to renew the tenancy agreement when it expires. The National Trust[130] makes extensive use of farm business tenancies adapted for land conservation requirements. These routinely provide that no land drainage or damage to ditches, ponds or streams may be carried out without the prior written consent of the Trust. Specific provisions are laid down with regard to the conservation of watercourses, ponds, marshy areas and other wetland features and for the preservation of a riparian buffer strip along watercourses specified in a schedule to the legislation. In contrast, the legislation of some countries prohibits - for long-established political and economic reasons - the inclusion of positive conservation obligations in agricultural tenancy agreements.

20.3 Community-based Incentives for Wetland Conservation[131]

This chapter ends with an overview of ways in which incentive measures appropriate to social and cultural conditions can help local communities to make wise use of their wetlands. Measures of this kind complement the decentralised decision-making and consultation processes described in Chapter 10 above. They can be designed to involve as many stakeholders as possible, including the private sector, NGOs, landowners, local communities and scientific bodies. The initiative may in the first instance be taken by national, regional or local governments or by an NGO.

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[128] See Chapter 11.4 above.

[129] See the farm business tenancies provisions of the Agricultural Tenancies Act 1995.

[130] See Chapter 11.4.1 above.

[131] Note that tax and other incentives for wetland acquisition/preservation, including conservation easements and trusts, are discussed in Chapter 11.4 above.

The Commonwealth Government in Australia has established a major biodiversity conservation and natural resource management funding programme known as the Natural Heritage Trust. This is used to disperse funds grass-roots projects by local communities as well as for priority policy development and other activities by the provincial jurisdictions.[132] Other countries, including the United Kingdom, have established national lotteries under legislation which specifically authorises the payment of proceeds to conservation projects run by local communities or conservation NGOs.

At regional and local level, the Tanga Region of Tanzania provides a case study[133] of collaboration between regional governments, NGOs (IUCN) and development assistance bodies (Irish Aid). This fisheries-dependent region had experienced significant environmental problems linked to the use of destructive fishing methods and mangrove degradation. The major perceived problem amongst local stakeholders was the lack of enforcement of existing laws and policies to protect natural resources and, specifically, to control illegal dynamite fishing. An integrated multi-level programme was developed to address legal, social and compliance factors. The programme established a range of incentives, including the granting of use rights, revenue sharing among stakeholders and a participatory process for the design, implementation, monitoring and assessment phases of the project. Training programmes were established for villagers and local government and, significantly, many of the new formal constraints introduced were at the level of village by-laws. The national Tanzanian government reviewed these laws to ensure that they were consistent with existing national laws and policies.

In the areas covered by the Tanga project, dynamite fishing has been almost completely eliminated. Two villages have replanted 100,000 mangroves, dune and beach areas have been replanted to prevent erosion and cooperative enforcement arrangements have been established between marine police and villages.

The Kafue Flats in Zambia[134] provide another example of community-based incentives for wise use. The core area of these wetlands covers about 6,000 km^2 and comprises two national parks and a game management area. The total population (including in the peripheral zone) is around 120,000 and the main activities are pastoralism, agriculture, hunting, trading and fishing. Under a project developed jointly by WWF-Zambia and relevant national and regional bodies, local communities play a key role in the management of the wetlands and their resources. A Wildlife Conservation Revolving Fund has been established, which is funded by half of certain government revenues and all non-statutory revenues from certain categories of local wildlife utilisation. Funds are distributed according to a set formula: about 40% are paid to local wildlife management activities and 35% to local community development activities, which may include other forms of income diversification such as community shops and safari camps. Because a significant proportion of hunting revenues generated in the project area is returned to the representative management authority, local communities have a direct incentive to enforce anti-poaching measures and thus prevent loss of revenue from illegal taking.

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132 Phillips, B. 1998. *Reviewing Laws and Institutions Relevant to Wetlands in Australia* at p. 8.

133 See *Sharing of Experiences on Incentive Measures for Conservation and Sustainable Use. supra* n. 1 at p. 10, citing Gorman M. *et al.* 1996. *Village Action Planning in Tanga, Tanzania: A Powerful Incentive for Managing Marine Resources.*

134 This is one of the case studies chosen for the Ramsar Wise Use Working Group's analysis and is fully documented by Pierre Campredon in Davis, T.J. (ed.). 1993. *Towards the Wise Use of Wetlands.*

Chapter 21
Making Law Work Better for Wetlands: Compliance, Enforcement and Remedies

All too often, it is not the absence of legislation but poor enforcement of applicable rules, standards and procedures that works against wetland conservation on the ground.[135]

Problems of enforcement across all environmental sectors are generally aggravated by three main factors:

- the absence of proper monitoring and surveillance procedures which are necessary in many cases to identify violations;
- the absence of legally-backed rights to environmental information and participation in decision-making; and
- most fundamentally, the lack of political will and widespread public awareness of and support for the objectives and requirements of the legislation. Poor levels of compliance and enforcement are more likely to thrive where the broad social and institutional context is not supportive.

Compliance is loosely defined as the extent to which individuals and organisations respect and adhere to the formal and social constraints applicable to their behaviour.[136] In the context of commitments related to conservation and wise use, compliance presents quite specific challenges. These are briefly considered in the following sections.

21.1 Role of Treaty Institutions in Improving State Compliance

The relationship between international and national law is often very fruitful. There are many examples in this book where innovation at international or national level feeds through to all levels of the system and helps to stimulate new principles and techniques and raise overall performance standards. However, the relationship is less productive with regard to national compliance with international treaty obligations.

The requirements laid down by most nature conservation treaties are mainly unilateral. If one Party fails to implement its undertakings,[137] nothing will be achieved by other Parties following suit. National compliance therefore rests to a large extent on political and administrative commitment to mutually agreed objectives and measures. As already suggested, all-encompassing treaty provisions (e.g., for 'wise use') are too general to be suited to legal verification. This is not helped by the use of 'best endeavours' clauses (promote, as far as possible, endeavour to…), necessary though these may be for political and pragmatic reasons. By way of exception, some modern treaties do contain more precise obligations, relating for example to environmental impact

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[135] This problem was systematically identified in case studies presented to the Technical Consultation On Designing Methodologies To Review Laws And Institutions Relevant To Wetlands (Gland, Switzerland, 3-4 July 1998), notably by Peru, Costa Rica and India.

[136] *Sharing of Experiences on Incentive Measures for Conservation and Sustainable Use* (Note by the Executive Secretary to the CBD UNEP/CBD/COP/3/24 dated 20 September 1996) at p. 16.

[137] In breach of the *pacta sunt servanda* principle of international law.

assessment, transboundary consultation procedures and access and use rules. This is not of course the case with the Ramsar Convention.

Treaty institutions can provide essential support to national conservation authorities in certain cases, for example where designated World Heritage properties, Ramsar sites or biosphere reserves are threatened by incompatible development. In Panama, for example, authorisation for petroleum exploitation within the La Amistad World Heritage stimulated intervention by UNESCO and IUCN and led to the contractor withdrawing such plans.[138] The Ramsar COP issues specific recommendations at each of its meetings[139] addressed to a whole series of countries and setting out congratulations, encouragement or strong exhortations with regard to individual sites.

Developments of this type, backed up by increasingly stringent reporting requirements, play a very important role in publicising good practice and, directly or indirectly, revealing poor compliance. They make it easier for the media, NGOs and interested citizens to apply targeted pressure to the public agencies or private bodies responsible for sites or activities under potential threat. The techniques for coordinating public action and media coverage are highly sophisticated in parts of the world. They can be combined to great effect with negative economic or public relations strategies, such as boycotts of a company's products or lobbying of decision-makers and shareholders. On the other hand, these non-legal techniques do not guarantee results. Moreover, the focus of such actions is often limited to flagship areas (the 'Crown jewels'[140] of the international protected areas system') or endangered species with particular media appeal (charismatic megafauna...).

The 1979 Bern Convention provides a particularly good illustration of how international processes may actively promote compliance with conservation obligations. Its Standing Committee may open case files, often on the basis of reports from NGOs which have the right to attend its meetings as observers and to report alleged violations. The Standing Committee may also instruct the Secretariat (provided by the Council of Europe) to prepare a report for consideration, organise site appraisal visits with the consent of the Party concerned, and issue recommendations directed at individual Parties concerning possible non-compliance. The Committee meets annually, which ensures important continuity and follow-up.

The Committee has used its powers to question the adequacy of a Party's legal and other measures to conserve Turkish coastal nesting beaches of importance for marine turtles; to prevent damage to Lake Vistonis and neighbouring lagoons in Greece, which are of importance for conservation of globally threatened birds; and to control the proliferation of the introduced species *Oxyura jamaicens* in the United Kingdom, which hybridises with the European *Oxyura leucocephala.*[141] In the case of the Zakynthos National Marine Park,[142] the Committee has issued a series of recommendations laying down a specific timetable for implementation of treaty commitments. This case provides an illustration of how separate international obligations may be mutually reinforcing. Greece is separately required under the EC 1992 Habitats Directive to ensure the conservation of this area: the European Commission has opened an infraction procedure for possible non-compliance with the Directive and has declared that if urgent measures were not taken soon, the Commission is ready to present the case to the European Court of Justice.[143]

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138 Barborak, J.R. 1995. *Institutional Options for Managing Protected Areas* at p. 34.

139 The latest being Recommendation 6.17 (Brisbane, 1996).

140 Barborak, J.R. 1995. *supra* n. 4.

141 Report of the Standing Committee, Strasbourg, 4 December 1998, Doc T-PVS (98) 62.

142 See Chapter 9.2.2 above.

143 See File 6.1, Part III (Specific Sites), Report of the Standing Committee. 1998. *supra* n. 7.

21.2 Role of Judges, NGOs and Citizens in Strengthening Enforcement

Primary responsibility for ensuring compliance with treaty obligations, as transposed into domestic law, lies with the state, through its law enforcement agencies and the judiciary. Environmental statutes may confer monitoring and enforcement powers on designated authorities responsible for water, forestry and fisheries as well as nature conservation. In many countries, the conservation authority is often comparatively weak and under-resourced. It may have little scope or incentive to take enforcement action when the damaging project or activity is directly or tacitly sanctioned by a more powerful arm of Government.[144] Even in the area of nature conservation, many laws do not establish enforceable measures to ensure that management agencies and landowners actually comply with their respective commitments.[145]

Because of the general nature of treaties and framework environmental legislation, judges may have considerable scope in interpreting relevant provisions. The national[146] or subnational courts, and possibly the constitutional court, may be required to decide whether or not a proposed development is consistent with that country's undertakings under a particular treaty. This is legally complex and the outcome is sometimes difficult to predict. The *Tasmanian Dams* case[147] in Australia shows how judicial interpretation of general treaty obligations can vary from one judge to another.

India provides an interesting example of judicial activism in interpreting environmental legislation. As already mentioned, the central government has general powers[148] to take measures to protect and improve environmental quality and to designate areas in which industries, operations and processes or classes of industries, operations or processes are prohibited or restricted. In a series of cases before both the High Courts and the Supreme Court, the courts have applied this provision in favour of ecologically sensitive areas by requiring enforcement of the Coastal Regulation Zone Notification issued under the framework legislation. In two landmark judicial decisions brought by environmental NGOs,[149] this Notification was upheld as a legal basis for refusing a development permit in the coastal zone.

The same provision was used to protect the biodiversity-rich wetland network in Dahanu, Maharashtra from environmentally harmful industries and projects. The Supreme Court ruled[150] that the Ministry of Environment and Forests must designate and notify Dahanu as an "ecologically sensitive" area under the Act. Under the ruling, only certain types of industries could be permitted

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144 This problem was discussed in the context of river development projects in Chapter 14 above.

145 Barborak, J.R. 1995. *supra* n. 4 at p. 35.

146 The European Union is exceptional in this respect: its founding treaties provide for the adoption of supranational legislation which may be enforced through the supranational European Court of Justice. There is now abundant caselaw relating to violations of the detailed provisions of the EC 1979 Wild Birds Directive: see Sands, P. 1995. *Principles of International Environmental Law: Volume I (Frameworks, Standards and Implementation)* and *Volume III (Documents in European Community Law).*

147 *Commonwealth of Australia v. State of Tasmania,* High Court of Australia (1983), 68 *I.L.R.* 266. See Chapter 8.2.1 above.

148 Section 3(v), Environment (Protection) Act 1986.

149 Indian Council for Enviro-Legal Action v. Union of India; S. Jaganath v. Union of India.

150 Dahanu Taluka Environmental Welfare Association v. Union of India.

in the area: industrial development was to be limited to 500 acres, thus blocking the proposal for construction of a mega-port at Vadhaven, Dahanu. This has created a valuable precedent for the 1986 EPA being used proactively to safeguard threatened wetlands against potentially damaging processes and activities.[151]

A key factor in the Indian context is that NGOs were able to bring legal proceedings to require public authorities to implement and enforce legislation. Judicial review is a particularly important procedure because it enables the courts to scrutinise administrative decisions and actions affecting the environment to verify their conformity with applicable legislation. The failure of public authorities to enforce existing legislation is frequently cited by NGOs as a major obstacle to conservation and has led to remarkable growth in judicial activism by private associations in some parts of the world.

There are still many countries where private organisations and citizens do not have the right to challenge administrative decisions through the courts. This leads to an imbalance that can be illustrated in the context of the permit system. Persons aggrieved by the denial of a permit or by the imposition of conditions are entitled under most legal systems to appeal to a higher administrative authority or to the Courts. This is essential as a matter of fairness to ensure that the permit-issuing authority complies with the law and does not abuse its discretion. On the other hand, private bodies frequently have no standing ('locus standi') to bring judicial proceedings in cases where a public agency may have issued a permit in contravention of the letter or spirit of the law.

The 1993 Additional Guidance has specifically recommended that private organisations be given the right of appeal against governmental agency decisions which might violate obligations laid down by law.

Constitutions can be used to enlarge access to justice in respect of damage to a wider range of interests and give locus standi to NGOs and even a specially empowered public entity. The revised Argentinian Constitution, which came into force on 25 May 1994, recognizes man's right to a healthy environment and widens access to justice in the event of damage to general interests, conferring specific rights on the Defender of the People and approved associations to bring actions in environmental cases.

Countries in which conservation associations may bring proceedings before administrative and/or civil courts include Switzerland, the Netherlands, Portugal, Spain, Ireland and Denmark (where NGOs have the right to appeal against the grant of permits in protected habitat-types). In Sweden, breaches of the Nature Conservation Act must be reported to the police, but it is up to the public prosecutor to decide whether or not to initiate legal proceedings. In the United States, the federal section 404 programme[152] makes it possible for the public to comment on permit applications through the Corps' public notice process and, if necessary, to challenge bad decisions in court. However, individual state laws are not similarly required to lay down provisions to secure citizen access to administrative or judicial review of contested decisions relating to wetlands.

France has a system of *agrément* (formal approval) for environmental associations.[153] *Associations agrees* may refer projects likely to have significant environmental impacts to the new National Commission on Public Debate which represents the full range of interest groups. They are

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151 This outline is taken from Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India.*

152 See Chapter 12.3 above.

153 Introduced by the Nature Protection Act of 10 June 1976 and strengthened by the Environmental Protection Act of 2 February 1995 ('Loi Barnier').

formally deemed to have sufficient interest to attack any administrative decision which has harmful environmental effects and may be joined (as the *partie civile)* to proceedings at the request of individuals who have suffered environmental damage. These powers may be exercised not only by environmental associations but also by associations that have been involved in water and wetland issues at least five years.[154]

The United Kingdom has no equivalent of *agrément.* An NGO must satisfy the judge on a case by case basis that it has "sufficient interest" in order to have legal standing to bring proceedings for judicial review of an administrative decision. In certain cases, conservation associations may bring proceedings jointly to satisfy this test.[155] WWF-UK not only takes legal action itself but may also assist individuals to use the courts in planning and environmental cases.

Even when NGOs do have this right, legislation does not necessarily provide for adequate public access to environmental information: there may be no system to inform the public of permits which have been issued or which the competent authority intends to issue. Without that knowledge, NGOs are obviously incapable of acting effectively. The availability of timely information is therefore an essential precondition to effective 'quality control' of actions and public participation in open decision-making processes. In this context, the conclusion of the 1998 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters is of great significance.[156]

21.3 Overview of Remedies Under Criminal and Civil Law

Enforcement systems must take account of the social and cultural factors of the society for which they are designed.[157]

There are two aspects to enforcement of wetland permit systems and planning controls. It is necessary to ensure that no destruction or alteration of an area or protected habitat type occurs without the required permit and, secondly, that any conditions attached to the permit, particularly mitigation measures, are actually complied with. Planning and activity-based legislation should therefore provide for mechanisms, whether in the form of administrative orders or judicial injunctions, to put a halt to illegal operations. Refundable deposit bonds provide a useful mechanism for ensuring compliance with permit conditions.[158]

Criminal law can usefully address serious or flagrant cases of non-compliance. It can also provide regulatory 'teeth' for primarily non-regulatory systems, such as management agreements in the context of Sites of Special Scientific Interest in the United Kingdom. However, in some parts of the world, there is a lack of interest on the part of citizens, inspectors and institutions in reporting environmental crimes or unauthorised constructions. "The legal processes are too long and there

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154 Article 42 of the 1992 Water Act as amended.

155 E.g., in 1991, WWF-UK joined with the British Herpetological Society to seek judicial review of a planning authority's decision to grant planning permission on an SSSI which was critical habitat for the natterjack toad.

