

Parks for Life

**Future Challenges and Directions
for Protected Areas in South Asia**



**Proceedings of the Commission on National Parks and Protected Areas
42nd Working Session, Islamabad, Pakistan
September 21-23, 1994**

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List of Abbreviations

CNPPA	Commission on National Parks and Protected Areas
ESCAP	Economic and Social Commission for the Asia-Pacific
FAO	UN Food and Agriculture Organisation
GEF	Global Environment Facility
ICIMOD	International Centre for Integrated Mountain Development
IUCN	IUCN - The World Conservation Union
IUCN HQ	IUCN Headquarters
MPA	Marine Protected Area
MAB	Man and the Biosphere Programme (UNESCO)
NP	National Park
PA	Protected Area
PRA	Participatory Rural Appraisal
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Commission
WCMC	World Conservation Monitoring Centre

Summary of Proceedings

SEPTEMBER 21, 1994 Session 1: Setting the Scene

1.1 Overview of Protected Areas Coverage in South Asia – Mr. Jame R. Paine

Main points

- CNPPA plays an important role in preparing and updating the UN List of National Parks and Protected Areas.
- Over the last five years the number of protected areas in the region has shown a very nominal increase, with Bangladesh having the least percentage of protected area coverage.
- A very small proportion of the PAs in South Asia come under IUCN Management Category V; this point should be noted in the preparation of the new regional action plan for PAs.
- The World Bank project to update information on PAs in the region was elaborated upon. The Corbett Action Plan for Protected Areas of the Indomalayan Realm, as it is known, will be implemented through a series of workshops coordinated by Mr John McKinnon and the World Conservation Monitoring Centre.

Comments

- It was proposed that an updated list of the world's protected areas should try and apply the new IUCN Protected Areas Management Categories to the existing network of each country.
- The importance of the World Bank exercise to update information on PAs in the region was recognised. At the same time, the need to make necessary arrangements to ensure input from the CNPPA regional network was also acknowledged.

1.2 Country Report, Bangladesh – Mr Salamat Ali

Main Points

- The main environmental threat to PAs is the high rate of deforestation -- a result of commercial logging. Another problem is the demands on natural resources within many existing PAs by indigenous communities.
- Many national parks are not in conformity with the IUCN definition for this category. A review of the existing PA categories using the new IUCN system should be given top priority.
- Increased attention should be given to wetland conservation in the country, especially due to its national and regional importance. Wetland protection has been promoted by the establishment of different wildlife sanctuaries, but many of these are threatened by environmental problems like salinization of inland waters.
- It is imperative that increased support be given to transboundary PAs, particularly those critical for the survival of endangered species. For example, tigers are a species that should be ensured protection all over the region.

Comments

- The importance of increasing efforts for the conservation of tigers in the region was emphasized as was the need for better cooperation on transboundary PAs and wildlife management.

1.3 Country Report, India - Mr S.C. Dey

Main Points

- All the biogeographical units in India are represented in its PAs, but most of these are not efficiently managed and protected.
- The main problems that beset PAs are: outlaws seeking shelter in the area, ancestral rights of

people within PAs, management problems with the surrounding areas, insufficient institutional capacity for PAs, inadequate information for PA planning and management, and the need to reinforce the skill and training of human resources in PAs.

- India has undertaken several measures to improve this situation e.g. the preparation of national conservation and development objectives, improvement of policy frameworks, increased financial resources for conservation, creation of facilities and programmes for training, enforcement of regulations and laws, as well as promotion of interaction among governmental institutions and NGOs.

Comments

- Given the fact that imported ideas have proved neither useful nor valid in the region, identifying the policies 'we need' is a priority. The importance of a National Environmental Policy for each country, in the light of the principles of Agenda 21 and the Convention on Biological Diversity, was stressed.
- The conservation of the tiger population needs more regional as well as interactional cooperation and support.
- New PAs in the Himalaya, especially transboundary ones, should be established. Cooperation on transboundary PAs could thus be a suitable subject for CNPPA networking.

1.4 Country Report, Nepal – Mr John McEachern

Main Points

- Tourism is becoming an important factor for the national economy. For this reason PA management should focus not only on natural resources, but also on the cultural heritage of the country and its people, who represent a 'living heritage'.
- The PA management has to consider the population density and social characteristics of the country as it must contend with the use of natural resources by local communities. To resolve any conflict, it is important to use innovative approaches to PA planning and management.
- Institutional arrangements and capacity building for the establishment and management of PAs should be increased. It is important that the local people participate in the preparation and implementation of PA management plans.

Comments

- Some fraction of tourism profits should be reinvested in the management of PAs. Efforts must be made to convince tourist agencies of this.
- Priority should be given to the development of family planning programmes as part of the management plan for highly populated PAs. This will help to reduce potential pressure on natural resources in the future.
- It was noted that while Nepal was receiving substantial help and assistance from the donor community and international agencies, the same was not true of other countries within the region. This situation demands careful analysis by IUCN in order to restore a balance.

1.5 Country Report, Pakistan - Mr Abeedullah Jan

Main Points

- An adequate planning system for PAs as well as improvement in the management of existing units is necessary. Although both have been listed as priorities by the National Conservation Strategy, additional interaction and support is required to achieve these objectives.
- The main problems related to PA management are (a) lack of human resources; (b) a need for better integration between PAs and important development sectors such as forestry, fisheries etc.; (c) the development of alternative means and sources for financing PA activities.
- Apart from interacting with other countries in the region, it is important to promote greater involvement of the local population in PA conservation and management, and to offer viable alternatives to the use of natural resources.

Comment

- The importance of linking PA issues with the objectives of the National Conservation Strategy as well as the Biodiversity Convention, was stressed.

1.6 Country Report, Sri Lanka - Mr S. Medawewa

Main Points

- Increasing the number of PAs is not necessarily a means to effective conservation. Approximately 12% of Sri Lanka's land area is under varying degrees of protection, and the last few

years have seen an increase in the number of PAs. At the same time, forest cover has decreased rapidly while population growth continues to be high.

- There is a lack of awareness of the importance of PAs, especially among policy and decision makers.
- When PA management is integrated with government policy on land utilization, the importance of community participation must be strongly emphasized.

Session 2: Broadening the Traditional Focus of PAs in South Asia

2.1 Integrating Sustainable Development and Conservation: What is the Future for Protected Areas in South Asia?

Mr S. Medawewa

Main Points

- The improvement of national protected area systems, particularly the reconciliation of various development and conservation sector objectives, is a vital consideration for policy-making.
- Future PA projects should include a critical evaluation of current administrative and legal frameworks in order to improve the mechanisms for project implementation.
- The increasing demands on PA resources to fulfill the needs of the local communities lends more importance to the development of management plans for buffer zones. These can promote the effective involvement of local communities in conservation projects.
- Priority should be given to education and training at all levels, but particularly to that of influential groups such as village heads, decision makers and the mass media.

Comments

- A specific action plan based on the evaluation of environmental and social information, and pertaining to social development in PA buffer zones, should be prepared.
- Although buffer zone management is a key component of the Biosphere Reserve concept, it has not been sufficiently practised in the region.

2.2 Future Issues and Challenges for Marine Protected Areas in South Asia -

Dr Ranjith De Silva

Main Points

- A better network of Marine Protected Areas should be developed in the region, to preserve valuable resources and sustain long term productivity in important marine ecosystems, specially coral reefs. A lackadaisical attitude coupled with little education and awareness of this issue are major obstacles that must be addressed without delay.
- Importance should be given to international and regional cooperation regarding marine PAs. There is much talk but little effective action in this sphere.
- The lack of integration between land use planning and coastal/marine protected areas management should be addressed through the objectives of the National Systems Plan for PAs.
- The role of tourism in marine PAs is increasing in the region, with an adverse impact on natural resources. More diligence is required in the planning and design of the tourism infrastructure in coastal and marine PAs.
- More international funds must be sought for the development of field projects, as well as for the training of selected field managers.

2.3 Application of the World Heritage Convention and the Biosphere Reserve Concept in South Asia: Future Challenges -

Dr N. Ishwaran

Main Points

- One of the most important lessons learnt from the Biosphere Reserve Programme is the need for planning conservation activities for the people, with the people — on a daily basis.
- Positive field projects must be identified to demonstrate how conservation and development can be integrated into PAs. The framework of a Biosphere Reserve offers a good opportunity for achieving this objective.
- UNESCO's most effective means of interacting with specialists, governments and NGOs is through networking, something that should be a priority in the region.

Comments

- It was noted that, despite the success of the Biosphere Reserve concept, confusion still prevails on the application of the concept.

SEPTEMBER 22, 1994

Session 3: Building Community Support for PAs in South Asia

3.1 Involving Local Communities in Protected Areas in South Asia: Challenges - Mr Siddharta Bajracharya

Main Points

- In countries with a high population density, such as Nepal, local people are dependent economically, socially and culturally on the use of natural resources, especially in the PAs.
- In these conditions PAs should focus more on conservation for the people and by the people. This should be mainly through an active process of discussion with the communities of questions such as: What do the people need? What do we want from the people? and What can we offer the people?
- Some practical elements in the process of integrating people into conservation activities are: (a) extension practices and demonstration projects; (b) education and awareness programmes on issues specifically related to existing local problems; (c) imparting alternative skills to the women in order to involve them in economic activities; (d) provision of adequate incentives to the people as well as empowering them to interact in the preparation and implementation of management projects. The only way to obtain successful results is by winning the local communities' trust.
- The involvement of young people in ecotourism, particularly as guides for trekking activities, has been a successful exercise; it also provides them with an alternative source of income.

Comments

- Poor people from urban areas are increasingly migrating to natural areas where they can have 'free' recourse to available resources. This creates conflict between the traditional communities and the new arrivals which has repercussions on how natural resources are utilised.

- The resource demand of local communities, and their possible sustainable availability within the PAs should be evaluated.
- The participation of local people in the management of PAs should promote the creation of local institutions to ensure the long term continuity of this process.

3.2 Building Public Support for Protected Areas in South Asia - Ms Nafisa Shah

Main Points

- Press campaigns have often been a starting point to publicise the discussions between government officers and local people, especially in cases where the locals are being pressurised to move out of the PAs where they live.
- If a 'model park' implies no human habitation, it is not advisable. Such a model would also be too large to control or manage effectively.
- The press must ally itself with the institutions concerned with conservation in order to communicate these issues to the general public. In this context, the support offered by the IUCN Pakistan office was acknowledged.

Comments

- Radio programmes are extremely effective in conveying environmental messages to both the urban and the rural population.
- Surveys have found that rural communities are more aware of local environmental problems, while people in the urban centres are more concerned about global conservation issues.

3.3 Biodiversity Conservation through Local Community Participation: the Himalayan Jungle Project Experience - Mr Guy Duke

Main Points

- The management of PAs, particularly in developing countries, is increasingly a question of resolving conflicts between poverty and the environment. This is not a coincidence, for PAs are often the only sites where there still exists available natural resources.
- The preparation and use of maps on biodiversity, to identify the key areas for conservation was a very useful exercise.

- Some commercial logging practices currently in force — such as the use of rivers for the transportation of timber which results in almost 50% of the timber being lost — are unsustainable.
- The management and administration of the project is being carried out at the local level through the participation of local communities and their institutions. In this respect, the identification and involvement of the leaders of each community during the process was commendable. The local structure and organization created by this conservation project proved useful when relief measures were needed after a natural disaster struck the area. This illustrated the multiple social possibilities of this approach.
- After a participatory process of negotiation between the government and the local communities, the latter, in return for the government's pledge to reconstruct certain social facilities (specially bridges and roads), agreed to establish a PA in an important site for biodiversity conservation. In this case, therefore, the PA was created 'by the people'.
- As part of the project some demonstration activities related to forestry management, agroforestry and hydroelectric generation have been launched. As a result, the local per capita income has increased more than 200% in almost two years.

Session 4: Making it Work — Capacity Building for PAs in South Asia

4.1 Towards the Next Century: Training Priorities for Protected Areas in South Asia - Mr Hemendra S. Panwar (presented by Mr S. C. Dey)

Main Points

- The reference to western park models in training programmes in developing countries, and the employment, by and large, of a 'single' programme has proved to be misguided. Training programmes cannot be designed within a single model; they should always be adapted to the constraints and problems of each country and attempt to provide aids for park managers to overcome these problems.
- Training programmes should, where possible, have two approaches. They should address

the planning and management requirements of the country and integrate knowledge and management of its particular ecosystems, species, landscapes and social problems.

- It would be useful to design flexible programmes, that offer managers as many alternatives as possible for different problems and several paths for conflict resolution.
- The preparation of programmes for specific biomes is required in the region, and should be considered a special skill acquired through training.

Comments

- Tourism and visitor management training, that grooms guides from the protected areas' local communities, should be prepared and implemented as soon as possible.
- Due to the importance of wildlife projects in the region, programmes specifically designed for the population management of key species, such as tigers, need to be launched in the region.
- Besides training programmes for PA managers, awareness programmes should also be offered for decision makers, members of national parliaments, and even foreign affairs officers, in order to enlist the support of these sectors for PAs.
- Regional training programmes to facilitate the sharing of experiences in various PAs in different countries should be launched.

4.2 Future Cooperation on Protected Areas in the South Asian Region with Emphasis on Information Collection - Mr Pei Shengei

Main Points

- In order to design and implement sustainable development models, the collection and exchange of information among Protected Area managers, particularly with reference to the region's mountain and other ecosystems, and biodiversity should be used as a resource.
- It is not only important to gather primary information on species and ecosystems, but also to evaluate and obtain as much information as possible from the field experience culled from demonstration projects.
- The International Centre for Integrated Mountain Development has the potential to

function as a regional unit that can promote, coordinate and assist in the regional gathering and sharing of information on mountain ecosystems. Given this possibility, there needs to be increased cooperation between CNPPA and ICIMOD on the following:

- biodiversity information;
- management of transboundary PAs, species and ecosystems;
- networking for coordination, information, training and sharing field projects; and
- information on projects of sustainable development in PAs.

Comments

- Cooperation between CNPPA and ICIMOD, and between ICIMOD and the regional institutions is a vital issue that must be highlighted in the regional action plan. But to implement this cooperation, it is essential to first define priorities, and set in motion the mechanism 'to make things happen'.
- Some of the major priorities on information exchange in the region are related to: (a) 'hot spots' of high biodiversity richness; (b) ecotourism planning and visitor management; (c) management of transboundary PAs and species (c) networking for coordination, information, training and sharing of field programmes.

4.3 Capacity Building for Protected Areas in South Asia: Future Challenges – Mr Kishore Rao

Main Points

- The Corbett Action Plan was a well prepared one for its time, but considering the rapid socio-economic changes in the region, allowing almost 10 years to pass between the plan's introduction and its review is too long. Any new action plan must recognize the need for systematic monitoring of its implementation.
- Many issues related to the Corbett Action Plan are still valid, such as the (a) strengthening of PAs and wildlife authorities; (b) establishment of training facilities and programmes; (c) development of policies and management plans for PAs; (d) provision of adequate financial and material support for infrastructure development; (e) establishment of research and monitoring facilities. These issues, however, have not been

comprehensively addressed mainly because of inadequate financial resources.

- Results from research are sporadic and rarely incorporated as inputs into management strategies. Also, it is often not comprehensive enough to benefit park managers. So far, little recognition has been given to social research as an important PA management issue.
- Considering the social and natural problems that managers have to deal with, an innovative approach to PA planning and management is required. The new Category VI offers one possibility in this context, but other mechanisms have to be explored.
- Among the requirements that a new Regional Action Plan should consider are the following: (a) development and encouragement of professionalism in PA management; (b) improvement of financing issues, perhaps by the creation of a regional trust fund for PA management; (c) more emphasis on constituency building and functioning of PA task forces in the region; (d) more effective international assistance, especially for training, monitoring and regional coordination.

Comments

- Regional cooperation plays an important role in creating 'national focal points' and enhancing the interaction and information sharing among countries. CNPPA is an appropriate channel that could create links in the region, possibly through networking activities.
- To facilitate CNPPA networking in the region, existing strong institutions, rather than newly created ones, should be made use of.

SEPTEMBER 23, 1994 Session 5: Financing PAs in South Asia – Future Directions

5.1 Future Priorities for Protected Areas in South Asia – Mr Samar Singh (presented by Mr John Joseph)

Main Points

- Many of the priorities mentioned in the Corbett Action Plan are still valid in the region, but need to be updated to reflect the present socio-economic and environmental realities.

- Future action on PAs should take into account the importance of involving local people from the very outset of any planning or management project. The development of alternatives to the use of natural resources by local communities must be considered.
- Marine/coastal PAs have been virtually neglected in the establishment of new PAs in the region. Not only are there insufficient mechanisms to create this type of PA, but also little understanding of its importance.
- Under the Biodiversity Convention and Agenda 21 the role and importance of PAs in the region should be reinforced and cooperation among PA managers, social groups, the private sector and decision makers should be promoted.
- Possible means of convincing governments and decision makers of the need to change the mechanisms for the flow of funds from the national budget to PA activities should be explored. The process of obtaining and utilising those funds needs to be facilitated. However, the benefits that accrue from PA management, such as those from ecotourism, must be retained in order to reinforce management activities.

Comments

- IUCN, as well as other conservation institutions, should study possible means of resolving problems that arise from the existence of towns and human settlements within PAs. This issue is particularly relevant to the South Asia region.
- Alternatives need to be devised for compensating local people for the damages or losses that they may have been sustained from the increase in wildlife population as a result of conservation activities. This compensation should consider 'in cash' and 'linking' options, and be prompt and efficient enough to win the local people's trust.

5.2 Future Priorities for Investment in Protected Areas in South Asia - Mr Hikmat Nasr

Main Points

- Natural areas of international and regional importance, particularly those with the potential for biodiversity conservation, should be given priority for financial support and investment.
- Priority is given to those national or field projects that promote policy changes on conservation issues and ecodevelopment projects, partic-

ularly those related to agriculture, forestry, and watersheds sustainable use and that enlist the active involvement of the local communities.

- The World Bank is increasingly interested in biodiversity conservation, which includes: (a) national conservation strategies; (b) training for management of PAs and wildlife and (c) policy development. It has been noted that the establishment and management of marine PAs offers numerous possibilities for investment.
- South Asian countries are receiving an increasing amount of funding for conservation. So far, more than US\$ 30 million have been dedicated to conservation issues in the region, but much more still needs to be done. The flow of funds from international sources has, however, resulted in a corresponding reduction in national funds dedicated to conservation activities.
- In order to ensure that the funds are efficiently used and that positive results can be achieved by such assistance, monitoring of projects is one of the World Bank's main priorities over the next few years.

Comments

- As far as the possibility of NGOs obtaining funds for projects from the World Bank is concerned, the fact is that the latter works mainly with governments. It does, however, work to promote coordination between national agencies and NGOs.
- The monitoring and evaluation of projects can provide grounds for future cooperation between IUCN and the World Bank, particularly in the use of IUCN's technical expertise, its network of regional and national offices, and its various commissions.
- IUCN should persuade international agencies to monitor the continuity of projects. Quite often, after the funds given for preparation of strategies and action plans have been consumed, there is no aid forthcoming for their actual implementation.

5.3 Towards the Next Century: Funding Mechanisms for Protected Areas in South Asia - Mr David Sheppard

Main Points

- Donors have an increasing interest in PA issues as well as in the long term development of projects.

- To make efficient use of funds it is important to first clearly define the priorities for the allocation of resources. The revenue generation component of any project should be closely monitored, so that funds can act as a 'seed' mechanism to ensure long term financing.
- Priorities for financing should be developed through a process of consultation, not only with agencies directly involved in PA issues, but also with those involved in social, economic and development activities, including the private sector.
- The possibility of creating national trust funds to finance PAs has been examined, at a meeting held earlier this year in Bolivia. The use of this creative option, however, requires much coordination and interaction between different government and non-governmental agencies.

Comments

- The possible creation of national trust funds for PAs requires that IUCN, as soon as possible, prepare and distribute a compilation of the existing information on this subject, offering relevant examples and general guidelines for extending this experience to countries in South Asia.
- IUCN should put pressure on national governments to dedicate more funds and resources for conservation. Many governments complacently expect 'external help' to assist them with this task.

Session 6: Where from Here? Future Prospects for PAs and CNPPA in South Asia

Mr Adrian Phillips, CNPPA Chair, began by explaining the role and mandate of CNPPA, and the regional structure of its Steering Committees. The development of the European Action Plan for PAs was discussed and it was acknowledged that a broad consultation process was essential for its successful preparation and ratification. The experiences of the East Asia CNPPA Steering Committee were also mentioned, particularly the establishment of mechanisms to finance its activities, as well as its method of sharing responsibilities with different members in the region. Some of these points were also referred to by Professor Xianpu Wang, CNPPA Vice Chair for East Asia.

Following a spirited debate and discussion, the gathering arrived at a consensus on the following points:

- The need to establish a CNPPA Steering Committee for South Asia, and promote the necessary support for its activities. The need to make use of existing capacity in certain national institutions, and the importance of identifying and recruiting people who can assist the regional Vice Chair in his work was stressed, as was using the existing capacity of national institutions.
- The CNPPA Steering Committee must undertake a comprehensive compilation and evaluation of comments on the Draft Regional Action Plan prepared by IUCN Headquarters. The task also implies a critical revision of the Corbett Action Plan, in order to identify the changes required and the objectives to be achieved in accordance with the existing environmental and social conditions, and the requirements and constraints of each country.
- The importance of carrying out, as part of the review of the Corbett Action Plan and the IUCN Draft Regional Action Plan, an evaluation of the existing laws and regulations pertaining to PAs and wildlife in the region, was stressed. This is in order to identify possible elements that can be included in a new action plan to reinforce the legal framework for regional conservation activities.
- The creation of a Central Database on Protected Areas and Wildlife, which would allow the identification of similar actions and priorities. For this purpose, the resources of institutions like the IUCN Pakistan office and ICIMOD, along with available information in WCMC, can be drawn upon.
- The need to involve the CNPPA Regional Steering Committee in the development of the World Bank project, to review information on PAs to define priorities for regional actions was stressed. Coordinated by Dr John McKinnon, this project will require the active participation of CNPPA members in South Asia as well as of other relevant individuals and institutions involved in PA issues. The World Conservation Monitoring Centre which is also a participant in this project, will help promote the necessary coordination.

Statement Adopted by the 42nd Working Session of CNPPA

Experts and country representatives from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka met at the National Agricultural Research Centre, Chak Shezad, Islamabad, September 21-23, 1994, at the 42nd Working Session of the Commission on National Parks and Protected Areas (CNPPA) of IUCN-The World Conservation Union. At the conclusion of their meeting they adopted the following statement:

Expression of Appreciation

The meeting extends its sincere thanks and appreciation to the Government of Pakistan, particularly the Ministry of Food, Agriculture and Cooperatives and also to IUCN Pakistan for the excellent work done in preparation for the meeting, and their generous hospitality and support throughout. We also thank the United States National Parks Service and the World Wide Fund for Nature for their support which has enabled experts from outside Pakistan to attend the meeting.

Background Observations

The title of the meeting — Parks for Life — expresses succinctly, the intimate connection between Protected Areas and the livelihood of rural communities particularly characteristic of South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka). The number of PAs established in the region has grown impressively over the past two decades. However, since populations and the demand from rural people for biological resources have grown even more rapidly, PAs have often become the focus of intense struggles between biodiversity conservation and development demands. There is an urgent need, at the local, national and regional levels, to demonstrate the practical benefits of PA management to local and rural communities, in ways that will ensure the long term ecological integrity of PAs.

The Corbett Action Plan for the Indo-Malayan Realm, adopted at the last session of CNPPA held

in the region in 1985, has been valuable and influential in helping to promote the cause of PAs in South Asia. However, the circumstances in which the Corbett plan was adopted have changed a great deal. For example, it is now necessary to take account of the Caracas Action Plan, Agenda 21, the Convention on Biological Diversity and the emergence of new concepts on the linkage between PAs, conservation of biodiversity and sustainable development. It is, therefore, necessary to produce a new regional action plan for PAs, specifically focused on the needs of South Asia. The first draft of such a plan, prepared by the Programme on Protected Areas of the IUCN Secretariat in Switzerland, was circulated with the papers for the Working Session. It was also noted that a GEF-funded project was underway to update the Review of the Protected Areas System of the Indo-Malayan Region (MacKinnon and MacKinnon, 1986).

Certain lessons can be learnt from the experience of implementing the Corbett Action Plan. It is for example, important to understand the obstacles to its implementation. In preparing the new plan, the process of preparation should be designed to build support among a broad constituency (including IUCN members and donor organizations).

Notwithstanding the need to proceed forthwith with the preparation of a new action plan, it is also necessary to initiate certain actions immediately, especially those relating to the central concern of the meeting: demonstrating a closer link between ecologically sustainable rural development and PAs.

It is essential that the role of CNPPA be strengthened in the region in order to give a higher profile to PAs work. A Regional Vice Chair should be appointed as a priority, assisted by a Regional Steering Committee. There should be more members (present membership is 32 and several countries are poorly represented), and members need to be engaged as an active network working for the CNPPA mission at the provincial, national and

regional level. As well as ensuring a high quality product in the regional action plan, a widened membership will be better able to promote CNPPA's interests at the national level, for example in advocacy with governments. The membership of CNPPA in South Asia should comprise leading PA professionals in governments, government agencies and NGOs. It should be expanded with a view to recruiting people who would be ready to devote time and effort to CNPPA, especially to strengthening marine expertise and to IUCN's policy on gender balance.

The papers presented at the meeting, a summary of the discussions and the conclusions of the workshops will be brought together in a record of the meeting. Participants hope this will be done quickly, so that the experience of the 42nd Working Session can be consolidated, shared more widely and drawn on in undertaking the recommended actions listed below.

Decision

In light of the above, the 42nd Working Session of CNPPA decided as follows:

Development of CNPPA in South Asia

- A CNPPA Regional Vice Chair for South Asia should be appointed as soon as possible;
- A CNPPA Regional Steering Committee for South Asia should be established, consisting of one or two CNPPA members from each country;
- In each country, there should be a national focal point for CNPPA; and
- A concerted drive should be made to expand the present membership of CNPPA in the region, towards an initial target of 60-70 members, in order to provide a stronger basis for the actions recommended below, bearing in mind the criteria for CNPPA membership.