156 Åarhus, 23-25 June 1998 (Fourth Ministerial Conference "Environment for Europe"): the Convention was developed under the auspices of the UN Economic Commission for Europe.

157 Ntambirweki, J. 1998a. *Modalities for the Implementation of the Ramsar Convention through National Legislation in Africa.*

158 See Chapter 18 above.

159 Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica.*

are few important sanctions for ecological transgressions. Experience has shown that in most cases those who damage wetlands would prefer to pay a fine than to cease their illegal activity.".

If enforcement is carried by the permit-issuing authority, it must obviously have adequate resources to monitor the status of protected habitat types and to ascertain where violations of the law have occurred. However, such bodies often perform poorly when it comes to enforcement, as they are usually short of manpower and funds and often face political opposition. Alternatively, enforcement may be entrusted to police or to the public prosecutor, but experience shows that if monitoring is entirely left to the police, it is unlikely that many prosecutions will occur. Conservation of natural habitats is generally too remote from their usual tasks. In Austria, voluntary nature wardens play an active role in enforcement.

In Costa Rica, the Organic Environmental Law has established a special administrative structure for enforcement. It provides for the creation of an Environmental Inspector and an Environmental Administrative Tribunal. The Inspector is obliged to report any violation of the environmental legislation and connected laws, to the Environmental Attorney's Office, the authority responsible for the public maritime domain *(Zona Marítimo Terrestre)* as well as the Ministry of Public Affairs. The Tribunal is empowered to record and adjudicate charges brought against public or private entities for alleged violation of the legislation on environmental protection and natural resources. It may gather and analyse evidence and hear testimony under a simplified and cost-effective procedure. The Tribunal may impose administrative fines or penalties and its decision is final.[160]

With regard to sanctions, criminal law must provide for meaningful penalties. There are cases of serious watercourse pollution or wetland destruction in which high penalties have been imposed. In the United States, a fine of one million dollars was imposed upon an American landowner who had filled an 86-acre wetland without a section 404 permit: the landowner was also sentenced to an 18-month suspended jail term, banned from waterfowl hunting for a year and ordered to place 2,500 acres of his estate (about 75% of the total area) under a conservation easement.[161] High penalties of this order, whether for individuals or business entities, remain very rare. Care has to be taken to ensure that the penalties involved are socially acceptable, especially in the case of small fanners. If they are considered unfair, both public prosecutors and the Courts will often hesitate to call for and enforce them.

The imposition of financial penalties can be used to support implementation of the polluter/ user pays principles and to pay for lost amenity value and wetland restoration. Environmental restoration orders may be made *inter alia* under the Spanish Water Act of 1985 and Uganda's National Environment Statute of 1995.

As already noted, over-reliance on command and control techniques can be counter-productive. Increasing interest is now paid, notably by the OECD and also in the 1993 Additional Guidance, to complementary techniques that encourage best practice in the private sector. Large scale developers may, for example, be encouraged or required to carry out their own audits of the environmental impact of their activities and to make and submit periodic reports to the competent authority.

Civil law remedies generally include actions for damages, compensation and restitution and provide one way of recognising the accountability of users to members of the public. The 1993

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160 This summary is based on provisions translated by Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica*. It is not known how this system relates to the provisions and administration of criminal law in that country.

161 *United States v. Jones*, D. Md 25 May 25 1990, reported in National Wetlands Newletter, Vol. 12 n° 5, p. 23.

Additional Guidance specifically recommends that it should be made possible to claim civil damages from those responsible for unlawful introductions (of alien species).[162]

In practice, the use of these procedures to remedy environmental damage can be severely circumscribed. Under most legal systems, it is not possible to bring legal proceedings for damage to the environment in its own right but only where such damage is incidental to a claim for personal injury, certain types of nuisance or property damage. Such proceedings can only be brought by the person or entity that has sustained quantifiable damage to such interests. Many activities causing general wetland loss and degradation may therefore go unchecked because no person or body is competent to bring legal proceedings. This constitutes a powerful disincentive to enforcement.

[162] See also Chapter 19.3 above.

PART VI

LEGAL FRAMEWORKS FOR REGIONAL AND INTERNATIONAL COOPERATION

The importance of international cooperation on wetland issues has always been recognised within the Ramsar universe. Article 5 lays down open-ended requirements for Parties to consult each other on the implementation of obligations arising from the Convention, with specific reference to wetlands extending over the territory of more than one Party and shared water systems, including river basins. In 1990, the COP mandated the Ramsar Bureau[1] to explore possible methods for implementing Article 5, using existing mechanisms wherever possible: the subject will be further considered by COP7 in 1999.

Article 5 has proved difficult to implement for political and legal reasons. Ramsar sites are designated unilaterally by Parties and they are not required to consult other States sharing the water system concerned *before* making such a designation. Cooperative management of shared watercourses usually depends on the existence or development of a separate legal and institutional framework. The Convention itself provides no international legal guarantees for the conservation of listed or other wetlands against negative transboundary interference.[2]

There are four main elements of frameworks for regional and international cooperation. The first three relate to the management of shared water systems, transboundary wetlands and regional networks, and certain wetland-dependent species. The fourth, discussed in the final chapter of this book, concerns organisational and financial synergies to strengthen the effectiveness of international institutions. These key components of wise use policy are discussed briefly in the following chapters.

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1 Resolution 4.4 (Montreux, 1990). For a more detailed analysis of the issues, see generally de Klemm, C. 1992. *Legal Framework for the Application of Article 5 of the Ramsar Convention.* Ramsar Bureau. On current Ramsar policy, see Ramsar Convention Bureau. 1998. *The key role of wetlands in addressing the global water crisis*, Paper communicated to Contracting Parties by diplomatic notification on 19 February 1998 and presented to the delegates at an International Conference on Water and Sustainable Development, Paris 19-21 March 1998.

2 Timoshenko, A. 1991. *Protection of Wetlands in International Law* in *IUCN 1991. Legal Aspects of the Conservation of Wetlands* at p. 30.

Chapter 22
Management of Shared Water Systems

22.1 Evolution and Principles of International Law

Global freshwater requirements for domestic, industrial and agricultural uses are increasing steadily and all regions are affected in some way by the problem of water scarcity or pollution. There is a serious "spatial mismatch between water resources and people."[3] By the year 2025, over twenty African countries with a total population of around 1100 million, are expected to suffer severe water stress. Around 215 river basins and many groundwater aquifers are multinational and it is estimated that 50 countries have 75% of more of their total area falling within international river basins, housing 35-40% of the world's population. Competition for limited freshwater resources may threaten political and socio-economic stability: in many shared river basins, the allocation of available water supplies is becoming increasingly contentious.[4] For humanitarian reasons alone, cooperative legal and institutional frameworks for wise use of shared watercourses is essential.

The principle that waters in the same hydrographic basin are interdependent and should be managed in a unitary way regardless of administrative jurisdictional boundaries has long received political support.[5] However, the protection of inland waters by international regulation is a highly complex matter, particularly where a river basin is shared among several independent States. Even the lowest level of integrated management necessarily requires the conclusion of an international agreement and the setting up of an international management body (the powers of which may vary from those of a simple negotiating forum to rule-making by majority decision). This may be particularly difficult in federal States, such as Belgium, where jurisdiction over water resources and programme implementation is divided between federal and the various state authorities.

Over centuries, States have tried to develop workable principles to balance the interests of upper and lower riparian States in water flowing through their territory. Many bilateral and regional agreements were concluded which have contributed to the development of principles of international law in this area, together with relevant case law. Some agreements embodied the principle of equal apportionment, which holds that each riparian state has an equal right to use the water in the river. However, principles of this kind fail to address the finite nature of freshwater resources, the need to safeguard water quantity as well as quality, the different position of downstream States and the need to minimise and resolve conflicts between riparian States.[6] The most influential attempt to formulate applicable rules was made in 1966, when the private International Law Association formulated the non-binding Helsinki Rules on the Uses of the Waters of International

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3 Acreman, M., Howard, G. and Pirot, J-Y. 1996. *Reconciling Water Resources Management and Wetland Conservation: A Key Challenge for Ramsar in the 21st Century* at p. 1.

4 Khalastchi, R. 1996. Editorial to *International Watercourses*, Review of European Community and International Environmental Law, Vol. 5/2, pp. iii-v.

5 For example, in the (non-binding) European Water Charter adopted by the Council of Europe in 1968.

6 'Equal right' is often considered as a 'free right' in practice: see Nollkaemper, A. 1996. *The River Rhine: from Equal Apportionment to Ecosystem Protection* in *International Watercourses*, Review of European Community and International Environmental Law, Vol. 5/2, pp. 152-160, at p. 153).

Rivers.[7] The Rules support the principle that there is a community of interests of States sharing the same river basin and an obligation for upstream States not to cause significant damage to downstream countries.[8]

Initiatives for legal codification are remarkably recent. The UN International Law Commission carried out a codification project of the international law of non-navigational uses of international watercourses from 1970-1981,[9] on the basis of which Draft Articles were submitted in 1994 and a treaty concluded in 1997 (see Chapter 22.2 below). Over a shorter timeframe, the UN Economic Commission for Europe undertook codification efforts which led to the adoption of the Helsinki Convention in 1992 (see Chapter 22.3 below).

In summary, four key rules are now recognised in customary international law:[10]

- the duty to cooperate and to negotiate with a genuine intention of reaching an agreement;
- the prohibition of management practices likely to cause substantial and lasting injury to other States;
- the duty of prior consultation;[11]
- the equitable utilisation of shared water resources (by all riparian States).

Other principles, notably the 1978 UNEP Principles on Shared Natural Resources,[12] also feed into this body of international law and should shape national implementation.

Before summarising the most important treaties in the area, reference should again be made to the 1991 Espoo Convention.[13] This requires Parties to carry out an environmental impact assessment for defined activities (Appendix I) likely to have a significant transboundary impact. These include potentially polluting activities, large-scale deforestation, large dams and reservoirs and groundwater abstraction of an annual volume of water of over 10 million cubic metres. *Where the Parties so agree* (italics added), other activities likely to cause a significant transboundary impact shall be treated as if they were listed in Appendix I. Appendix III lays down general criteria

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7 Many other intergovernmental organisations, including the Council of Europe, the OECD and the UN Economic Commission for Europe, also adopted decisions which influenced the process of law-making in international water resources management: see Gündling, L. 1998. *International Environmental Law: Atmosphere, Freshwater and Soil.* Course 7, Programme of Training for the Application of Environmental Law. UNITAR.

8 Art. X, which predates Principle 21 of the Stockholm Declaration and Art. 3 of the Convention on Biological Diversity.

9 Pursuant to UNGA Res. 2669 (XXV) of 8 December 1970, para. 1.

10 After Caponera D. 1992. *Principles of Water Law and Administration.*

11 Note that Art. 14 of the CBD establishes duties of information about and management of environmental risk, particularly as this affects other States or areas beyond national jurisdiction. On the basis of reciprocity, advance information is to be exchanged about known activities adverse to biodiversity, with the aim of concluding bilateral, regional or multilateral agreements as appropriate. Where damage is either imminent or actual and grave, a Party must notify potentially affected States immediately as well as initiating measures to prevent or minimise the damage. Parties must promote national arrangements for emergency responses, international cooperation and even joint international contingency plans.

12 See further Sands, P. 1995. *Principles of International Environmental Law: Volume I (Frameworks, Standards and Implementation.)*

13 See also Chapter 18 (environmental impact assessment) above.

to assist in determining the environmental 'significance' of activities not listed in Appendix I. One criterion specifically relates to activities located in or close to an area of special environmental sensitivity or importance, such as Ramsar sites. The fact that Ramsar sites are specifically mentioned provides important support for the implementation of Ramsar's Article 5. However, the criterion of proximity is not of itself enough as some activities not listed in Appendix I may also affect Ramsar sites when carried out a long distance away.

22.2 Convention on the Law of Non-navigational Uses of International Watercourses (1997)[14]

The Convention on the Law of Non-navigational Uses of International Watercourses is a globally applicable framework treaty laying down the fundamental obligations and responsibilities of States sharing the same hydrographic basin. Article 2 defines an international watercourse broadly, as a "system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus", parts of which are situated in different States. This definition applies to many wetlands as defined by the Ramsar: it encompasses not only the main stem of a river but also its tributaries, boundary straddling lakes and groundwater which interacts in some way with surface waters. It does not apply to confined groundwater. A river delta with multiple mouths would count as one international watercourse under the definition, whereas separate drainage basins linked by manmade canals (e.g., the Rhine and Danube systems, linked by the Rhine-Main Canal) would not.[15]

Under the Convention, watercourse States[16] may enter into watercourse agreements which "adjust" its provisions to the characteristics and uses of all or part of a particular international watercourse.[17] Every watercourse State may become party to any such agreement that applies to the whole watercourse. Where an agreement applies only to part of a watercourse or to a particular project, programme or use, a watercourse State whose use of the watercourse may be significantly affected by the implementation thereof has the right to participate in consultations and even to become a party under certain conditions.[18]

Watercourse States have the right to utilise an international watercourse in their respective territories in an equitable and reasonable manner and the duty to participate in the development and

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14 Adopted in New York, 21 May 1997; not yet in force.

15 The International Law Commission adopted a separate Resolution on Confined Transboundary Groundwater *(Report of the International Law Commission on the work of its Forty-Sixth Session 1994*, UN GAOR, 49th Sess. Supp. no. 10, UN Doc.A/49/10 (1994). This recommends that States be guided by the Draft Articles where appropriate in regulating transboundary groundwater and, in the event of any dispute, consider resolving the dispute in accordance with the dispute settlement procedure established under draft Article 33 (See generally McCaffrey, S. and Rosenstock, R. *The International Law Commission's Draft Articles on International Watercourses: an Overview and Commentary*, in RECIEL Vol. 5/2, pp. 89-96).

16 States that are party to the Convention and in whose territory part of an international watercourse is situated.

17 Art. 3.

18 Arts. 4.1 and 4.2.

protection of that watercourse in the same manner.[19] Article 6 sets out a long list of factors relevant to equitable and reasonable utilization. These include:

- factors of a natural character (hydrological, climatic, ecological etc.);
- the social and economic needs and dependent populations of the watercourse States concerned;
- the effects of the use on other watercourse States;
- conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect; and
- the availability of alternatives, of comparable value, to a particular planned or existing use.[20]

The weight to be given to each will vary: all relevant factors must be considered together and a conclusion reached on the basis of the whole.

Other important general principles concern the obligation not to cause significant harm (Article 7); the general obligation to cooperate (Article 8); and the regular exchange of data and information (Article 9).

The Convention establishes a cooperation regime concerning 'Planned Measures' (Projects). Watercourse States must exchange information and consult one another on the positive effect of planned measures. The process of notification and subsequent consultations and negotiations[21] are regulated in detail. The Convention provides for the possibility of "urgent implementation of planned measures, where these are of the utmost urgency in order to protect public health, public safety or other equally important interests.[22] Where a matter cannot be resolved to the satisfaction of any of the States concerned, the dispute settlement procedures established under Article 33 become applicable.

The Convention devotes a whole chapter to Protection, Preservation and Management. It requires watercourse States very generally, "individually and, where appropriate, jointly, [to] protect and preserve the ecosystems of international watercourses."[23] This obligation is fleshed out by a series of more specific requirements which relate to pollution control; prevention measures related to the introduction of alien or new species; and protection and preservation of the marine environment, including estuaries.[24] Significantly, Watercourse States are required to enter into consultation concerning the management of an international watercourse, which may include the establishment of a joint management mechanism.[25]

Watercourse States must cooperate in response to needs or opportunities for "regulation," namely "the use of hydraulic works or any other continuing measure to alter, vary or otherwise

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19 Art. 5.

20 Note that under Article 10, in the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses, but in the event of a conflict, special regard shall be given to the requirements of vital human needs.

21 Arts. 12-18.

22 Art. 19.

23 Art. 20, modelled on Art. 192 of the UN Convention on the Law of the Sea.

24 Art. 23: see also end of Chapter 14 above.

25 Art. 24. Management is defined to include planning of its sustainable development, implementation of any plans adopted and the promotion of its rational and optimal utilization, protection and control.

control the flow of the waters of the waters of an international watercourse." Cooperation includes equitable participation by watercourse States in the construction and maintenance or defrayal of the costs of such regulation works as they may have agreed to undertake.[26] States must also use their best efforts to maintain and protect installations, facilities and other works related to an international watercourse, including against willful and negligent acts or the forces of nature, and consult with other watercourse States under certain circumstances.[27]

Lastly, as mentioned in Chapter 16 above, the Convention contains a series of obligations related to the prevention of harmful conditions. Action for this purpose is to be based on the precautionary approach.

22.3 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992)[28]

The Helsinki Convention is open to all countries in Europe, the United States and Canada. It generally requires all Parties to take all appropriate measures to prevent, control and reduce any transboundary impact;[29] to ensure that transboundary waters are used with the aim of "ecologically sound and rational water management, conservation of water resources and environmental protection;" and to ensure conservation and, where necessary, restoration of ecosystems.[30] Their actions are to be guided by the principle of prevention at source, the precautionary principle, the polluter pays principle and the principles of sustainable development.[31]

Riparian Parties must cooperate in the development of harmonized policies, programmes and strategies covering relevant catchment areas or parts thereof. Under Article 9, riparian Parties are required to enter into or adapt agreements or other arrangements in order to define their mutual relations and conduct regarding the prevention, control and reduction of transboundary impact so as to comply with the basic principles of the Convention. Such agreements should provide for the establishment of joint bodies empowered *inter alia* to collect data, elaborate joint monitoring programmes, draw up inventories and elaborate emission limits and joint water quality objectives. Specific provision is made for coastal State Parties which are directly and significantly affected by transboundary impact to participate in the work of these joint bodies under certain conditions.

This mandatory provision regarding agreements[32] may be implemented in support of Article 5 of the Ramsar Convention. It provides a legal basis for Parties to both the Helsinki and Ramsar

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26 Art. 25.

27 Art. 26.

28 Adopted in Helsinki on 17 March 1992; entered into force on 6 October 1996.

29 Art. 1.2. Impact is defined as "any significant adverse effect on the environment resulting from a change in the conditions of transboundary waters caused by a human activity...".

30 Art. 2.2(a) (b) and (d).

31 Art. 2.3 and 2.5 ("water resources shall be managed so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs).

32 The Helsinki Convention was the inspiration for the Agreement on the Protection of the Meuse (signed on 26 April 1994 by France, the Netherlands and the Brussels and Walloon Regions in Belgium and, on 17 January 1995, by the Flemish Region): see Bouman, N. 1996. *A New Regime for the Meuse* in RECIEL, Vol. 5/2, 1996, pp. 161-168 at p. 165.

Conventions to conclude or adapt agreements where Ramsar sites and/or important wetland complexes are likely to be threatened by significant transboundary impacts.

22.4 Regional Agreements for Specific Water Systems

Existing bilateral or multilateral watercourse agreements generally provide for the establishment of river basin commissions or other institutions. The 1993 Additional Guidance endorses the role of such bodies in promoting wise use at regional and international level. Selected examples of interesting regional initiatives are given below.

22.4.1 Africa

The 1968 Algiers Convention generally provides that where water resources concern two or more Contracting States, they must act in consultation and, if the need arises, set up inter-State Commissions to study and resolve joint problems.[33]

The 1972 Convention on the Statute of the Senegal River[34] requires Parties to agree to any project liable significantly to modify the water regime of the river, its navigability, its agricultural or industrial uses, the sanitary condition of its waters, its water level or the biological characteristics of its flora and fauna. It establishes the Organisation for the Development of the Senegal River to coordinate research and development work along the river, apportion water between the parties and regulate navigation, industrial and agricultural uses. There is no mention of environmental protection objectives. In contrast, the 1980 Convention creating the Niger Basin Authority[35] mandates this body to undertake activities related to water control and utilization (including prevention of drought, desertification, soil erosion and sedimentation) and environmental control and preservation. Member States pledge not to undertake any work on the river, its tributaries and sub-tributaries under their territorial jurisdiction which pollute the waters or modify the biological features of the fauna and the flora.[36]

The Convention establishing the Lake Chad Basin Commission[37] require States not to take any measures liable to harm the regime and quality of the Lake's waters or the biological characteristics of the Basin's fauna and flora without first notifying the Commission. Under special regulations,[38] species protection measures must be harmonised and protected areas may be established to preserve the fragile ecosystems around Lake Chad.

The 1987 Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System[39] establishes a programme for environmentally sound water

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33 Art. V (Water).

34 Signed by Mauritania, Mali and Senegal.

35 Signed in Faranah, 21 November 1980; in force since 3 December 1982. The signatories are Benin, Burkina Faso, Cameroon, Chad, Guinea, Ivory Coast, Mali, Niger and Nigeria. The Authority replaced the River Niger Commission established by treaty in 1964.

36 Art. 4.

37 Concluded on 22 May 1964 between the four riparian States (Cameroon, Chad, Niger, Nigeria).

38 Joint Regulations on Fauna and Flora, adopted under the Agreement in Enugu on 3 December 1977.

39 Harare, signed and in force from 28 May 1987.

resource management to strengthen regional cooperation for sustainable development in eight African countries and to avoid possible conflicts over water resources. The Action Plan[40] covers environmental assessment, management and legislation. It establishes institutional[41] and financial arrangements, including the creation of a Trust Fund.

Under the 1994 Agreement on the Preparation of a Tripartite Environmental Management Programme for Lake Victoria,[42] Kenya, Tanzania and Uganda have agreed to implement a five-year programme to strengthen coordinated management of Lake Victoria's fisheries, water and other resources. The Agreement addresses over-exploitation of fisheries resources and adverse impacts on the lake ecosystem caused by agricultural and urban runoff and conversion of adjacent wetlands. Emphasis is placed on the need for integrated cross-sectoral management of lake basin resources, the strengthening and harmonization of regulatory frameworks and national capacity building in the area of environmental management. The Parties have established a Regional Policy and Steering Committee, assisted by a regional secretariat. Two Task Forces respectively address fisheries management and control of water hyacinth and other invasive weeds, and management of water quality and land use, including wetlands. Each Party is required to establish a National Secretariat to prepare national proposals for incorporation into regional programme components.

22.4.2 America

The 1909 Boundary Waters Treaty (US-Canada) is designed to provide principles and mechanisms to help prevent and resolve disputes, primarily those concerning water quantity and water quality along the boundary between the two countries. The Treaty established a bilateral organisation, known as the International Joint Commission, which comprises three members appointed by the US President and three appointed by the Canadian government and which is vested with extraordinary judicial powers, including the arbitration of disputes.[43] The Commission deals with 'applications' for the use, obstruction or diversion of waters that flow along and/or across the boundary if such uses affect the natural water levels or flows on the other side. It may issue 'Orders of Approval' for such applications. The Commission appoints Boards of Control to report on compliance with such Orders and may also investigate specific issues or carry out monitoring at government request. Implementation of any recommendations made by the Commission is at the discretion of the two governments. Public hearings and other fora where interested members of the public may make their views known are organized when such applications and references are under consideration.

The Great Lakes Water Quality Agreement, signed by Canada and the United States in 1972 and replaced in 1978, commits each country to restore and maintain the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem and sets out objectives and guidelines for the achievement of this objective. A Protocol to the Agreement, signed in 1987, seeks to strengthen its provisions, set timetables for implementation and increase accountability. Parties meet biennially to discuss progress and report to the International Joint Commission. Annexes have been concluded *inter alia* on contaminated sediments, groundwater and nonpoint sources of pollution. The Commission monitors and assesses progress under the Agreement and advises the two

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40 ZACPLAN, contained in Annex I to the Agreement.

41 The South African Development Community is responsible for implementing the Plan in conjunction with an Intergovernmental Monitoring and Co-ordinating Committee, a Co-ordinating Unit and national focal points.

42 Signed and in force from 5 August 1994.

43 A similar Commission was established between US and Mexico in 1944.

governments. Two bilateral boards have been established under the Agreement to advise the Commission: the Great Lakes Water Quality Board and the Great Lakes Science Advisory Board.

22.4.3 Asia

The lower riparian States of the Mekong (Cambodia, Laos, Thailand and Vietnam) have long cooperated in the planning and investigation of water resource development projects. An early institution, the Mekong Committee adopted legal principles to protect navigation and ensure minimum summer flows in the downstream reaches of the Mekong. The most important of these was the Joint Declaration of Principles for the Utilization of the Waters of the Lower Mekong Basin.[44] This gave the Committee power to approve major unilateral appropriations of mainstream waters by the Parties as well as extra-basin diversions, but these institutional powers were found to be flawed because the Committee's own statute did not invest it with approval functions. Other conflicts arose after the construction of dams upstream by China, without prior notification to the downstream riparians.

After three years of negotiations, the new Agreement on Co-operation for the Sustainable Development of the Mekong River was signed on 5 April 1995 by Cambodia, Laos, Thailand and Vietnam. It establishes clear principles for intra-basin water use and inter-basin diversions and provides for the establishment of a new Mekong Commission whose organs will include a Council of Ministers, a Joint Committee and a Secretariat. The Commission has express powers to approve, under certain circumstances, water uses and diversions. The Agreement is open to upper riparians, such as China.

Bilateral cooperation between India and Bangladesh has also experienced difficulties. After India had constructed the Farraka barrage system in 1970, it unilaterally withdrew dry season flows from the Ganges, causing serious impacts for agriculture, fisheries, forestry, navigation and drinking water supply amongst the Ganges-dependant population of Bangladesh. Several bilateral instruments have been concluded to address the problem, the most recent expiring in 1986 without agreement on water sharing arrangements.[45]

22.4.4 Europe

The Central Commission for the Rhine was established by the Vienna Peace Congress in 1815 and modified by successive multilateral agreements up to 1963, when the International Rhine Pollution Commission was formally established by treaty. Under its auspices, a series of pollution control instruments[46] has been adopted, together with an integrated approach to the management of threats to the Rhine ecosystem and restoration of the main stream of the Rhine and connected banks and alluvial areas. In 1994, the 11 th Ministerial Conference adopted the Ecological Master Plan for the Rhine (known as Salmon 2000). Several riparian States have initiated projects for recovery of natural vegetation, increased flooding of floodplains and compensation for farmers allowing

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44 31 January 1975, based on the 1966 Helsinki Rules.

45 Caponera, D. 1996. *Conflicts Over International River Basins in Africa, the Middle East and Asia* in *International Watercourses,* Review of European Community and International Environmental Law, Vol. 5/2, pp. 97-106, at p. 103).

46 1976 Convention on the Protection of the Rhine Against Pollution Caused by Chlorides (as supplemented by an Additional Protocol in 1991); 1976 Convention for the Protection of the Rhine against Chemical Pollution.

adjacent farmland to revert to its natural or semi-natural state. The Stork Plan adopted by the Netherlands in 1986 is designed to restore the natural character of cultivated floodplains, partly by the removal of summer dikes, natural grazing and creation of reserves in river meadows.[47]

After massive flooding in 1993-4 and 1994-5, the Rhine Commission adopted the Declaration of Aries on 4 February 1995 which recommends improved management of floodplains within river ecosystems. It calls on riparian States to revise their land-use planning to increase the use of flood plains for flood control, create new retention areas, restore natural areas along the river, rehabilitate canals in the drainage basin as natural streams and prevent further urbanisation in flood plains. Planning ministers issued a further Declaration on 30 March 1995 calling for coordinated transboundary land-use planning programme along the Rhine. The Rhine Commission developed a formal strategy for reduction of flood damage in December 1995.

Other important watercourse agreements in Europe include the 1990 Convention on the International Commission for the Protection of the Elbe[48] and the Convention on Cooperation for the Protection and Sustainable Use of the Danube River of 1994.[49]

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47 See generally Nollkaemper, A. 1996, *supra* n. 6 at pp. 156-160.

48 Magdeburg , 8 October 1990; signed by the European Community, the former Czech and Slovak Federative Republic and the former Federal Republic of Germany.

49 Sofia, 20 June 1994: signed by Austria, Bulgaria, Croatia, Germany, Hungary, Moldova, Romania, Slovenia and Ukraine. This Convention replaces the 1958 Convention on Fishing in the Waters of the Danube.

Chapter 23
Management of Transboundary Wetlands and Regional Networks

International boundaries[50] throughout the world have generally been drawn for political rather than environmental reasons. Frequently, they transect an ecological unit, such as a watershed or mountain range, or are delimited down the middle of the channel of an international watercourse. Border regions are often particularly rich in biological and landscape diversity because they are located in remote areas and/or have restricted access and land uses for military reasons (as in the demilitarised zone between North and South Korea).

Regional cooperation is essential for effective management of artificially-divided ecological units: wetlands, in particular, need to be safeguarded against the impacts of activities carried out in the same catchment area across a jurisdictional boundary. Transboundary cooperation (TBC) can deliver benefits for sustainable development, cultural diversity and regional stability (by addressing causes of resource-based conflicts).

The Ramsar Strategic Plan actively supports the identification of transfrontier wetlands of international importance (including those with shared catchment/river basins) and encouragement of the preparation and implementation of joint plans for such sites, using a catchment approach.[51] Several other treaties contain measures for transboundary cooperation on important areas:

- The 1972 World Heritage Convention specifically requires its Parties not to take any deliberate measures which might directly or indirectly damage World Heritage Sites situated on the territory of other Parties. At least eight sets of adjacent protected areas are now loosely designated as transboundary World Heritage properties. These include the Brazilian and Argentine parks which surround the Iguazu Falls and proximate sites in the Sundarbans mangrove reserve of India and Bangladesh. In both of these cases, there is relatively little cooperative management at the moment, although this is being encouraged by UNESCO's World Heritage Committee. Frequently, one site has been listed before its neighbour on the other side of the border: Costa Rica's Talamanca Range was listed seven years earlier than La Amistad International Park, Panama (1983-1990).

- In Europe, Parties to the 1979 Bern Convention undertake to co-ordinate efforts for the protection of natural habitats when they are situated in frontier areas. The 1982 Benelux Convention[52] calls for the development of "protection and management concepts for transboundary natural areas and landscapes of value", the establishment of inventories of such areas and mutual consultation on development projects which might adversely affect such transboundary areas. The 1991 Alpine Convention[53] goes much further, laying the basis for international management of ecosystems which cross national boundaries: it establishes a general framework to apply the precautionary principle, the polluter-pays

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50 References to international borders should as appropriate be interpreted to apply to internal jurisdictional borders in federal or decentralised countries, where competence for nature and landscape management is delegated to the subnational units.

51 Operational Objective 7.1, which develops Recommendation 5.3 (Kushiro, 1993).

52 Convention on Nature Conservation and Landscape Protection, concluded between Belgium, Luxembourg and the Netherlands.

53 Convention on the Protection of the Alps (Salzburg, 7 November 1991, in force 6 March 1995); a Protocol on Nature Protection and Landscape Conservation was adopted in Chambéry, France on 20 December 1994.

principle and the principle of co-operation to preserve and protect the Alps, taking into account the equitable interests of all Alpine States and ensuring the sustainable use of natural resources.

- In South-East Asia, the 1985 ASEAN Agreement generally requires Parties to cooperate in conserving and managing shared resources and border or contiguous protected areas.

- Three of the protected area protocols to the regional seas conventions promote international cooperation in the establishment of protected areas along the border or the limits of national jurisdiction between two Parties.[54] The relevant provisions (with certain differences) provide that if a Party intends to establish a protected area contiguous to the frontier of another Party, the competent authorities of the two Parties must consult each other with a view to reaching agreement on the measures to be taken and shall, among other things, examine the possibility of the establishment by the other Party of a corresponding protected area. The Kingston Protocol for the Wider Caribbean also promotes the development of cooperative management programmes for contiguous protected areas or buffer zones.

In practice, the interface between legal systems and ecological unit management across jurisdictional boundaries is poor. Improving matters is politically and legally complex. A protected area in a border region usually comes under the same legislative and institutional regime as any other protected area in that country. The components of this regime cease to apply at the border with the neighbouring state. In practice, this means that different parts of one ecological unit are commonly managed by different institutions, with different powers, duties and priorities. Different laws apply and the constituent parts of an ecological unit may have quite different historical backgrounds and different legal protection objectives or status. This makes it extremely difficult to rationalise management operations and to promote the perennity and integrity of a transboundary natural area or landscape unit.

International designation of a Ramsar or World Heritage site or a biosphere reserve does not get round this problem. Firstly, designations are almost always unilaterally proposed by the Party on whose territory a site is situated. Secondly, that Party is legally free to decide how to manage the site in question.[55]

There are also many constraints of a non-legal character. The different levels of development in neighbouring countries are particularly obvious in border regions. This can increase pressure on natural resources on one side of the border (e.g., lower land prices, cheaper labour, less rigorous legal standards or enforcement, greater need for hard currency, pressure to accelerate industrial development and construction of transport links).[56] Open cooperation may be hampered by deeply-rooted social tensions and historic separation lines.

Flexible progressive techniques are thus essential to building bridges and harmonising resource management across boundaries. The few examples given below illustrate the diversity of possible approaches that can be adapted to transboundary wetland ecosystems.[57]

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54 Geneva Protocol (Art. 6), Nairobi Protocol (Art. 13) and Kingston Protocol (Art. 9): the exception is the Paipa Protocol. See generally Chapter 8.2.3 above.

55 The treaty or programme concerned may of course recommend management prescriptions, as has been done by the Ramsar COP.

56 See generally Brunner R. 1999. *Transboundary Protected Areas in Europe*. IUCN World Commission on Protected Areas (WCPA).