Preparation of a Regional Action Plan for PAs in South Asia

- The central role of CNPPA in the region should be to prepare and spearhead the implementation of a new regional action plan. The Regional Vice Chair should be the focal point for this exercise;
- As a first step, the first draft of the plan presented at the meeting should be reviewed by CNPPA members within each country and country-specific amendments and actions identified. In so doing, CNPPA members should

take into account the report of the 42nd Working Session, especially the conclusions of the working groups, and seek to involve appropriate institutions, especially IUCN members, using IUCN National Committees where appropriate;

- CNPPA should seek to collaborate closely with the project to update the 1986 systems review funded through the GEF; in particular, the Regional Vice Chair and members of the Steering Committee should endeavour to attend the review meeting for South Asia planned as part of that project in Nepal in November 1994;
- A meeting of the CNPPA Regional Steering Committee for South Asia should take place, not later than mid-1995, at an appropriate venue in the region, to review the inputs from CNPPA members, agree upon the broad shape of the regional action plan's final version and decide what steps should be taken to complete and launch it. This meeting should provide an opportunity to seek the support of the major donors in the region (e.g. bilateral donors, and multilateral funding bodies) in order to secure commitments to support the implementation of the plan;
- The plan should be finalized as soon as possible thereafter; and
- To help ensure implementation, the plan should:
 - specifically recommend the preparation of national systems plans for protected areas,
 - contain a strategy for implementation,
 - contain targets to be achieved and against which performance can be measured, and
 - propose a monitoring programme to ensure that progress — or the lack of it — is kept under review.

Resources for Regional Cooperation

- Since the work involved in coordinating the regional action plan exercise is considerable, it is essential that resources be sought urgently to employ an assistant to the Regional Vice Chair. As soon as the Regional Vice Chair is appointed, s/he should collaborate with IUCN HQ and the CNPPA Chair in filling this post;
- In accordance with arrangements in place in other regions, it is also important that the Regional Vice Chair receive the support of his/her employer institution in carrying out

CNPPA duties, e.g. time off for meetings and some help in meeting communications costs; and

- A major re-orientation of donor support will be needed if the new action plan is to be implemented. A key role of CNPPA in the region should be to secure such support, along with the support of national and provincial agencies and NGOs in the region.

Immediate Action

The following initiatives are recommended for immediate action:

- Each country should review its national system of Protected Areas against the recently published IUCN Guidelines for Protected Areas Management Categories, and allocate PAs into one of the six categories now recommended;
- Identify the opportunities for transborder cooperation in the management of PAs in the region, develop a plan for such cooperation and implement decisions. The experience of ICIMOD should be sought in connection with this initiative;
- Undertake a detailed study to document the current state of people/PA relationships in each country in South Asia. The study should document:
 - the demographic and socio-economic status of tribal, rural and other communi-

ties in and around rural areas, and ascertain the extent of their dependence on the biological resources of PAs;

- the extent to which such dependence is based on cultural, religious and similar considerations;
- the attempts made to involve local communities in PA management, and an assessment of the success of these approaches, and
- the relevance of concepts such as Biosphere Reserves, the Cultural Landscapes Classification within the context of the World Heritage Convention and PA management categories V and VI to promoting the harmonization of people-PA relationships;
- Promote the preparation of regional training programmes, using existing institutional capacity and expertise within the region, as well as promoting and organizing training institutions and programmes at the national level; and
- Review and publicize the experience of different countries in national and site-specific administrative arrangements for PAs.

The lead responsibility for promoting regional interest in the implementation of the actions points should rest with the CNPPA Steering Committee for South Asia.

Welcome Address

Abeedullah Jan

Inspector General, Forests, Ministry of Food, Agriculture and Cooperatives, Pakistan

On behalf of the Government of Pakistan, the Ministry of Food, Agriculture and Cooperatives and myself, I would like to welcome the chief guest, and the distinguished guests attending the opening session of the 42nd meeting of the IUCN Commission on National Parks and Protected Areas in the South Asian Region.

It is indeed an honour and a privilege for the Government of Pakistan to co-sponsor this prestigious Regional Meeting of CNPPA which has been convened to promote regional cooperation and international collaboration in the field of National Parks and Protected Areas. We believe it is an important event and a timely step in the right direction.

Conservation of habitats is a prerequisite to conserving flora and fauna, both resident and migratory, and the most effective way of conserving habitats is by creating National Parks and Protected Areas. No doubt it is important to have a good network of National Parks and Protected Areas to conserve biodiversity in all ecosystems but merely designating some pieces of land and wetland as PAs is not sufficient to achieve the objective of conservation. Their scientific management is equally important. Where we stand in this endeavour in Pakistan and in the South Asian region is an important item on the agenda for this meeting.

This meeting will, therefore, provide an opportunity to review the PAs network in South Asian countries and their current programmes, together with future plans in the light of the Corbett Action Plan and the Caracas Congress Resolution, and to suggest recommendations.

This meeting is very important for Pakistan for many reasons — not the least being our strong desire to promote regional cooperation in this area. To this end, we have chosen to host this event which is being attended by scientists and experts from South Asia as well as from international organizations who share our concerns and are keenly interested in assisting and expanding the network

of National Parks and PAs and in managing them scientifically for the benefit of present generations as well as for posterity.

Pakistan is proud to have established a large network of Protected Areas including National Parks, Wildlife Sanctuaries, Ramsar Sites and Game Reserves. This is where the natural heritage of the country is concentrated and managed for conservation consistent with the concept of sustainable utilization.

Because of the Indus flyway we play host to millions of wintering migratory waterfowl in our wetlands every year. We are, also, trying to enforce protection in these areas in order to preserve their ecological value.

We, therefore, welcome the opportunity this meeting provides us to review our achievements and to talk about our constraints. We shall certainly benefit from the regional and international experience, and make suitable adjustments wherever needed.

Such adjustments will be possible through interaction between Pakistani professionals and the large number of scientists, research workers and experts assembled here. We hope that our experience will also be of interest to the foreign delegates. This meeting is, therefore, of significant scientific value not only to us but also to the foreign delegates.

In addition to the exchange of information and experience and exploration of other avenues of cooperation between the countries represented here, it is essential to realize the full potential of the PAs network in the region. I am sure the participants will take advantage of this opportunity and identify new areas for mutual cooperation.

Before I conclude, let me express my gratitude to the sponsors and our co-host, the IUCN Commission on National Parks and Protected Areas. I thank the chief guest, distinguished guests and delegates for the keen interest they have demonstrated in the cause of National Parks and Protected Areas by their participation in this meeting.

Opening Address

Adrian Phillips

Chair, Commission on National Parks and Protected Areas, IUCN

May I first say what a pleasure and privilege it is to be in Pakistan. In no other country can IUCN have had a larger presence and more influential programme than here. This is not only a tribute to the excellent work done by Aban Marker Kabraji and her colleagues in the IUCN Pakistan office — it is also a measure of the sympathy the government and the people of Pakistan have for the values which IUCN-The World Conservation Union was set up to promote.

I also want to use this occasion to thank everyone in the IUCN office for the effort they have put into preparing for this important Commission on National Parks and Protected Areas meeting. We are especially indebted to Abdul Latif Rao. Anyone who has been involved in coordinating international meetings will know that the inevitable uncertainties as to who will attend, and the consequent need for repeated juggling of the programme, imposes a heavy workload. We are indebted to Rao for shouldering it.

On behalf of IUCN, I welcome you to the 42nd session of the Commission on National Parks and Protected Areas of IUCN.

CNPPA last met in South Asia nearly 10 years ago, in 1985, at the Corbett National Park in India. Since then, the Commission has held 16 sessions and taken its travelling caravan to most parts of the world. IUCN, CNPPA and indeed even our understanding of National Parks and Protected Areas have changed a great deal over the past decade. I would like to use this occasion to update you on recent developments at IUCN, and more particularly within CNPPA — and thus set the scene for our three-day meeting.

IUCN has just gone through the first stage of a major reassessment of its role and way of working. I cannot possibly, in the limited time available, do justice to all that has been gleaned from the process, but there seem to be several important strands of thinking which can act as signposts for us in our meeting.

First, IUCN has adopted a mission statement: "to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use made of natural resources is equitable and ecologically sustainable."

In short, IUCN is about conservation and ecologically sustainable development. So, I believe, are Protected Areas.

Next, IUCN is embarking on a major programme of regionalization and decentralization. As Aban Marker Kabraji has noted, IUCN is no longer, if it ever was, a conventionally structured conservation body based in the North, but a unique union with Worldwide membership. If it is to satisfactorily deliver its services to its members, it must be nearer to them, reflecting their priorities and needs.

Therefore, the majority of IUCN staff no longer work from headquarters in Switzerland, and the bulk of its funding is handled in regional and country offices. Indeed the newly appointed Director General, David McDowell, has made no secret of his intention to further reduce the number of staff in Headquarters.

Third, at its most recent General Assembly in Buenos Aires, IUCN strongly reaffirmed its belief in its Commission structure. It is often said that the Commissions, with their networks of volunteer experts, make IUCN unique and give it unrivalled strengths. Mr McDowell has already taken steps to reinforce the resources available to the Commissions.

Finally, there is a realization that all parts of IUCN — the various arms of the secretariat, its governmental and non-governmental membership, its six Commissions and other networks — must work closely together and integrate their efforts. In this way, the inherent strengths of IUCN can be maximized.

Each of these developments, I believe, has important implications for us in CNPPA. The new

mission — regionalization, greater involvement of the membership in IUCN's activities, a more central role for the Commission and closer integration between various parts of IUCN — these are all very relevant to us. Their relevance, I think, will become even more apparent as we move into our review of the Corbett Plan and a revised action plan for Protected Areas in South Asia.

That brings me to CNPPA itself. You will know that it is one of six Commissions. One of the others, on Environmental Law is chaired by a distinguished Pakistani lawyer, Dr Parvez Hassan who is, unfortunately, unable to join this regional session though he will attend the Pakistan systems plan meeting on Sunday. Like all Commissions, CNPPA is a volunteer body. Its membership amounts to some 750 individual experts from most countries in the world.

CNPPA is organized primarily on regional lines; in that sense, we can perhaps claim to have led the way for the rest of IUCN. For each of our 14 regions we have a Vice Chair (there are two in Africa) — except here in South Asia. The reason for this deplorable lacuna is that last summer the CNPPA's governing 'cabinet' — the steering committee — decided that the previous region comprising South and South East Asia was too large to be manageable and should be divided into two. Our eminent Vice Chairman, Efendy Sumardja of Indonesia, now confines his attention to South East Asia. I am hoping that, through the contacts made here in this meeting, we may be able to identify a candidate for the post of regional Vice Chair for South Asia as we can ill afford to be without this region's input for long (in the normal course of events, for example, the Vice Chair would have played a principal role in shaping the programme of this meeting). We need him/her to attend the next steering committee meeting scheduled for November in Cambridge, UK.

I should add that as well as regional Vice Chairs, the steering committee also comprises three thematic Vice Chairs (for Marine Matters, Mountains and World Heritage), as well as the Deputy Chair (Lynn Holowesko from the Bahamas) and the Chair. Last but not least, the Commission could have achieved little without the indefatigable energy and unstinting support of our programme officer at IUCN Headquarters, David Sheppard, and his team (including his newly arrived assistant, Pedro Rosabal).

At present we have a total of 30 CNPPA members in South Asia. Sixteen of these are from India; eight from Nepal; three from Sri Lanka; two from

Pakistan; one from Bangladesh; and none from Bhutan. These figures suggest that there is both scope for expanding the membership as a whole, and a need to strengthen representation where it is weakest. I hope that this meeting and its follow-up will provide a context in which membership in South Asia can grow — not for the sake of numbers but to support an expanded programme of work.

This leads me to the programmatic priorities of CNPPA whose mission was defined by the General Assembly of IUCN in January this year:

"to promote the establishment and effective management of a worldwide network of Terrestrial and Marine Protected Areas".

CNPPA tackles this formidable task with guidance from the World Parks Congress, organized by CNPPA at Caracas in Venezuela, in 1992. The Caracas Congress, like its decennial predecessors, such as that in Bali in 1982, was organized by CNPPA. Eighteen hundred experts came together on the occasion to exchange experiences, to redefine the role of PAs and identify the priorities for conservation of parks, reserves and protected landscapes in the future. Despite alarming reports of present and impending threats to PAs the world over, the outlook of the Venezuelan congress was positive and enabled it to contribute significantly to the UN Conference on Environment and Development in Rio. The conclusions of the Congress are represented by the Caracas Action Plan, which serves as a template for CNPPA's own work programme.

The four key messages of the Caracas Action Plan are these:

- PAs must be integrated into larger planning frameworks (e.g. within a national conservation strategy, and into policies for sectors like agriculture, forestry and tourism);
- Support for PAs needs to be developed among local communities and non-traditional interest groups (like industrialists, the media, even the military);
- The capacity for management needs further development; including such matters as training of PAs staff; and
- International cooperation should be expanded, especially in financing PAs.

These recommendations reflect a new approach to Protected Areas which recognizes that:

- PAs should be managed with and through local populations, not against them;
- PAs must be seen as being of value to society if they are to survive — they cannot any

longer be set apart from a country's mainstream pursuit of sustainable development;

- PAs are linked to practically every aspect of a nation's concern and are affected by nearly every arm of public policy;
- the traditional view of PAs, as National Parks to be owned and run by the state and from which local people should be banned, must be supplemented by other models based on partnerships with local communities, NGOs and private owners; and
- Managing PAs calls for a wide range of skills: above all, a skill for dealing with people. More than simply able wildlife management, the ability to resolve conflicts as well as marketing, public relations and communication skills are the hallmark of the successful PAs manager in the 1990s.

The programme which CNPPA has developed in response to the challenge of Caracas is an ambitious one. Courtesy the hard work by David Sheppard and his team at IUCN Headquarters, the Commission now has a very focussed agenda. It aims to:

- Develop regional action plans to implement the Caracas Action Plan;
- Encourage the preparation of national systems plans for PAs, particularly relevant in the light of the Convention on Biological Diversity requirement that countries should develop such systems for PAs to conserve biodiversity (following this meeting, we shall be holding a two-day meeting with colleagues in Pakistan for precisely this purpose);
- Communicate policy advice to PA planners and managers; for example through our journal PARKS, by publishing the many fascinating papers presented during the 50 or so technical workshops in Caracas, or by distributing the recently published Guidelines for Protected Areas Management Categories; and
- Develop guidance on such key issues as tourism and PAs, the economic benefits derived from PAs and methods of financing them — for each of which a task force has been set up during the past year.

In this programme, we work closely with a range of partners, in particular the World Conservation Monitoring Centre in Cambridge, whose Protected Area database is essential to our work.

Finally, I would like to return to the regional action plan. David Sheppard, who is to speak after

me, will discuss this issue in the context of the South Asia region, but I would like to place it within a broad context.

One of the specific recommendations of the Caracas Action Plan was that each region of the world should consider the preparation of a regional action plan to translate the global priorities of the Caracas plan into actions which could more clearly impact at the national level — in effect to use regional action plans as a bridge between global priorities and national action.

CNPPA has taken up this challenge. In several regions action plans have already been prepared or are under preparation. The European one (launched only recently in Brussels) is particularly ambitious, whilst that of East Asia is following hard on its heels.

Many aspects of the European experience may not lend themselves easily to South Asia of course, but I believe that there are several key features of this very successful initiative from which we in this region can learn.

These include:

- The involvement of CNPPA members from the outset. They, in effect, wrote a substantial portion of the plan and developed a sense of possessiveness towards it. This approach has proved better than the usual method of employing a consultant to make up drafts for comments by a panel of experts. However, the corollary is that the CNPPA membership in the region has to do the work; it is not a task that can be left to those in Switzerland;
- The involvement of IUCN's member organizations in the region, e.g. as funders, conveners of experts' meetings, contributors of technical help in publishing, and as members of the steering group;
- The close integration of the plan's preparation with IUCN's work in the region, so that the action plan complements other IUCN activities; and
- The employment of a dedicated project coordinator, working very closely with the regional Vice Chair for CNPPA.

There is, of course, also a need for funds. The action plan in Europe was produced for a total budget of just under US\$ 100,000. This amount was derived from 10 separate sources of funding, and covered the preparation of two drafts as well as the final version. It does, however, exclude donated contributions for design and printing costs.

This is a lot of money, even for a relatively wealthy region like Europe. But there is no doubt

that such a plan could never be produced by the usual method of employing a consultant; even if (and in the unlikely event that) the text was of the same quality, it would never have the sense of ownership that has been built up by the IUCN and CNPPA membership in Europe around this plan. I am sure that a well mounted argument for GEF funding for such an initiative in South Asia would be well received.

The central issue before our meeting in Islamabad is to resolve where the new South Asia regional action plan should be prepared in order to replace the Corbett Action Plan, adopted nearly 10 years ago.

The Corbett Plan is an excellent document. It clearly states what is required to place PAs on a more secure footing in this region and has had much influence for the good. Perhaps, however, it is time to review it, because:

- The Corbett Plan addresses the entire Indo-Malayan region, from the Khyber Pass to the Wallace Line; whereas we should focus more closely upon the needs of South Asia;
 - Some of the actions proposed in the plan have already been implemented; and
 - Some other actions no longer seem relevant.
- But most importantly, the world has moved

ahead. We now have Agenda 21, the Biodiversity Convention and a GEF. We have a fuller appreciation of the part that can be played by local communities in PAs, and also realize that the case for conservation is even more compelling than it was in 1985.

Given these considerations it may now be time to update the Corbett plan with a new PAs Action Plan for South Asia, and formulate a new plan based upon the greater involvement of a revitalized CNPPA membership in the region, which is also backed by IUCN members.

This, I hope, will figure prominently on our agenda over the next few days. The programme has been designed to enable participants to come to grips with the challenge of developing a regional approach to PAs work in South Asia.

However, I hope that many other benefits will accrue from our meeting. We shall learn of each country's priorities. We shall look at some of the key issues facing PA planners and managers everywhere. And last — and certainly not least — we shall get to know each other better. One of the great assets of CNPPA is its sense of comradeship. I look forward with enthusiasm to renewing old friendships and forging new ones here in Islamabad.

Inaugural Speech

Nawab Muhammad Yousuf Talpur
Federal Minister for Food, Agriculture and Cooperatives, Pakistan

Mr Adrian Phillips, Chairman CNPPA; Ms Aban Marker Kabraji, IUCN Country Representative; delegates and guests;

I am grateful to the organizers of this important South Asian Regional Meeting on National Parks and Protected Areas for involving me in this event.

Because of the pressures on South Asian countries — as on other developing countries — rapid development is often undertaken without considerations of sustainability. As a result of this, life support systems are falling apart. This, therefore, is a timely meeting.

The increase in per capita income resulting from development has not necessarily improved the quality of life. Instead, the people who have been traditionally dependent on natural resources, are suffering because of their destruction. The poorer communities suffer most from this kind of development. The potential of wild habitats for appropriate land use is being reduced rapidly and the landscape is changing fast. Such unsustainable development is depriving developing countries of the opportunity to realize their full potential.

I do not need to emphasize the importance of ecosystems and habitats to this gathering of scientists and experts — but I would like to mention that no human effort, however great, can recreate ecosystems and habitats that have been lost or damaged beyond the point of resilience. I suggest, therefore, that we set out our development priorities right now, and that we try to achieve development which is long lasting, and which does not reduce or eliminate the potential or the choices for future development.

I make this point to emphasize that of the natural heritage that survives today, viable samples must be identified and conserved through a network of National Parks and Protected Areas. If this is not done soon they will be lost as a consequence of the exigencies of unsustainable development.

Another important point in this context is that

land use allocation for national parks and other categories is permanent. This means that the option for the 'de-notification' of PAs should be eliminated.

Loss of habitat has been the single most serious factor in the disappearance of many species. Greater attention is, therefore, needed for Protected Areas as this seems the most effective and least expensive option of conserving species.

Because of our strong interest in conserving species and habitats, Pakistan is party to all important international conservation treaties, namely the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES); the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar); the Convention on Conservation of Migratory Species of Wild Animals (Bonn); and the World Heritage Convention. Pakistan has also recently ratified the Biodiversity Convention.

At the regional level, we would like to see that SAARC and SACEP, the South Asian Cooperative Environmental Programme, actively and effectively pursue regional environmental programmes. Most countries of South Asia are, fortunately, party to the national conservation conventions which provide a good framework for promoting regional cooperation.

We are now considering the development of a biodiversity strategy and action plan within the framework of the National Conservation Strategy which constitutes the environmental action plan and sustainable development policy of the Government of Pakistan for the next 10 years. Our NCS has received worldwide acclaim for its quality and comprehensiveness. We take pride in having produced it and are now busy implementing it.

Pakistan has completed the exercise of the Forestry Sector Master Plan which incorporates conservation of biodiversity and forest habitats into its Action Plan. Currently, we are engaged in making this plan operational.

Ours is a representative government and we

have great concern for the welfare of the people. I would like to highlight certain key issues related to this concern. These are mainly to do with differences in perspective. On the one hand is the protectionist mind-set of park managers that has antagonised local communities and on the other, the over exploitative, short sighted practices of the rural communities who feel that these resources do not belong to them anyway.

In the past, communities lived in harmony with nature. What has made them change their behaviour? The answer lies in complex issues like land tenure, economic incentives etc. but it is also rooted in the management style practised and promoted by park managers.

Indigenous communities were not involved in decisions, even crucial ones, concerning their subsistence and daily life. They were not involved in the policies, planning and management of protected areas. The protectionist approach denied them economic benefits and eroded the concept of sustainable use. Non-exploitative uses such as eco-tourism were not promoted. Environmental education was not imparted to create awareness. The PAs have been managed as islands instead of being integrated with land use around them.

As a result, the PAs have failed to enlist the

support of rural communities, politicians and policy makers. However, there is still time to change direction. Let us agree that parks are for people and not exclusively for park managers. I am glad to note that this idea is the slogan for this meeting — 'Parks for Life'.

Another of my concerns about PAs, at least those in Pakistan, is that their selection is haphazard, ad hoc and without sufficient ecological consideration. I am pleased to learn that the meeting on Pakistan's PAs on September 24—25 is to focus on exactly this aspect, and intends to address this through the PAs system planning approach. We will be happy to benefit from the regional and global experience in this area.

Finally, I would like to mention that scientific management of PAs is very important and can be ensured through management plans and their proper implementation. My understanding of the current situation, at least in Pakistan, is that this aspect is not satisfactory. I suggest, therefore, that this inadequacy be addressed as a matter of priority. This is yet another area in which we are looking for regional and international cooperation.

I thank the organizers once again for providing me this opportunity to express my views and concerns.

Part I. Papers

Overview of Protected Areas Coverage in South Asia — Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka

James R. Paine

Protected Areas Data Unit, World Conservation Monitoring Centre

Protected Areas make a vital contribution to the conservation of the world's natural and cultural resources. As a result, most countries have developed systems of PAs. Such systems vary considerably from one country to another, depending on different needs and priorities. Much of the information presented here has been drawn from the 1993 United Nations List of National Parks and Protected Areas (IUCN, 1994a), which provides a global and systematic account of national PA systems.

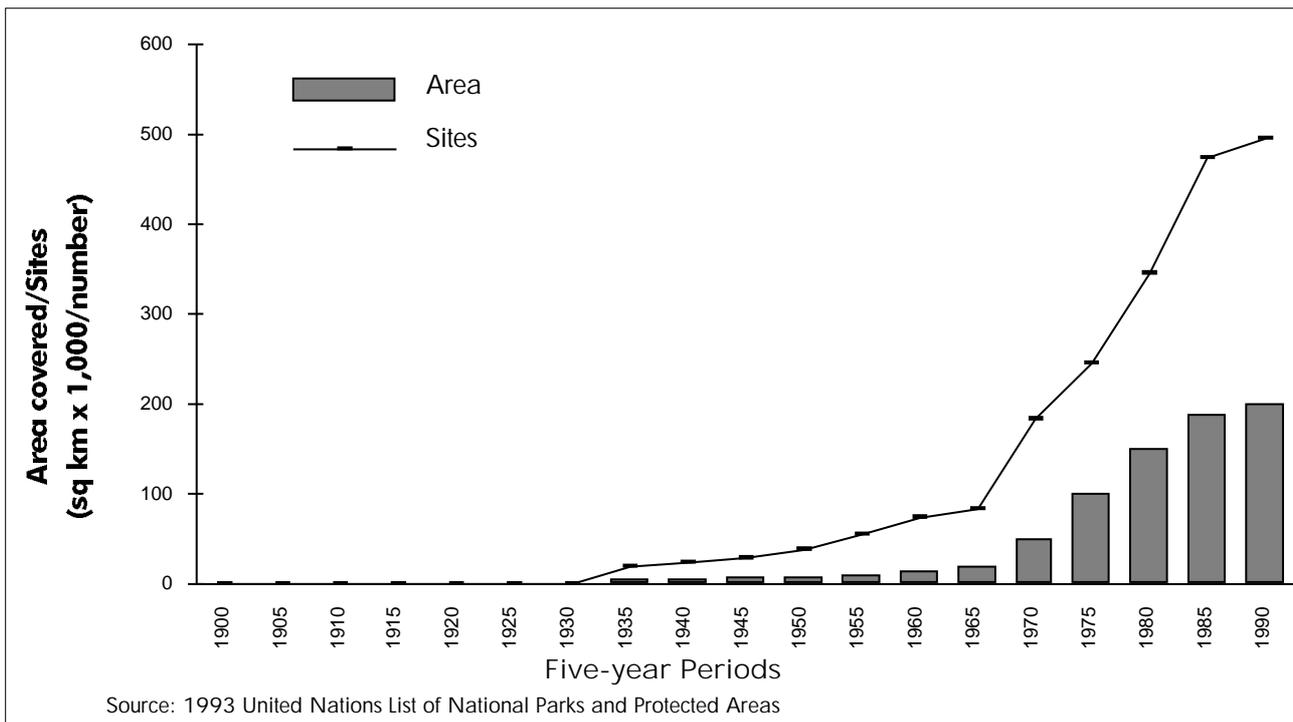
There are three criteria which govern whether or not a PA is included in the UN List: size, management objectives, and the authority of the management agency. Of the 37,000 sites recorded in the WCMC Protected Areas database, 9,832 qualify for inclusion, and of these, 514 are found in South Asia.

WCMC and CNPPA have been collecting and managing information on PAs for a number of

years. The 1993 UN List is the fourth to be prepared jointly by WCMC and CNPPA. In preparing the 1993 UN List, staff at WCMC reviewed existing information, and revised and updated PAs lists. Draft lists for each country were sent to national management agencies, with a request that they be checked, updated, and returned. Based on the information received, WCMC staff revised this draft, following up queries with contacts in the countries concerned, or with members of CNPPA.

Copies of the revised lists were then sent to the CNPPA Regional Vice Chairs for review, as well as to the IUCN Secretariat. The responses of national management authorities varied considerably. In total, some 455 requests were made and 226 responses received (49%). At only 37%, the rate of response was relatively poor in South Asia. This may well indicate a number of problems facing

Figure 1. Growth of Protected Area Network in South Asia, 1900-1993



management agencies, such as insufficient staff and an excessive workload or perhaps inefficient means of managing information. In either case there is an indication of an unmet need.