57 For useful background and case studies from other parts of the world, see generally Conference

The earliest transboundary park was the Glacier/Waterton park established across the US-Canada boundary. Waterton Lakes (Canada) was first designated as a forest park *inter alia* to protect the headwaters of the river for irrigation purposes and was upgraded to national park in 1911 after pressure from private conservation associations concerned about proposed oil exploration and associated activities in the area. The American park component was designated later, again after private lobbying over plans of lumber companies to log lands in the future park. In 1932, the respective governments enacted legislation designating their respective parks as part of an international peace park "for the purpose of establishing an enduring monument of nature to the long-existing relationship of peace and goodwill between the people of and Governments of Canada and United States". Legally, each park remains entirely subject to national legislation, but management planning and implementation has become increasingly coordinated especially from the 1970s onwards. Although a strip of vegetation has traditionally been clear-cut along the international boundary (6m in width), it is intended to amend the legislation to allow the vegetation to regenerate across the border.[58]

Some of the longest-established parks were created to reduce border tensions and improve bilateral relationships, but their primary functions are now nature and landscape management, tourism and recreation.[59] In Europe, three transboundary parks were set up along the Polish-Czechoslovak border under an agreement concluded in Krakow in 1924: the purpose was to bring to a peaceful end litigation between the two countries over the frontier line in the Tatras mountain range. Seventy-five years later, joint councils operating in each country provide a formal framework for consultation and co-operation between the Park authorities in respect of scientific research, visits by tourists, forest and wildlife management and the harmonization of park regulations. The area includes some subarctic peatbogs listed as Ramsar sites.[60]

More recently, multilateral management of listed Ramsar sites in the Danube floodplain has been instituted between Austria, Hungary and Czech/Slovak Republics. France and Germany are instituting transboundary cooperation for management of parts of the Rhine, designed *inter alia* to protect the remaining alluvial forests on both sides of the river and to maintain the water table in these forests. Transboundary cooperation is currently being developed for the largely unspoiled Drau-Mur river ecosystem and landscape complex which extends into five countries: Austria, Slovenia, Croatia, Hungary and Yugoslavia. One of the most pressing problems is the proposed construction of dams on the lower reaches of the Drau for the production of hydro-electrical energy. Studies have indicated that the project would seriously modify the water regime necessary for the conservation of alluvial forests legally protected along the Hungarian part of the river. TBC procedures must therefore address possible multilateral conflicts of interest.[61]

Proceedings *of Parks for Peace: International Conference on Transboundary Protected Areas as a Vehicle for International Cooperation* (Somerset West, Cape Town, 16-18 September 1997); and Thorsell, J. (ed.). 1990. *Parks on the Borderline: Experience in Transfrontier Conservation.*

58 See generally McNeil, R. 1990. *International Parks for Peace* in Thorsell, *supra* n. 57.

59 McNeil, *ibid.* See also Westing A. (ed.). 1993. *Transfrontier Reserves for Peace and Nature: A Contribution to Human Security* and *A Proposal to Declare the Sir Creek Transborder Area between India and Pakistan a Part of a Protected Wetland,* published in Disarmament Forum Vol. l,no. 1, 1999).

60 See generally Arends *et al.* 1995. *Transboundary Biodiversity Conservation: Selected Case Studies from Central Europe.*

61 Brunner. R; *supra* n. 56, citing the 1991 *Report on the Danube Auen National Park* (Report of the Hydraulic Engineering Planning Group on Ecology of Alluvial Forests, Vienna).

In parts of Central America,[62] transboundary protection techniques have been used proactively to rebuild confidence and reduce political tension after the ending of hostilities. The San Juan River Watershed between Nicaragua and Costa Rica was previously subject to military activity and extensive rural migration across boundaries. It has now been included within the system of 'international protected area for peace' *(Sistema de Areas Protegidas para la Paz* (Si-a-Paz)). Pursuant to a letter of intention signed between the two governments, a joint action plan is now being prepared.

The Trifinio Conservation and Development Zone, a trilateral biosphere reserve, was established under an agreement between El Salvador, Guatemala and Honduras in November 1987. Its objectives include regional integration and conflict resolution: the Zone is intended to provide an example of what could be achieved in other binational or trinational border areas in the Central American region. The competent authorities of each of the three countries retain management responsibility for the areas under their respective jurisdictions, but measures should be based on a jointly-developed management plan.

An 'international friendship park' has been established on either side of the Rio Grande River, which defines part of the boundary between the United States and Mexico. Because the river changes its course, certain areas developed a peculiar legal status over the years, sovereignty apparently shifting between the two nations.[63] Partly for this reason, two reservoirs (Amistad and Falcon) have been designated as shared areas and are now administered by the US-Mexico International Boundary and Water Commission.

In South Africa, the private Peace Parks Foundation was established after the end of the apartheid regime. It generates funding from business sponsorship and private donations in order to promote new types of area-based cooperation for sustainable development and community benefit across borders shared with six other countries.[64]

There are relatively few examples of treaties creating transboundary protected areas. In 1964, a joint nature park was established by treaty between Luxembourg and the German *Land* of Rheinland-Pfalz. This establishes a Joint Commission to which the two Governments must submit their park management plans for information. The Commission may make recommendations to the Governments on future management programmes and for the harmonisation of national regulations and other measures.

This review of existing initiatives ends with two examples of regional cooperation on coastal/ marine ecosystems. A 1978 treaty between Australia and Papua New Guinea[65] addresses issues related to sovereignty, maritime boundaries and conservation. The treaty establishes a protected zone, in which the traditional livelihoods, fishing and movement of the traditional inhabitants must be protected and the marine environment and indigenous fauna conserved. Each Party must use its best endeavors, in and around the protected zone, to identify and protect species of indigenous fauna and flora that are or may become threatened with extinction, to prevent the introduction of species of fauna and flora that may be harmful to indigenous species and to prevent and control pollution or other damage to the marine environment from sources and activities under their jurisdiction or control. The treaty establishes the Torres Strait Joint Advisory Council to advise the Parties.

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62 See generally Weed. T. 1994. *Central America's "Peace Parks" and Regional Conflict Resolution.* In International Environmental Affairs, Vol. 6, no. 2, Spring 1994.

63 McNeil 1990, *supra.* n. 58.

64 See generally Conference Proceedings, *supra* n. 57.

65 Concluded in Sydney on December 18, 1978 ((1979) 18 *ILM* 291).

Lastly, the well-known case of the Wadden Sea provides an example of TBC in action.[66] Denmark, Germany and the Netherlands have cooperated for thirteen years to conserve this large complex of shallow waters, sand-banks and mudflats which is an important Ramsar site (8000 km^2 along a coastline of about 500 km: its saltmarshes alone contain some 250 endemic species, sub-species and ecotypes). Early cooperation was hampered by the number of overlapping institutions with competence over different functions or parts of the area concerned. The trilateral cooperation has therefore been progressively streamlined and formalised. Under the 1982 Joint Declaration on the Protection of the Wadden Sea, the governments agreed to promote coordinated implementation of the Ramsar, Bonn (CMS) and Bern Conventions. In 1987, they signed an agreement to manage the Wadden Sea as an ecological unit and, for this purpose, established the Common Wadden Sea Secretariat. This body, based in Germany, guides and coordinates trilateral strategy and action for the conservation and management of the Wadden Sea. It also administers the 1988 Agreement on the Conservation of Seals in the Wadden Sea which was the first agreement concluded under the Bonn Convention.[67]

Wise use is used as a common organising principle by these three countries with their different legal and administrative systems. Common management principles have been adopted to guide operational decision-making by the respective national authorities. These include *inter alia* the principle of prevention, the precautionary approach, the translocation of harmful activities to less ecologically fragile areas and the principles of compensation and restoration. Specific objectives have now been set by the Parties in respect of each of the common uses, impacts and human activities in the area (sea defence, saltmarsh management and dune protection, fisheries, recreation, hunting, pollution and bird conservation). A coordinated management plan establishes different categories of zones. Consideration is being given to designating adjacent buffer zones in order to regulate external activities which adversely affect the Wadden Sea ecosystem.

These examples show that pragmatism and patience are preconditions for successful TBC. Each case will depend on prevailing local conditions (clear or disputed sovereignty, presence or absence of tension, land ownership/tenure regime, etc.), political will and, in many cases, the level of interest and assistance from intergovernmental bodies or international NGOs. The Central American initiatives cited above could not have been achieved without top-level political support and vision. At grass-roots level, nothing will succeed in the long-term without systematic involvement of local communities, backed up by education and increased opportunities. NGOs and other private organisations can be remarkably influential in initiating or supporting change.

There is of course no blueprint for what will work in a given situation. Where cooperation is working reasonably well, for instance, it may be considered unnecessary to move on to more formal arrangements. TBC is of course not restricted to conventional protected areas: the areas concerned may be managed for multiple use and used as a focus for integrated conservation and development planning in border areas and watersheds. This can help to foster a sense of mutual cooperation, to resolve long-standing conflicts and to provide an incentive for conflict avoidance in the future.

Drawing on these examples, it is possible to identify a possible hierarchy of components for transboundary cooperation, each with strengths and weaknesses.[68]

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66 This is cited in *The Ramsar Convention Manual: A Guide to the Convention on Wetlands.* 2nd edition.

67 See also Chapter 24 below. For further information see generally van der Zwiep and Backes. C. 1994. *Integrated Systems for Conservation of Marine Environments,* Nomos Verlagsgeselschaft.

68 See generally Conference Proceedings, *supra* n. 57.

- Informal cooperation is an invaluable way to build familiarity and mutual trust between protected area managers, but does not provide a legal basis for collaboration on all management functions. Operational matters that do not usually require legal backing include cooperation on tourism, recreation, research, joint publications and possibly staff exchanges: they exclude joint planning and law enforcement (e.g., regulatory conservation measures, controls on illegal taking and trade, search and rescue, fire prevention, emergency measures, wardening procedures, border crossing points). Good personal relations provide the best basis for cooperation across borders and can make it easier to tackle bureaucratic resistance at higher level. Informal approaches can help to build political awareness and may pave the way for more formal future cooperation.

- Administrative coordination between protected area departments can deliver more systematic cooperation. By way of example, a Cooperation Charter has been signed between the French and Spanish nature conservation administrations in respect of the Pyrenées/ Mont Perdu area. Depending on the countries concerned, the potential for bilateral administrative cooperation may be quite restricted without a legislative basis or at least a political decision at government level. This is especially true where extra finance is required.

- Political undertakings establish a firm (but usually non-binding) basis for inter-governmental TBC. These may take the form of signed Heads of Agreement between heads of state, in which the participation of government agencies is clearly defined in the areas of tourism, environment, public works, agriculture and so on. In the Australian Alps, cooperative management by three Australian States and the Commonwealth of Australia is carried out under a Memorandum of Understanding signed in 1986 and revised in 1989 by the four competent Ministers.[69]

- Formal agreements (treaties) will usually be necessary to institute comprehensive transboundary cooperation through a special legal and institutional framework. They can create a unified authority with legal personality for the whole area or, where this is politically unacceptable, designate parallel institutions in each country which are legally required to cooperate and undertake joint planning and management. Treaties and supporting legislation should also clarify or amend the statutory duties of other departments whose activities potentially affected the border areas in question. This will almost always include the ministries for foreign affairs and for defence and security.

A treaty should require the respective governments to harmonise implementation of agreed principles and objectives in national legislation and management practices. It should provide for the development of a joint management plan or, failing this, agreed guidelines for separate management plans. A treaty can provide for zoning of the whole area by joint decision of the competent authorities, after proper consultation with local populations and user groups on either side of the border. Unified rules should cover wardening, prohibited or restricted activities and dispute resolution, preferably through locally-based non-judicial procedures. A treaty is essential if special law enforcement and customs procedures are to apply within the transboundary area as a whole. The same is true if financial commitments are to be made between different political units.

Advanced TBC instruments involve the voluntary and mutual limitation of certain sovereign rights, possibly through the transfer of certain attributes of sovereignty to some form of international management body of a public character. Where this is impossible or inappropriate, one state can nevertheless take unilateral steps to create a favourable climate for TBC. This has often happened in the past when the ecological importance of a border area is acknowledged and legally

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69 Hamilton L. *et al.* 1996. *Transborder Protected Area Cooperation.*

protected earlier in one country. In such cases, the neighbouring country should be encouraged - and possibly assisted - to manage the remaining part of the ecological unit on its own territory for compatible conservation objectives. During a transition period, common (non-binding) guidelines could be developed to harmonise management priorities and practices.

Transboundary conservation areas can form an important component of regional ecological or flyway networks. The creation of networks within and across national boundaries is once again a gradual process dependent on international cooperation and joint planning. It requires the identification of appropriate areas (habitat types meeting certain criteria, feeding and wintering sites, etc.) and the development of appropriate management regimes in each of the countries concerned.

The network concept evolved in recognition of the needs of migratory waterfowl which require a comprehensive series of intact wetlands during their annual migration cycle. The Ramsar COP actively supports the establishment of international networks of wetlands with significant ecological or hydrological links.[70] In recent years, there has been a proliferation of networks for coordinated conservation of representative or threatened ecosystems. These include the World Network of Biosphere Reserves,[71] the Meso-American Biodiversity Corridor, the emerging Green Belt of Fennoscandia (Finland, Norway and Russia) and the Pan-European Ecological Network,[72] which provides specifically for a European coastal and marine network. The Natura 2000 network created pursuant to the EC Habitats Directive is intended to "enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range". The Directive lays down exceptionally detailed procedures for the nomination, scientific approval and inclusion of sites in this coherent ecological network. It promotes the targeted conservation of linear landscape components which sustain wild species in their own right and also promote genetic exchange by enabling animals to pass in security between natural areas included in the network.[73]

Regional networks, including but not restricted to protected areas, are capable of much wider development as a tool for wise use and international cooperation. Their catalyst role for migratory bird flyways is discussed in the course of the next chapter.

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70 Recommendations 4.4 and 4.12 (Montreux, 1990); Kushiro Statement (Resolution 5.1, Kushiro 1993).

71 Adopted by UNESCO in November 1995: see Chapter 8.2.1 above.

72 Established under Action Theme 1 of the 1995 Pan-European Biological and Landscape Diversity Strategy, discussed in Chapter 8.2.2 above.

73 See Chapter 8.2.2 above.

Chapter 24
Management of Wetland-dependent Species

Many wetlands are best known for the migratory species they house, even if these species spend only part of their lives or certain seasons in wetlands. Migratory waterfowl are amongst the most charismatic and best-studied of wetland-dependent species and bird migrations are known to cover enormous distances (Arctic terns winter in the Antarctic whilst many European birds winter in Africa). Marine migratory species partially dependent on wetlands include some seals, marine turtles, many fish and certain crustaceans. Some breed or grow up on or near coasts, although they spend their adult lives further out to sea, whilst other species return to wetlands every year. By way of example, the grey whale breeds in the shallow lagoons of Baja California in Mexico but travels huge distances to spend the summer in the Arctic seas rich in plankton. Freshwater migratory species include several species of cetaceans living in Amazonia or in the rivers of the Indian sub-continent, certain aquatic tortoises in tropical America and many fish.

For much of this century, legal responses to migratory species conservation have taken the form of unconnected regional agreements of limited scope. The Ramsar Convention was an important step forward, declaring that waterfowl "in their seasonal migrations may transcend frontiers and so should be regarded as an international resource".[74] The ethos of state responsibility for coordinated protection of migratory species has also been incorporated into most regional conventions, including the Western Hemisphere, Algiers, Bern and ASEAN Conventions, which respectively apply to America, Africa, South-East Asia and Europe. The 1985 ASEAN Agreement recognises, for the first time in a regional instrument, that migratory species are shared resources and establishes binding rules for cooperation in their conservation, management and where appropriate, exploitation. The 1992 Habitats Directive provides for the implementation of the Bern Convention within the EU and establishes species protection measures linked to a series of Annexes conferring different levels of protection on plant and animal species.

The 1979 Convention for the Conservation of Migratory Species of Wild Animals (CMS)[75] establishes a global mechanism for developing and coordinating conservation measures for any migratory species.[76] This treaty offers powerful support to the Ramsar Convention on issues related to wetland-dependent species. Whilst Ramsar is mainly focused on ecosystems, it has broadened its species-based criteria for site listing beyond waterfowl, specifically to include fish. CMS is focused on species, but lays down requirements to control habitat destruction, excessive hunting and degradation of feeding sites. Many Agreements developed under CMS function as instruments for wetland biodiversity conservation, notably the 1995 Agreement on the Conservation of African-Eurasian Migratory Waterbirds (see below).

Parties are required to adopt strict protection measures for endangered migratory species listed in Appendix I, which currently includes four species of whale, the monk seal, the Siberian crane, white-tailed eagle, white-headed duck and six of the seven species of marine turtle. They must endeavour to conserve and, where feasible, restore the important habitats of these species; to prevent, remove, compensate for or minimise the adverse effects of activities or obstacles that seriously impede or prevent migration; and to prevent, reduce or control factors that endanger or are likely to endanger these species, including strictly controlling the introduction of, or controlling

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74 Paragraph 5, Preamble.

75 Concluded in Bonn on 23 June 1979; in force 1 November 1983.

76 Defined as "the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries" (Art. I.1.(a)).

limiting or eliminating, already introduced exotic species.[77] They must also prohibit any "taking" of such species, defined to include capturing and harassing as well as hunting, fishing and deliberate killing. Limited exceptions are possible in specific cases (e.g., for scientific purposes or to satisfy the needs of traditional subsistence hunting), provided that these are precise as to content, limited in space and time and do not operate to the disadvantage of the species concerned.

Parties must also endeavour to conclude multilateral agreements for the conservation and management of migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation. There are three categories of regional instruments, collectively known as Agreements, which may be concluded for this purpose.[78] These are described in Box 3.

Box 3. Categories of Agreements Under the Convention on Migratory Species

Agreements concluded pursuant to Article IV.3 are intended to benefit migratory species listed in Appendix II, especially those with an unfavourable conservation status, over their whole range. Appendix II contains a much larger number of species, the vast majority of which are birds: all the Anatidae (geese and ducks), all the diurnal birds of prey (except the non-migratory secretary-bird), all the wading-birds belonging to the Charadriidae and Scolopacidae families and, of the songbirds, the entire Muscicapidae family.[79] This appendix is therefore applicable to around 2,000 species of birds, nearly a quarter of bird species known to exist. It also lists certain populations of seals and several species of small cetacean, all the marine turtles and two other reptiles. Where a migratory species is endangered and likely to benefit from international co-operation to promote its conservation, it may be listed in both Appendices if circumstances so warrant.[80]

The object of Agreements must be to restore the migratory species concerned to a "favourable conservation status".[81] They are open to accession by all Range States[82] of the species concerned, including those that are not Parties to CMS. Guidelines on their substantive content, including habitat conservation and restoration and maintenance of a network of suitable habitats appropriately disposed in relation to migration routes, are laid down in Article

continued on the next page

77 Article III.

78 It is beyond the scope of this book to go into detail about the substantive and procedural requirements of the different categories of Agreements: see further draft *Guidelines on the Harmonisation of Agreements;* de Klemm, C. and Shine, C. (UNEP/CMS/Conf 5.10,25 March 1997), which will be considered by the sixth meeting of the Conference of the Parties to CMS in Cape Town, South Africa in November 1999.

79 Used in the broad sense which thus consists of nearly 1,400 species.

80 Article IV.2. Species currently listed in both Appendices include the monk seal, several species of crane and four marine turtles.

81 As defined in Art. 1.1 .c).

82 Art. IV.2. The Convention defines a Range State of a given migratory species as "any State (and where appropriate any [regional economic integration organisation]) that exercises jurisdiction over any part of the range of that migratory species, or a State, flag vessels of which are engaged outside national jurisdictional limits in taking that migratory species" (Article I.1 .(h)).

Box 3. Categories of Agreements Under the Convention on Migratory Species

continued from the preceding page

V. Instruments concluded to date include the 1991 Agreement on the Conservation of Bats in Europe and the 1995 Agreement on the Conservation of African-Eurasian Migratory Waterbirds.

Agreements in the form of treaties may be concluded for any population or any geographically separate part of the population of any species or lower taxon of wild animals, members of which periodically cross one or more national jurisdictional boundaries (Article IV.4). They are particularly suitable for species or populations which cannot be listed in Appendix II because they do not fulfil the listing criteria in Article IV. 1 or the Convention's definition of "migratory". Such Agreements may have a territorial scope narrower than the range of the species concerned and be closed to certain Range States. Agreements in this category concluded to date include the 1990 Agreement on the Conservation of Seals in the Wadden Sea, the 1991 Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS), and the 1996 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS). The latter is not yet in force.[83]

Memoranda of Understanding (MOU), also adopted under Article IV.4, are intended to initiate and co-ordinate short-term administrative and scientific measures to be taken by Range States, often in collaboration with specialised international NGOs. They are not legally binding but nonetheless constitute official undertakings signed by authorised government representatives, usually from the wildlife departments of the States concerned, which should be implemented fully.[84] They generally enter into force on the date of signature for a specified duration and contain specific conservation undertakings from each State in an annexed Action Plan. They provide a relatively simple way to establish a limited framework for regional cooperation for the conservation of certain migratory species, possibly as an interim step to the conclusion of a binding Agreement. Two MOU have been concluded to date: the 1993 Memorandum of Understanding concerning Conservation Measures for the Siberian Crane and the 1994 Memorandum of Understanding concerning Conservation Measures for the Slender-billed Curlew.[85]

Whilst this two-tier system (Convention/Agreements) can appear cumbersome and time-consuming, it does provide a flexible framework for the conclusion of instruments tailored to specific regional and conservation requirements.[86]

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83 A draft Agreement for the conservation of the Asian Houbara Bustard *Chlamydotis undulata macqueenii* is currently being prepared.

84 A weakness of non-binding agreements is that States cannot be required to make financial contributions. However, there is nothing to prevent MOU from stating that Parties should use their best endeavours to this end or to stop a State from providing technical and financial assistance to signatory States on a purely voluntary basis.

85 A MOU for the conservation of the population of the Greater Bustard *Otis tarda* in central Europe is currently being prepared.

86 See further Shine, C. 1998a. *Perspectives on Compliance with Soft Law:a Comparative Analysis of Selected Agreements concluded pursuant to the Convention on the Conservation of Migratory Species of Wild Animals.*

With regard to birds, the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)[87] is the most ambitious yet concluded under the auspices of CMS. It took ten years to negotiate. The AEWA has 117 Range States and applies to the whole of Africa and Eurasia, including the Middle East, Greenland and parts of Canada.[88] It applies to all migratory waterbirds, including divers, grebes, pelicans, egrets, herons, storks, ibises, spoonbills, flamingos, ducks, geese, cranes, plovers, sandpipers, gulls and terns. Taking the precautionary principle into account, Parties must take coordinated measures to maintain migratory waterbirds in a favourable conservation status or to restore them to such a status. For this purpose, they must implement General Conservation Measures (Article III) and the specific actions determined in the annexed Action Plan (Article IV). They are specifically required to identify sites and habitats of international importance for Western Palearctic waterfowl, to maintain the ecological character of such areas and to promote the listing of all wetlands of international importance for Anatidae under the Ramsar Convention.

Unusually, the Action Plan is legally binding. It lays down detailed obligations for species and habitat conservation, the management of human activities,[89] research and monitoring and education and information. Significantly, emphasis is placed on the importance of sustainable use and most of the birds covered by AEWA are not currently endangered. Legal measures vary according to the conservation status of the species concerned (as laid down in a scientific table in Annex 3). Article 2.2 of the Plan requires Parties to cooperate with a view to developing and implementing international Single Species Action Plans for two categories of species, essentially those which are endangered[90] and those for which hunting may continue on a sustainable use basis where hunting of such populations is a long-established cultural practice. The Action Plan must be reviewed at each ordinary session of the Meeting of the Parties, taking into account conservation guidelines,[91] and may be amended by the MOP according to a simplified procedure set out in Art. X.5. This should enable Parties to adopt binding measures in response to changing priorities and circumstances much more rapidly than if such amendments had to go through the full ratification process.

Interestingly, the Technical Committee to be established (at the first session of the Meeting of the Parties) must be composed of regional experts, representatives of three NGOs (IUCN, Wetlands International and CIC) and experts on rural economics, game management, and environmental law. The AEWA may be seen as a forward-looking, comprehensive and complex treaty in which obligations are linked to flexible technical guidelines and which incorporates the precautionary principle and the principle of sustainable use. However, it has a huge number of Range States and will only be effective if properly implemented and enforced by enough States, especially those located at biologically critical points along migration routes.

In a narrower regional context, a long series of bilateral agreements on migratory bird conservation have been concluded during this century. In chronological order, these agreements concern: United States-Great Britain (on behalf of Canada), 1916; United States-Mexico, 1936; United States-Japan, 1972; Japan-U.S.S.R., 1973; Japan-Australia, 1974; USA-U.S.S.R., 1976;

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87 Concluded in The Hague on 15 August 1995; not yet in force.

88 A precise definition of the geographic area is given in Annex I of the Agreement.

89 Including the phase out of lead shot in waterfowl hunting: see Chapter 19.1.2 above.

90 Listed in Appendix I or the 1994 IUCN Red List Categories.

91 Para. 7.3 of the Action Plan requires the AEWA Secretariat, in coordination with the Technical Committee and with the assistance of experts from Range States, to coordinate the development of conservation guidelines in accordance with Art. IV.4 of the Agreement to assist the Parties in the implementation of this Action Plan. The Agreement secretariat shall ensure, where possible, coherence with guidelines approved under other international instruments. These conservation guidelines shall aim at introducing the principle of sustainable use.

China-Japan, 1981; India-U.S.S.R., 1984; and Australia-China, 1986. These agreements are basically very similar. They prohibit the taking of species listed in an appendix, apart from game birds (which may not be hunted during the breeding season). Parties are invited to establish reserves and there is generally a provision controlling the introduction of exotic species. The 1976 US-U.S.S.R. Convention goes further by requiring the two Parties to identify breeding, wintering, feeding and moulting areas of particular importance for migratory birds, to protect them against pollution and any other environmental deterioration.

These instruments do not usually establish institutional mechanisms to facilitate their implementation, nor is there any mechanism to coordinate the various conventions dealing with the same species in the same geographical region. However, these treaties have provided the legal basis for trilateral international cooperation on wetland habitats between the United States, Canada and Mexico.

The North American Waterfowl Management Plan was concluded in 1985 (Canada-US) and extended to Mexico in 1988 after the signature of a Memorandum of Understanding between the competent Government services of the three countries. The Plan covers thirty-seven species (mainly game) and establishes a framework for joint long-term planning, aimed at restoring the bird populations concerned through protection, restoration and management of their habitats. A tripartite Commission has been established to implement this strategy, where appropriate through coordinated management plans. Funding is provided under the North American Wetlands Conservation Act of 13 December 1989, which authorises the US Government to finance conservation projects and wetland habitat acquisition via the proceeds of a tax on hunting weapons and ammunition purchased in the United States. Fifty to seventy percent of funds must be spent on projects in Canada and Mexico. This system appears to work due to the supportive treaty framework, the close relations that have developed between the competent government services, the existence of political will and the fact that only three countries are involved. However, this system is only sufficient for ducks and geese whose wintering range does not extend further than Mexico: it remains totally inadequate for the very many other species of birds which migrate much further south.

The establishment of a wetland network is central to the North American Waterfowl Management Plan, the AEWA and the EC 1979 Wild Birds Directive. The latter establishes a complex regulatory framework for the conservation of all species of birds and their eggs, nests and habitats in the European territories of the Member States and supports the integration of critical wetland habitats ('specially protected areas') into the Natura 2000 ecological network.[92] NGOs have played a key role in the planning and implementation of these networks.

Elsewhere in the world, a flyway network for migratory shorebirds is being established along the East Asian-Australasian Flyway. This objective was first initiated under the Convention on Migratory Species, within the framework of a proposed Agreement on the Conservation of Migratory Waterbirds of the Asia-Pacific Region[93] but has run into delay. The non-binding Brisbane Initiative[94] has therefore been developed by Wetlands International and Australian and Japanese NGOs, in cooperation with the Ramsar Bureau and the CMS Secretariat.[95] Under the Initiative, a conservation strategy for migratory species along the flyway will be developed over five years, together with three action plans. The Initiative calls for Ramsar-listed and other wetlands of international importance managed to maintain their suitability for such birds to be included. It

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92 See Chapter 8.2.2 above.

93 Formerly known as the Asian/Australasian Waterfowl Agreement.

94 Recommendation 6.4 (Brisbane, 1996).

95 See Report of the Fifth Meeting of the COP to CMS, April 1997 at para. 107.

urges Parties along the flyway to demonstrate support for such a network by nominating one or more appropriate sites for inclusion therein. It will then be decided whether a legally-binding Agreement for an Asia-Pacific Migratory Waterbird Conservation Strategy should be developed under CMS.

These developments illustrate how CMS provides a vehicle for implementing Article 5 of the Ramsar Convention. There would appear to be nothing to stop one COP proposing to the other that a joint meeting be held with a view to preparing and negotiating specific flyway agreements. Such agreements could even have a dual status as CMS Agreements and Article 5 instruments. A coordinated approach of this kind could help to bring together, within the same flyway, all States which are a Party to either of the two Conventions or to both. This may be particularly useful in those parts of the world where there are few Parties to CMS and many to Ramsar, as is the case for parts of the American continent.

Turning to aquatic species, these commonly depend not on one critical habitat type but on a set of functionally connected habitats, often along a salinity gradient.[96] Many freshwater fish also need spatially coherent networks of suitable habitats, but their ecological needs are only poorly reflected in specific legal regimes.

The Convention concerning Fishing in the Waters of the Danube[97] established the River Danube Mixed Commission partly to work out "agreed measures" for the regulation of fishing in the Danube. Article 8 established rational utilisation and management as the governing standard for the exploitation of fisheries covered by the Convention. Parties are required to exchange information on catches and migratory movements of fish, as well as on implementation measures.[98] Where Parties have constructed dams across the river, they are specifically required to develop and implement action plans to safeguard the free passage of migrating fish. However, there is no obligation to preserve ecologically important areas, such as the spawning grounds of economically important species like salmon and sturgeon, even though the taking of such species is regulated by the Convention.

The Rhine Action Programme and 'Salmon 2000'[99] also contains provisions for the reduction of pollution loads and a series of hydrological, biological and morphological improvements. Parties to the Rhine treaty regime should take the necessary steps to provide for spawning grounds, fish ladders and locks to enable migrating fish to pass artificial obstacles.

The UNCLOS contains specific provisions related to two particular categories of migratory fish which inhabit fresh water and saltwater at different phases of their life-cycles.

- **anadromous** fish species, including sturgeon, shad and salmon, breed in watercourses, often very far inland. They descend to the sea to grow and then, after some years, return to the rivers where they were born to spawn and give birth to a new generation. Article 66 prohibits the fishing of anadromous species on the high seas unless this would result in economic dislocation for a state other than the state of origin. The state of origin (where

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96 Kapetsky, J.M. and Bartley, D.M. 1995. *Fisheries and Protected Areas.* In McNeely (ed.). 1995. *Expanding Partnerships in Conservation* at p. 89.

97 Bucharest on 29 January 1958; in force from 20 December 1958. More recently, the Convention on Cooperation for the Protection and Sustainable Use of the Danube River was signed in Sofia, 20 June 1994 by Austria, Bulgaria, Croatia, Germany, Hungary, Moldova, Romania, Slovenia and Ukraine. However, this does not apply to fisheries as such but only to pollution of the watercourse caused by fishing activities (Art. 3(3)).

98 Article 12(3).

99 See Chapter 22.4 above.

the critical river habitats are located) consequently has primary responsibility for the management and conservation of such species. The Convention for the Conservation of Salmon in the North Atlantic Ocean[100] was developed on the basis of this new regime.

- **catadromous** species have the reverse cycle, breeding at sea and then spending their adult life in fresh water (e.g., eels spawn in the Sargasso Sea; their larvae reach the coast in the form of little eels (elvers) after several years and grow to maturity in fresh water). Article 67 establishes a similar regime for these species in favour of the State in whose territory they spend their adult lives: again, the State concerned should ensure the maintenance of adequate freshwater habitats for this purpose).

Some regional instruments cover species partly dependent on coastal and marine wetlands. The 1990 Agreement on the Conservation of Seals in the Wadden Sea[101] provides for the protection of harbour seals occurring in the shallow waters, sand-banks and mudflats along the coast of Denmark, Germany and the Netherlands. It provides *inter alia* for the development of a conservation and management plan for the seals and habitat protection provisions. The more recent Inter-American Convention for the Protection and Conservation of Sea Turtles)[102] applies to all jurisdictional zones and to the coastal land areas where the animals come to nest and seeks to address the processes which contribute to the species' depletion. It requires *inter alia* the reduction, to the greatest extent practicable, of the incidental capture, retention, harm or mortality of sea turtles in the course of fishing activities through the appropriate regulation of such activities. It also requires the development, improvement and use of Turtle Excluder Devices (TEDs). These devices were developed in the United States to prevent by-catches of sea turtles by trawlers fishing for shrimp in the Gulf of Mexico. Their use is compulsory under US under federal legislation.[103]

Certain protected area protocols to the regional seas conventions lay down species conservation requirements. With the exception of the 1995 Barcelona Protocol, however, the bias is very strongly towards terrestrial species.[104] The Barcelona Protocol generally requires Parties to "manage species of flora and fauna with the aim of maintaining them in a favourable state of conservation".[105] Two annexes respectively contain the List of Endangered or Threatened Species and List of Species whose Exploitation is Regulated. For the first time in such a protocol, the species listed are primarily marine species. One of the more innovative obligations is for Parties to formulate action plans for species conservation or recovery. The Protocol establishes a duty for relevant Parties to cooperate in conservation and recovery measures where a species' range crosses a national boundary. Parties must regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild.

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[100] Concluded in Reykjavik on 2 March 1982; in force 1 October 1983.

[101] 16 October 1990, in force 1 October 1991.

[102] Caracas, 1 December 1996; not yet in force. It has so far been signed by Brazil, Costa Rica, Nicaragua, Peru, the United States and Venezuela.

[103] For US regulations on the use of TEDs by trawlers, see (1996) Title 50 *Code of Federal Regulations,* Parts 227.71 and 227.72. The Regulations provide an extensive description of Turtle Excluder Devices. See further de Klemm, C. 1999. (in press) *Fisheries Conservation and Management and the Conservation of Marine Biological Diversity.*

[104] E.g., the 1985 Nairobi Protocol sets out detailed activity controls and habitat conservation measures for species listed in four appendices: migratory species requiring coordinated protection efforts (Appendix IV, listing two whales, already strictly protected by the International Whaling Convention, the dugong and five species of marine turtle occurring along the African coasts). Only a tiny proportion of the species listed are marine.

[105] Arts. 11-13.

Despite these advances in regional frameworks for species conservation, some serious problems - notably the question of trade in wetland products - still need to be addressed. All of the conservation instruments referred to in this chapter deal only with domestic trade. By tacit consent, all recent instruments leave international trade matters to the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

CITES is in a unique position as it may be used as a complement to all conservation and fishery treaties dealing with the protection or regulation of the exploitation of particular species. It provides a mechanism for regulating commercial exploitation in wetland species and their products and derivatives. However, there is an imbalance with regard to trade controls for marine and other species under the existing CITES Appendices. These do list cetaceans, sirenians and sea turtles and a few species of seal. Appendix I lists a very small number of marine fish, including the Coelacanth *Latimeria chalumnae* and the Totoaba *Cynoscion macdonaldi*, whilst Appendix II includes all reef-forming corals and black corals, the Queen Conch *Strombus gigas* and the giant clams of the family Tridacnidae. However, there are very few commercially exploited marine species listed in CITES Appendix II, due to fierce resistance from the international fisheries sector which is subject to different treaty regimes and institutions. Despite the huge trade in coral reef ornamental fish, none are listed in the CITES Appendices and international trade in these species remains completely unregulated.[106]

As these examples show, the species and products dependent on or derived from coastal and marine wetlands are often less well protected by law than their terrestrial counterparts. Similar difficulties have already been described[107] with regard to the under-representation of coastal and marine wetlands in protected area or other conservation systems.