It should be noted that in mid-1993, a new PAs management category system was approved by the IUCN Council and introduced through the publication of the Guidelines for Protected Areas Management Categories. For practical reasons, however, the 1993 UN List has been classified according to the definitions provided in the original 1978 system.

1. Summary of the Protected Areas System in South Asia

Figure 1 shows an apparently late start for PAs in South Asia. Conservation, however, has a long history in this region. In the year 252 BC, Emperor Ashoka of India passed an edict for the protection of animals, fish, and forests, the earliest documented establishment of what we today call a Protected Area. In fact, many 'Protected Areas' were established originally as hunting and forest preserves, which have subsequently been converted into today's national parks or wildlife sanctuaries.

The first modern national parks in South Asia were Corbett in India (1938) and Ruhuna and Wilpattu in Sri Lanka (1938). Over the past 30 years governments have invested heavily in formal PAs and, more recently, as the impact of development on natural habitats has become more apparent, many countries have designed and established PA networks to conserve representative samples of the country's biodiversity.

Figure 2. Proportion of Protected Areas in IUCN Management Categories I-V

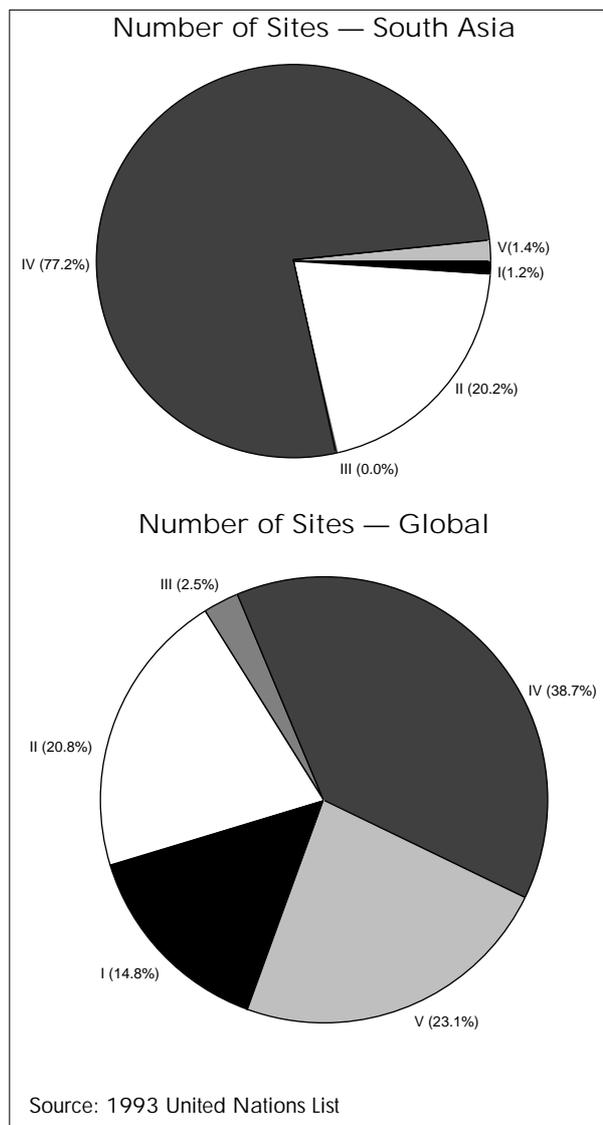
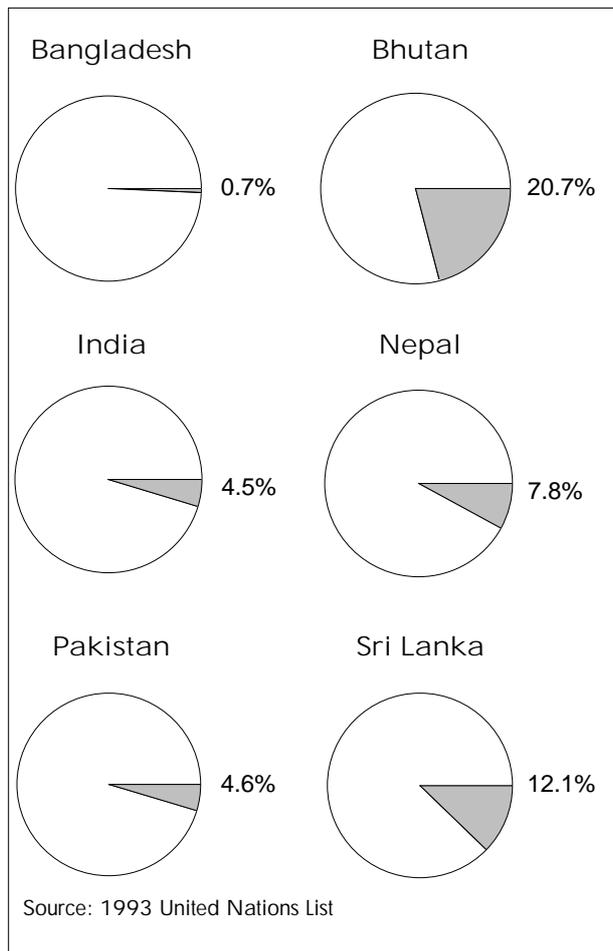


Table 1. Protected Areas in South Asia by IUCN Management Categories 1-V

Country ¹	Area ²	I		II		III		IV		V		Total	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
Bangladesh	144,000	—	0.00	—	0.00	—	—	833	0.58	135	0.09	968	0.67
Bhutan	46,620	644	1.38	6,606	14.17	—	—	2,411	5.17	—	0.00	9,661	20.72
India	3,166,830	1,960	0.06	36,776	1.16	—	—	104,585	3.30	186	0.01	143,507	4.53
Nepal	141,415	—	0.00	10,144	7.17	—	—	941	0.67	—	0.00	11,085	7.84
Pakistan	803,940	—	0.00	8,822	1.10	—	—	27,167	3.38	1,221	0.15	37,209	4.63
Sri Lanka	65,610	316	0.48	4,363	6.65	—	—	3,280	5.00	—	0.00	7,960	12.13
Total	4,368,415	2,920		66,711		—	—	139,217		1,542		210,390	

- Notes: 1. Only those countries that have sites qualifying for inclusion in the 1993 United Nations List of National Parks and Protected Areas are included. Minimum size for inclusion is 10 sq km with the exception of completely protected islands which are included down to a minimum size of 1 sq km.
2. Area is given in square kilometres.

Figure 3. Percentage of Land Area in IUCN Management Categories I-V



Protected Areas qualifying for inclusion in the UN List now cover more than 200,000 sq km (Table 1). Most of these are classified in IUCN Management Category II (National Park) and IV (Managed Nature Reserve), both relatively strictly protected. Contrary to the global picture, Category V (Protected Landscape/Seascape) is comparatively rare (Figure 2). The percentage of PAs within each country varies widely, from more than 20% in Bhutan, to less than 1% in Bangladesh (Figure 3). On the average, however, the percentage protected (5.96%) is very close to the global mean of 6.3%. In terms of absolute area protected, the region is dominated by India, with some 143,000 sq km protected, equivalent to 4.5% of the country's land area.

The mean size of PAs in South Asia is roughly 400 sq km, less than half that of the global average of 940 sq km. This almost certainly reflects high population pressure and intensive land use. It is likely that this mean size will shrink further in the future, particularly in the case of strictly Protected Areas. Figure 4, however, shows that within the region, PAs tend to be larger rather than smaller, with the largest number falling in the size range of 100 sq km to 1,000 sq km. Interestingly, both Nepal and Bhutan have a limited number of very large areas and no smaller areas, contrasting with the global pattern of small sites in large numbers.

Figure 5 examines the growth of the PAs network in some detail. This reveals a dramatic slow-

Figure 4. Size Distribution of Protected Areas in South Asia

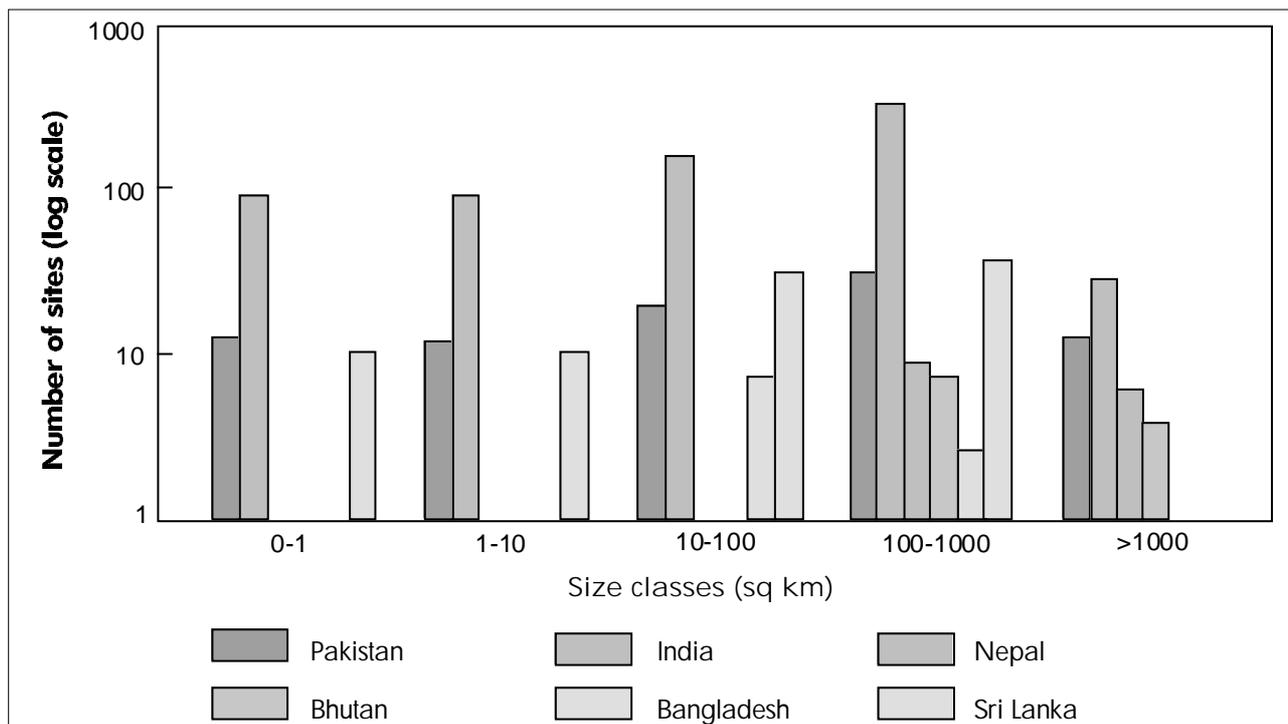
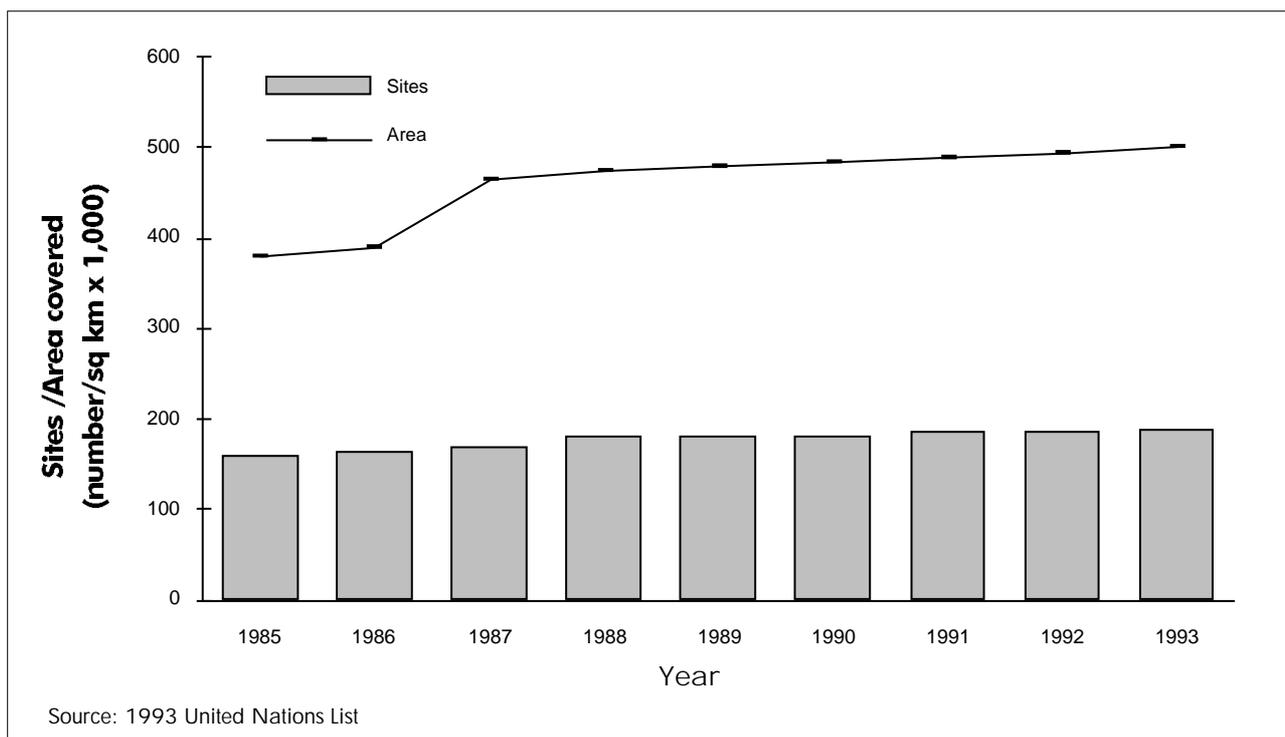


Figure 5. Growth of the Protected Areas Network in South Asia (1985-1993)



ing down in terms of area captured. Although this may be a reflection on the inefficiency of the information-gathering process, or an institutional retrenchment, it is a worrying trend in the light of the diminishing opportunities discussed below.

It is important to bear in mind that IUCN management categories are not a commentary on management effectiveness. Each category reflects the underlying management objectives, and is applied regardless of management effectiveness or threats to sites. What is not apparent from these quantitative statistics is the practical effectiveness of PAs, whether in terms of the conservation of habitat and biodiversity, or the quantity and quality of environmental services delivered to local communities.

IUCN is proposing to develop indicators and means of tracking this important qualitative information, and it is hoped that it will be possible to record this information in future on the WCMC Protected Areas database.

2. Investment in Protected Areas and International Assistance: a WCMC/IUCN Project

One measure of management effectiveness, and a means to gauge unmet needs, is to evaluate the investment made by governments in the staffing and budgets of PAs. In a project funded by the

Commission of the European Communities, and in collaboration with IUCN, WCMC examines the levels of financial investments in the conservation of biological diversity, with particular emphasis on PAs.

Table 2. Investment in Protected Areas: Human and Financial Resources

	US\$/sq km	Sq km/staff
Pacific	63	625
Tropical Africa	64	64
Australia	170	476
India	347	38
South and South East Asia	459	24
North Africa & the Middle East	502	222
South America	541	13
North America	1,398	39
Europe	3,399	24
Caribbean	4,020	27
Incomplete country data		
Pakistan	n/a	n/a
Sri Lanka	n/a	9
Bhutan	n/a	333
Bangladesh	n/a	n/a

Although the data is far from complete, some preliminary results are given in Table 2. Figures for the two South Asian countries for which both budgetary and staffing data are available, indicate financial investment ranging between US\$ 80 to US\$ 350 per sq km, and one member of staff for every 10 to 300 sq km. This compares with global mean figures of US\$ 1,213/sq km, and 98 sq km/staff.

The variation in this data reflects both the availability of resources, and the requirements of local conditions. Australia, for example, has a relatively low level of financial investment (US\$ 170/sq km), and a low number of staff (476 sq km/staff), perhaps reflecting the sparse population, relatively localized level of threats, and generally extensive recreational use. In contrast, the mean figures for Europe indicate a much higher level of financial investment (US\$ 3,399/sq km) and staffing (24 sq km/staff), indicating intensive management and use.

Given the already high and increasing demand for land and development in South Asia, the staffing and budgets available for PAs may well be inadequate. Comparing regions in this manner is, however, fraught with difficulty, as unit costs for staff time will be much lower in South Asia compared to Europe. Levels of staffing, and the degree of threat facing PAs may be the most useful measures to consider. However, as a general statement, levels of investment more akin to those found in Europe or the Caribbean may be appropriate to provide for a sustainable PAs system.

Having established that investment in PAs is relatively low, the project then moves on to review how much international funding is being provided to augment subventions from national or state treasuries. Therefore, a second, complementary element of the above project is the identification and quan-

tification of the biological diversity component of overseas development assistance budgets (Table 3). Information gathered to date by the project, indicates some US\$ 36 million provided from international funds to biodiversity conservation projects. Almost exactly one-half of these funds have been assigned to projects in Nepal, and US\$ 10 million to Bhutan. Conversely, funding for projects in India (US\$ 714,000) and Pakistan (US\$ 122,000) appears to be unusually low, although this may reflect incomplete data collection.

3. International Conventions

During the past 10 years many countries have acceded to the various international conventions and programmes associated with PAs, including the Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention), the UNESCO Man and the Biosphere programme (MAB), and the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar). A number of areas are now internationally recognized under these conventions and a list of the properties that have been internationally recognized is given in Table 4. Compared to the global environmental picture in other respects, there is a high level of participation in these international activities, and all countries in the region with the exception of Bhutan are active in one or more convention or programme.

4. Regional Initiatives

The 1986 IUCN Review of the Protected Area System in the Indo-Malayan Realm (MacKinnon and Mackinnon, 1986) stemmed directly from recommendations made in the 1985 Corbett Action Plan for PA coverage according to habitat types, centres

Table 3. Funding of Conservation Projects by External Sources

Country	Commitment (US\$ 000s)				Number of Projects	
	1991	1992	1993	1994		Total
Bangladesh	616	587	450	429	3	2,083
Bhutan	3,520	3,876	1,527	1,275	12	10,199
India	150	188	202	173	7	714
Nepal	6,413	5,503	5,672	1,087	12	18,676
Pakistan	0	42	40	38	2	122
Sri Lanka	1,115	1,502	1,228	503	10	4,350
Total	11,817	11,701	9,121	3,508	46	36,148

Source: WCMC Biodiversity Conservation Projects Database

Table 4. Adherence to International Conservation Conventions and Programmes

Area	Latitude/Longitude	Area (ha)	Year
Bangladesh			
Ramsar Convention			
The Sundarbans	22°03'N/89°25'E	59,600	1992
India			
Ramsar Convention			
Chilka Lake	19°42'N/85°21'E	116,500	1981
Haroike Lake	31°13'N/75°12'E	4,100	1990
Keoladeo National Park	27°13'N/77°32'E	2,873	1981
Loktak Lake	24°26'N/93°49'E	26,600	1990
Sambhar Lake	27°00'N/75°00'E	24,000	1990
Wular Lake	34°16'N/74°33'E	18,900	1990
World Heritage Convention			
Kazirangi National Park	26°38'N/93°23'E	42,996	1985
Keoladeo National Park	27°10'N/77°31'E	2,873	1985
Manas Wildlife Sanctuary	26°44'N/90°45'E	39,100	1985
Nanda Devi National Park	30°24'N/88°53'E	63,033	1987
Sundarban National Park	21°42'N/88°53'E	133,010	1987
Nepal			
Ramsar Convention			
Koshi Tappu	26°37'N/87°00'E	17,500	1987
World Heritage Convention			
Royal Chitwan National Park	27°28'N/84°20'E	93,200	1984
Sagarmatha National Park	27°56'N/86°48'E	114,800	1979
Pakistan			
Ramsar Convention			
Drigh Lake	27°34'N/68°06'E	164	1976
Haleji Lake	24°47'N/67°46'E	1,704	1976
Kandar Dam	33°36'N/71°29'E	251	1976
Khabbaki Lake	32°37'N/72°00'E	283	1976
Kheshki Reservoir	34°02'N/72°01'E	263	1976
Kinjhar (Kalri) Lake	24°56'N/68°03'E	13,468	1976
Malugul Dhand	33°00'N/70°36'E	405	1976
Tanda Dam	33°35'N/71°22'E	405	1976
Thanedar Wala	32°37'N/71°05'E	4,047	1976
UNESCO-MAB Biosphere Reserve			
Lal Suhanra National Park	29°30'N/71°50'E	31,355	1977
Sri Lanka			
Ramsar Convention			
Bundala	6°10'N/81°12'E	6,216	1990
UNESCO-MAB Biosphere Reserve			
Hurulu Forest Reserve	8°13'N/80°51'E	512	1977
Sinharaja Forest Reserve	6°23'N/80°28'E	8,864	1978
World Heritage Convention			
Sinharaja National Heritage Wilderness Area	6°23'N/80°28'E	8,864	1988

of biodiversity, and endemism within each biogeographic unit of the realm (MacKinnon and MacKinnon, 1986). It identified gaps in the PAs network and listed actions for each country within the realm, including establishment of reserves, training, investment and education.

During 1994-95, a comparable study will be carried out with funding from the Global Environment Facility.

The project has two closely related objectives:

- To update the database on PAs of the Indo-Malayan realm as a basis for re-evaluating and revising regional conservation priorities; and
- to enhance existing information management in support of conservation activities.

The project is a timely one in the light of numerous initiatives which have recently been undertaken in the region such as national environmental action plans, numerous global environment facility projects and the Biodiversity Convention which calls for each country to develop a biodiversity strategy or action plan. Successful completion of this project will ensure that the designers and implementors of conservation programmes will continue to have access to timely information on the condition, coverage, location and importance of PAs in the region. The project will entail sub-regional workshops during late 1994 and early 1995, in order to review and improve the baseline databases on habitats and PAs, which are held by WCMC. The improved data will be used during 1995 to underpin the regional review process.

The Review will assess the progress towards achieving the strategic recommendations made in the 1986 Review, and help to establish standard procedures for data collection, storage and evaluation. This new Review is, therefore, a key component of the review and update of the South Asia Protected Areas Action Plan.

Additionally, the CNPPA Marine Protected Areas Programme has prepared a series of reports for the World Bank on priorities for the establishment and management of MPAs (IUCN, in prep.). Available information suggests that the Central Indian Ocean (being the marine region most closely identified with South Asia) has 15 PAs which include sub-tidal elements and a further three which include terrestrial coastal and inter-tidal features. Many of the numerous PAs in the Andaman and Nicobar Islands comprise part or all of small islands and have inter-tidal coastal areas and mangroves. A number have sub-tidal habitats although these are not specifically identified in the review.

The advance draft report of July 1994 identifies national priorities for establishing and managing MPAs, based on the Corbett Action Plan (IUCN, 1985). These recommendations should be given due weight during the preparation of the Regional Action Plan for Protected Areas in South Asia.

5. Status of National Protected Areas' Planning and Development

Although, historically, PAs have been established on an ad hoc basis, there has been considerable progress in the last decade towards establishing 'rationally' planned PA networks.

India has been comprehensively and systematically surveyed (Rodgers and Panwar, 1988), with individual state summaries. Since this report a number of recommendations have been implemented. India has also carried out considerable work in assessing the status of PAs (Kothari, et al, 1989), and compiling the number of state level PAs (e.g. Singh, 1990). This level of work, unparalleled elsewhere in South Asia, has involved close collaboration and information exchange with WCMC.

A systematic approach to establishing PAs has been in place in Nepal since the 1970s and the great majority of, for example, forest types, are represented. Recent studies have identified gaps in the representation of the Middle Hills with respect to forest birds (Inskipp, 1989) and steps have been taken to rectify this. The Langtang National Park/Qomolangma Nature Reserve in Nepal/Tibet, and the Sagarmatha/Barun-Makalu PAs represent one of the largest conservation complexes in the world, as well as an important border park initiative.

Protected Areas establishment in Bhutan was initially on an ad hoc basis, centred largely on former hunting reserves. A new, revised network notified in 1993 was based on a rationalized biogeographical approach. An internationally funded project is further refining this system following a national biodiversity survey. International assistance (WWF) has been made available to improve management planning, for example in Royal Manas and Jigme Dorji. New projects will be focusing on the Black Mountains Management Plan, and on institutional strengthening.

Sri Lanka has a well established and extensive PAs network, although it is biased toward protection of the dry zone. Recent initiatives have been implemented by the Forest Department to conserve much of the remaining wet zone forest, by identifying gaps. Some 13 forests have already been

selected for management planning and more will be included at a later date. Much of the increased network has come about as mitigative measures in response to the damming of the Mahaweli. Sri Lanka is a unique example of a Forest Department using special legislation to strengthen measures for forest conservation as part of the national natural heritage, under the provisions of the National Heritage Wilderness Areas Act (1988).

In terms of relative extent, the PAs system in Bangladesh continues to lag behind other countries in South Asia. A review (Green, 1989) showed that the system is not comprehensive, having been established with little regard for ecological or other criteria. Efforts have been made to include representative examples of major habitats, but marine and freshwater areas, for example, have largely been neglected. There is an outstanding need to prepare a plan for the development of a PAs network (IUCN, 1990).

Pakistan is characterized by a large number of relatively small PAs, about which a great deal is not known. Although Pakistan was included in a regional review (MacKinnon and MacKinnon, 1986), there has never been an internal, national systems review, although that is due to be rectified. The expansion of the PAs system to include representative samples of all national ecosystems, and the compilation of management plans for priority PAs is highlighted in the National Conservation Strategy (EUAD/IUCN).

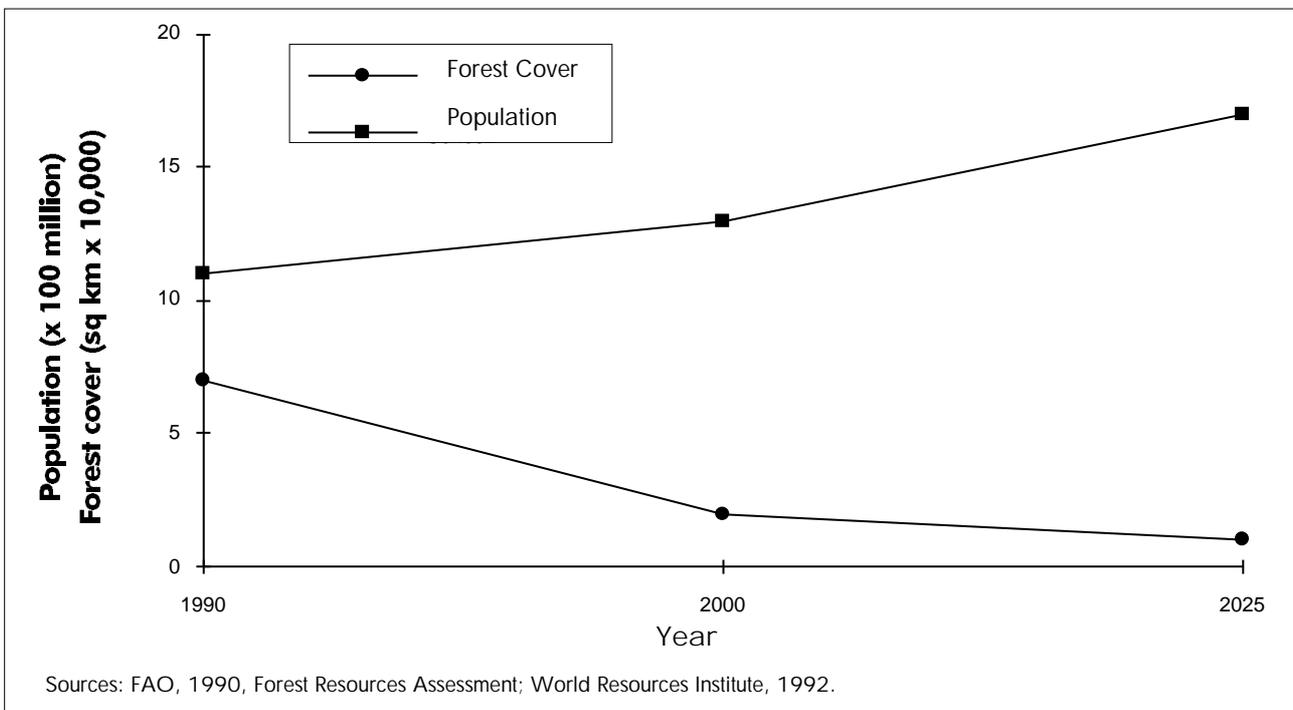
6. Prospects for the Future

The data discussed above suggests that progress in the establishment of PAs is stalling, and that the levels of investment may be inadequate. Figure 6 summarizes projected data for natural forest cover and population growth in the six countries of South Asia. Neither indicates any room for complacency from PA agencies and other conservation professionals.

Using data from the FAO Forest Resources Assessment 1990, it appears that natural forest cover is being lost across South Asia at an annual rate of 0.8% (compared to 1.6% per annum in Continental South East Asia and 1.3% per annum in insular South East Asia). If this rate of loss is sustained across the whole region, forest cover will be reduced from roughly 640,000 sq km, to just 52,000 sq km by the year 2025; less than one-tenth of that remaining today. The same source gives much higher loss rates for Bangladesh (—3.9% per annum) and Pakistan (—3.4% per annum), suggesting that the situation in these countries may be even more urgent. Data from the World Resources Institute also shows that during the same period the regional human population may increase from 1.1 billion to 1.8 billion.

A causal link between population growth and forest loss is not argued here, nor is it argued that population growth is the sole agent of environmental degradation, yet there are strong grounds for believing that opportunities for establishing new, strictly Protected Areas are diminishing. Furthermore, there

Figure 6. Projection of Population Growth and Change in Forest Cover in South Asia, from 1990 – 2025



are likely to be increasing conflicts between local people and PAs when there is a clear conflict between conservation and development. The key point here is that the strictly Protected Areas may become less appropriate in the future and that management agencies should look at other types of PAs that make wider provision for local people and their livelihood. Category V protected landscapes, for example, are intended to 'bring benefits to, and contribute to the welfare of the local community'. Category VI managed resource areas are set aside primarily for the sustainable use of natural ecosystems, providing for the protection of biodiversity, and a sustainable flow of natural products and services to meet local community needs.

7. Recommendations

- The incorporation of multiple-use areas in South Asia may be part of a strategy which would permit further development of PAs and should be given due consideration during this important meeting.
- The apparent deceleration in the growth of PAs may be due to poor data collection; CNPPA and WCMC should redouble their efforts to work together to ensure that data as comprehensive as possible is available for planning.
- Efforts should be made to develop and apply criteria for measuring management effectiveness and threats to PAs. This will provide a qualitative dimension to what, at present, is a largely quantitative database.

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Country Report, Bangladesh

Salamat Ali
Forest Department, Bangladesh

Bangladesh lies between 20°14' and 26°38' north latitude and 88°0', and 92°41' east longitude. It is bound in the north-east by India, in the south-east by Myanmar and in the south by the Bay of Bengal.

Covering an area of 144,000 sq km, Bangladesh largely comprises the flood plain and delta of two major South Asian river systems: the Brahmaputra and the Ganges. In a typical year, about one-tenth of the land is subjected to severe flooding and at least one-half to some inundation. One-third of the land area is less than 20 feet above sea level. In addition to seasonal flooding in the wake of the monsoon rains, much of Bangladesh is affected by constantly shifting river channels and courses; such shifting can wipe out entire settlements. Cyclones and tidal surges wash away settlements and crops, causing significant damage to life and property. The dry season is distinct, and periodic drought is a problem in the north-western part of the country. There are only a few small tracts of higher land in the north and south-eastern part of the country: the Sylhet, Mymensingh and Chittagong Hill Tracts region. The south-western region consists of an older delta with numerous dead or cut-off rivers. Its coastal area harbours the single largest stand of mangrove forest in the world, called the Sundarbans. The upper portion of the Meghana River includes many wetlands.

Of the total land surface of 14.4 million hectares, 9.1 million hectares are used for agriculture, 2.85 million hectares are under tree cover (forest), 2.31 million hectares are settlements and the remaining area is regarded as wetland and miscellaneous land. Land use is a dynamic process and changes in Bangladesh's land use pattern have been affected by (1) expansion in agricultural land including high yield varieties (HYV) agricultural areas; (2) water management intervention; (3) development of rural infrastructure; (4) urbanization and (5) industrialization.

The introduction of HYV in agriculture has changed the traditional land use and cropping pat-

tern, and consequently reduced the wetland and wildlife habitats. The trend can be noticed in the older areas of the south where agricultural lands are being employed for shrimp culture, and forest lands close to habitations are subject to encroachment and being taken out of forestry activities for other uses. Almost half of the 3000 hectares mangrove forest in the Chakaria Sundarbans has been allotted to a large number of shrimp farmers. The area has been cleared of trees to construct embankments and internal canals for shrimp farming.

The percentage of forest land in Bangladesh has declined over the past few decades and presently stands at about 14%. The natural tree cover, however, is much less at approximately 9%. Government owned forest land totals 2.121 million hectares, the remainder being homestead wood lots. Of the government owned land 1.462 million hectares comprises the national forest while the rest, 0.66 million hectares is Unclassified State Forests (USF). Managed by the Forest Department, the national forest is concentrated in 13 districts in the east and south-eastern regions of the country.

The coastal mangrove forests, which cover 0.58 million hectares, constitute about 60% of the commercial production forest including plantations. They extend along the coast in isolated groups, with the exception of the Sundarbans, which account for 74% of the reserve forests.

Tropical evergreen or semi-evergreen forests cover 0.62 million hectares and comprise the hill forests. These reserve forests are mainly the watershed areas of the Karnaphuli, Snagu, and Matamuhuri rivers. Over the years hill forest areas have shrunk and deteriorated due to human interference in the form of shifting cultivation, encroachment, erosion, fire and logging.

The moist deciduous forests are located in the central Madhupur tract (114,000 hectares) and the north western Barind tract (14,000 hectares). Originally owned by landlords but acquired after 1960 under the State Acquisition and Tenancy Act

after much litigation, these forests are heavily degraded and poorly stocked.

The country is rich in biological resources but the intense pressure of a large population coupled with the frequent and devastating impact of natural events such as floods and cyclones as well as the construction of hydrological structures in the region, have placed severe stress upon biological systems.

Given its limited area, Bangladesh is unique in its diversity of genetic resources, both wild and domestic. The genetic resources of Bangladesh comprise forest resources, agricultural crops, wildlife resources and wetland resources. The wild plant genetic resources of Bangladesh's forests, although not adequately known, are unique in species diversity. An estimated 5,000 species of angiosperm are available, of which 2,259 species were reported from the Chittagong region (Chittagong, Cox's Bazaar, Bandarban, Rangamati and Khagrachari districts) where most of the hill forests are situated. There are also numerous economically important plant resources (other than trees) both domestic and wild, which include bamboos, rattan palms, orchids and medicinal plants. In a revised list by the National Herbarium, the number of medicinal plants exceeds 500. There are 18 bamboo species and 8 rattan species to be found in Bangladesh. Numerous species of amphibians, reptiles, birds and mammals are part of Bangladesh's magnificent heritage in biological diversity. Bangladesh has, at present, 19 species of amphibians, 124 species of reptiles, 119 species of mammals, and 578 species of birds which include 199 migratory species. Wetland resources comprise 1,454,204 hectares of inland water bodies rich in fish fauna including many commercially important species representing 145 genera. There is also an abundance of prawn and shrimp, turtles, tortoise and more than 150 species of waterfowl. Large populations of water fowl are migratory and pass the winter season in the Haors and seasonal water bodies of north-east Bangladesh. Twenty nine important plant species, with their locality and distribution, have been recorded in inland water logged bodies. The coral reef situated on the northern tip of St. Martin's island in the bay between the latter and Teknaf is important for the protection as well as the expansion of the island, because of the calcium carbonate deposits produced by the coral colonies. The reef also provides a habitat for marine algae as well as for a variety of fish, mollusc and other coelenterates on which the coastal communities depend.

There are three categories of Protected Areas in Bangladesh: National Parks, Wildlife Sanctuaries

and Game Reserves. There are three national parks, nine wildlife sanctuaries and a game reserve. The present network of PAs in Bangladesh covers an area of 110,171 hectares which constitutes 0.76% of the total land area against a generally accepted minimum of 10% considered realistic to arrest the trend towards species depletion. Lack of public interest and leadership in the area of wildlife conservation has led to neglect of the PAs system. The reserve system that has been created was not planned with clear priorities defined by an overseeing body. Nor have sufficient funds been provided for the protection and management of parks and reserves.

There are three acts relating to the conservation of genetic resources, namely, the Forest Act 1927 which was amended in 1989 by the Forest (Amendment) Act 1989, the Bangladesh Wildlife (Preservation) Amendment Act 1974 (a recent government order places a total ban on hunting effective from December 11, 1989), and the East Bengal Protection and Conservation of Fish Act 1950, amended in 1984.

The Sundarbans region in south-western Bangladesh and eastern India is home to the world's only genetically viable tiger population; no other habitat is sufficient to sustain a large enough breeding population. The Sundarbans is also considered to be one of the best remaining habitats for the globally endangered estuarine crocodile (Crocodiles poruses). However, increasing demands on the Sundarbans ecosystem are threatening to undermine the long term sustainability of habitat protection and of continued forest products extraction. Biological diversity is threatened by deforestation, forest conversion, use of agro-chemicals, industrial pollution, land use changes and over exploitation of biological resources. Large scale development projects (for irrigation and flood control), clear felling and burning, all contribute to the destruction of native and secondary forest diversity, including indigenous species that could be profitably managed for timber and fuelwood production.

1. Brief Description of Bangladesh's Protected Areas

1.1 National Parks

Bhowal National Park

Situated in the sal forest ecosystem and located about 40 km north of Dhaka, the Bhowal National Park has already become a popular recreation

area for the city's residents. Its dominant plant species is the coppice origin sal (*Shorea robusta*) which constitutes about 90% of the forest cover. This National Park was established in order to preserve the flora and fauna of moist deciduous forests.

Madhupur National Park

The Madhupur National Park is located about 160 km north of Dhaka and 32 km south-west of Mymensingh, within the moist deciduous ecosystem. It covers an area of 47 sq km in which the ratio of sal to other plants is 4:1. The dominant wildlife species include the rhesus macaque, capped langur and wild boar. There are over 140 bird species. The main objective in the creation of this park was to preserve its beleaguered ecosystem which is under immense pressure from the local population. Though not quite as popular as Bhowal National Park it attracts a large number of tourists, particularly in the winter season.

Himchari National Park

Adjacent to Cox's Bazaar, the Himchari National Park is in a wet evergreen ecosystem. There are numerous plants and animals in this park. The terrain is composed of irregular hills running north-south and bound in the west by the Bay of Bengal. The major wildlife consists of elephant, leopard, barking deer, sloth, wild dog, leopard, fishing cat, gibbon and rhesus monkey. The dominant plant is *Dipterocarpus* and its related species. The main reason for the establishment of the park was to preserve the beauty of the Cox's Bazaar area, given the high number of tourists who visit this sea resort.

1.2 Wildlife Sanctuaries

Sundarbans Wildlife Sanctuaries

There are three wildlife sanctuaries in the Sundarbans, all of which overlook the Bay of Bengal. Apart from variations in salinity and composition of forest vegetation, similar ecological factors prevail in all three. In the east sanctuary the salinity level is low and this increases gradually as one proceeds west. The major wildlife fauna of the sanctuaries is tiger, spotted deer (*Axis axis*), wild boar, rhesus macaque and crocodiles. The main objective, as the name implies, is to protect the wildlife and the fragile mangrove ecosystem, which is important for both macro and micro flora and fauna.

Pablakhali Wildlife Sanctuary

Situated in the south-eastern part of the Kassalong Reserve Forests of the Chittagong Hill Tracts, the area covered by the Pablakhali Wildlife Sanctuary consists of hills running north-south and spurs which branch off the ridges to form masses of hills and valleys. The altitude ranges from 100-300 metres. The vegetation composition (canopy) includes various species such as tropical evergreen, semi-evergreen, and moist deciduous plant species. Bamboo and tropical herbs are present as undergrowth.

The sanctuary's wildlife includes the elephant, tiger, leopard, sambar, barking deer, gibbon, capped langur, wild boar, otter, python, etc. The park boasts over 200 species of birds including the white winged wood duck (*Cariava seutulata*), for which this is the only sanctuary in Bangladesh.

Char Kukri-Mukri Wildlife Sanctuary

This sanctuary, situated on an old stable island in the Bay of Bengal, has very thick vegetation cover. The predominant plant species are hogla (*Typha elephantina*), hargoja (*Acanthus illicifolies*), keora (*Sonneretia apetala*). The area contains a large breeding colony of herons and egrets while a number of migratory birds pass the winter on the water surrounding the islands. The mammals found on the island include the fishing cat and the clawless otter.

The sanctuary's main objective is to preserve the habitat of herons and egrets.

Chunati Wildlife Sanctuary

Situated 65 km south of Chittagong, the terrain of the Chunati Wildlife Sanctuary is composed of broken hills running north-south, the highest of which is around 100 metres. The forest cover in the area provides suitable habitats for wildlife, especially mammals and birds such as the elephant, serow, barking deer, gibbon, rhesus macaque, capped langur, pied hornbill, and red jungle fowl. The dominant plants species of the sanctuary are *Dipterocarpus* spp., *Artocarpus chaplasha*, *Salmalia insignis*, *S. malabarica*, *Ficus* spp., *Albizia*, etc. Common undergrowth is of bamboo and *Eupatorium odoratum*.

1.3 Game Reserves

Teknaf Game Reserve

This game reserve is at an average of 100 metres above sea level in the south-east corner of the country in the Teknaf Reserve Forests. Its west slope faces the Bay of Bengal and this reserve is marked by a range of broken hills running north-south. Its flora and fauna

are similar to those of Mimchari National Park. The main objective of the game reserve is to preserve the unique flora and fauna of the evergreen forests, particularly the wild elephants.

2. Management of the Protected Areas

The Forest Department in the Ministry of Environment and Forests has recently created an independent circle to oversee the PAs and wildlife of Bangladesh. This circle is headed by a conservator of forests, who is responsible for the management of PAs and wildlife. Meanwhile, field offices of various national parks and game sanctuaries are in the process of being established. A list of national parks and wildlife sanctuaries indicates that, so far, PAs have only been demarcated within the reserve forests.

The wetland ecosystem of the country has yet to be declared a Protected Area. A recently conducted survey has identified Hail Haor, Hakaloki Haor, Tanguar Haor as areas with the potential to be protected. Steps are underway for bringing them under management. See Table 1 for complete list of Notified and Proposed PAs.

2.1 Review of the Protected Areas

Given the heavy demographic pressure exerted on resource sectors in Bangladesh, taking inter-sector impact into account is crucial. Thus integrated resource management based on an understanding of linkages between sectors is essential to achieving effective and sustainable development.

After population, the other most important ecological variable affecting the environment and sustainable development in Bangladesh is water. The hydrological system is the central ecological relay mechanism through which all sectors are inextricably linked. This includes the water system, deforestation, fisheries production, agricultural production and industrial development, as well as domestic and industrial pollution. In Bangladesh PA management for sustainable development must stress particularly on water, watersheds and frugal ecosystems.

The government is actively considering the designation of some of the country's wetlands as PAs. Wetlands are currently being used by the local population, so when the wetlands are placed in a protected category, it is key that local residents be persuaded to design and implement the management plan.

The legal status of PAs under the Bangladesh Wildlife Act is appropriate for the management of

National Parks and Wildlife Sanctuaries located within reserve forests but where areas beyond the reserve forest are declared PAs, it will be necessary to either modify the existing Act or enact a separate one

A country's PAs are, in effect, a gene pool that will one day be the last vestige of its natural forests and wetlands. To preserve these, as part of Bangladesh's heritage, is a sacred task for the present generation — and something we owe posterity.

Table 1. List of Notified and Proposed Protected Areas in Bangladesh

Protected Area	Area (ha)	Year
National Park		
1. Ramsagar NP	52	1974
2. Madhupur NP	8,436	1987
3. Bhowal NP	5,022	1987
4. Himchari NP	1,729	1980
Wildlife Sanctuary		
5. Sundarbans West WS	9,069	1977
6. Sundarbans South WS	17,878	1977
7. Sundarbans East WS	5,439	1977
8. Char Kukri-Mukri WS	40	1981
9. Rema Kalenga WS	1,095	1981
10. Pablakhali WS	42,087	1981
11. Chunati WS	7,761	1986
Game Reserve		
12. Teknaf GR	11,615	1981
Proposed Wildlife Sanctuary		
13. Ata Danga Baoi		
14. Bil Bhatia		
15. Chalan Beel		
16. Meda beel		
17. Tanguar Haor		
18. Aila Beel		
19. Dakhar Haor		
20. Kuri Beel		
21. Erali Beel		
22. Dubriar Haor		
23. Hakaloki Haor		
24. Kawadighi Haor		
25. Hail Haor WS	(1,427)	
26. Hazarikhil WS	(2,903)	
27. Rampahar-Sitaphar WS	(3,206)	
28. Bogakine Lake (Rinkheong)		
29. Chimbuk		
30. Sangu-Matamuhari		
31. Naaf River		
32. Jinjiradwip (St. Martin's Island) and Jinjira Reefs		

Country Report, India

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India's geographical area covers 3,287,263 sq km, of which recorded forest area comprises 770,078 sq km or 23.4% of the land area. The actual forest cover is, however, 6,740,107 sq km or 19.5% of the geographical area. The percentage of actual forest cover to recorded forest area is 83.12%.

Distributed over the country's 10 biogeographic zones, the Protected Areas network of the country includes 75 National Parks and 428 Wildlife Sanctuaries covering nearly 140,000 sq km — approximately 4.2% of the India's land area. These PAs fall under IUCN's categories I to V. In addition, there are 23 project tiger areas, partly covered by the PA network, which contain 9,375 sq km of additional forest area managed mainly for sustainable use of natural resources. The country also boasts eight biosphere reserves spread over 32,413 sq km of which 6,575 sq km constitute PAs, 9,064 sq km come under general forest area and the rest under other categories. The managed resources PA in India thus constitutes approximately 18,439 sq km which should qualify for IUCN's revised category VI of PAs.

As per the existing law, no forest work can be undertaken in a PA unless it contributes towards the conservation and management of wildlife. All species of wild animals listed in the schedules of the Wildlife Protection Act are protected by law. No forest rights are permitted in national parks, and only limited grazing can be allowed in sanctuaries. There is, however, a provision under section 24(2)(c) of the Wildlife Protection Act, where at the time of acquisition of rights the collector of the district can, in consultation with the Chief Wildlife Warden, allow the continuation of any right of any person in or over any land within the limits of a sanctuary. Nevertheless, this can be allowed only when such rights are compatible with the broad objectives of the management of the PAs, and are sustainable without causing any long term harm to the PAs.

India's human population is 900 million plus with an annual growth rate of 2.1% and a popula-

tion density, as per the 1991 census, of 267 people per sq km. The cattle population meanwhile, is over 400 million. The country's PAs are thus subject to various pressures. There is very good coverage of the PAs in the Himalaya, the Western Ghats and on the islands and reasonable coverage in the desert area and the Deccan peninsula; but the coverage in the trans-Himalaya, the coastal areas, the Gangetic plains, the semi-arid areas and the north-east is inadequate. In a densely populated country like India it is difficult to increase PAs but we do, nonetheless, aim to bring about 5% of the land area under prime protection, and we are also working to increase the managed resource area.

The organizational structure of wildlife conservation in the country is headed by the Director of Wildlife Preservation, Government of India. This is the policy making body for wildlife in the country and it coordinates and monitors the functioning of wildlife schemes. The central government also lends financial support to the state governments for various wildlife schemes. There is also an apex wildlife institute that imparts training to India's wildlife managers, conducts research on specific topics in identified areas and offers consultancy services to various states and other organizations.

At the state level, the Wildlife Wing is headed by a Chief Wildlife Warden, usually with the rank of Chief Conservator of Forests, who is supported by Conservators of Wildlife at the regional level and Divisional Forest Officers of Wildlife Divisions at the district level. All major wildlife areas are directly under the purview of Wildlife Divisional Forest Officers while minor PAs are the responsibility of territorial Divisional Forest Officers (also designated Deputy Chief Wildlife Wardens) who are answerable to the Chief Wildlife Warden of the State.

India has strict laws for wildlife protection, the most comprehensive one being the Wildlife (Protection) Act 1972, which has been revised a number of times, most recently in 1991, to make it more stringent. Most PAs have been provided facili-

ties such as a wireless network, support vehicles, launches, mobile patrol parties, patrolling elephants and the arms and ammunition required for efficient vigilance.

The main problems facing India's PAs are:

- Inadequate manpower in many areas.
- Inadequate funding in general.
- The fluid position of settlement rights.
- The absence of adequately trained personnel.
- The absence of any detailed scientific database.
- Pressures on biological resources due to human and cattle population growth.
- Pressures brought on by trade and rapid development.

Issues that must be addressed urgently to ensure proper management of PAs are as follows:

- National development objectives have yet to attach adequate importance to the value of PAs.
- There is a tendency to over-exploit the natural resources of PAs for increasing human and economic requirements.
- The species and the ecosystem upon which the concept of PAs is based are still not properly known or understood.

Immediate attention needs to be paid to the following areas:

- Improving the policy making environment and integrating different departments' conservation policies.
- Integrating conservation with development, in a far-sighted manner so that the way we use biological resources is in the interest of posterity.
- Increasing financial resources to reinforce PA management, and launching more eco-devel-

opment programmes so that the local people are offered alternatives to the lifestyles that have been closed to them because of their denied access to the PAs.

- Designing Human Resource Development Programmes, which include not only the selection and training of suitable manpower for the management of PAs, but also orientation training for the local people living on the periphery of PAs.
- Encouraging public awareness programmes, which can develop people's commitment to the conservation of PAs.
- Ensuring efficient enforcement of the law, not only by providing adequate infrastructure and manpower to PAs, but also by bringing together other enforcement agencies through regular meetings and consultations.
- Involving NGOs/voluntary organizations and NGLs, particularly women, in the conservation cause.
- Developing international cooperation and harmony so that the policies of one country do not come into conflict with the policies of another.

A sense of environmental responsibility has been one of the fundamental features of India's ancient philosophy and culture. Indian tradition teaches us to respect nature and acknowledge the fact that all forms of life, human, plant and animal, are closely interlinked, and that the future of these life forms depends upon the health of the elements that surround them. We must endeavour to maintain the Protected Areas in a befitting and sincere manner, so that we can ensure ecological security for all of us.

Country Report, Nepal

John McEachern
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1. Introduction

Nepal, situated in the central sector of the Himalaya, is a 'cross-roads' of six phytogeographical provinces: (1) Sino-Japanese (Sino-Himalayan) (2) Central Asiatic (3) Irano-Touranean (4) Sudano-Zambian (5) Indian and (6) South-east Malaysian. It lies in the interface of the two major zoo-geographical realms of the world i.e. the Palaearctic and the Oriental. Over a distance of little more than 160 km, the biomes range from tropical evergreen forests to alpine meadows and arctic frigid land with treeless steppes to the north of the main Himalayan range (trans-Himalayan area). The PAs of Nepal thus represent a large number of diverse habitats with great biodiversity.

Nepal's land surface totals 147,181 sq km with an estimated total population of 19 million in 1994. Recent estimates put Nepal's GNP at US\$ 202 per capita (1994). Under the new constitution of the Kingdom of Nepal 2047 (1991), a multi-party system of democracy prevails in the country, and the constitution makes provision for the conservation of rare fauna and flora. Conservation policy is broadly guided by the National Conservation Strategy (1987) and is implemented through periodic five-year plans. His Majesty's Government (HMG) has adopted both the Nepal Environmental Policy and the Action Plan (1993) in order to integrate environment and development.

Nepal is endowed with a rich natural and cultural heritage. In recent years, however, there has been increasing concern over the degradation of these resources. Conflicts have developed between local residents and authorities in areas surrounding some of the designated PAs and national parks. Growing congestion along the most popular trekking and mountaineering routes is leading to an accumulation of solid waste and localized deforestation. In Nepal, forest cover (land with at least 10% tree crown cover) is estimated to be 37% while scrub land accounts for a further 4.7%.

Nepal's protected areas are managed under the National Parks and Wildlife Conservation Act, 2029 with periodic amendments. In order to mitigate park and people conflict, the government recently made provision to channelise 30% to 50% of park revenues to the people living within the park vicinity.

2. Protected Area Management

HMG's main initiatives in biodiversity conservation have involved an extensive network of National Parks and PAs developed over the past two decades and covering more than 15,000 sq km, almost 11% of Nepal's total land area (Table 1 at the end of the paper). The PA network includes 8 national parks, 4 wildlife reserves, 2 conservation areas and 1 hunting reserve. The Sagarmatha and Royal Chitwan National Parks have been included in the United Nations World Heritage List due to their outstanding natural values, and the Koshi Tappu Wildlife Reserve has been included in the list of wetlands of international importance under the Ramsar Convention.

However, the existing network of parks and PAs is not complete and not all physiographic zones are fully represented. The tropical mixed evergreen forests and temperate broadleafed forests for instance, are not adequately represented in the system. The middle mountain region is also poorly represented, with only 1% PA coverage, as compared with at least 4% for all other zones and 17% in the case of the High Himal.

Wetlands in Nepal have often been overlooked as an important habitat. Many wetlands are suffering the consequences of land and water pollution and disturbance by humans; some have been drained and converted into agricultural land. A wetlands inventory, being developed as part of the IUCN's NCS Implementation Project, could form the basis for a wetland protection policy.