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[106] de Klemm, C. 1999. *supra* n. 103.

[107] See Chapters 5.2.4 and 9.2.2 above.

Chapter 25
Strengthening the Effectiveness of International Cooperation

25.1 Building Institutional Coordination on Wetland Issues

A large number of institutions, programmes and actors are now actively involved in some aspects of international and regional wetland policies. Coordination and streamlining between these instruments is essential for economic and organisational efficiency: institutions, like wetland areas, are likely to thrive in well-organised networks. Decision-making processes need to be seen as open and accessible by NGOs, interest groups and interested individuals.

Ramsar's expanding remit means that its institutions now interface with a much wider range of institutions and processes. The Strategic Plan calls for the Bureau to mobilize international cooperation and financial assistance for wetland conservation and wise use in collaboration with other conventions and agencies, both governmental and non-governmental.[108] In similar vein, Article 22 of the Convention on Biological Diversity promotes implementation in a manner consistent with other relevant conventions and international agreements and supports collaboration with regional, national and international organisations with a view to enhancing the CBD's capacity and effectiveness.

Traditionally, convention secretariats have operated without the benefit of formal coordination mechanisms. Agenda 21, adopted by the UNCED in 1992, emphasised the need to strengthen coordination with existing secretariats of environmental conventions.[109] UNEP now organises regular meetings between such secretariats in order to promote synergies in implementation activities and institutional arrangements: the guiding principle is to maximise the resources and expertise of relevant organisations and to avoid duplication of effort. Three Secretariats, for CMS, the UN Framework Convention on Climate Change and the Desertification Convention, are now co-located at the UN premises in Bonn, Germany.

The CBD Secretariat seeks to influence the programmes and activities of other international institutions and processes by producing policy guidance instruments.[110] It also concludes formal cooperative arrangements with certain intergovernmental bodies, usually in the form of Memoranda of Understanding. Cooperation of this kind involves the identification of areas of complementarity, where certain conventions have clear responsibilities for implementing provisions consistent with obligations under the CBD, as well as possible overlaps between different treaties and institutions. Cooperation agreements are generally designed to facilitate exchange of information and experience, to explore options for harmonising reporting requirements under the respective instruments and to establish priorities for coordinating respective programmes of work. Brief details of selected agreements concluded to date include:

- Ramsar-CBD Memorandum of Cooperation (19 January 1996). The COP to the CBD has taken formal note of the Ramsar Strategic Plan and in 1996 invited the Ramsar Convention

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[108] General Objective 7.

[109] Chapter 38.

[110] See generally Juma, C. *Cooperation between the Convention on Biological Diversity and the Ramsar Convention* in *Interactions with the Convention on Biological Diversity, the World Bank and the Global Environment Facility* (Proceedings of COP6, Brisbane 1996, Vol. 10/12, Technical Session C at pp. 11-13). See also CBD COP4, Decision IV/15.

to cooperate as a lead partner in the implementation of wetland-related activities under the CBD.[111] A Joint Work Plan has been developed under the Memorandum and was formally approved at the fourth meeting of the COP in 1998.[112]

- Ramsar-CMS Memorandum of Understanding (18 February 1997). This is designed to strengthen cooperation in the fields of implementation covered by both Conventions and by Agreements concluded under CMS. In particular, it establishes a formal basis for concerted action to facilitate implementation of the AEWA: the electronic Ramsar Forum is one of the channels used to publicise and distribute the AEWA newsletter published by the Interim Secretariat.

- Ramsar-Desertification Convention Memorandum of Cooperation (5 December 1998). This provides *inter alia* for joint scientific and technological activities in areas of common interest, including linkages between the respective expert networks to improve the identification of existing expertise in water and wetland management in arid lands. The secretariats must encourage their respective Parties to harmonise national and local integrated development programmes required under the Desertification Convention with national wetland policies and strategies recommended under the Ramsar guidelines on wise use.

The CBD is also developing institutional linkages with many other fora, including the 1992 UN Framework Convention on Climate Change and the UN Food and Agriculture Organisation. The Commission on Sustainable Development has emphasised the need to extend and improve institutional coordination for the conservation and sustainable use of marine biodiversity.

The trend towards more inclusive institutional frameworks can follow different paths, as illustrated in the examples below.

25.1.1 Creation of New Institutions Linking Different Intergovernmental Organisations

The Pan-European Biological and Landscape Diversity Strategy[113] is the first process to bring together all key players in European biodiversity and landscape issues in order to achieve agreed targets and fulfil agreed responsibilities at pan-European level. PEBLDS is administered by a Council which comes under the joint responsibility of UNEP and the Council of Europe and meets every two years. The Council comprises government representatives from the fifty-four States participating in the Strategy. International institutions and governmental and non-governmental organisations adhering to the Strategy have observer status. Operational responsibility for implementing the Strategy is conferred on an Executive Bureau, which meets twice a year, alternating between Strasbourg and Geneva. Lead responsibility for individual Action Themes is entrusted to designated national or international institutions. Ramsar has been designated as lead partner for Action Themes 6 and 7, dealing respectively with integrated management planning for rivers and their plains and wetland rehabilitation and hydrological management planning.[114]

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111 Decision III/21 (Buenos Aires, 1996).

112 Decision IV/15 (Bratislava, 1998).

113 See Chapter 4.3 above.

114 See Chapter 14.1 above.

25.1.2 Creation of Public-private Partnerships for Regional Cooperation

Although regional conservation treaties generally work well, there are not enough of them and their scope may be limited. The Ramsar Convention has pursued a strong policy of regionalisation during the 1990s which has been extremely fruitful.

In the Mediterranean, an almost enclosed sea fed by many large rivers and characterised by intense land and water use pressures in the coastal region, the Med Wet programme provides a comprehensive model for regional collaboration on wetlands.[115] It was created in September 1991 as a collaborative programme between the European Union, the Ramsar Convention, the five Mediterranean EU Member States, IWRB, WWF and the Tour du Valat Fondation.

MedWet prepares and oversees implementation of Action Plans which are co-financed by the European Commission, riparian EU Member States and private organisations. It aims to build close collaboration between all concerned international and supranational authorities, national and local governments, NGOs, knowledgeable individuals and groups representing wetland use interests. It has established standard methodologies for preparing inventories of wetlands around the Mediterranean Basin as well as a monitoring system. It organises wetland training and/or awareness-building programmes for protected area managers, policy-makers, the press and NGO staff.

25.1.3 Creation of Global Non-governmental Organisations

The contribution of local NGOs has already been underlined in several chapters of this book. In a regional or international perspective, a small number of NGOs effectively operate as partners within the international policy-making arena related to wetlands.

It will be recalled that IUCN, WWF and the former International Waterfowl and Wetlands Research Bureau have been closely involved in the drafting, adoption and/or subsequent development of many treaties in this book, particularly the Ramsar Convention. IWRB has provided technical support to the Ramsar Bureau under contract for many years and also provides technical services to many Contracting Parties. Certain NGOs have been formally designated as 'cooperating organisations' under the two Memoranda of Understanding developed under CMS and have lead responsibility for elaborating Action Plans. The AEWA will bring together nature conservation, wetland and hunting NGOs within the expert framework of its Technical Committee.[116]

Wetlands International was created on 1 January 1996[117] through the merger of three regional NGOs: the IWRB, located in Europe; the Asian Wetland Bureau, located in Malaysia; and Wetlands for the Americas. The mission of this global NGO is "to sustain and restore wetlands, their resources and biodiversity of future generations through research, information exchange and conservation activities worldwide". Its formal integration was recognition of the need for a stronger partnership to address the continuing loss and degradation of wetlands worldwide. The organisation plays a particularly important role in administering the International Waterfowl Census, a coordinated monitoring programme covering more than 100 countries in the Neotropics, Africa, Asia, Australasia and Europe and involving thousands of volunteers. It has prepared regional

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[115] It was endorsed by Recommendation 6.11 (Brisbane, 1996).

[116] See Chapter 24 above.

[117] Following joint meetings of the governing bodies of IWRB, AWB and WA at the International Conference on Wetlands and Development, Malaysia, October 1995 (see generally IUCN Wetlands Programme Newsletter No. 12/January 1996).

inventories of wetlands of international importance for almost all regions of the world and standard methodologies for national wetland inventories and for monitoring ecological change in wetlands. In each of these respects, the organisation has worked closely with and alongside the Ramsar institutions.

25.2 Promoting Wise Use Through Financial and Development Assistance

The international development assistance community determines investment priorities with regard to economic, industrial and infrastructure development and thus has immense influence over wetlands, nationally and globally.[118] The Ramsar institutions have long emphasised that wise use parameters must be integrated into international funding, an approach that has far-reaching implications for donor and recipient countries as well as the various lending institutions. The COP has variously recommended that:

- aid programmes should help finance environmental impact assessments prior to the implementation of large-scale projects to develop wetlands;[119]
- developing countries should pay more attention to wetland conservation in any request for and programming of assistance;[120]
- multilateral and bilateral development agencies and multilateral corporations should fully recognise wetland values and functions;[121]
- multilateral development banks and development agencies should give even greater priority to the formulation and adoption of coherent wetland development policies, procedures and practices directed at sustainable utilisation, wise management and conservation of wetlands;[122]
- developed country Parties should review their development cooperation policies in the light of the opportunities presented by Ramsar to assist developing countries to fulfil their obligations under the Convention.[123]

The Strategic Plan[124] specifically recommends that the development assistance community, and multinational corporations follow the Wise Use Guidelines in developing countries and countries whose economies are in transition, specifically by taking account of the OECD *Guidelines for Aid Agencies for Improved Conservation and Sustainable Use of Tropical and Sub-*

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118 After Phillips, B. 1998. *Reviewing Laws and Institutions relevant to wetlands in Australia.*

119 Recommendation 1.2 (Cagliari, 1980). The EIA requirements laid down by Article 14 of the CBD apply by implication to international lending institutions and bilateral aid donors would be directly affected by such a requirement (see e.g., Sands, P. 1995. *supra* n. 12).

120 Recommendation 1.6 (Cagliari, 1980).

121 Recommendation 4.13 (Montreux, 1990).

122 Recommendation 5.5 (Kushiro, 1993); Recommendation 6.16 (Brisbane, 1996).

123 *Ibid.* There are some examples of bilateral co-operation in respect of listed Ramsar sites. The Netherlands is cooperating with Mauritania in order to protect the Banc d'Arguin, one of the most important wetlands in the world on account of the millions of waterfowl which winter there, the existence of habitats of major importance for numerous species of fish and the presence of an endangered mammal, the monk seal.

124 General Objective 7 and operational objectives and actions specified under that heading.

Tropical Wetlands.[125] Payments from the Ramsar Small Grants Fund[126] are restricted to these groups of countries and may only be made for activities compatible with the Plan. The Bureau itself is required under the Plan to be more active in seeking sources of finance from bilateral and multilateral funding agencies: it is thus evolving from a technical support agency into a body that can generate financial support. The Bureau has separately emphasised that "governments, the donor agencies and local communities should afford high priority to restoring and rehabilitating those wetlands which have been lost or degraded", in view of the long term damage that has been inflicted on water systems.[127]

The *Wetlands for the Future* financial programme was established under a Memorandum of Understanding between the US Government and the Ramsar Bureau, concluded in 1994 and renewed in September 1997 for a further three year period. It consists of a small-grants initiative focused on Caribbean and Latin American regions. Funds provided by the US Government are disbursed by the Ramsar Bureau for meritorious proposals related to human resource development, training, technical information networks, awareness building and ecologically sound community management.

The Convention on Biological Diversity establishes a legal relationship between the conservation obligations of developing country Parties and the financial obligations of developed country Parties. It also provides for a financial mechanism under the guidance of and accountable to the COP to provide financial resources to developing country Parties on a grant or concessional basis.[128] The Global Environment Facility (GEF)[129] currently operates the financial mechanism for the CBD. Its missions include funding of projects to address destruction of biological diversity, desertification, deforestation and pollution of international waters. This means that there is significant complementarity between the GEF's funding criteria and many Ramsar wise use programmes. The Ramsar COP has urged that GEF funding be sought for larger projects for conservation and wise use of wetland biodiversity, where such projects are submitted under the CBD by Parties which are also Parties to the Ramsar Convention.[130] The GEF is now financing conservation projects in several listed Ramsar sites, often in border or coastal regions. The GEF may also provide a way of financing international cooperative actions under CMS where the Range States concerned are eligible for GEF funds.[131]

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125 These Guidelines, referred to several times in this book, were approved by the COP in Brisbane in 1996.

126 See Chapter 3.1 above.

127 *The Key Role of Wetlands in Addressing the Global Water Crisis*, Paper communicated to Contracting Parties by diplomatic notification on 19 February 1998 and presented to the delegates at an International Conference on Water and Sustainable Development, Paris, 19-21 March 1998.

128 Articles 20-21: see further Glowka, L. *et al.* 1994. *A Guide to the Convention on Biological Diversity*.

129 The GEF was created in 1991 and restructured in 1994 by three implementing agencies (United Nations Development Programme, United Nations Environment Programme and the World Bank) to provide financial resources to support projects addressing the main global environmental problems, including *inter alia* global warming, and depletion of the ozone layer.

130 Projects must be consistent with the GEF's Operational Strategy and the funding provided can only cover the incremental costs as defined by the GEF Instrument. Relevant components of the Operational Strategy include a waterbody-based operational programme, an integrated land and water multiple focal area programme and a contaminant-based operational programme.

131 See UNEP/CMS.Conf.4.16, p. 3.

Action taken under the Desertification Convention confirms this trend to improve access to appropriate financing compatible with wise use. A Global Mechanism has been established to rationalise the transfer of financial and technological assistance and to provide every country needing international support with full access to information on multilateral and bilateral sources. The Mechanism, which should act as a catalyst to improve coordination and to minimise institutional overlaps, is housed within an existing institution, the International Fund for Agricultural Development. This Fund will work in close cooperation with the UN Development Programme as well as the World Bank and African, Asian and Inter-American Regional Development Banks.

International funding may play a vital role in catalysing locally-based environmental initiatives. One example may be cited from the Loess Plateau in China, which spans several north-western provinces and autonomous regions: the area has very low rainfall and a long history of major erosion problems. Under the auspices of a World Bank programme, a system of contracts has been established with local fanners which guarantee their land-use rights[132] for up to 100 years. Upland farmers undertake to manage newly planted forests and keep their livestock out and will later have the right to use the forests on a sustainable basis for timber and fodder. Lower down, the hills have been terraced and planted with cereal crops, with small earth dams being constructed to stop water and soil running away. One hundred and fifty thousand ha of the Plateau have been rehabilitated in the last four years, including the construction of 45,000 ha of terraces. About half of the funding is provided in the form of soft loans: the remainder of the finance has been raised from Chinese sources.[133]

As with purely internal funding (tax incentives, subsidies etc.), it is essential that international financial mechanisms are consistent between themselves as well as with the wise use concept. One example of alleged funding discrepancies has been raised in the context of wetlands protected under the 1979 Bern Convention. Two NGOs, WWF and BirdLife International, have submitted a formal report to the Standing Committee[134] which claims that damage generated to certain Greek wetlands is linked to development activities funded through the EU's Structural Funds. At the same time, funding is being provided under the EU's LIFE environmental funding mechanism to conserve globally threatened birds in those wetland habitats.

The World Bank's Operational Directive on Environmental Assessment[135] is intended to ensure that development operations under consideration are environmentally sound and sustainable and that any environmental consequences are recognized early in the project cycle and taken into account in project design. Several countries have adopted equivalent provisions under national legislation. Australia's overseas development assistance programme, AusAID, is operated in accordance with Environmental Assessment Guidelines laid down for the Commonwealth's Aid Programme. Uganda's Investment Code enacted in 1991 expressly requires foreign and local investors to protect the environment.[136]

Looking ahead, internationally-backed programmes and projects can have important demonstration value for the benefits of integrated conservation and development schemes. International funds are increasingly targeted at sites recognized as of international importance; at border regions

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132 Security of tenure is often central to personal or community investment in sustainable land or water use practices, as discussed in Chapter 5.2.3 above.

133 *Precipitation Problems* (The Economist, 26 September 1998 at pp. 71-72).

134 Report of the Standing Committee, Strasbourg, 4 December 1998, Doc T-PVS (98) 62 at p. 27, concerning Lake Vistonis and neighbouring lagoons.

135 Adopted in October 1989, revised in 1991: see Chapter 17 above.

136 Section 19.

where transboundary cooperation can be promoted together with biodiversity conservation; and at river basins and coastal zones in which new techniques and procedures for integrated management may be pioneered. These trends open up promising opportunities for enhancing regional stability within the context of wise use and sustainable development.

PART VII

CONCLUSION

This book has drawn attention to the deeply-rooted legal, institutional and jurisdictional constraints which can hamper the implementation of international treaties and undermine efforts to build positive partnerships for wise use. On the other hand, it has also identified many examples of innovation and good practice by countries in very different circumstances and in very different stages of development. In this conclusion, it seems appropriate to look forward and to focus on new horizons or guiding principles for implementing wise use.