3. Management Issues

Despite the wide coverage of the PAs system, several problems related to management have emerged.

- In some areas, conflicts have developed between the park authorities and local residents regarding the latter's right to extract products, such as fuelwood, thatch grass and fodder from PAs to meet their essential needs. The restriction or denial of access to parks and reserves has, in some cases, resulted in economic and social hardship for local people. Ineffective communication and management has exacerbated this problem, leading to sometimes acrimonious relationships between local people and park authorities.
- Successful protection has allowed animal populations to expand in PAs. As a result, some species are having a negative impact on local communities, causing injuries (and occasional fatalities) to people, livestock losses and the destruction of crops, thus adding to the conflict between people and parks.
- To enforce PA regulations, park authorities rely on the assistance of the Royal Nepal Army. Although deployment of the army has helped reduce poaching within PAs, it has given rise to other problems. Administrative authority has been divided, leading to some confusion as to who has overall authority for the parks. Also, soldiers who are assigned to protect the parks are not given any special training and consequently lack an adequate appreciation of their new, non-military role. In addition, the cost of army protection is high, consuming about three-quarters of the total budget of the Department of National Parks and Wildlife Conservation (DNPWC).
- In the past, communities have not been involved in management decisions or entitled to a share of locally generated revenues from park activities. Local people have, therefore, tended to regard parks with suspicion: not only has their access to areas where once they were free to enter been restricted, but they have not received adequate compensation for this loss of access.
- Because of the restrictions inside the PAs, extractive activities have intensified in the surrounding areas, causing severe damage to the ecosystem.
- Finally, reflecting some of the points mentioned above, many PAs either adhere to out-

dated management plans that rely mostly on exclusion through tight policing rather than encouraging local participation, or have no plans at all.

HMG is now taking steps to address these issues based on the recognition that successful park management depends on the fostering of good relations between park authorities and the local people who are the most affected by the existence of PAs.

4. Involving People

There is a growing realization that the ultimate success of PAs depends upon the cooperation and support of local people. Autonomous, non-governmental committees should be created in each affected area and authorized to collect funds (including tourism revenues) and to allocate them for sustainable community development. Channeling tourism revenues into community development will help to increase people's participation in National Parks and reserves.

People living outside the boundary of PAs, but adjacent to them, must be compensated for loss of resource usage. The compensation should be in the form of community development works, including agriculture, supported by funds raised from tourism and government allocation, as well as from international sources.

These new approaches have been put into practice in the Annapurna Conservation Area and the Makalu-Barun Conservation Projects, and some success at involving local people directly in project planning and implementation has been reported. These approaches are, however, still innovative and experimental; the extent to which they may be replicated for other areas is not yet clear.

With deforestation, environmental degradation and the extinction of species on the increase, environmental concerns need to be made an integral part of PA management.

The National Parks and Wildlife Conservation Act (1973), the principal legislative measure that governs the convention of ecologically valuable areas and their indigenous wildlife, has recently been amended to introduce the concept of revenue sharing. Local communities will henceforth be permitted to retain 30% to 50% of locally generated revenues for development projects. The DNPWC has launched the Park-People Project, for which US\$ 977,000 has been allocated, with UNDP assistance, with the objective of mitigating park and people conflicts.

5. Institutional Arrangements

There are several institutions responsible for biodiversity conservation in Nepal. The main agency is the DNPWC (under MFSC), but given the lack of financial and human resources, it faces major constraints in managing and protecting areas. The plan for the Conservation of Ecosystems and Genetic Resources prepared as part of the Forestry Sector Master Plan noted that "DNPWC has little effective management capacity, no working policy instructions, suffers from shared responsibilities, lacks coordination with other agencies of HMG and with local communities and has substantial unmet training needs".

The DNPWC's authority to act is further limited in a number of key areas: (1) confusion regarding administrative authority for park management between the Royal Nepal Army and DNPWC; (2) the Department of Immigration is responsible for issuing trekking permits — as a result DNPWC has no say in planning numbers or destinations of trekkers; (3) with no powers in this respect, there is little incentive for DNPWC to coordinate with other government ministries, such as the Ministry of Tourism, to improve management; (4) DNPWC has neither the mandate nor the resources to work with communities outside PAs who are most seriously affected by the presence of parks and reserves.

The DNPWC's institutional capacity must be substantially improved so as to enable it to function effectively. Given some of the difficulties outlined above, it may also be desirable to reconsider the role of the army as park protectors. Closer inter-departmental coordination will only be possible if a forum is created for discussion, and responsibilities modified to reflect DNPWC's role as the lead agency for PAs.

Other institutions directly involved in biodiversity protection include the DOF, which is responsible for all flora, fauna and timber species within PAs. Biodiversity outside PAs currently receives little attention. To remedy this, the Forestry Sector Master Plan suggests that wildlife management outside PAs be entrusted to the District Forest Office which, where necessary, should be reinforced by a wildlife management expert from the nearest park or reserve. This proposal requires further scrutiny before it is put into practice. Apart from the DOF, the Department of Plant Resources carries out ex situ conservation of species in the Botanical Garden.

6. Management Plans

Management of PAs is likely to succeed only if plans are prepared in consultation with local resource users and park authorities, and specifical-

ly address the management issues outlined above. Many PA plans are outdated and need revision. Appropriate plans must be prepared for those PAs that do not have any management plan at all. The DNPWC should be responsible for developing management plans. However, there are at present no specific guidelines for the development of plans for PAs, and DNPWC's current institutional capacity to develop such plans is inadequate. Part of the overall improvement in DNPWC's institutional capacity might include the establishment of a task force to prepare and develop guidelines for management plans.

One important approach that should be considered when developing plans for nature conservation areas is the concept of a strictly protected core area, surrounded by a sustainable resource use area with multiple-use management on the peripheries to ameliorate park-people difficulties. The core zone would be managed as a national park, strict nature reserve or wildlife reserve, while the peripheral zone with its human settlements would be managed as a conservation area. This idea has already been introduced in the Makalu-Barun region where the core area, free of permanent settlements, is managed as a National Park with the primary objective of nature conservation, while the area with human settlements is managed as a conservation area where sustainable multiple-use resource management and community development programmes will be launched. HMG has recently promulgated the necessary legal provisions to develop buffer areas outside PAs.

7. Major Programmes

A biodiversity conservation project funded by the Global Environmental Facility, has been launched in Nepal. Its main implementing agencies are the DNPWC, Woodlands Mountain Institute and the King Mahendra Trust for Nature Conservation (KMTNC). The GEF has earmarked US\$ 2.6 million to implement the Makalu-Barun National Park and Conservation Area; US\$ 0.19 million for DNPWC's capacity building activities; US\$ 0.361 million for preparing the National Biodiversity Action Plan; US\$ 0.19 million for capacity enhancing through KMTNC; and US\$ 0.95 million to monitor UNDP projects.

The Park-People Project has been implemented by DNPWC in 5 terai parks and reserves with UNDP assistance. The immediate objective of the project is to enhance the capacity of the local communities and DNPWC to jointly manage these

areas and to improve the socio-economic conditions of the people living in the adjoining villages.

8. Opportunities of Protecting Other Important Areas

The 800 km of the Himalayan range that lie within Nepal have great biodiversity value as well as tourism potential. However, the opening of each new area to tourism development poses a corresponding threat to biodiversity. The Manaslu tourist area in central Nepal is a case in point. IUCN Nepal, after conducting a reconnaissance survey, has made various recommendations to resolve conflicting interests of tourism and biodiversity conservation. Special biodiversity conservation areas have been identified for immediate action. Of these, the 'Hidden Valley of Serang' is being especially studied by IUCN Nepal's biodiversity team in order to develop a management model based upon the traditional monastic authority of the Lama and the local people's high regard and religious compassion towards living souls.

IUCN Nepal is collaborating with DNPWC and the WWF Nepal programme to develop ways and means to conserve the environs of the world's third highest mountain, the Kanchenjunga (8,586 m), situated in Nepal's north-eastern Taplejung district. Flanked by India (Sikkim) towards the east and China (Tibet) towards the north, Kanchenjunga, as a pivot of an east Himalayan environment, needs special action for the conservation of its biodiversity.

The area has high biodiversity value, something which was recognized as early as a century and a half ago by the celebrated naturalist J.D.

Hooker. The interaction of the region's terrain, flora and fauna with indigenous peoples has changed very little since 1948 as a recent survey by a team from the Royal Botany Gardens of Nepal, Kew and Edinburgh (American Horticulturist, April 12, 1991) has revealed. A Norwegian naturalist, Dr Per Wegge, in his report to the WWF has indicated that this area, which was recently opened (in 1990) to foreign trekkers, has high tourism value and possesses great potential for developing hunting reserves for the blue sheep, ghoral and thar. If trophy hunting is also permitted with the overall tourism development and conservation plan, a substantial amount of foreign exchange from licenses and trophy fees could be generated to pay for conservation and development in the region. However, to date no preparation has been made to manage this area for tourism and community development. It is important that the area be studied for multiple use management options for conservation of natural as well as cultural heritage, and to achieve sustainable use. A reconnaissance survey was carried out in 1994.

9. Concluding Remarks

Biodiversity conservation through a PAs system has been examined in Nepal through various conservation models where the interests of resident people in or around PAs are duly addressed. Tourism contributes significantly to foreign exchange earnings, a factor that has to be incorporated into PA planning as well as into the country's development planning. Through its various programmes IUCN Nepal has been assisting the Kingdom of Nepal in its endeavour to integrate conservation, development and tourism.

Table 1. Parks and Protected Areas of Nepal

Protected Area	Area	Physiographic location	Biological Significance	Current Problems
National Parks, IUCN Category II				
Khaptad	225 sq km	High mountains	<ul style="list-style-type: none"> Himalayan black bear, barking deer, wild dogs, wild boar, leopards, Himalayan yellow throated marten, Himalayan thar, ghoral, and primates are major wildlife Khaptad Daha, a shallow lake, lies at an altitude of 3050 m Due to the presence of a Shiva shrine and the ashram of Khaptad Baba, the park has cultural importance 	<ul style="list-style-type: none"> Heavy grazing by cattle Firewood collection by villagers
Lake Rara	106 sq km	High mountains	<ul style="list-style-type: none"> Lake Rara is an important high mountain wetland Habitat for threatened species like leopard and musk deer 	<ul style="list-style-type: none"> Over-grazing and illegal firewood collection
Royal Bardia	968 sq km	Terai, Siwalik	<ul style="list-style-type: none"> Habitat for threatened species like tiger, sloth bear, swamp deer, hispid hare, elephant, Gangeitic dolphin, rhinoceros, black buck, gharial and mugger crocodile 	<ul style="list-style-type: none"> The irrigation canal that passes through the solution border of Karnali Multipurpose Project The east-west highway which runs through the park Babai irrigation project diverts the water of the Babai river Crop raids by wild animals
Shey Phoksundo	3,555 sq km	High Himal	<ul style="list-style-type: none"> Tibetan plateau ecosystem Habitat for Tibetan type of flora and fauna Habitat for blue sheep, snow leopard and musk deer Important religious site for Buddhists 	<ul style="list-style-type: none"> Remoteness is the major problem Lack of staff and guard posts
Royal Chitwan	932 sq km	Terai, Siwalik	<ul style="list-style-type: none"> Habitat for endangered species such as tiger, rhinoceros, gharial, mugger crocodile, python, sloth bear, elephant and guar World Heritage site 	<ul style="list-style-type: none"> Illegal collection of firewood and grazing in the park Raiding of crops by wild animals Poaching of rhino horns and tiger bones Environmental pressure from hotels and tourism Untreated effluent from Bhrikuti Paper Mill The proposed East Rapti Irrigation Project will have significant impact on the park ecosystem
Langtang	1,710 sq km	High Himalaya	<ul style="list-style-type: none"> Habitat for 15 species of endemic plants of Nepal 30 faunal species of the area include threatened species such as the wild-dog, clouded leopard, leopard and Himalayan musk deer Well known for red panda, the protected wildlife species of Nepal Gosaikunda and Panch Pokhari are notable high altitude lakes 	<ul style="list-style-type: none"> Poaching of musk deer Crop depredation especially due to wild boars Garbage left by trekkers Illegal collection of medicinal plants

Protected Area	Area	Physiographic location	Biological Significance	Current Problems
Sagarmatha	1,148 sq km	High Himalaya	<ul style="list-style-type: none"> Highest terrestrial ecosystem Includes the highest peak (Mt. Everest 8,848 m) in the world 3,000 sherpas live within the park boundaries Major tourist destination Several cultural sites of significance World Heritage site Habitat for endangered species such as snow leopard and Himalayan musk deer 	<ul style="list-style-type: none"> More than 10,000 tourists visit the area each year Waste disposal and illegal felling of trees Heavy grazing by yak and sheep
Makalu-Barun	1,500 sq km (National Park) 830 sq km (Conservation area as buffer zone)	High Himalaya	<ul style="list-style-type: none"> Provides ecological support to low altitude habitats in the Mount Everest ecosystem Habitat for threatened species such as black bear, red panda, musk deer, leopard, snow leopard, tahr, and 14 rare species of birds Occurrence of 3,000 species of flowering plants 	<ul style="list-style-type: none"> Encroachments by local people Slash and burn agriculture in conservation area Poaching of bear gall bladder Illegal collection of herbs
Wildlife Reserve, IUCN Category IV				
Royal Sulka Phanta	155 sq km	Terai	<ul style="list-style-type: none"> Extensive grassland (phanta) and forest Habitat for swamp deer, wild elephant, tiger and hispid hare 	<ul style="list-style-type: none"> Illegal collection of firewood and timber Illegal grazing within the park Raiding of crops in the surrounding villages by wild animals
Parsa	499 sq km	Terai, Siwalik	<ul style="list-style-type: none"> Eastern extension of Chitwan National Park 	<ul style="list-style-type: none"> Illegal collection of firewood Poaching of wild animals Lack of proper staffing
Sivapuri Watershed	112 sq km	Middle mountain	<ul style="list-style-type: none"> Protects the main watershed which provides Kathmandu valley with drinking water Type locality for many Himalayan plants Rich in bird species Habitat for relict Himalayan dragonfly, an endangered species 	<ul style="list-style-type: none"> Pressure from local community for firewood, fodder and manure The only walled protected area in Nepal
Koshi Tappu	175 sq km	Terai	<ul style="list-style-type: none"> Contains the last remaining herd of wild buffalo within Nepal Richest area in Nepal for waterfowl and other birds Nepal's Ramsar Site 	<ul style="list-style-type: none"> Impacted by the Koshi barrage High tension electric transmission lines and irrigation canal Grazing problem The population of water buffalo is believed to have decreased due to its hybridisation with domestic buffalo
Hunting Reserve, IUCN Category V				
Dhorpatan	1,325 sq km	High mountains	<ul style="list-style-type: none"> Used for game, cropping (mainly blue sheep) 	<ul style="list-style-type: none"> Every year, generally from June-October, about 80,000 herd of livestock graze in the pasture of Dhorpatan
Conservation Area, IUCN Category VI				
Annapurna Conservation Area	260 sq km	High mountain High Himalaya	<ul style="list-style-type: none"> Habitat for snow leopard and blue sheep Only conservation area in Nepal managed by an NGO Tourist destination 	<ul style="list-style-type: none"> Waste disposal and illegal firewood collection due to increased number of tourists

Country Report, Pakistan

Abeedullah Jan

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More than 50% of Pakistan's geographical area is wildland comprising the great mountain ranges — the Himalaya, Karakoram and Hindu Kush — and including the cold plateau of Balochistan and the hot, smouldering deserts of Thar and Cholistan. There are also a large number of water bodies in the form of rivers, canals, reservoirs, natural lakes and other types of wetlands scattered through the length and breadth of the country.

Although not a large country, Pakistan is rich in biodiversity: three biogeographic zones out of the six covering the entire globe are represented here. These are:

- The Palaearctic realm extending from the north;
- The Ethiopian realm touching the southern fringes and
- The Oriental or Indo-Malayan realm stretching from the east.

This converging phenomenon has given rise to nine distinct biomes from the glaciated north to the dry tropic in the south. Consequently, marine, coastal, mangrove, estuarine, riverine, wetland, dry desert, tropical thorn, sub-montane, montane, and cold desert ecosystems are all found in Pakistan.

Of the total land surface, 5.8% is legally protected as National Parks, Wildlife Sanctuaries and Game Reserves under wildlife legislation with an additional 3% as reserved and protected forests notified under forest laws.

This wide and varied range of habitat is matched by a diversity of flora and fauna comprising more than 5,000 species of wild plants, 188 species of mammals, 666 species of birds and about 207 species of reptiles. There is a pronounced endemism of wild goats, wild sheep, reptiles and plant species.

This natural heritage is, however, threatened by a human population of more than 120 million people that, with an annual growth rate of 3.1%, is likely to cross 220 million within the next 20

years. With such a massive population competing for natural resources, the very continuation of the PAs and their effectiveness has become questionable. This issue needs our urgent attention.

Wildlife is seriously and increasingly being threatened on account of hunting, competition with domestic livestock, disturbance during the breeding season, pollution by insecticides, pesticides and other forms of toxic substances.

As a result, some species have disappeared while many others are facing the same fate. The latter category includes 31 species of mammals, 20 species of birds, 4 species of reptiles and over 500 species of plants. Remedial measures adopted so far include:

- Setting up a network of 14 national parks (four were added during the last year), 84 wildlife sanctuaries and 75 game reserves covering about 8% of the total land surface.
- Enactment of relatively comprehensive wildlife legislation in the 1970s.
- Institutional strengthening at the federal and provincial levels including the establishment of Wildlife Advisory Boards to encourage participation of private citizens in decision making.
- Regulation and control over export and import of wild flora and fauna.
- Survey, research and training.
- State membership of Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Ramsar Convention, the Bonn Convention, the World Heritage Convention, IUCN and International Waterfowl and Wetland Research Bureau.

Finally, I would like to briefly mention the major constraints that hinder the establishment of an adequate and effective network of PAs in Pakistan despite substantial local coverage. These constraints include:

- The absence of PAs systems planning.
- The absence of management plans for most

of the PAs.

- Lack of expertise in PA planning, management, interpretation, survey and inventory techniques due to the lack of training facilities in the country.

- Inadequate financial and human resource investment.

These are some specific areas of PA management in which we would like to benefit from the experience of other countries in the region.

Country Report, Sri Lanka

S. Medawewa
Government of Sri Lanka

1. Introduction

Sri Lanka, with a land area of 1.7 million hectares has a rich tropical forest which is a major contributor to its biological diversity. The total extent of natural forest cover is approximately 26% of the island's land surface while the area under the closed canopy natural forest covers 1.33 million hectares or 20.4% of the land area. Over 45% of the total natural forests in the country have been designated as Protected Areas, purely for conservation purposes.

In Sri Lanka, there are numerous PAs for diverse reasons of which the most widely known areas are under the purview of the Department of Wildlife Conservation and the Forest Department. Apart from this, there are PAs under local authorities (such as town councils or village councils), government agents, the Archaeological Department, the Coast Conservation Department and the Tourist Board.

2. Forest Cover

Sri Lanka's central highlands and the wet zone were forested prior to the European invasions of the country. Among the early arrivals were the Dutch and the Portuguese who were interested in trade, especially in elephants. But when the British took control of the country, they took to exploiting its natural resources with a vengeance.

Towards the mid-19th century, vast forest tracts in the higher altitudes were cleared for coffee plantations. Tea was introduced in 1850 and claimed yet more forests at higher altitudes.

As late as 1872, the low country zone remained forested, with few human settlements. There were large tracts of forest in the northern half of the island; the east and the south-eastern parts also contained a substantial extent of wild country and were thinly populated. The extreme south and south-west, on the other hand, were largely under cultivation and paddy fields and coconut plantations were common.

With the completion of irrigation works in the dry zone, the clearing of its forests began in the latter part of the 19th century. The next drastic change came about after 1900 when large colonization schemes were introduced. Since 1933 the rate of forest clearing in the low country has steadily increased. By 1948, only 50% of the dry zone was under forest cover, which continued to dwindle due to continuous "slash and burn" or "chena" cultivation, and illegal timber extraction. The present natural forest cover is estimated at approximately 20.4% of the land area in the dry zone and 9% of the land area in the wet zone.

3. Wildlife Conservation

Faunal species protection preceded the declaration of Protected Areas in Sri Lanka. During the reign of the ancient kings, according to old chronicles and rock inscriptions, elephants and fish in certain reservoirs were declared protected species. Towards the latter half of the 19th century, during the British period of Sri Lanka's history, wild animals (especially the deer, sambhur, buffalo and elephant) were decimated with impunity in the name of sport. In an attempt to stem this slaughter the government introduced two bills, in 1872 and 1891 respectively, that prohibited the sale of the hides and horns of the deer and sambhur.

The efficacy of this legislative measure was limited by its weak implementation. This generated interest in the idea of creating PAs exclusively for wildlife. The first PA, known as a sanctuary, was established by a European planter in the hill country and covered about 2,000 acres. This concept of sanctuaries (not in the sense currently used) later became the cornerstone of the Sri Lankan conservation strategy. In 1898 the colonial government declared Yala, in the Hambantota District in southern Sri Lanka, a sanctuary, where no shooting was allowed (Times of Ceylon, February 22, 1899). This was the first official sanctuary in Asia and is of the same antiquity as the Sabi National Park (now

Kruger) of South Africa (Uragoda, 1994). Two other areas were declared game sanctuaries in 1905 in the North Western Province and the North Central Province.

The Fauna and Flora Protection Ordinance of 1938 provided for the establishment of several categories of PAs with different degrees of protection for both animals and plants. Strict Nature Reserves were created where wildlife could exist without the intrusion of man. Permission to enter Strict Nature Reserves was given only to scientists actively engaged in research. National Parks were established for people to observe wildlife only through permits issued on payment of a fee. While shooting was allowed in the intermediate zones with a permit during open season, during the closed season entry was allowed on permit only for the purpose of photography and study. The creation of these zones for hunting had been much debated: it was argued that the shooting dissuaded the animals from straying outside the PAs. However, when licences to hunt were ultimately banned in 1964, these intermediate zones were incorporated into National Parks. Of all the PAs, sanctuaries became the most relaxed ones for human activities. This classification was based on models developed in Britain. The amendments to the Fauna and Flora Ordinance, in 1993, introduced the following changes to the categorization of PAs:

- The number of PAs was increased to seven.
- Some categories of PAs like intermediate zones were deleted.
- New areas were added to the list of PAs, such as Buffer Zones, Refuges and Marine Reserves.

The law currently recognizes seven different categories of PAs:

- Strict Nature Reserves
- National Parks
- Nature Reserves
- Jungle Corridors
- Refuges
- Marine Reserves
- Buffer Zones

Wetlands as defined by the International Waterfowl and Wetland Research Bureau form another category of PAs, especially for migrant birds, including waterfowl.

Sri Lanka boasts 12 national parks, 3 strict nature reserves, 2 nature reserves, 52 sanctuaries and 3 wetlands all covering an area approximately equivalent to over 13% of the total land mass of the island under wildlife conservation. This percentage

is, incidentally, one of the highest in the world. Another interesting feature of this PAs network is the numerical increase over the years (see graph) in the area that it covers. This fact should be considered against the reality of a progressively increasing population that demands new land for development. The forest cover subsequently decreases, yet the area under wildlife conservation keeps increasing.

PAs under the Forest Ordinance are described as forest reserves. All or parts of any land devolve on the state under legislation such as the Land Resumption Ordinance, Waste Land Ordinance, Land Settlement Ordinance etc. Within the precincts of forest reserves, trespassing or causing willful damage to any tree such as stripping its bark etc. are considered punishable offences. The 30,000 acre Sinharaja Forest in the Sabaragamuwa and Southern Provinces of Sri Lanka is a primeval forest, and one of the Forest Department's major reserves. In 1988 it was declared a National Heritage Area under the provisions of the National Heritage and Wilderness Areas Act.

Under Sri Lanka's Coast Conservation Act, PAs are established for the conservation of its coastal belt.

Sri Lanka has a history several thousand years old, which makes for an abundance of ancient ruins, whose preservation is the responsibility of the Archaeology Department.

Cultural sites and other natural resources notwithstanding, the PAs network for wildlife on the island is larger and more complex than the reserves under any other legislation. Despite unremitting demands on land and forest resources made by a burgeoning population, they are quite well protected.

An interesting feature of these PAs is that the majority of them are found in Sri Lanka's dry zone. The movement of wild animals into the dry zone was a historical process. The dry zone area was originally the cradle of civilization on the island while wildlife was concentrated in the central hill country and the tropical rain forests in the west. Abandoning the dry zone area in the wake of foreign invasions, Sri Lankans moved to the western and coastal areas. The Central Hills were cleared by the British for plantation crops like coffee, tea, rubber and cinchona. Both these events served to drive the wildlife into the dry zone which was then developed into a secondary forest.

Although biodiversity and endemism are greater in the wet zone's tropical rain forests, the number of PAs in this part of the island is signifi-

cantly lower than those in the dry zone. This is largely because of the heavy concentration of population in these areas.

Two marine sanctuaries in Hikkaduwa in the Southern Province and the Bar Reef in the North Western Province have been established to protect the coral and associated life forms. Of these wetland areas one is a Ramsar Site.

At present, the management of the PAs network in Sri Lanka has to contend with the following problems:

- An increasing population and a growing demand for land.
- Limited employment opportunities, poverty and infringement of laws governing PAs.
- Too many visitors at a limited number of National Parks.
- Development stresses on overused PAs.
- Ignorance and lack of interest among policy makers about the importance of PAs and their resources.

4. Evolution of Conservation Objectives

Sri Lanka's emphasis on controlling and regulating game hunting changed with the creation of the Department of Wildlife Conservation (DWC) in 1950 and a report submitted by a committee appointed in 1957. These events led to an awareness of the need to protect vital ecosystems and their fauna.

Legislation on wildlife conservation was initiated to protect and regulate game. Around 1958, the emphasis was mainly on protecting the elephant, a few unique ecosystems and some sites of special interest. Accordingly, the DWC specified areas for their protection in development programmes and designated strict nature reserves for unique ecosystems. Sanctuaries were set up as special interest areas for migrant birds and animal aggregates. This trend continued while major development schemes were taking shape. In the early 1960s numerous catchments of dry zone reservoirs were stocked with displaced animals, thus fulfilling a catchment area conservation objective.

With the rapid expansion of this policy since then, almost all the major catchments have become reserves. Meanwhile, special interest sites and ecosystems have also continued to attract attention.

Sri Lanka's PAs are administered through various legislative measures. The Fauna and Flora Protection Ordinance provides for the management of the national reserves (National parks, Nature

Reserves, Strict Nature Reserves and Jungle Corridors) and sanctuaries that are run by the DWC while the Forest Ordinance sets guidelines for the Forest Department to establish and protect village forests, forest reserves, other state forests and their products, and regulate the transport of timber. The National Heritage and Wilderness Areas Act governs the preservation of genetic resources, unique ecosystems and habitats of endangered and threatened species.

At present, the island has 12 National Parks, 3 Strict Nature Reserves, 3 Nature Reserves, 52 Sanctuaries, 2 Proposed Jungle Corridors, 1 Wilderness Heritage Site, 41 Man and Biosphere reserves, and 13 other conservation forests in the wet zone.

The system of PAs in Sri Lanka is, thus, a fairly extensive one, covering over 13% of its total land area — Sri Lanka is one of only five countries in the world that has over 12% of land area allocated exclusively for strict conservation. Of this, nearly 12% comes under the purview of the DWC. At present, over 45% of the existing natural forests have been demarcated as PAs entirely for protection and conservation purposes.

However, the distribution of Sri Lanka's existing PAs raises some doubts as to the effectiveness of its PA network. While 90% of the PAs are located in the dry zone, representation in the wet and montane zones of the country where the forests are of the greatest importance in terms of biological diversity, endemism and watershed value, is marginal (only about 10% of the PAs).

Contributing to this imbalance is the fact that in the dry zone, most of the natural forest cover lies within the wildlife Protected Area, while the wet zone contains only a few PAs for wildlife.

If the major PAs in the dry zone are analyzed with respect to habitat type and objectives, one sees that 24% of the PAs are water bodies, 11% lie within high security areas, 6% in archaeological reserves and islands, and 59% in forests.

The fact that elephants are found mainly in the dry zone is also pertinent. In 1969, their numbers ranged between 1,745 and 2,455. In 1987 they had increased to between 3,051 and 3,435 and at present are estimated to number between 2,500 and 3,000. These elephants cause tremendous damage to crops, property and life each year. The resolution of this problem needs to be carefully considered and the staff in dry zone PAs must make maximum efforts to keep these herds within the confines of the PAs.

Sri Lanka's PAs network has to contend with the problem of too many visitors, which has an extremely negative impact on wildlife habitats and movements. The number of visitors to PAs has increased substantially in the past few years, and is concentrated mainly in popular National Parks.

The most crucial threat to the management of PAs is the country's growing population and its increasing demand for land (for agricultural use, as well as for housing and industry) and for forest-based products such as timber and small wood. The recent trend of cultivating cash crops for the export market has further inflated the demand for land. While the population has continued to grow, forest cover has decreased. The slow but steady increase in the urban population since 1946 has placed pressure on PA management in three respects: the growing urban-middle class citizens' demand for land for housing; the demand for game (protected animals) meat; and the desire to keep animals as pets. The increase in the rural population on the other hand continues to put pressure on the park fringes and contribute to the unrelenting decrease in forest cover.

A burgeoning population translates into a need for additional avenues of employment, not always possible in a situation of slow economic expansion. The result is often poverty and starvation, which naturally compels the unemployed, specially in the rural sector, to encroach upon land reserved for wildlife. The resolution of this problem lies in long-term economic development and population control measures.

While economists argue about the opportunity cost of land allocated for wildlife, it is internationally accepted that National Parks must sustain themselves. When alternative development activities are possible in the wake of increasing population, it is important that we develop income generating programmes associated with these PAs. This entails the management of greater numbers of visitors to these parks. However, over-visitation has a twin impact: the stresses due to over-visitation on the one hand and on the other, the fallout of developments introduced within the parks to meet visitor demands.

It is important that Sri Lanka's policy makers take a serious view of the need to protect wildlife in the country. The fresh interest in the conservation of biodiversity created by the Earth Summit should bear fruit in Sri Lanka because much attention is paid to the protection of the environment and related matters.

In the PAs, management practices have been largely centered around protection and in the

National Parks around visitor needs. These include the maintenance of road networks, establishment of water holes, and under-brushing of the road sides. Apart from the construction of water holes to retain water for the dry spells, little activity is directed towards the well being of animals.

The wildlife conservation management of PAs is thus a critical issue in Sri Lanka today. PAs and their wildlife can benefit and be successfully conserved for posterity only if a broad and concerted effort is adopted to manage the systems through a sound policy.

The Sri Lankan government has launched such an effort, first by the adoption of a National Conservation Strategy, and second by the approval of a National Wildlife Conservation Policy 1990, based on the IUCN's concept of conservation i.e.:

- To maintain ecological processes and life sustaining systems;
- To preserve genetic diversity; and
- To ensure the sustainable utilization of species and ecosystems which are of immediate and potential importance in supporting people.

The protection of wildlife, mainly in the limited PAs, will be shaped around this policy. Its contents are included here to give an insight into the future direction of wildlife conservation in Sri Lanka.

5. The National Policy for Protected Areas Conservation

One of the first policy objectives (1953) relates to the conservation of forests. It is "to maintain, conserve and create forests for the preservation and amelioration of the environment, soil and water resources, and for the protection of the local fauna and flora where they are required for aesthetic, scientific, historical and socio-economic reasons."

The National Policy for Wildlife Conservation has the following objectives:

5.1 To Identify the Specific Objectives of Wildlife Conservation

Protective measures need to be instituted for the sake of species conservation, ecosystem conservation, endemic species conservation and for recreational purposes. Conservation may concern these objectives singly or in combination. Also needed is a complex manifesto which might have to vary from reserve to reserve.

5.2 To Recognize Human Use in Reserves

People are part of the natural ecosystem, and depend upon it and its products for their survival. In the name of conservation, barriers have sometimes been erected which have prevented people from exploiting the forest — even though they may have done this in the past without harming the ecosystem.

A conservation policy, therefore, needs to be humane and take into account the potential human use of PAs.

5.3 To Recognize the Multiple Uses of PAs

Recognizing human activities in reserves would lead to multiple use of PAs. User needs and requirements may be categorized into two main classes: (1) consumptive or extractive uses; and (2) non-consumptive or non-extractive uses.

5.4 To Establish Zones in Protected Areas

If the concept of multiple use is accepted, the best method of implementing it is zoning. Buffer zones could be opened to extraction while areas which are of scientific or ecological importance would be classified as "core" areas. Only non-extractive uses, such as research, would be permitted here.

5.5 To Introduce an Effective Management Policy

Recognition of the multiple uses of a PA calls for measures to ensure productive and efficient utilization of resources. These measures are practicable only under a proper management policy.

A "hands-off" policy which imposes stern measures on the people should not be adopted, for it would cause resentment and the destruction of the very resources that need to be protected.

A suitable management policy recognizes the effects of man's actions, and tries to reduce or eliminate such effects. It also attempts to maintain resource potential at 'natural' levels through successful management techniques. Zoning, which was discussed earlier, is one such technique that could be practised.

5.6 The Decentralization of Administration

When multiple use of PAs is a cornerstone of national policy, management practices need to be changed accordingly. The administration should be decentralized.

5.7 Recognition of Research and Education as Priority Needs

Any strategy, however well intentioned, becomes ineffective if it is not based on an understanding of the situation. The key to this understanding is a knowledge of details as well as a "global" understanding of the larger picture. It is research that assists in elucidating the former and education that paves the way for the latter.

5.8 Establish Inter-Institutional Links

A successful national policy depends upon agencies working together for the common good. Guidelines must be established so that inter-institutional links can be created and exploited for the mutual benefit of the institutions as well as the country.

5.9 Formulate and Implement a National Conservation Act

The guidelines set out above should be incorporated into an effective Conservation Act which must serve the real present and future interests of the people.

The Act must also incorporate the fundamental concepts of conservation as practised today. These principles are:

- Protection: to sustain and maintain the balanced functioning of nature.
- Use: to provide for the daily needs of the present as well as future generations.
- Regulation: to control and regulate through scientific knowledge and sympathetic understanding so that use and protection can be provided for.
- Management: to administer and manage natural resources wisely to ensure maximum benefits for present and future generation.

Integrating Sustainable Development and Conservation: What is the Future for Protected Areas in South Asia?

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1. Introduction

Biodiversity in Asia has been lost largely due to habitat destruction from clearing and burning forests, logging and agricultural encroachments, draining and filling wetlands, destroying coastal areas for development, converting natural ecosystems for agricultural and industrial use, and human settlement. South Asia has lost approximately two-thirds of its forest area and half of its wetlands, mangroves, and grasslands. Poaching, hunting, collection of valuable plants, introduction of exotic species and pollution all pose major threats to many wildlife species and natural habitats.

South Asia contains within it the world's highest mountain system, as well as rainforests, coral reefs and island systems, characteristics that account for the region's substantial species diversity and high levels of endemism.

A rapidly increasing population is the cause of many problems in the region. Asia is the world's most populous region, with 13% of the world's land area peopled by 50% of the world population and comprising some of the world's poorest countries. Demand for economic growth is consequently very high. People cannot conserve natural resources because conservation is in conflict with their survival needs. How people's needs can be reconciled with conservation interests is an issue that must be resolved urgently.

Setting up comprehensive and well-managed PA systems is the most practical way to preserve the greatest amount of biological diversity and the ecological processes that define and mould it. Therefore, initial efforts should help support the establishment and maintenance of PA systems by promoting policy changes, incorporating local people into PA management and mobilizing financial resources for conservation and protection.

Many of the factors leading to the loss of biodiversity and the degradation of protected natural ecosystems originate far from park boundaries. They include public ownership of extensive areas of land

unmatched by the capacity of government agencies to manage it, compelling financial incentives that encourage over-exploitation of timber; wildlife; grazing lands and croplands; absence of linkages between conservation needs and factors encouraging development; and laws, policies, social changes and economic forces over which poor people in remote rural areas have no influence.

2. Action Needed for a Better Future

2.1 Improving the Policy Environment

- A need for national policies.
- Contradictory policy objectives among sectors must be resolved.
- Policies that have adverse impacts on biodiversity must be modified.

2.2 Regional Development

- PAs need to be integrated into regional development programmes.
- PAs cannot be regarded solely as an issue of protected land management.
- Parallel efforts should be made to conserve biodiversity in the context of agricultural and other land use activities e.g. ex situ methods.
- National thresholds of PAs must be determined.
- Cross-sectoral development in the region — e.g. tourism, can be a double edged tool. This should be carefully evaluated.

2.3 Administrative Arrangements

- The protection of biological diversity is weak in the region.
- Although bound by legislation PAs are, in practice, inadequately protected, mismanaged and lack infrastructure and staff to such an extent that some are undeserving of their designation.

- Conservation in some countries is limited by administrative structures. Priority is given to production rather than protection.

2.4 Legal Framework

- PAs cannot be preserved unless there are effective legal and institutional structures.
- Legislation pertaining to PAs can be inadequate when it is focused on particular species or types of organisms rather than on habitats.
- Enforcement of conservation legislation is poor, allowing illegal activities to continue unchecked.
- Concepts of multiple use, resource use, shared control resources etc. have to be brought into the legal framework of each country.

2.5 Management of Protected Areas

Management Plans

- There is an urgent need to establish new databases and strengthen existing ones.
- Management of the PA and the adjacent land should be planned together as the PAs are not self-contained.
- Each area should have a management plan listing objectives, obstacles to achieving them, ways to overcome these, the required resources, the costs and benefits of achieving them, and the responsibilities of concerned agencies.
- Is there a need for additional PAs when many of the existing ones still lack adequate human and other resources for effective management?
- Zoning of PAs with the surrounding landscape is essential.

Species and Ecosystems Management

This needs to be carefully thought out. For example, in the case of elephants, decisions must be made about live capture, translocation, taming, driving etc. Should special reserves or elephant corridors be created? How will the human population be affected? Should buffers be created?

Education, Research and Training

- Strengthen visitor information/interpretation services.
- Public education.
- Strengthen research component.
- Train available cadre.

- Develop curricula.
- Introduce wildlife curriculum into other sectoral education programmes
- Make PAs part of modern society through education, training and research.
- School curricula.
- Flagship species to symbolize conservation issues.
- Mobilize NGOs, enthusiasts, volunteers, academics, youth and children.
- Launch campaigns on specific issues.
- Utilize mass media and green advertising, e.g. the Asian Forum of Environmental Journalists.
- Use other available training institutes, if necessary, for environmental training.
- Training of trainers, school teachers, instructors of agriculture etc. should be undertaken.
- Involve tour agents, tour operators, hoteliers, customs officers, coast conservation officials, marine affairs, fisheries, military officers.
- Research, inventories, herbaria, surveys.
- Translate research results into practice by applying them research results to management issues.

Buffer Zone Management

- Laws related to buffer zones must appear useful and rational to local people.
- Buffer zone projects should start small and recognize the need for acquiring knowledge of the area's resources and the development needs of the people. This should be a learning process.
- A buffer zone development project should not usually be initiated unless there is reasonable probability of success. Support should be maintained for a substantial amount of time i.e. 10-15 years.
- Buffer zone projects should be simple and centre on intensive dialogue with local communities. A mechanism to provide small amounts of assistance would be sufficient for such a project.
- Dialogue must be translated into practical action.
- The project should not bypass existing government rural development agencies.
- Rural development activities in buffer zones should use simple technologies besides indigenous material and local labour.
- Establishment of foundations, trusts or local NGOs can be an effective method of attracting and sustaining outside support for buffer zone programmes.

Partnerships with Indigenous Communities and NGOs, and Local Social and Economic Development

- This is the most challenging aspect of integrated conservation-development projects and requires an innovative approach.
- The development component should not only foster improved local living standards and be economically and biologically sustainable but must also conserve the PAs ecosystem.
- To satisfy this requirement, explicit linkages between development components and conservation objectives are needed.
- Systematic attention to land ownership and other resources, as well as access rights of beneficiaries, must be considered.
- NGO contribution should be strengthened.
- Conservation and development need to be integrated in order to expand public support.
- With reference to the traditional and indigenous knowledge base, new ways of reconciling the needs of local people with conservation should be devised.
- Dependence on external resources should be reduced.
- Given that women often gather resources from PAs, their participation in planning and implementing projects is necessary.
- NGOs and government organizations must make a concerted effort to increase public awareness of the importance of biodiversity. The acceptance of protection often depends on placing sufficient economic value on natural resources and on demonstrating that such areas bring positive benefits to the indigenous population. For example:
- Widespread opposition from NGOs helped to avert the proposed routing of the Indus Highway through the Kirthar NP in Pakistan in 1991.
- Impact assessment of the irrigation project in Nepal's Chitwan NP led to its being abandoned.
- In India the Rajasthan government granted about 300 mining licences in the Sariska sanctuary (1986-1992), encouraging thousands of people, who had initially been paid compensation to leave, to return to their land.
- In Sagarmatha NP, a World Heritage Site, the initial hostility of local people was converted into strong support through economic incentives such as employment in tourism-related

activities, preferential employment as part-time staff and restoration of religious structures within the park.

Improvement of the relationship between local people and PAs is vital for successful biodiversity conservation. When people have been alienated from their land in the course of establishing a PA, the outcome has sometimes been violent. In Assam, India, a rebel force of Bodo tribesmen invaded the Manas sanctuary and killed 12 members of the forest staff. They had been provoked by the denial of their rights on their land, the curb on traditional uses, and the fact that they had no say in the establishment and management of the PA.

Human Resource Development

- The number of trained personnel at present is inadequate.
- Sufficient funds and facilities to train staff are lacking.
- There is a lack of commitment to institutional reorientation from traditional park management to a people-centred management approach.
- Realistic institutional arrangements are wanting.
- There is a dire need for professionals, particularly good managers and qualified implementors.

2.6. Financial Resources

- Government expenditure is inadequate for the preparation of management plans, acquisition of lands, capital expenditure, protection activities, training of new cadres and maintenance of assets.
- If satisfactory levels are to be achieved, a tenfold increase is necessary (according to a World Bank estimate).
- Sustainability of investments must be insured through domestic resource mobilization.
- Although billions of dollars are generated from PAs through tourism, they are not ploughed back into the PAs.
- The institutional capacity to manage finances needs to be developed.

2.7 Political Commitment

- Political support for conservation is often limited. Consequently institutions lack the necessary authority to enforce pertinent legislation, which often lowers their morale.
- Political commitment to the cause of conservation varies greatly, e.g. in Bhutan state expenditure on PAs is only 0.2%.

2.8 International Cooperation

- Membership in international conventions and treaties concerning biodiversity conservation is relatively low.
- Participation of South Asian countries in international conservation efforts is low.
- Mobilization of financial resources for international activities is slow.
- It is important that new channels for international assistance are opened.
- International organizations such as the World Bank can assist in designing projects, demonstrating new approaches for the modification of policies and by reconciling the needs of local people with conservation objectives, help to mobilize domestic resources.
- Existing institutions such SACEP should be utilized.
- International cooperation is simpler when the PAs are situated along borders.
- Sub-regional cooperation on common issues should be sought.
- Recommendations of conferences, seminars, studies and agreements should be translated into action. Some of the main international conventions and guideline documents are:
 - World Conservation Strategy
 - National Conservation Strategies
 - Caring for the Earth
 - Convention on Biodiversity
 - Biodiversity Action Plan
 - CITES
 - Ramsar Convention
 - Bonn Convention
 - Framework Convention on Climate Change
 - Agenda 21
- Other institutions such as UNEP, MAB, World Heritage Convention, and ESCAP should also be utilised.
- The activities of FAO, ESCAP, UNEP, ITTO etc. need to be coordinated.

Future Issues and Challenges for Marine Protected Areas in South Asia

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1. Introduction

The realization of the need to establish Marine Protected Areas in South Asia to provide safe havens for targeted marine organisms, sea birds and critical marine habitats, is more than half a century old. Although the basic concept has not changed since then, varied terminology has developed to describe the various approaches to achieving this goal over the years. Terms such as 'rational management' and 'sustainable management' had their hey day in the 1980s, and we now talk mainly of 'integrated management' and 'special area management' (SAM).

Despite these officious phrases, very little progress has actually been made in realizing the true goals of MPAs. There have been several conferences, congresses, symposia and seminars to highlight the need to establish and improve the status of MPAs in South Asia and elsewhere. The Symposium on Endangered Marine Animals and Marine Parks held in Cochin, India in 1985 was a milestone in this direction. At this symposium De Silva (1985a) stated that "although at many of these international gatherings, the need for rational management of coral reefs has been stressed, the coral reef management and conservation programmes of many developing countries of the Indo-Pacific region have yet to receive the enthusiastic support of their governments". A decade later this statement still holds true, not only for coral reefs but for MPAs in general. This is in spite of the vast sums of money and the enormous number of scientific papers that have been written on the subject since the Cochin symposium.

Before tackling the subject of this paper, we need to have an understanding of the strengths and weaknesses of the past as well as of the present. Although time constraints do not allow me to go into specifics for each country, I would like to quote some examples, particularly from Sri Lanka, to illustrate the points I propose to highlight. Given my long association with the MPA programmes of

south-east Asia and Sri Lanka, I may be able to give you more than just a cursory overview which should, I hope, prove thought provoking.

The specialized nature of the environment in most MPAs requires a different approach to their management as compared to protected land areas. Baker's (1983) remarks pertaining to Marine Parks are applicable to many MPAs as well. For example, he has stated that access to National Parks on land is often restricted by the nature of the terrain; it can also be controlled through the use of fences, roads and gates. Access to a Marine Park, on the other hand, is often limited by weather and its distance from the land. Furthermore, once within the boundaries of a Marine Park, movement is controlled with more difficulty than on land where roads, paths, fences and other obstacles can be used to limit movement. Problems are further compounded by the fact that the environment in a MPA is much more susceptible to activities such as land clearance and discharge of effluents than the environment in National Parks on land. Any drastic changes, particularly underwater, that might pass undetected can also impact negatively on a MPA environment.

I have to provide an insight not only into some of the existing constraints to optimal functioning of MPAs but some of their future challenges as well. I will deal with the following issues:

- The past, the present and the future of the Hikkaduwa Marine Sanctuary in Sri Lanka.
- The need to resolve conflicts between various interests.
- Planned management as opposed to management by crises.
- Enhancement of MPA buffer zones as alternate employment sites.
- Positive and negative impacts of tourism.
- National and regional inter-agency cooperation.
- Use of mass media for formal/non-formal education.

2. The Hikkaduwa Marine Sanctuary

De Silva (1985b) has already examined in detail the history of marine sanctuaries and reserves in Sri Lanka including that of the Hikkaduwa Marine Sanctuary up to 1985. However, it is necessary to refer once again to the latter's historical background in order to obtain an idea of the trials and tribulations that beset one of the most talked about MPAs in Sri Lanka. Its case is typical of many other similar MPAs in South Asia.

The first MPAs declared in Sri Lanka were perhaps the Ambalangoda/Hikkaduwa Rocky Islets which were declared sanctuaries under the Fauna and Flora Protection Ordinance by Gazette No. 8675 of October 25, 1940. The purpose of the sanctuaries, which were limited to the land boundaries of the islets, was to offer protection to the seabirds nesting there. According to De Silva (1987): "many people mistakenly believed that these sanctuary regulations were applicable to the marine environment and the coral reefs of Hikkaduwa as well". In 1961 regulations were promulgated under the Fisheries Ordinance (section 26 in Gazette No. 12304 of March 3, 1961) to prevent the removal of any fish from a 110-acre area of the sea, including the coral reefs, at Hikkaduwa, except with a permit issued by the Director Fisheries or an officer authorized by the Director. The permit specified the species of fish that could be removed from the area and the type of gear to be used. The seaward boundary within the territorial limits of the Hikkaduwa Town Council was defined by the placing of two buoys. Although two attempts — in the early 1960s and then in 1966 — were made to secure the buoys in position, they were subsequently lost during the monsoon season and not replaced.

In 1979 the same 110-acre area with the seaward boundary defined once again by the placement of two buoys, was declared the Hikkaduwa Marine Sanctuary under section 2(2) of the Fauna and Flora Protection Ordinance (Chapter 469), as amended by Act No. 44 of 1964 and Act No.1 of 1970 (Gazette No. 37 of May 18, 1979). As the buoys, which had proved to be a problem in the past, had not been placed in position to define the limits of the newly declared Marine Sanctuary, any attempt to enforce regulations could be declared legally questionable — particularly if directed against the traditional fishermen who had obtained permits to fish as required by the above quoted Fisheries Ordinance.

De Silva and Rajasuriya (1985) proposed that the Hikkaduwa Marine Sanctuary with redefined boundaries and without the use of buoys should be administered as a multiple use marine park, zoned for different activities. They proposed that it be divided into the following three zones:

- General Use Zone 'A', where the following activities would be forbidden:
 - Use of anchors and anchor chains.
 - Stepping and walking on corals.
 - Removal of fish, corals and other marine organisms without a permit.
 - Use of glass bottom boats.
- General Use Zone 'B', where the following activities would be forbidden:
 - Removal of fish and other reef organisms without a permit.
 - Stepping, walking and anchoring of boats on corals and coral reefs.
- Research Zone: This area has some relatively undisturbed coral reefs and has not been subjected to high visitor pressure because of strong currents, especially during tidal changes. The following activities were NOT recommended here:
 - The entry of any boats into the lagoon reef area of this zone
 - The use of diving and snorkelling gear by unauthorized persons

Some of the immediate steps recommended by De Silva and Rajasuriya (1985) to prevent the degradation of the Hikkaduwa Marine Sanctuary included:

- Publicizing the Hikkaduwa Sanctuary as an area from which no marine organisms, whether dead or alive, could be removed. This was aimed primarily at preventing the removal of coral, shells and ornamental fish. It was recommended, however, that traditional fishermen fishing with a permit be excluded from this bar.
- Removing the sand from the so called Fisheries Harbour and providing other amenities to enable the shifting of the fishing boats anchoring within the reef lagoon at the heart of the Marine Sanctuary to the 'Fisheries Harbour' lying outside it.
- Controlling the number of glass bottom boats through registration and issue of permits.
- Publicizing Sections 14, 28, and 42 of the Coast Conservation Act, 57 of 1981 which make it an offense to deposit waste or other material from outfalls by vessels or by other

means and the removal of coral, shells, natural vegetation etc. from the coastal zone as defined by the Act. The contravention of these regulations renders a person liable in the first instance to: a fine of up to Rs. 25,000 and/or confiscation of the vessel, craft, boat or vehicle used in the commission of the offense.

These recommendations of De Silva and Rajasuriya were ratified by the meeting of the Urban Development Authority (UDA) held on August 22, 1985 to discuss Development Projects of Hikkaduwa. The Hikkaduwa Marine Sanctuary was the subject of discussion at several UDA meetings on Development Projects of Fisheries and Aquatic Resources from 1986 to 1990. However, the long awaited breakthrough for the Hikkaduwa Marine Sanctuary came in 1991 with the appointment of a committee by the Parliamentary Consultative Committee of the Ministry of Tourism and Rural Industries under the chairmanship of the Minister for Lands, Irrigation and Mahaweli Development for the purpose of discussing the implementation of the proposals by De Silva and Rajasuriya (1985). At a meeting of this committee held on December 17, 1991 the Department of Wildlife Conservation was clearly identified as the agency responsible for the development of the Hikkaduwa Marine Sanctuary under the Hikkaduwa Special Area Management Project "in collaboration with the Coastal Resources Management Project, NAREPP and National Aquatic Resources".

At present, the Hikkaduwa Marine Sanctuary Development Committee meets on a quarterly basis to monitor the implementation of programme activities. A more action-oriented working group was formed in January 1994, made up of a few selected members of the Sanctuary Committee, to review and guide the Special Area Management (SAM) plan as it evolves (Nakatani et al., 1994).

Although a concerted effort is now being made to establish authority and manage the Hikkaduwa Marine Sanctuary on the lines of a multiple use Marine Park, the degradation of the coral reefs continues as a result of the following factors:

- The increasing numbers of mechanized fishing boats using the reef lagoon as a safe anchoring point inflict physical damage on the corals. These also contaminate the area with spilled oil and oily wastes. Rajasuriya (1992 and 1994) has recorded a decrease of live coral cover in areas where the fishing boats are anchored — from 21.7 % in 1992 to 13.2% in 1994.

- The glass bottom boats also damage the coral by direct impact while the boatmen compound the damage by stepping on the coral to keep the boat steady for on board passengers to get a closer look. Such damage is frequent when the water visibility is low, particularly during the monsoon season. At present the maximum number of glass bottom boats allowed to operate in the sanctuary is 50. De Silva (1987) recommended a maximum of only five in the General Use Zone 'A' at any one time and not more than 10 in the General Use Zone 'B'.
- Discharge of septic tank and other wastes by large and small hotels. There have been several instances where hotels have reportedly emptied septic tank effluent into the reef lagoon by using pumps.
- Authorities have failed to enforce regulations on influential hotels either due to political or other considerations while attempting to enforce legally questionable regulations on others.
- Sedimentation.

Most of the present problems of the Hikkaduwa Marine Sanctuary can be attributed to poor planning prior to the tourist boom in the 1970s and to the introduction of mechanized fishing boats and glass bottom boats into the area.