All countries have the potential to improve their legal and institutional frameworks. The shared aim should be to move beyond:

- reactive strategies to preventive and precautionary approaches and restoration;
- individual sites to general wise use policies co-ordinated with water management;
- administrative or political boundaries to integrated planning for ecological units;
- sectoral divisions to cross-sectoral and multidisciplinary planning;
- regulatory controls to flexible combinations with non-regulatory techniques; and
- exclusively public control to participation of communities and stakeholders.

For this purpose, States, whether Parties or not, should use and adapt the tools recommended by the Ramsar Conference of the Parties. The development of national wetland policies and a strong national wetland committee should be mutually reinforcing. Over time, these initiatives will help to build bridges and shape a supportive institutional culture, especially where backed by high-level political will. Policies should set clear national and local goals to guide all wetland conservation and management and have a strong and comprehensive legal basis.

Certain key issues should be considered when reviewing and developing legal and institutional frameworks for wise use.

Chapter 26
General Issues for Consideration

26.1 Number and Type of Laws

Wise use depends on full and effective implementation of existing legislation. Where wetlands are covered by more than one law, any links between these laws should be made explicit. Where wetlands fall between different laws, gaps should be filled and the legal regime strengthened and streamlined. Where appropriate, proper account should be taken of customary laws and traditions.

Separate wetland legislation should not generally be developed where there are already well-established laws, unless this is considered necessary after a thorough legal and institutional review. Decision-makers should always assess whether the same result could not be achieved more simply by amending and clarifying existing legislation.

In contrast, new Parties to the Ramsar Convention may benefit from adopting specific implementing legislation that gives visibility to wetlands, embodies conservation and wise use obligations and establishes a substantive and administrative framework for implementation and compliance.

26.2 Number and Type of Institutions

It is important to know which body has ultimate responsibility for wetland issues. This sounds self-evident, but in many countries there is no single authority with statutory responsibility for Ramsar's implementation. Many 'Ramsar Committees' or equivalent co-ordinating bodies lack teeth because they have no legal status or regulatory or financial powers. In both situations, the resource agencies who make wetland-related decisions on the ground will probably have to defer to government units not specifically qualified in wetland issues.

Every time a new institution is established, this can further overload the administrative maze and make it even harder to see where responsibility for different aspects of wetlands lies. It will often be more effective to designate one existing institution with a suitably-enlarged statutory mission related to wetland planning, measures and compliance. This body should be able to set measurable policy targets and objectives against which annual performance can be compared for sectors whose activities affect wetlands and for local government. The statutory duties of these public bodies should be amended to require them to take account of conservation and wise use in the exercise of their functions.

New institutions will need to be created for the integrated management of ecological units (river basins and coastal zones). As far as possible, these should be managed in a unitary or integrated way, based on scientific research. Changes of this type have implications for professional sectoral training, which needs to be reoriented towards multiple purpose resource management.

Multifunctional Cupertino may be strengthened through memoranda of understanding, rules of best practice or voluntary codes of conduct with particular sectors. New flexible partnerships should also be developed between public agencies, branches of the private sector, NGOs, stakeholders or user groups, and local communities.

Chapter 27
Components for Legal and Institutional Frameworks

All legal and institutional frameworks (whether made up of one or several laws) should contain certain key components. These are listed below, together with a basic checklist of factors that should be taken into account. This list is probably not exhaustive and does not restate the guidance already laid down by the Wise Use Guidelines and other tools.

27.1 Definition of Wetlands

Wetlands need to be clearly defined by law to make it possible to target regulatory measures (permit/planning controls) and incentives at some or all wetland habitat types. The definition must be scientifically based and as precise as possible, in accordance with the realities of the country. It should clearly state if wetlands below a certain threshold are exempted and whether areas adjacent to wetlands are covered by the definition and in what circumstances.

Coastal and marine wetlands should be covered by this definition or by compatible provisions laid down by other legislation.

The relationship between the definition and wetland inventories should be made clear. If the definition is linked to wetlands included in a particular inventory, the inventory should be subject to formal approval as it will have legal consequences for wetland owners. One approach is to annex such inventories to implementing regulations.

Where wetlands are covered by several laws, the same definition should be used wherever possible. If similar, but not identical definitions are used, this can be a recipe for confusion and litigation.

27.2 Scope of Relevant Legislation

Legislation should state unambiguously whether it applies to all wetlands, public or private. If it does not automatically apply to private wetlands, it must be clear in what circumstances such wetlands do come under the legislation. In some cases, landowners effectively apply the law on a voluntary basis (for instance, where they benefit from tax exemptions if they bring their property within the ambit of the law). Where appropriate, the legal status of wetlands in communal ownership should be made clear.

The law must also specify whether it provides generally applicable protection to wetlands or whether they must be designated by regulations in order for controls to be applicable.

27.3 Principles and Objectives

Legislation should where possible lay down the principle that the conservation and wise use of wetlands are of public interest, for present and future generations, and should be promoted throughout national territory. A declaration of public interest (whether in a constitution or primary legislation) gives important legitimacy to wetlands and usually confers additional duties or powers on public authorities to take action where these protected objects are threatened. Many existing laws specify that certain areas or resources (e.g., water, minerals, river banks, floodplains, sea shores...) are goods of public interest, access or use of which may be regulated or managed.

More generally, legislation should support the precautionary and polluter/user pays principles and *inter alia* the principles of prevention, restoration, transboundary consultation and use of best environmental practice. Such provisions should by law be incorporated into decision-making processes of all sectoral authorities whose activities may adversely affect wetlands.

27.4 Transfer of Jurisdiction

The creation or designation of a public body with lead responsibility for Ramsar implementation means that certain functions will usually need to be transferred from other government departments or agencies to the competent minister or body. Again, the scope of such a transfer must be legally unambiguous and the jurisdictional position must be clear. Legal uncertainty typically arises with regard to private wetlands and, in some cases, to wetlands under communal ownership or management.

Legislation should clearly state whether the competent minister's jurisdiction extends to marine areas adjacent to coastal wetlands (in other words, does it cover the land-sea interface).

As part of this jurisdictional reshuffling, statutory duties should be placed on relevant sectoral departments and, where appropriate, subnational or local government units, to consult the competent authority on specific categories of development in or affecting wetlands. Governments should take the lead in reducing wetland loss and degradation caused by the actions of government departments and public agencies.

27.5 Powers of the Competent Minister or Ramsar Implementation Body

The scope of authority of the competent body must be clearly defined: do its powers stop at law-making (regulations in respect of wetlands and activities affecting wetlands) or do they extend to issuing permits for activities affecting wetlands? If the former is true, the linkages between the strategic body and the permit-issuing authority/authorities must be made explicit.

In general terms, the competent body should be able to develop policies for resource use; initiate and supervise the development of ecosystem-based management approaches; define sectoral priorities; promote the role of private actors, citizen bodies, local communities and indigenous peoples; and initiate and participate in transboundary co-ordination.

More specifically, it must be able to assess and control environmentally adverse processes and actions; set standards to prevent or minimise impacts of actions on natural resources; provide incentives; monitor compliance, enforce regulations and set penalties for illegal practices; confer special status on certain areas, species or resources; and provide a legal basis for integrated management and community participation and representation.

Where the legislation provides for the creation of a technical advisory committee, its composition and functions should also be laid down by legislation. A committee of this type may be responsible for determining scientific criteria for defining, inventorying and monitoring wetlands. Members should preferably be drawn from a broad range of disciplines, including economics and social sciences.

27.6 Integrated Planning Instruments and Procedures

All types of integrated planning should involve analysis of the environmental status and socio-economic conditions and priorities in a bioregional context and an assessment of the short and long terms consequences of different options. Procedures should provide for public consultation at relevant stages of the planning process and stakeholder involvement and contributions should be maximised. The output should provide clear strategic guidance on appropriate policies and development criteria for different parts of the area under consideration. Maps should be incorporated or annexed to planning documents to promote legal certainty and clarity. Monitoring provisions should be formally included in integrated planning.

Integrated planning documents should be drawn up in a co-ordinated way involving all competent sectoral and territorial units. Following a formal approval process at subnational or national level, such documents should be legally binding on all decision-making bodies. Their provisions should therefore take precedence over any local or sectoral plans already in existence: the latter should be brought into conformity with integrated plans within a given timescale.

Integrated land-use planning should use zoning techniques to combine socio-economic, cultural and nature and landscape conservation objectives. It should incorporate protected areas and provide for ecological corridors, sustainable management areas and restoration zones. Measures should be consistent with higher-level regional master plans, which should in their turn conform to national policies for treaty implementation. At local level, progressive training of planning officials and managers should be instituted.

Integrated river basin planning involves an important conceptual shift, with wetland ecosystems being treated both as providers and users of water. It is essential that water law makes it possible for freshwater resources and the water regime in rivers to be managed consistently with the maintenance of wetland ecological processes. The aim - over time - should be to deliver full functional and territorial integration in or beyond national boundaries. Planning should take into consideration all aspects of soil and water conservation and management within a whole catchment, including floodplains: it should cover the length, width and depth, including groundwater. Legal tools to support non-structural approaches to managing water flow include minimum flow legislation; integration of riparian buffer zones to protect vegetation and minimise water pollution; area-based conservation measures to safeguard important watersheds, groundwater quality and floodplains. Account should be taken of seasonal wetlands, such as vernal pools.

Integrated coastal planning should provide for physical planning instruments applicable to the sea as well as to the land. Institutional structures should be designed or modified to have jurisdiction over both sides of the land-sea divide for a defined set of purposes. Competent institutions should have powers to regulate and manage at least the majority of activities which generate processes destructive to biological diversity and other properties of the maritime-terrestrial zone. Legislation should make it possible to establish nature parks as mixed land-sea areas, with specific reference where appropriate to transboundary co-operation on protected area management.

These planning procedures, and the permit systems described below, should integrate provision for strategic and project-specific environmental impact assessment. Legislation should provide for a precautionary approach within the EIA screening process. Where there are doubts about whether a proposed activity or programme may have a significant impact on wetlands or water systems, an EIA should always be undertaken.

27.7 Permit Systems for Activities in or Affecting Wetlands

Legislation should support an inclusive approach to the conservation and sustainable use of wetland biodiversity. It should provide for the identification of potentially damaging processes and for the use of regulatory or non-regulatory techniques to control or manage all activities likely to generate such impacts. All activities which adversely affect wetlands, wherever they occur, should be addressed by legislation. Appropriate tools and techniques for this purpose will obviously vary between countries. To keep administrative systems manageable and efficient, the scope of permit systems may be limited by reference to threshold or other criteria. It will usually be helpful to issue regulations clearly specifying the activities or developments that are subject to permit from the competent authority. Exemptions for agricultural and forestry activities in ecologically fragile areas should be prohibited or kept to a strict minimum. Particular care must be taken in using terms like "routine" or "normal" when defining the scope of permitted activities, as this works against legal certainty.

Legislation and operational guidelines should, as a matter of priority, establish precise and sequenced criteria to ensure that interests are appropriately balanced before a permit is granted or refused. This should improve the quality of administrative decision-making and ensure consistency. The regulatory framework should provide for a series of administrative options (avoidance, minimisation, mitigation, compensation), preferably linked to a classification of wetlands according to their ecological importance. Where wetlands are effectively irreplaceable, priority should always be given to preventing loss or degradation.

27.8 Protected Areas and Areas Managed for Conservation

Protected area legislation should be sufficiently broad to deliver a range of management objectives, from strict wetland reserves to multiple use. Instruments should take account of the particular vulnerability of wetlands (boundary delimitation, extended management powers). The creation, design and management of areas managed for conservation and wise use should be an interdisciplinary process that reflects the wishes and needs of local communities and other users, provided that this is compatible with maintenance of a site's ecological character. Site-specific protection regimes should promote dialogue and Cupertino between public authorities, stakeholders, local users and indigenous peoples.

The legal status of non-statutory sites (private or voluntary reserves, areas dedicated to conservation or sustainably managed by NGOs) should be reinforced to prevent expropriation by public agencies except in the most exceptional circumstances.

27.9 Tools for Public Ownership or Control of Important Wetlands

Public acquisition policies are often appropriate and necessary for the most important wetlands. Governments should target acquisition strategies at outstanding wetlands and natural areas of particular ecological value, especially where these form part of regional wetland networks or are located in stressed coastal regions or watersheds. For this purpose, legislation should establish the right of preemption and, as a last resort, expropriation with regard to land situated in ecologically important areas. Appropriate levels of compensation should be paid in such cases.

Governments should also improve the management of wetlands in public ownership and restore publicly-owned wetlands. These acquisition and management policies can often be delivered in collaboration with qualified NGOs, which may be granted special funds for this purpose.

27.10 Incentive Systems and Non-regulatory Measures

Legislation should seek to increase incentives for wise use and conservation of wetlands in private and communal ownership and to eliminate all perverse incentives which encourage wetland loss or destruction.

Voluntary mechanisms for private wetlands may take the form of income or land tax exemptions or incentives, contracts and sectoral conservation payment schemes. All of these should be conditional on compliance with appropriate management prescriptions for soil conservation or land and water use. Stewardship approaches should be promote to reward responsible land users for the wetland functions and values that they safeguard or recreate, legislation. Tax incentives should be instituted for donations of land or money for conservation, including through the use of conservation easements. Wherever possible, incentive schemes should be streamlined and delivered through a single agency to minimise duplication or conflicts in funding priorities. Incentives for environmentally sensitive agriculture should apply to a whole farm rather than a few fields on marginal land.

Incentives for wetlands under communal ownership should be designed to maximise participation in integrated conservation and development projects. Legislation should make it possible to institute community-based programmes for wetland resource management and for the proceeds of sustainable practices to be returned, at least partly, to such communities. Financial and/or technical assistance should be provided where appropriate to support income diversification initiatives compatible with wise use.

27.11 Compliance, Enforcement and Penalties

Legal systems need not only to set standards but also to provide procedures in the event of non-compliance by public bodies at different levels. An effective compliance regime should provide for comprehensive monitoring, adequately-resourced enforcement personnel and the availability of judicial review proceedings to verify the legality of public actions or omissions. Qualified NGOs should be formally empowered to initiate administrative law proceedings in certain cases. Adequate and timely information should be available to all concerned parties.

Criminal law penalties are often established under different laws, adopted at different times. Care must be taken to ensure consistency between these offences and the penalties they establish. Frequently, penalties established under modern environmental legislation are much higher than older offences perhaps relating to unlawful drainage or water abstraction. In some cases, different authorities may be responsible for prosecuting offences.

Persons or legal entities found liable for damaging or destroying wetlands should be legally required to restore the site. Where restoration is impossible, a fine should be levied that is at least equivalent to the cost of rehabilitation.

Efforts should be made to develop non-judicial techniques for improving compliance, including environmental mediation, negotiations and community-based dispute resolution procedures. What is appropriate will of course vary depending on the culture and traditions of the country concerned.

* * *

Wetlands benefit countries and communities, economically, ecologically and culturally. Laws and institutions must evolve to reflect their tangible and intrinsic values more fully. The role of wetlands within water systems needs to be more generally understood, both at international and governmental level and by local people most directly concerned by wetland use. Looking towards the next millennium, we need new approaches to the ecological and administrative framework in which wetlands are managed. It is hoped that this book will provide all those concerned or interested with food for thought and ideas for action.

Selected Bibliography

Aguilar, G. 1998. *Legal Aspects of the Conservation and Wise Use of Wetlands in Costa Rica* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

Arends A., Cerovsky J. and Pickova, G. 1995. TRANSBOUNDARY BIODIVERSITY CONSERVATION: SELECTED CASE STUDIES FROM CENTRAL EUROPE. Ecopoint Praha.

Barbier, E.B., Acreman, M. and Knowler, D. 1997. ECONOMIC VALUATION OF WETLANDS: A GUIDE FOR POLICY MAKERS AND PLANNERS. Ramsar Convention Bureau, Gland, Switzerland.

Barborak, J.R. 1995. *Institutional Options for Managing Protected Areas* in McNeely, J.A. (ed.). 1995. EXPANDING PARTNERSHIPS IN CONSERVATION. Island Press and IUCN-The World Conservation Union at pp. 30-38.

Bardi, A. (ed.). 1996. *Wetlands in Italy.* Worldwide Fund for Nature, Italy, May 1996.

Bender, S. O. 1995. *Protected Areas as a Protection Against Natural Hazards.* In McNeely, J.A. (ed.). 1995. EXPANDING PARTNERSHIPS IN CONSERVATION. Island Press and IUCN-The World Conservation Union. At pp. 115-126.

Bennett, G. (ed.) 1991. EECONET: TOWARDS A EUROPEAN ECOLOGICAL NETWORK. Institute for European Environmental Policy.

Birnie, P. and Boyle, A. 1992. INTERNATIONAL LAW AND THE ENVIRONMENT. Oxford University Press.

Blumm, M.C. 1989. *Public Property and the Democratization of Western Water Rights: A Modern View of the Public Trust Doctrine in Environmental Law,* Vol. 19, pp. 573-603.

Braahekke, W.G. and Marchand, M. 1987. *Wetlands: the Community's Wealth.* European Environmental Bureau, Brussels, Belgium.

Burchi, S., 1991. *Current Developments and Trends in the Law and Administration of Water Resources - a Comparative State-of-the-Art Appraisal.* Journal of Environmental Law, Vol. 3.1 at pp. 69-91.

Burhenne-Guilmin, F. and Burhenne, W. 1991. *Competent Authorities and Levels of Decision-Making in Wetland Protection* in IUCN 1991. LEGAL ASPECTS OF THE CONSERVATION OF WETLANDS at pp. 43-56.

Butler, L.L. 1990. *Environmental Water Rights: An Evolving Concept of Public Property* in *Virginia Environmental Law Journal,* Vol. 9, pp. 323-380.