In an effort to stem the damage, the Department of Wildlife Conservation has put up several hoardings, some extremely colourful and eye-catching, at strategic locations in order to create awareness about the Marine Sanctuary. Several Park Rangers are being trained in monitoring the coral reefs and enforcing regulations. Five volunteer guards have also been appointed (Nakatani et al., 1994). The SAM project has also contributed towards creating awareness of the need for sustainable management of the Hikkaduwa Marine Sanctuary among the various user groups such as hoteliers, glass bottom boat operators, fishermen etc.

The key to protecting the coral reefs in the Hikkaduwa Marine Sanctuary lies in removing all the mechanized boats (both fishing and glass bottom) from the lagoon area and shifting their anchorage to the Fisheries Harbour. This harbour was set up by the Irrigation Department to prevent the silting of the mouth of the Hikkaduwa River and needs remodeling to be put into use as a fisheries harbour. Close monitoring of the movements of the glass bottom boats is necessary to ensure that they do not get too close to the live coral and damage

them. Good intentions notwithstanding, there appears to have been little or no enforcement at the ground level in containing the negative aspects of glass bottom boat operations as observed by myself as recently as Sunday September 11, 1994. Removal of ornamental fish from the sanctuary has, however, not been reported for some time. The removal of coral and shells by souvenir hunters has also been minimized.

The Research Zone designated in the zoning plan of the Hikkaduwa Marine Sanctuary by De Silva and Rajasuriya (1985) remains, to date, an area of low visitor pressure and includes some areas of good coral cover. Enhancement of this area by coral transplanting and introduction of resident fish varieties such as clownfish and associated sea anemones, might provide a useful seed source in preparation for similar enhancement of the lagoon reef area once the fishing and other boats are translocated to the Fisheries Harbour whose development should be a top priority. Other problems requiring immediate attention are:

- The disposal of oily wastes from mechanized boats.
- The containment of discharges, both septic tank effluent and other discharges from hotels and restaurants.
- Strict enforcement of the Coast Conservation Act 57 of 1981 without exceptions, until such time as the Hikkaduwa Marine Sanctuary has its own regulations.

The Hikkaduwa Marine Sanctuary embodies all the problems and conflicts of interest that beset MPAs in South Asia e.g. fisheries versus conservation and tourism versus conservation. A classic example of management by crisis, the sanctuary is also an illustrative example of the dangers of neglecting preplanning prior to development.

3. The Need to Resolve Conflicts between Various Interests

Conflicts of political, inter-department/agency and scientific interests have been one of the major reasons for the non-implementation of management plans for MPAs in the past. This is evidenced by the many proposals for MPAs forwarded for approval by various government and non-governmental agencies that have yet to be taken up for discussion at political and decision-making levels.

The resolution of such conflicts presents a major challenge for MPA development in the future.

The following statements of De Silva (1985a), still valid almost ten years later, need to be given serious consideration with reference to MPAs.

"There is a need to convince governments of many developing countries of the value and vulnerability of their coral reef ecosystems. There is also a need to develop expertise not only to manage coral reefs but also to obtain estimates of their value in quantitative terms. It is not sufficient for coral reef scientists to understand the problems of coral reefs alone. They need to understand the problems of the policy makers and administrators as well. This will necessitate close collaboration between scientists and policy makers to formulate plans which are scientifically and politically acceptable for managing coral reefs. Such plans might not completely fulfill the aspirations of the scientists but they stand a better chance of being implemented than the more scientific but politically suicidal ones, which without doubt will be doomed to collect dust on an administrator's shelf or join many others as scientific works, but remain unimplemented."

Inter-department/agency conflicts within government departments as well as within aid or funding agencies together with uncoordinated effort have played a part in stymying efforts at MPA management. These conflicts must be resolved. In the best interest of the MPAs they must be placed before self-interest if the MPA programmes are to succeed — not only on paper, but in practice as well.

4. Planned Management as Opposed to Management by Crisis

The first attempts at managing Hikkaduwa's coral reefs was a result of pressure by influential personalities and foreign visitors who pointed out the degradation of the reefs from the use of seines and other kinds of fishing nets as well as due to spear fishing and to collection of ornamental fish. This led to the declaration of a 110-acre area as a fishery Protected Area in 1961. The tourist boom in the early 1970s coupled with the introduction of mechanized fishing boats in the area, resulted in the further degradation of the coral reefs and led to the hasty declaration of the Hikkaduwa Marine Sanctuary in 1979. Although declared a marine sanctuary, no action was taken

until several studies were conducted by De Silva and Rajasuriya (1985) and again by De Silva (1987) under the National Aquatic Resources Agency, and a management plan was formulated for the marine sanctuary to be administered as a multiple use marine park. This plan sought the views of the Member of Parliament for the area who released Rs. 50,000 from his development funds for the studies to be conducted. The plan took into consideration the ways and means of improving marine environment without drastically changing the lifestyles of the people dependent on the area for their livelihood. It was a compromise plan compelled to accept the unplanned development of hotels, glass bottom boat activities and heavy visitor pressure.

Had foresight dictated the development of a proper management plan for Hikkaduwa prior to the tourist boom and the introduction of the mechanized fishing and glass bottom boats, the sanctuary may have ranked as one of the best, most easily accessible near-shore coral reef based MPAs of South Asia — if not Asia.

5. Enhancement of MPA Buffer Zones as Alternative Employment Sites

One of the critical dilemmas and challenges facing the MPAs of South Asia and other developing areas of the world is the provision of alternative employment for traditional fishermen and their families who have been adversely affected by the establishment of MPAs. A sound education which would open up new avenues of employment to the younger generations is one of the best long term options available to them. Although attractive in theory, there could be practical difficulties in providing the necessary facilities for a proper education in some cases. Experience also indicates that relocation and a change in employment is not the preferred option by the elderly. Enhancement of MPA buffer zones or selected areas within a MPA by artificial reefs or similar ecosystem and provision of alternate sites for employment without a radical change of lifestyle is a more viable alternative. Replanting of degraded mangrove areas in MPAs could also serve a similar purpose.

6. Positive and Negative Impacts of Tourism

Recent evidence indicates an upsurge of tourism, in particular ecotourism, in South and south-east Asia. The positive effect of tourism is that it attracts much

needed foreign exchange. Multiple use MPAs with recreational and educational components are bound to be the target of ecotourism in the future, and, if properly planned, an MPA could serve not only as a useful foreign exchange earner but also as a source of creating awareness on the sustainable use of marine areas.

Unplanned ecotourism can, however, lead to the irreversible degradation of an ecosystem which was itself a key factor in attracting tourists. Another danger is that the long term basic objectives of MPAs might be compromised for quick financial returns. The Hikkaduwa Marine Sanctuary is a case in point. The numerous unplanned hotels, some built right into the sea, the rapid increase in the number of glass bottom boats, the emptying of septic tanks into the sanctuary by hotels, the physical changes to the beach by illegal construction — are but a few examples of the negative impacts of tourism on an MPA.

With the inevitability of tourism becoming a major income earner for many South Asian countries in the future, MPAs will be subjected to immense pressure to support ecotourism. Voysey (1994) points out, for instance, that the Sundarbans Wildlife Sanctuary in Bangladesh is likely to become more accessible in future as the government's National Tourism Policy identifies the forest as a priority area for development with safari tours and the construction of tree top lodges.

Although MPAs can undoubtedly sustain well-planned ecotourism with carefully organized visitor carrying capacities, excesses in carrying capacity as well as over-development can be detrimental both to ecotourism and to the ecosystem concerned.

7. National, Regional and International Agency Cooperation

One of the major constraints to the proper management of MPAs in many countries is the overlapping of responsibilities of various government departments and agencies. The Hikkaduwa Marine Sanctuary offers a good example of this shortcoming. While the overall authority for the sanctuary within its defined boundaries rests with the Department of Wildlife Conservation, the same area has been declared a Fishery Protected Area under the jurisdiction of the Ministry of Fisheries and Aquatic Resources which issues permits for catching targeted fish species using specific gear. The Urban Development Authority and the Coast Conservation Department are also key players in

the area. The only available expertise in coral reef management, however, is at the National Aquatic Resources Agency.

Foreign aid agencies provide the funding for research and development purposes pertaining to MPAs through various government agencies. There is a dire need to coordinate not only foreign funding but also the various activities of MPAs such as the Hikkaduwa Marine Sanctuary. De Silva (1987) recommended "the declaration of the Hikkaduwa Marine Park and the establishment of an authority for its management". The establishment of such an authority linked to the Department of Wildlife Conservation may resolve some of the existing management constraints and conflicts. Once established, this authority would be expected to coordinate funding and research so as to prevent duplication of effort and ensure the proper use of external funds and the available skilled manpower.

8. Use of Mass Media for Formal and Non-Formal Education

Awareness of the importance of MPAs in South Asia has generally tended to lag behind that of PAs on land, primarily because more emphasis had been placed on what was familiar rather than otherwise. Apart from mangroves, very little attention had been hitherto given to wetlands, seagrass beds, coral reefs and other coastal marine ecosystems. Awareness of MPAs should be urgently undertaken and the role they play in the health of the coastal area must be publicized. For this purpose, maximum use of the mass media, particularly electronic, can be employed. International agencies should support the development of educational and informative films for television and school use.

9. Conclusions

Some of the major constraints to the establishment and proper management of MPAs in South Asia are:

- The inability to convince the top policy and decision makers of the need for, and the value of, MPAs.
- Insufficient expertise to develop practical management plans.
- A lack of skilled manpower, equipment and funding to manage and enforce Marine Protected Area regulations.
- The bulk of available foreign funding is used for gathering information for reports and other

publications rather than for improving the status of the MPAs.

- A preference for management by crisis rather than preplanned management.
- Development pressures for short term, non-sustainable economic benefits.

Many of the present constraints to MPA development and management will continue into the future unless immediate remedial measures are taken. Recommendations at meetings such as this one may increase awareness among those present, but would rarely be taken up at top decision-making national levels unless packaged in a proposal format ready for a decision by those in authority. At a regional level it is best to identify a pilot MPA for each country and make a concerted effort with the assistance of external funding, organizations and expertise to manage the identified area as a model MPA. Immediate steps should be taken by South Asian countries to plan for future tourism pressure — something which is bound to become a major issue. Enhancement of MPA buffer zones and even degraded areas within MPAs as alternative employment sites to reduce pressure on coral reefs and other ecosystems should be considered. A mechanism needs to be established to coordinate the efforts of various funding agencies to prevent duplication of effort and concentrate on ground level implementation rather than on theoretical, academic and report producing exercises.

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Application of the World Heritage Convention and the Biosphere Reserve Concept in South Asia

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World Heritage sites and biosphere reserves are UNESCO's specific contribution to the international Protected Areas system. Cultural and natural World Heritage sites are identified, nominated and inscribed in UNESCO's World Heritage List as part of UNESCO's ongoing effort to implement the World Heritage Convention. Biosphere reserves have been set up and developed into an international 'network' in order to demonstrate the applications of the Biosphere Reserve Concept, under UNESCO's Man and the Biosphere Programme.

The South Asian region (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) is home to more than a billion people and contains cultures and civilizations dating back almost 5,000 years. Several religious traditions in this region preach an inherent compassion and concern towards all forms of life, and in historical times these had a profound influence on encouraging social practices which guarded against the over-exploitation of natural resources. These restraining religious influences and/or tradition-based resource-use practices have been breached in recent decades due to the concomitant increase in population and in rural poverty. The majority of South Asia's population lives in rural areas and depends on land and biological resources to better its economic conditions. This pressure, given the increasing demands of the rural poor for land and biological resources, will continue to be the major challenge to the long-term survival of PAs in South Asia.

UNESCO, while actively engaged in initiating and participating in global forums which search for new equations in balancing the conservation and development needs of people and societies, will target most of its operations for testing new principles and improving PA management practice in World Heritage sites and biosphere reserves. This article examines the manner in which UNESCO's work with regard to these two PA categories can meet the needs as well as benefit from opportunities in the South Asian region.

1. Overview of the Current State of Implementation of the World Heritage Convention and the Concept of Biosphere Reserves in South Asia

The World Heritage Convention (i.e. the Convention for the Protection of the World's Cultural and Natural Heritage) was adopted by UNESCO's General Conference in 1972. It arose out of the merger of two separate initiatives, one for the protection of the world's cultural heritage initiated by UNESCO, and the other, promoted by IUCN, to protect natural areas of universal significance. As the only international Convention that simultaneously provides for the protection of cultural and natural heritage sites, it provides unique opportunities for strengthening the management of several PA categories. As of April 1994, the Convention has been ratified by 137 countries, including all the countries of South Asia, except Bhutan. Of the 411 sites throughout the world, presently recognized as World Heritage sites, 307 are cultural, 88 natural and 16 mixed. In South Asia, the current status of the implementation of the Convention (with the emphasis on natural heritage) is as follows:

India: Kaziranga, Manas, Keoladeo, Sunderbans and Nada Devi are recognized as natural World Heritage sites. Silent Valley National Park was nominated in 1990 but the decision regarding its inclusion in the World Heritage List was deferred by the committee pending the Indian Government's revision of the nominated area's boundary to include the adjacent Karimpuzha Valley National Park and the Nilgiri Thar Wildlife Sanctuary, and the completion of legal measures to establish the Karimpuzha Valley National Park and upgrade the legal status of the Nilgiri Thar wildlife Sanctuary.

India also has 16 cultural heritage sites (e.g. Taj Mahal, Mahabalipuram, etc.)

International assistance from the World Heritage Fund has until now been directed largely towards supporting regional training courses in PA management organized by the Wildlife Institute of India in Dehra Dun.

Nepal: Royal Chitwan and Sagarmatha National Parks; one cultural site (Kathmandu Valley).

Royal Chitwan and Sagarmatha have both received support for specific site-management projects from the World Heritage Fund.

Sri Lanka: Sinharaja.

Six cultural sites (some of them e.g. Sigiriya and Polonnaruwa include 'national' wildlife sanctuaries).

Sinharaja has received some support from the World Heritage Fund for the organization of training activities and field excursions during international seminars.

Bangladesh: Has two cultural sites but no natural sites; when the Sunderbans of India was included in the World Heritage List, the World Heritage Committee urged the government of Bangladesh to nominate its part of the Sunderbans for inclusion in the World Heritage List.

Pakistan: A meeting to prepare the nomination dossier for the Karakorum National Park, with the support of the World Heritage Fund, was held on 21-23 September 1994.

To date there are no World Heritage sites in the Maldives; ratification of the Convention by Bhutan is awaited.

Potential transborder sites which may qualify for World Heritage status: Sunderbans (India/Bangladesh), Manas (India/Bhutan), Royal Chitwan/Udaipur and Valmiki Nagar (Nepal/India), Khunjerab/Taxkorgan (Pakistan/China) and Sagarmatha/Proposed site (Nepal/China) (IUCN, 1992).

Since its adoption in 1974 the concept of biosphere reserves has evolved and found widespread application in the following:

- (1) PA management aimed at demonstrating the use of scientific research, training, environmental education and monitoring to link the conservation of ecosystems, genetic resources and socio-economic development of local people and economies.
- (2) As a tool (the 'cluster biosphere reserve model') for designing and managing regional integrated conservation and development areas (through projects).

As of 1993, the international list of biosphere reserves has included 324 sites from 82 countries. But the scope of the concept's application extends far beyond the sites included in the UNESCO List. A recent publication described 'promising reserves' for conserving tropical forests for the future using characteristics promoted by the three functions of biosphere reserves i.e. conservation, logistics (defined as research, training, environmental education and monitoring — Batisse, 1986) and development of local economies and people. These characteristics include the use of scientific research in management decisions and local community ownership of and/or participation in the management of reserves etc. The listed reserves included biosphere reserves from the UNESCO List, e.g. Sian Ka'an (Mexico) as well as others (community baboon reserve of Belize; see Gradwohl and Greenberg, 1988). In South Asia the current status of the implementation of the Action Plan for Biosphere Reserves (UNESCO, 1984; derived from the first International Symposium on Biosphere Reserves, in Minsk, USSR, in 1983) is as follows:

Sri Lanka: International BRs: Sinharaja and Hurulu. Several national MAB Reserves.

Pakistan: International BR: Lal Sohanra NP.

India: National BRs: Nilgiri, Nanda Devi, North Island of the Andamans, Gulf of Mannar, Kaziranga, Sunderbans, Thar Desert, Kanha, Mokrek (Tura Range) Namdapha, Valley of Flowers (Uitarkhand) and Mannas (Khushoo, 1984)

Bangladesh, Bhutan, Nepal and the Maldives have no International BRs and the number of national BRs is not certain; Nepal is, however, well known for its Annapurna Conservation and Development Project whose approach is similar to that promoted by the biosphere reserve concept.

2. World Heritage Sites and Biosphere Reserves: Past, Present and Future

Negotiations and discussions for the drafting of the World Heritage Convention (a legal instrument) and the concept of biosphere reserves (a strategic instrument) in the late 1960s and early 1970s took place concurrently with the preparations for the Stockholm Conference on the Human Environment in 1972. It was a time when the international community was beginning to question the arbitrary division between our notions of 'nature' and 'culture' as well as between 'conservation' and 'development'. The impetus for such a re-evaluation of the conven-

tional understanding of these notions arose from nearly two decades of attempts to apply them in developing countries in the same way as they had been practised in developed countries.

As observed by Batisse (1993), the 1968 UNESCO Conference on Rational Use and Conservation of the Resources of the Biosphere implicitly dealt with issues which are now being raised under the rubric of 'sustainable development'. A biosphere reserve has to deal with the following issues which are major elements of the current environment-development debate:

- Protection of ecosystems and the biodiversity they contain (including genetic resources).
- Research and monitoring of ecological and global change (including climatic, hydrologic and edaphic change).
- Experimentation and implementation of various forms of sustainable development for local people.
- Environmental education and awareness, for both local people and visitors.

In a PA designated a biosphere reserve, the delineation of the site into core, buffer and transition zones is expected to facilitate the management's efforts to link conservation of ecosystems and genetic resources in the core zone with initiatives to promote development of local economies and people in buffer and transition zones. This need for linking a PA's goal of biodiversity conservation with its role in facilitating socio-economic development of local economies and people, has begun to have a broader appeal and acceptance since the publication of the Report of the World Commission on Environment and Development (1987) and the global significance of the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. However, the assumption that areas within and around PAs could be the focus of sustainable development initiatives has always been met with a good deal of skepticism as indicated by the following quotes:

- "National parks represent a widely accepted form of land use, providing conservation, recreational and educational services. To suggest that these parks should be 'exploited' in some different form to provide for 'sustainable development' is tantamount to heresy and has been so since the Yosemite National Park Hetch-Hetchy dispute of 1913." (Eidsvik, 1984).
- "The theory of biosphere reserves is said to have originated at the headquarters of UNESCO, Paris, probably as a prelude to the

Stockholm World Conference on Human Environment, 1972.... I feel even the term 'Biosphere Reserve' is incorrect. The management proposed is Utopian — an unknown ultimate in the Indian context. The concept is likely to end up in a compromise, in favour of man, a retrograde step in nature conservation." (Sankhala, 1986)

The fear that it may be impossible to harmonize the tensions between the practice of nature conservation and sustainable development of natural resources can still be heard among PA managers who are struggling to enforce and ensure the inviolability of PA boundaries in densely populated South Asian countries. Nevertheless, it appears that the willingness to attempt the experiment has become a necessary condition for government support and/or international assistance to PAs in many countries of the world.

Even the operations of the World Heritage Convention have, in recent years, been impacted by the tensions inherent in our efforts to achieve a harmonious integration between conservation and development. One of the criteria defining natural heritage in the 'Operational Guidelines for the Implementation of the World Heritage Convention', up to 1992, included a reference to sites which demonstrate a harmonious interaction between man's natural and cultural environment. The experts who revised the natural heritage criteria in commemoration of the Convention's 20th anniversary in 1992, found that this specific reference to the combined influence of man and nature was incompatible with the definition of natural heritage in the Convention itself (Mishra and Ishwaran, 1992).

The current set of natural heritage criteria (see Box 1) assign World Heritage status only to those natural areas which have an outstanding universal significance from the geological, ecological, biological and aesthetic points of view. Yet, the Convention has shown itself a versatile instrument in the recognition of the 'outstanding universal significance' of harmonious landscapes, where resource use and conservation has been harmonized by prevailing traditions and customs that have evolved in full recognition of location-specific environmental constraints.

The new criterion for cultural landscapes (see Box 2) recognizes 'a continuing landscape' as 'one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant

Box 1. Natural Heritage Criteria

A natural heritage property, which is submitted for inclusion in the World Heritage List will be considered to be of outstanding universal value for the purpose of the Convention when the committee finds that it meets one or more of the following criteria and fulfills the conditions of integrity set out below. Sites nominated should therefore:

- Be outstanding examples representing major stages of the earth's history, including the record of life, significant on-going geological processes in the development of land forms, or significant geomorphic or physiographic features; or
- Be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals; or
- Contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance; or
- Contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

material evidence of its evolution over time' (UNESCO, 1994).

The first site to be recognized, in December 1993, as a 'cultural landscape' in UNESCO's World Heritage List was New Zealand's Tongariro National Park, a spiritual home to the Maoris. Tongariro had already been recognized in 1990 as a natural World Heritage site but in 1993 the committee was requested by the New Zealand government to reconsider the nomination in the light of Tongariro fulfilling the criterion for cultural landscapes.

Australia's Uluru National Park, which comprises traditional lands of resident Aboriginal populations who have given the land on a 99-year lease to the Australian National Park Service for managing it in harmony with their traditional lifestyles, was to be considered according to the same criterion for cultural landscapes during 1994.

An extremely interesting nomination for cultural landscapes is shortly expected to come from the Philippines; i.e., the rice terraces of the Ifuago and

other indigenous people of the Cordilleras (Northern Philippines). This nomination will be submitted for consideration to the World Heritage Committee in 1995, and poses legislative and management challenges which, if resolved satisfactorily, could provide valuable insights for implementing sustainable development strategies. The Cordilleras region experiences many of the demographic and socio-economic trends characteristic of rural areas in less developed countries. Yet the Ifuago and

Box 2. Cultural Landscape Categories

Cultural landscapes fall into three main categories:

- The most easily identifiable is the clearly defined landscape designed and created intentionally by man. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles.
- The second category is the organically evolved landscape. This results from an initial social, economic, administrative, and/or religious imperative which has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub-categories:
 - a relic (or fossil) landscape is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period of time. Its significant distinguishing features are, however, still visible in material form.
 - a continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still continuing. At the same time it exhibits significant material evidence of its evolution over time.
- The final category is the associative cultural landscape. The inclusion of such landscapes on the World Heritage List is justifiable by virtue of the powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent.

other groups which are resident there seem to have deliberately retained terracing as a sustainable and optimal land use practice for their tropical, high altitude environment. The traditions of sowing, harvesting, transport of seeds and marketing are still in place. However, the continuity of these practices is threatened by people abandoning their traditions to find employment in other growing sectors, such as tourism. UNESCO and the Philippine government will convene an international scientific symposium in late March 1995 on rice-terraced landscapes with specific reference to tropical, high altitude environments in Manila and the Cordilleras. The outcome of this meeting will have implications for the nomination of similar sites (many of whom could fall under the IUCN PA category V — i.e. protected landscapes; see Lucas 1992) in South Asia and elsewhere.

The fact that only the best, or the near pristine natural areas could meet the recently revised natural heritage criteria does not ensure that such areas, once they are ascribed World Heritage status, will be immune to resource demands and pressures arising from areas outside their boundaries. Paragraph 44 (b) (vi) in the 'Operational Guidelines for the Implementation of the World Heritage Convention', in its definition of one of the conditions of integrity that natural sites nominated for World Heritage listing are required to meet, clearly highlights the need for the site manager to recognize and mitigate pressures arising from areas outside the boundaries of the World Heritage site. This condition of integrity also demonstrates the conceptual link between natural World Heritage sites and biosphere reserves:

"A site described in paragraph 44 (a) should have adequate long term legislative, regulatory or institutional protection. The boundaries of the site should reflect spatial requirements of habitats, species, processes or phenomena that provide the basis for its nomination for inscription on the World Heritage List. The boundaries should include sufficient areas immediately adjacent to the area of outstanding universal value in order to protect the site's heritage values from the direct effects of human encroachment and the impact of resource use outside of the nominated area. The boundaries of the nominated site may coincide with one or more existing or proposed PAs, such as National Parks or biosphere reserves. While an existing or proposed PA may contain several management zones, only some of those zones may satisfy criteria described in paragraph 44 (1)... For example, in the case of a biosphere reserve, only the core may meet the cri-

teria and the conditions of integrity, although other zones, i.e. buffer zones and transitional zones, would be important for the conservation of the biosphere reserve in its totality."

Some sites included in the World Heritage List are, in fact, core zones of biosphere reserves: e.g. Sinharaja in Sri Lanka.

The challenge for UNESCO activities in South Asia with regard to the implementation of the World Heritage Convention arises directly from the more important goals of a World Heritage Strategy drawn up in 1992 (Von Droste, 1992). These were:

- To establish a credible and universally representative World Heritage List.
- To protect, conserve and manage effectively these irreplaceable sites, and
- To build public awareness and mobilize skills and resources for preventive and curative World Heritage work.

It is hoped that the new opportunities provided by the cultural landscape criterion to identify areas where sustainable resource use practices and their associated traditions have survived the impacts of industrialization and modernization, will be exploited by the South Asian countries who are party to the Convention. The region also offers opportunities for bilateral cooperation in the management of transborder PAs, at least some of which may meet World Heritage criteria. Managers of World Heritage sites in South Asia should make use of the resources of the World Heritage Fund. The fund, which at present is worth approximately US\$ 1.3 million per year for natural heritage sites, could be used to supplement national and other sources, particularly the expenses related to problem-oriented technical studies, urgent infrastructure requirements and staff training which are all essential for effective site management. In the long term, however, the objectives of the Convention with regard to effective site management will also require that UNESCO and the World Heritage Committee devise flexible procedures to liaise with a broad range of government agencies and non-government organizations which are active at the site level. In several South Asian countries, such as Bangladesh, India and Sri Lanka, considerable decentralization has been achieved and grass roots organizations dealing with conservation and development are on the increase. In many cases they could be the optimal focal points for intervention to ensure effective site management.

The international dimension of the implementation of the Action Plan for Biosphere Reserves in South Asia has been prominent only in sites such as

Sinharaja, Sri Lanka. The Ministry of Environment and Forests in India coordinates a national biosphere reserve programme and its experiments to establish legislation and set up appropriate management regimes for specific sites could provide valuable lessons for other countries of the region. The lack of legislative framework for biosphere reserves as a PA category is acknowledged and the Second International Conference on Biosphere Reserves, scheduled for 19-26 March 1995 in Seville, Spain, is expected to develop specific recommendations in this regard.