Commission of the European Communities. 1995. *Wise Use and Conservation of Wetlands,* Communication from the Commission to the Council and the European Parliament COM(95), Brussels.

Davis, T.J. (ed.). 1993. TOWARDS THE WISE USE OF WETLANDS. Ramsar Convention Bureau.

Dovers, S.R and Day, D.G. 1988. *Australian Rivers and Statute Law,* Environmental and Planning Law Journal, Vol. 5/2, June 1988, pp. 98-108.

Dugan, P.J. 1990. WETLAND CONSERVATION: A REVIEW OF CURRENT ISSUES AND REQUIRED ACTION. IUCN Gland and Cambridge.

Dugan, P.J. and Jones, T.A. 1993. *Ecological Change in Wetlands: A Global Overview* in Moser, M., Prentice, R.C and van Vesem, J. (eds.) 1992. WATERFOWL AND WETLAND CONSERVATION IN THE 1990s: A GLOBAL PERSPECTIVE. Proceedings of the IWRB Symposium, St Petersburg, Florida, November 1992. IWRB Special Publication No. 26.

Dugan, P.J. and Maltby, E. 1995. *Protected Areas and the Hydrological Cycle* in EXPANDING PARTNERSHIPS IN CONSERVATION. Island Press and IUCN-The World Conservation Union, pp. 105-114.

Dunning, H.C. 1989. *The Public Trust: A Fundamental Doctrine of American Property Law in Environmental Law,* Vol. 19, pp. 515-525.

Enemark, J. 1998. *Wetlands-related Legislation and Institutions in the Wadden Sea Countries* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

Filion, F.L. 1995. *Vers la création d'un groupe d'experts au sein de "Wetlands International", chargé de l'evaluation économique des zones humides.* Paper presented at the International Conference on Wetlands and Development, Selangor, Malaysia, 10 October 1995.

Finlayson, M. (ed.) 1992. WETLAND CONSERVATION AND MANAGEMENT IN THE LOWER VOLGA, RUSSIA, Proceedings of a Workshop in Astrakhan, Russia (29 September-3 October 1991) IWRB, WWF and IUCN Special Publication No. 18, June 1992.

Giraudel, C. 1997. LA PROTECTION CONVENTIONNELLE DES ESPACES NATURELS: DROIT FRANÇAIS ET COMPARÉ DE L'ENVIRONNEMENT. Research carried out by Limoges University for the French Ministry of the Environment, Contract DGAD/SRAE/95218 of 11 December 1995).

Glowka, L., Burhenne-Guilmin, F. and Synge, H. in collaboration with Jeffrey McNeely and Lothar Gündling. 1994. A GUIDE TO THE CONVENTION ON BIOLOGICAL DIVERSITY. Environmental Policy and Law Paper No. 31, IUCN Environmental Law Centre. IUCN Gland, Cambridge and Bonn.

Glowka, L. 1998. A GUIDE TO DESIGNING LEGAL FRAMEWORKS TO DETERMINE ACCESS TO GENETIC RESOURCES. Environmental Policy and Law Paper No. 34, IUCN Environmental Law Centre. IUCN Gland, Cambridge and Bonn.

Glowka L. in collaboration with Clare Shine, Orlando Rey Santos, Mohiuddin Farooque and Lothar Gündling. 1998. A GUIDE TO UNDERTAKING BIODIVERSITY LEGAL AND INSTITUTIONAL PROFILES. Environmental Policy and Law Paper No. 35, IUCN Environmental Law Centre. IUCN Gland, Cambridge and Bonn.

Hamilton L., Mackay, J., Worboys, G., Jones, R. and Manson, G. 1996. TRANSBORDER PROTECTED AREA COOPERATION. Australian Alps Liaison Committee and IUCN.

Hansen, B.T. 1990. *Reserved Water Rights for Wilderness Areas - Current Law and Future Policy* in *Virginia Environmental Law Journal,* Vol. 9, pp. 423-443.

Huggett D. 1997. DEVELOPING A NO NET LOSS POLICY FOR COASTAL WETLANDS. Royal Society for the Protection of Birds, UK.

IUCN. 1998. Conference Proceedings *of Parks for Peace: International Conference on Transboundary Protected Areas as a Vehicle for International Cooperation* (Somerset West, Cape Town, 16-18 September 1997).

IUCN. 1991. LEGAL ASPECTS OF THE CONSERVATION OF WETLANDS (Scientific Direction, Untermaier, J.). Papers presented at an international conference held in Lyon, 23-26 September 1987. Environmental Policy and Law Paper No. 25. IUCN Environmental Law Centre. IUCN Gland, Cambridge and Bonn.

Jeffery, R.C. 1993. *Zambia: Wise Use of Floodplain Wetlands in the Kafue Flats,* in TOWARDS THE WISE USE OF WETLANDS, Ramsar Convention Bureau (pp. 145-152).

Jepsen, P.U. 1992. *Wetland Conservation: Integrated Management Structures* in Finlayson, M. (ed.) 1992. WETLAND CONSERVATION AND MANAGEMENT IN THE LOWER VOLGA, RUSSIA.

Kingsford, R.T. 1997. *Wetlands of the World's Arid Zones* (report submitted by the Ramsar Convention Bureau to the First Session of the COP to the UN Convention to Combat Desertification).

Kiss, A. 1989. DROIT INTERNATIONAL DE L'ENVIRONNEMENT. Pedone, Paris.

de Klemm, C. 1999. (in press) *Fisheries Conservation and Management and the Conservation of Marine Biological Diversity* in DEVELOPMENTS IN INTERNATIONAL FISHERIES LAW, Kluwer (Chapter 15).

de Klemm, C. and Shine, C. 1999. GUIDELINES FOR LEGISLATION TO IMPLEMENT CITES (2nd edition). CITES Secretariat, Châtelaine-Geneva, Switzerland.

de Klemm, C. in collaboration with Shine, C, 1993. BIOLOGICAL DIVERSITY CONSERVATION AND THE LAW: LEGAL MECHANISMS FOR CONSERVING SPECIES AND ECOSYSTEMS, IUCN Environmental Policy and Law Paper No. 29.

de Klemm, C. 1992. LEGAL FRAMEWORK FOR THE APPLICATION OF ARTICLE 5 OF THE RAMSAR CONVENTION. Ramsar Convention Bureau.

de Klemm, C. and Shine, C. 1998. INTERNATIONAL ENVIRONMENTAL LAW: BIOLOGICAL DIVERSITY. Course 6, Programme of Training for the Application of Environmental Law. UNITAR.

de Klemm, C. and Shine, C. 1996. LEGAL MEASURES FOR THE CONSERVATION OF NATURAL AREAS. Council of Europe, Nature and Environment, No. 82.

de Klemm, C. and Créteaux, I.1995. THE LEGAL DEVELOPMENT OF THE RAMSAR CONVENTION. Ramsar Convention Bureau.

Lambers, C. 1989. *Wetlands: the (Im)possibilities of Law?* In Proceedings of the International Congress on Nature Management and Sustainable Development, Groningen 1989, pp. 372-381.

Lyster, S. 1985. INTERNATIONAL WILDLIFE LAW. Grotius Publications, Cambridge.

Maltby, E. 1997. *A Tale of Two Melaleucas* in ECOSYSTEM MANAGEMENT: CONSERVATION IN A HUMAN CONTEXT. IUCN World Conservation 3/97 at pp. 8-11.

McCurdy, M.C. 1989. *Public Trust Protection for Wetlands* in *Environmental Law,* Vol. 19, pp. 683-721.

McNeely, J.A. (ed.). 1995. EXPANDING PARTNERSHIPS IN CONSERVATION. Island Press and IUCN-The World Conservation Union.

Mermet, L. 1990. *Participation, Strategies and Ethics: Role of People in Wetland Management* in Proceedings of the International Conference on the People's Role in Wetland Management, Leiden, pp. 92-99.

Mermet, L. 1991. France in Turner, K. and Jones, T. (Eds.). 1991. WETLANDS: MARKET AND INTERVENTION FAILURES. Earthscan Publications, London.

Miller, K.R and Lanou, S.M. 1995. NATIONAL BIODIVERSITY PLANNING: GUIDELINES BASED ON EARLY EXPERIENCES ROUND THE WORLD. World Resources Institute, UNEP and IUCN.

Munasinghe, M. and McNeely, J. (eds.). 1994. PROTECTED AREA ECONOMICS AND POLICY: LINKING CONSERVATION AND SUSTAINABLE DEVELOPMENT. World Bank and IUCN-The World Conservation Union.

Nosse, E.A. 1995. GLOBAL MARINE BIOLOGICAL DIVERSITY: A STRATEGY FOR BUILDING CONSERVATION INTO DECISION-MAKING. Centre for Marine Conservation, IUCN, WWF, UNEP and the World Bank.

Nollkaemper, A. 1996. *The River Rhine: from Equal Apportionment to Ecosystem Protection* in *International Watercourses*, Review of European Community and International Environmental Law, Vol. 5/2, pp. 152-160.

Ntambirweki, J. 1998a. *Modalities for the Implementation of the Ramsar Convention through National Legislation in Africa* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

Ntambirweki, J. 1998b. *The Evolution of Policy and Legislation on Wetlands in Uganda* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

OECD Development Assistance Committee. 1996a. GUIDELINES ON GLOBAL AND REGIONAL ASPECTS OF THE DEVELOPMENT AND PROTECTION OF THE MARINE AND COASTAL ENVIRONMENT. Guidelines on Aid and Environment No. 8. OECD, Paris.

OECD Development Assistance Committee. 1996b. GUIDELINES FOR AID AGENCIES FOR IMPROVED CONSERVATION AND SUSTAINABLE USE OF TROPICAL AND SUB-TROPICAL WETLANDS. Guidelines on Aid and Environment No. 9. OECD, Paris.

Paleologou, E. and Salathé, T. 1993. EUROPEAN COMMUNITY INSTRUMENTS FOR WETLAND CONSERVATION. Doc XI/061/94.

Panini, D. 1998. *The Ramsar Convention and National Laws and Policies for Wetlands: a Case Study of India* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

Phillips, B. 1998. *Reviewing Laws and Institutions Relevant to Wetlands in Australia* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

Prieur, M. 1997. *Model Law on Sustainable Management of Coastal Zones (Draft 3),* Document prepared for the Bureau of the Committee for the Activities of the Council of Europe in the field of Biological and Landscape Diversity (PE-S-CO(97) 2).

Pritchard, D. 1997. IMPLEMENTATION OF THE RAMSAR CONVENTION IN TRINIDAD & TOBAGO. RSPB Sabbatical Report/Ramsar Convention Bureau.

Ramsar Convention Bureau. 1997. THE RAMSAR CONVENTION MANUAL: A GUIDE TO THE CONVENTION ON WETLANDS. 2nd edition, Gland, Switzerland.

Ramsar Convention Bureau. 1993. *Compte-rendu de l'atelier 2: Aspects institutionnels et réglementaires,* Proceedings of the Ramsar Seminar on Wetland Conservation in the Caribbean Region, Cayenne-Sinnamary, French Guyana, 26 April-2 May 1993, pp. 169-172.

Renard, Y. 1993. *Responsabilité locale et co-gestion des zones humides, Proceedings of the Ramsar Seminar on Wetland Conservation in the Caribbean Region*, Cayenne-Sinnamary, French Guyana, 26 April-2 May 1993, pp. 151-158.

Rigg, K. 1997. *European Code of Conduct for Coastal Zones (Draft 3),* Document prepared for the Bureau of the Committee for the Activities of the Council of Europe in the field of Biological and Landscape Diversity (PE-S-CO(97) 4).

Rubec, C. with contributions from Paul Mafabi, Maryse Mahy, Nadra Nathai-Gyan, Bill Phillips and Dave Pritchard. 1999. A FRAMEWORK FOR DEVELOPING AND IMPLEMENTING NATIONAL WETLAND POLICIES (Draft Resolution for consideration by Ramsar COP7, Document 15.6).

Sand, P.H. 1998. ROLE OF INTERNATIONAL ORGANIZATIONS. Course 2, Programme of Training for the Application of International Environmental Law, UNITAR, UNEP and IUCN.

Sands, P. 1995. PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW: VOLUME I (FRAMEWORKS, STANDARDS AND IMPLEMENTATION). Manchester University Press, CSERGE, IUCN and FIELD.

Shelton, D. 1997. TECHNIQUES AND PROCEDURES IN INTERNATIONAL ENVIRONMENTAL LAW. Course 3, Programme of Training for the Application of Environmental Law. UNITAR.

Shine, C. 1998a. *Perspectives on Compliance with Soft Law: a Comparative Analysis of Selected Agreements Concluded Pursuant to the Convention on the Conservation of Migratory Species of Wild Animals* in GLOBAL CHANGE AND NON-BINDING LEGAL ACCORDS, American Society of International Law and Oxford University Press.

Shine, C. 1998b. Ramsar COP7 DOC. 17.3, Associated Background Paper to Ramsar COP7 COD. 15.7, Proposal No. 7, Draft Resolution on *Guidelines for Reviewing Laws and Institutions to Promote the Conservation and Wise Use of Wetlands.*

Shine, C, 1996. PRIVATE OR VOLUNTARY SYSTEMS OF NATURAL HABITAT PROTECTION AND MANAGEMENT. Council of Europe, Nature and Environment, No. 85.

Skinner, J. 1992. *Wetlands and Biodiversity -The Need for Protected Areas* in Finlayson, M. (ed.) 1992. WETLAND CONSERVATION AND MANAGEMENT IN THE LOWER VOLGA, RUSSIA at pp. 31-38.

Solano, P. 1998. *Reviewing Laws and Institutions Relevant to Wetlands in Peru* in DESIGNING METHODOLOGIES TO REVIEW LAWS AND INSTITUTIONS RELEVANT TO WETLANDS. Case Studies and Papers presented at a Ramsar Bureau/IUCN Technical Consultation, Gland, Switzerland, 3-4 July 1998.

Synge, H (ed.)- 1994. *Parks for Life: Action for Protected Areas in Europe.* IUCN - The World Conservation Union in association with the Federation of Nature and National Parks of Europe (FNNPE), the World Wide Fund for Nature (WWF), the World Conservation Monitoring Centre (WCMC) and BirdLife International.

Thorsell, J. (ed.) 1990. PARKS ON THE BORDERLINE: EXPERIENCE IN TRANSFRONTIER CONSERVATION. IUCN Protected Area Programme Series No. 1, Gland.

Turner, K. and Jones, T. (Eds.). 1991. WETLANDS: MARKET AND INTERVENTION FAILURES. Earthscan Publications, London.

United Nations Environment Programme. 1995. *Legislating Chemicals: An Overview.* Joint Publication by the Environmental Law and Institutions Programme Activity Centre and the International Register of Potentially Toxic Chemicals Programme Activity Centre.

Untermaier, J. 1991. *Aires protégées et zones humides*, in IUCN 1991. LEGAL ASPECTS OF THE CONSERVATION OF WETLANDS.

van Droste, B. 1995. *Biosphere Reserves: A Comprehensive Approach.* In McNeely (ed.), pp. 58-62.

Wessel, J. 1991. *Institutional Arrangements Which May Promote EWM*, in Papers from a Seminar on the Ecosystems Approach to Water Management (United Nations Economic Commission for Europe, Oslo, 27-31 May 1991).

Westing A. (ed.). 1993. TRANSFRONTIER RESERVES FOR PEACE AND NATURE: A CONTRIBUTION TO HUMAN SECURITY. UNEP.

Abbreviations

Algiers Convention	African Convention on the Conservation of Nature and Natural Resources (Algiers, 16 September 1968; in force 7 May 1969)
Apia Convention	Convention on the Conservation of Nature in the South Pacific (12 June 1976, Apia, Samoa; in force 28 June 1990)
ASEAN Agreement	Agreement on the Conservation of Nature and Natural Resources (Kuala Lumpur, 9 July 1985; not yet in force)
Barcelona Protocol	Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (Barcelona, 9-10 June 1995; not in force)
Bern Convention	Convention on the Conservation of European Wildlife and Natural Habitats, (Bern, 19 September 1979; in force 1 June 1982)
Desertification Convention	United Nations Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa (12 September 1994; in force 26 December 1996)
COP	Conference of the Parties
GEF	Global Environmental Facility
Habitats Directive	Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (OJ L 206, 22 July 1992)
Helsinki Convention	Convention on the Pollution and Use of Transboundary Watercourses and International Lakes (Helsinki, 17 March 1992; in force 6 October 1996)
IUCN	IUCN-The World Conservation Union
IWRB	International Waterfowl and Wetlands Research Bureau, now part of Wetlands International
UNCLOS	United Nations Convention on the Law of the Sea (Montego Bay, 10 December 1982; in force 16 November 1994)
UNEP	United Nations Environment Programme
Western Hemisphere Convention	Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (Washington, 12 October 1940; in force 1 May 1942)
Wild Birds Directive	Council Directive 79/409/EEC of 2 April 1979 on the Conservation of Wild Birds (OJ L 103, 25 April 1979 as amended)
World Heritage Convention	Convention for the Protection of the World Cultural and Natural Heritage (Paris, 16 November 1972; in force 17 December 1975)
WWF	World Wide Fund for Nature
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Economic, Social and Cultural Organisation

Index

Certain terms are used throughout this book and arc therefore not included in the index. These include references to the Ramsar Convention and Convention on Biological Diversity, wise use, conservation, management, wetlands and biological diversity.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Y

Z

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