In UNESCO there is a greater awareness of other efforts which parallel those promoted by the biosphere reserve concept, whether they are in and around PAs or increasingly, since UNCED and the adoption of Agenda 21, in integrated conservation and development projects. As part of a South-South Cooperative Programme, UNESCO is currently attempting to organize regional and international forums for discussing experiences in linking conservation and development in and around biosphere reserves and comparable areas mentioned above. In the South Asian region, a number of integrated conservation and development projects and programmes are underway. Comparing and contrasting information and experience gained in such integrated programmes with that of the more successful biosphere reserves could also provide lessons and insights for the practice of sustainable development in South Asian countries.

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Building Public Support for Protected Areas in South Asia

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In the Pakistani context, public support can be of two kinds: central, which involves the local community, and peripheral, where residents of urban areas, most of whom have no direct links with the protected areas, lobby for or support an issue directly or indirectly concerning the PAs. Given that the interests of indigenous communities often conflict with the motives of the conservationists, instances of central support are comparatively rare.

In this paper, I will focus mainly on the building of peripheral support through the print media. This is for two reasons: first, because of my own experience in this field and second, because most of the public support on controversial environmental issues has, in fact, been generated by the media.

The dominant ideology of contemporary capitalist societies is based on the use of natural resources for commodity production and the accumulation of capital. This has led not only to the destruction of natural resources — tropical rain forests, rivers and wetlands — it has also destroyed species and interfered with the genetic data that existed in these habitats. In order to stem the damage, the concept of protecting ecosystems artificially has been devised, similar to the way in which rapidly vanishing relics of heritage are quietly tucked away in museums.

In the context of third world countries, however, these natural museums are not planned realistically. Thousands of acres of land are designated as Protected Areas, and while the indigenous flora and fauna acquire some form of protection through this measure, the people who are native to the area are ignored in the process.

In Pakistan, PAs and parks are, by and large, considered a luxury. The popular sentiment is: "millions of people do not even have bread to eat while a small group of environmentalists is out to save a few birds". Communities living within the parks comprehend the rationale behind 'protecting' areas only when they gain employment in return for their

pains — not when they are arbitrarily forbidden to collect fuelwood or chop trees in the area. Often when areas are designated as protected, locals are not preinformed: it is only when, for example, game wardens forbid them to cut trees that they learn what has transpired. It would, perhaps, be interesting to conduct a survey before actually designating a PA, so as to gauge whether the local people are at all supportive of the idea of being enclosed within a National Park.

Pakistan has an extremely ambitious list of sanctuaries and parks and, not surprisingly, most of these are not manageable. Many of them are, in fact, in a dismal state. Moreover, Pakistan is an indulgent country and has allowed people living within the parks to do whatever they please, which is why the conflict between conservation and development has not really sparked off protests and movements by indigenous people. In Kirthar National Park, for instance, agriculture thrives: the area is dotted with onion fields as well as hundreds of tubewells for irrigating crops; it is also home to several thousand goats in its capacity as a rangeland. All this is taking place with the complete cognizance of the Sindh Wildlife Department.

While the people most concerned with PAs are those living in or around them or hunting there, urban areas are at the other end of the spectrum, often demonstrating least concern for this issue.

Generating public support through the media for the protection of a particular area, or a particular species of flora or fauna, is thus extremely difficult. If there is an environmental issue where public support can be mustered at all, it is in the defence of the rights of those who utilise the park resources as per need. Leadership on these issues must come from within these people. The increased feeling of redundancy by the people who sense that they must compete with trees and animals for attention and resources weakens them even further. This

defeatist attitude, rather than mobilization on issues is what prevents many people conflicts from being articulated.

1. Mobilizing Public Support through the Media

It is an unfortunate fact that the rich oral traditions of Pakistan are slowly dying out and the once robust performing arts institutions have all but disappeared. Television and radio are state controlled so their power to muster public support is considerably diminished. The state, moreover, treats the environment as little more than a fashionable concept to which it pays lip service in order to curry favour with the West. While there are a number of programmes that ramble on and on about how important trees are, the real issues are never touched upon and hence remain undiscussed and unresolved.

The print media in Pakistan is made up of publications in various regional languages as well as in Urdu and English and is, by and large, bold and independent. Although the country's population is largely illiterate, the written word is still a potent means of disseminating any message in this society.

The rural areas are home to the regional languages, while Urdu, and to a lesser extent English, are spoken in the urban areas. Yet, environmental issues are only communicated in English or highly stylised Urdu, both of which are difficult for the average person to comprehend. Nevertheless, urban people are aware of local issues that immediately concern them: the Karachi citizen, for instance, is concerned about the chronic shortage of water, just as a farmer is concerned about the yield of his crop. But such local issues are often compelled to take a back seat to general ones pertaining to the ozone layer or greenhouse gases. This obviously renders the mobilization of public support through the media a difficult undertaking.

The English language press is the most well-equipped to comprehend issues as the Western information database would like it to. The English press has, therefore, been most active in the mobilization of public opinion (among the English-speaking public in most cases) on environmental issues. Parks and protected areas are such issues.

Listed below are some examples of issues in which the media-generated public support did result in a re-evaluation or revoking of decisions. However, I must stress that in none of these examples was the support massive or impressive.

1.1 The Indus Highway and Kirthar National Park

Spanning an area of 308,733 acres, the Kirthar National Park is Pakistan's first, largest and perhaps most badly damaged park. It is also Pakistan's first NP to be included in the United Nation's List of National Parks (not that this is any longer an achievement for it is all too easy to get onto lists and sign international conventions. The real test lies in implementation).

The Indus Highway was the proposed dual carriageway that was to open up the underdeveloped western bank of the Indus river. The project was given the go-ahead in 1991, and the requisite aid was lined up. However, because part of its southern alignment was cutting across the park, the Sindh Wildlife Department refused to issue a No Objection Certificate (NOC) which the donors had made conditional on realizing funds. With all other agencies and departments having given the project a green signal, the Wildlife Department came under intense pressure to reconsider its stance.

It was from this point that the media took up the issue. Dawn and Newsline wrote extensively on the subject, and the controversy that was subsequently generated put the National Highway Authority on the defensive. In response, IUCN engaged the services of a neutral person who conducted an EIA on the proposed highway and recommended the project be redesigned. Based on the IUCN report, the road was ultimately realigned outside the park.

1.2 The Haleji Fishing Contract

Located in Thatta, southern Sindh, the Haleji Lake is a Ramsar site that plays host to a large population of migratory birds in winter.

Haleji is valued by hunters as well as trappers for its wealth of fauna. Instances of violations have been on the increase, mostly committed in an official capacity. Two years ago, for example, a licence was issued by the Karachi Water and Sewerage Board to a contractor permitting him to fish in the lake.

Once again, prolific reporting in the dailies and magazines arrested the issue. NGOs came out in its support: the Society for Conservation and Protection of the Environment (SCOPE) actually took the issue to court. The contracting parties' contention was that since fish was not included in wildlife it could be harvested. The Sindh Wildlife Management Board responded by promptly enacting an ordinance which designated fish as a part of wildlife.

As it transpired, the courts ruled in favour of the conservationists' appeal and the licence was cancelled.

1.3 The Arabs in our National Parks

For several years, the Arabs have been frequenting Pakistan's National Parks in their pursuit of falconry. Even if they are not directly within a park, they will enter in pursuit of the birds they are hunting.

Last year as many as three hunting parties were allowed to enter the Kirthar National Park. An entourage belonging to Arab princes usually comprises two to three hundred people and tens of vehicles that camp out in the desert where, for two to three months, they hunt the houbara bustard with their falcons.

The houbara bustard is an endangered bird whose hunting is banned in Pakistan — yet the restriction appears to be in force exclusively for Pakistanis. Such indulgence may be an aspect of Pakistan's diplomatic protocol, which believes that prohibiting the Arabs from hunting the houbara year after year will strain our ties with the Gulf states. Nevertheless, this wooing of the Arabs is also due in no small measure to personal gains by officials and politicians in the form of lavish gifts from the Arabs.

Over the last five years, public pressure on the government to stop issuing special permits to the Arabs has mounted. Credit for this can be claimed by the press which conducted a sustained campaign on the issue. Several protest walks were also organized by the World Wide Fund for Nature (WWF). Meanwhile, SCOPE's petition against an Arab, illegally allotted an area for hunting, was upheld by the Sindh High Court. However, last year there was silence on the issue from both the press and the NGOs. One major national daily contended that its sales were being affected by repeated references to the controversy; another was persuaded that national interest was at stake as Pakistani expatriates in the Gulf would be deported because of its campaigning. The government promised to stop issuing hunting permits from 1994 onwards, so WWF has now adopted a wait-and-see stance while continuing to conduct regular surveys to check the houbara's status.

The publicity generated has, nevertheless, already served a valuable purpose. The locals of the concerned areas are mobilizing themselves against the Arabs' annual onslaught. Last year, Dharti Dost Sangat, a Sanghar-based NGO vociferously registered its protest and went to court on the issue.

The results of all the publicity have, however, been mixed. Whereas every winter the public condemns the special permits granted to the Arabs, the government blithely continues to issue them. But every year the protests become louder. And the burden of guilt, if nothing else, weighs heavier on the government of Pakistan.

1.4 Hunting in Sanctuaries

The many instances of hunting within sanctuaries and National Parks have been pointed out time and again by the media, including the vernacular press. Last year, for example, when the President of Pakistan went on a hunting spree and violated the bag limits, it was widely reported in the press, and the fact that the individual concerned was the highest dignitary in the land, added more fuel to the issue.

1.5 Bani Gala, Margalla

Residents of Islamabad had some years ago acquired land in Bani Galla in the Margalla Hills National Park area adjacent to the Rawal Lake where they had then constructed houses. Islamabad's environmentalists protested that the residents' colony was polluting the lake. However, the courts upheld the residents' right to live there as they had acquired the land lawfully, even if this was due to mismanagement by the Capital Development Authority in granting allotments.

A parallel can be drawn between the example of Bani Gala and that of the Khunjerab Park or Chitral Gol. While in the former case, the rich bought land within the park and proceeded to settle there with impunity, the poor (and therefore the weak) in the parks mentioned above are expected to drastically change their lifestyles when the land they have lived on for centuries becomes government property.

2. The Role of NGOs in Mobilizing Public Support

If the press has made issues out of environmental concerns, the NGOs have followed up in such a way as to pressurize decision makers. The involvement of SCOPE and Dharti Dost Sangat in litigation and the mobilization of public opinion for the protection of the houbara bustard is just one case in point. Sungi and the Margalla Hills Society are Islamabad-based NGOs that work on the environment agenda as well as on other issues.

In a volatile political atmosphere, the politicization of issues can help to generate considerable

support. The distribution of water between the provinces, for instance, has become a political issue. Politicization, nevertheless, has its dangers: there may be such strong arguments both for and against an issue that any kind of decision making may become impossible.

Conclusion

If local people are to support the protection of their area, they in turn must be supported. The peripheral support generated in urban centres against threats facing PAs has been positive, but for any long-term

change it is vital to muster the support of those actually based around the PAs. Unless local communities are actively involved in PAs, little long-term change will be effected. The fish contractor is no longer coming to Haleji, but hundreds of birds are still being trapped. The highway eventually did not cut across Kirthar, but the issue left in its wake a sense of deprivation among the people who were to benefit from this road. These once nomadic people are now a settled community and they must in the near future have access to a road. Involving them in future planning is crucial.

Biodiversity Conservation through Local Community Participation: the Himalayan Jungle Project Experience

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BirdLife International

1. Introduction

At the 1994 BirdLife International XXI World Conference in Germany, the keynote address was by Ismail Serageldin, the World Bank's Vice President for Sustainable Development. Mr Serageldin's message was about the linkages between poverty and the environment in the developing countries.

"No approach to environmental conservation," he said, "is likely to succeed if it does not simultaneously meet the basic needs of the poor." In concluding his speech, he looked forward to the contribution that BirdLife International and other conservation agencies might make to what he called "the delicate art and science of sustainable development".

No doubt many of those present admired Mr Serageldin's eloquent speech, but wondered what it all really meant in practical terms. Based on our experience of the Himalayan Jungle Project in Pakistan¹, I will attempt to illustrate just this. That is:

- How one environmental conservation project is seeking to simultaneously meet basic human needs; and
- The kind of contribution this project is beginning to make to "the delicate art and science of sustainable development".

2. The Importance of Palas

In 1992, BirdLife International published its acclaimed study, *Putting Biodiversity on the Map* (ICBP, 1992). Using birds as indicators, the study identifies key areas — so-called Endemic Bird Areas (EBAs) — for global biodiversity conservation. The study won the prestigious Amsterdam Prize for the Environment 1994, an award which aims to promote scientific research in environmental issues.

Two EBAs coincide with Pakistani territory, namely the western Himalaya, and the Indus Valley.

The western Himalaya EBA extends from eastern Afghanistan to western Nepal. A substantial portion of this EBA lies within Pakistan.

Temperate forests form the most important habitat within the western Himalaya EBA. These forests are substantially under-represented in the PAs system in Pakistan. Within NWFP, a province larger than Bavaria (Germany's largest state), and the meeting point of two of the world's great mountain ranges — the Himalaya and the Hindu Kush — less than 0.6% of the land area (less than a tenth of the global average) is protected.

Of the nine restricted range bird species found in this EBA, the western tragopan (*Tragopan melanecephalus*) is considered the most threatened. In 1983 the surviving population was estimated at 1,600—4,800 birds, a precarious population level given the fragmented nature of the species habitat. According to the 1988 World Checklist of Threatened Birds, the species was "seriously reduced in distribution and abundance".

However, in one of the most exciting ornithological discoveries of 1989, a BirdLife/World Pheasant Association/NWFP Wildlife Department team documented, for the first time, a large population of western tragopans in the forests of the Palas Valley, in District Kohistan, NWFP. The Palas Valley forests probably contain more than 600 western tragopans — far surpassing the previous largest known population of some 100 birds at the Machiara Game Reserve, in Pakistani Kashmir.

Palas Valley is, in fact, not one valley but a major valley system. It extends over 1,400 sq km and reaches altitudes of 1,000 metres to 5,500 metres. Forests in Palas cover some 400 sq km, much of which is in primary or near primary condition, in other words, Himalayan 'wilderness'. This is almost certainly the most outstanding remaining tract

1. The Himalayan Jungle Project has been largely financed over the last three years by the British Overseas Development Administration, WWF International and Biodiversity Support Programme. It is currently financed by the European Community and the Government of the North West Frontier Province, Pakistan.

of temperate forest within Pakistan, or indeed the entire western Himalaya EBA.

In addition to their importance for birds, these forests exhibit significant endemism in other life forms. The Himalayan Jungle Project's collaboration with Pakistan's National Herbarium has already identified over 100 plants endemic to Palas, probably the world's largest population of the threatened West Himalayan Elm, and two species entirely new to science — including the yellow Delphinium.

3. Threat to Palas Forests and the Tragopans

The forests and tragopans of Palas are threatened by unsustainable commercial logging. Commercial logging is prescribed under the Forest Department's management plan which was prepared prior to the tragopan discoveries, and therefore does not take into account the biodiversity importance of Palas.

Although the plan aims to be silviculturally sustainable, logging is, in practice, often excessive. The Palas forests belong to the local communities, but these communities lack the necessary skills, organization and finances for forest management. Consequently, they have no option but to sell their logging rights to outside contractors at knock-down rates. Contractors are keen to maximize profits, and the Forest Department lacks resources and incentives to exert effective control. Twice the prescribed volume was cut from this compartment at the western gateway to Palas.

Moreover, poor accessibility necessitates the use of a wasteful system whereby logs are converted in the forest to square-cut beams for sliding to the nearest river or road-head. As a result, only 40-50% of the timber from each tree reaches the road-head.

With an outdated management plan, inadequate controls over logging, a wasteful harvesting system, and low payments for logging rights, the people of Palas realize a mere fraction of the value of their timber, and are left with a degraded and, in places, devastated resource.

Studies of nearby valleys using satellite imagery show rates of decline in forest area of up to 8.8% per year. At such rates, these forests will completely disappear in 10-20 years. For much of the neighbouring valley of Alai, they have already disappeared. The threat to the Palas forests is all too real.

4. HJP's Goal, Approach and Institutional Arrangements

The Himalayan Jungle Project was inaugurated in 1991. The project's long-term goal was to safeguard the globally outstanding natural heritage, the forest, tragopans and other biodiversity of Palas.

From the first, the project has adopted a participatory approach, the purpose of which has been to empower and enable local communities to establish sustainable, integrated natural resource management in the valley.

Definitions of 'participation' in conservation and development vary widely. I will attempt to explain in the remainder of this brief presentation what I mean by 'a participatory approach'. But it may be useful to first explain WHY a participatory approach was adopted.

From a theoretical viewpoint, it is now widely accepted that the traditional 'top-down' approach to conservation and development has not worked. Of the traditional approach to development, a Sri Lankan wrote in 1985:

".... it is well known that the administrator of development projects and the beneficiaries do not sit on the same side of the table. In fact, they sit at different levels, the former being always at a higher level. What follows, therefore, is quite inevitable. Each looks at the other with suspicion. To the official, the villager is lazy, ignorant, unresourceful and irresponsible. To the villager, the official is conceited, unsympathetic, unconcerned and corrupt. Each does not take the other into his confidence. Instead of getting together, they continue to stay apart."

As long ago as the mid-1970s, disenchantment with such an approach led to the emergence of participation as a major new force in development thinking. By 1982 the United Nations had established a Panel on People's Participation. In 1991, the UN declared: "in terms of thinking and practice about development, we are currently in the age of participation".

A participatory approach in Palas was dictated by certain local realities. The most immediately obvious of these is the forbidding mountain environment. Palas is one of the world's deepest gorges, and touring the widely scattered villages involves weeks of trekking on poor and dangerous paths. To anyone but a born-and-bred Palasi, this is punishing terrain.

There are also few bridges: rivers are often crossed by jhulas, diabolical cable and trolley contraptions. These, and the torrential, icy rivers they cross, claim several lives every year.

If the mountain paths and jhulas are daunting, the social environment scarcely appears more encouraging. Untouched by the British Raj, Palas, 47 years after Independence, remains a tribal area. The tribes of Palas, and indeed of Kohistan in general, have consistently and forcefully resisted state interventions.

This particularly applies to forest resources. The Kohistanis, including the Palasis, have consistently refused to allow the government logging agency access to their forests. And, as recently as last year, they blocked the famous Karakoram Highway, the only supply route to Pakistan's Northern Areas, for two weeks, firing on any moving vehicle.

Clearly, neither the resistance of the Palasis to state intervention, nor the daunting mountain environment, are conducive to the imposition of classic 'top-down' solutions: no imposed measures could ever be enforced in such a remote area against such determined opposition.

Moreover, existing forest rights in Palas also preclude state intervention. By law, the forests of Palas belong to the local communities, and by custom, they are the common property of one or more Palasi tribes. Any proposals to change the management of the Palas forests are, therefore, the legitimate concern of these local communities. By implication, forest management can only be improved through local participation.

5. Participatory Methodologies/Instruments used by HJP

5.1 Dialogue and Participatory Inquiry

Perhaps the first prerequisite of participation is the establishment of project-community dialogue. Here, the project faced its first challenge — how to communicate with 30,000 scattered people, most of whom understand only their own obscure and unwritten language.

The appointment of a native Palasi as a Field Officer was a critical first step in meeting this challenge. The project then spent the best part of 18 months exchanging information and opinions with the people of Palas through small tribal council meetings, discussions in hujras, and simple wayside meet-

ings. However, it became increasingly clear that such dialogue was not adequate to assess the problems and opportunities in natural resource conservation and development in Palas.

In order to do this, the project adopted the tools and techniques of Participatory Rural Appraisal or PRA. PRA methodologies are increasingly being adopted by conservation and development agencies and a wealth of literature and training opportunities is available on the subject. Using PRA, the project was able to access a wealth of local knowledge and generate enthusiastic villager participation in the planning process.

5.2 Emergency Relief and Rehabilitation

By September 1992 the project had established grass-roots dialogue and was in the process of finalizing plans for developmental initiatives when disaster struck. In the space of four days, Palas received half its annual rainfall. In Bar (interior) Palas, rivers broke their banks, destroying villages, bridges, pathways, irrigation channels and water-driven flour mills and plunging the remote interior into a food crisis.

Familiar with the region and having built links with the local community, donor organizations and the government, the HJP was well placed to coordinate relief work. Working with the government's Emergency Relief Cell, the Project airlifted over 50 tonnes of food commodities to 10,000 stranded villagers.

The need to distribute 50,000 kg of foodstuff to 10,000 people scattered over 1,000 sq km of remote mountain terrain presented the project's first opportunity to test a working partnership with the people of Palas. As it turned out, the distribution was rapidly and equitably administered by the tribal councils.

History books traditionally refer to the people of Palas as 'ungovernable savages'. Travel guides warn you never to enter the valley without a government escort. Development agencies have consistently avoided the valley on the grounds that the tribes would never collaborate. The HJP's flood relief experience exploded this myth of the Palasis as intractable tribesmen. It demonstrated the strength and organizational capacity of the traditional institution of the jirga.

But, perhaps more importantly, it extended awareness of the HJP from a handful of villages to the entire upper valley, and generated a mutual confidence between the people and the project. The disaster had provided the latter with the vital entry point.

The challenge was now to consolidate this gain.

With the immediate crisis over, HJP visited Palas with the Minister for Environment, who readily sanctioned a request to airlift engineers into the area to assess flood damages and rehabilitation needs. The engineers arrived a week later and along with the community, identified the priorities for rehabilitation after flood damages. The resulting Bar Palas Rehabilitation Programme contained proposals for the construction of 22 essential foot-bridges, the renovation of 54 irrigation channels and the reconstruction of 20 watermills. By April 1993, full funding of over US\$ 200,000 had been secured.

5.3 Written Agreement

Helicopters and engineers might seem irrelevant to the conservation of forests and tragopans. But this major package of economic assistance presented the project with a wonderful opportunity. For the first time, it had a significant incentive to offer the people of Palas in return for their commitment to conservation. Therefore, with funding more or less in their pocket, project officials went back to Palas to seek this commitment.

They called a great tribal council meeting in June 1993, after exhaustive preparatory regional jirgas had been concluded a month before. Three hundred tribal elders were expected to attend and arrangements were made for selected VIPs to be flown in by helicopter to witness the occasion.

Following protracted negotiations, the jirga duly signed the Bar Palas Agreement. In return for the HJP's rehabilitation assistance, the Bar Palas tribes formally recognized the concept of Palas becoming a special area for conservation and development, agreed to formal dialogue on improved forest management, and to instant ban on all hunting.

The Bar Palas Agreement represents the first step towards a conservation convention for Palas, under which the community might commit customary land for conservation in return for assistance in the sustainable development of their natural resources.

5.4 Community Organization

Since the agreement was signed, the project has used rehabilitation works to catalyse the formation of village organization throughout Bar Palas. The jirgas, traditional tribal councils, are essentially conflict resolution bodies. The project hoped to evolve out of this existing tribal institution new organizations which could play a more pro-active role in conservation and development. Local conflicts, how-

ever, rendered this a difficult task. Many families in Palas are engaged in active and violent feuds with one another, to the extent that sometimes an entire village will be 'in fort'. The HJP has, on occasion, negotiated ceasefires in order to hold village meetings. Over 20 village organizations were established by June 1993 and implementation of rehabilitation works began immediately.

The village organizations have proved extremely efficient. At Paro, for example, they completed a dual canal at a cost of US\$ 2,000, less than a fifth of the government's own estimate for the scheme. In 1993 the village organizations mobilised some 10,000 man-days of labour to renovate over 40 irrigation channels and a dozen or so watermills.

Suspension foot-bridges are under construction to reconnect isolated villages and summer pastures. Four have so far been completed, and a further four are in progress. Village organizations have committed substantial contributions to all these works.

By insisting that beneficiaries pay something in the form of equity, a degree of ownership and financial involvement has been established. In the long-term, these village organizations will provide a vital social platform for natural resource management in Palas.

5.5 Other Development Incentives

With the basic infrastructure and flood rehabilitation well under way, the Project is now beginning to implement the development opportunities identified by the pre-flood PRA. The PRA pointed to poor quality maize seed as a major constraint. This year, a dozen trial sites have been established with local farmers to test and multiply appropriate new maize varieties.

6. Conclusion

I have explained a few of the tools, instruments, methods and incentives which have been used to address the linked problems of poverty and environment in Palas.

I should add that participation alone is not enough. This paper has not described in any detail the technical work — on forestry, agriculture and biodiversity — done by the Project which is an essential complement to local knowledge and skills.

A workshop on forest management in Palas was held in October 1993 and the dimensions of a more sustainable system outlined. With increasing confidence between the Project and the people of Palas, we expect to take forward local dialogue on

the sensitive issue of forest management this year. The importance of the forests of Palas has been recognised in key government policy documents and the government has welcomed the proposal of an expanded 5-year second phase of the project — now under consideration by the European Community.

Finally, I would stress that participation is neither easy nor quick. It requires time, effort, and skills that are not readily taught, but must be discovered in the process. However, our message

would be one of encouragement. Here in BirdLife, and elsewhere among the conservation and development agencies, people are gradually putting together the basic toolbox of methods required for participation.

To return to Serageldin's words, we are learning the delicate art and science of sustainable development. Judging by the response we are getting — from the government, from our sponsors, and most of all from the people of Palas — it is worth the effort.

Towards the Next Century: Training Priorities for Protected Areas in South Asia

Hemendra S. Panwar
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(Paper presented by S. C. Dey)

1. Diversity of Physical and Bioclimatic Environment in South Asia

- Trans-Himalayan cold desert
- Ice fields
- Alpine areas
- Montane temperate forests
- Flood plains grasslands
- Semi-arid thorn-scrub
- Desert: sand and Rann of Kutch
- Deciduous forests
- Wet tropical forests
- Dry evergreen forests
- Mangroves
- Wetlands: fresh and coastal
- Islands
- Coral reefs
- Marine environment

1.1 Special Attributes/Situations of Biodiversity

- Pristine systems
- Man-influenced systems: mildly modified and secondary systems
- Transnational ecological contiguity
- Migratory bird habitats
- Sea turtle nesting sites

2. Constraints in Protected Area Management

- Majority of PA units are small. Independent viability is rare. There is great dependence on neighbouring land/resource use.
- Legal boundaries are often ecologically inadequate: many species with large home ranges, e.g. tiger, elephant — face habitat inadequacy, corridor problems.
- Population pressures: unrelenting, often accentuated by degradation, biomass dependence for subsistence, income supplementation, also socio-cultural factors.

- Encroachments for agricultural use.
- Pressures from development and markets.
- Human activists sometimes equate PAs with development projects as ways of denying people their resources.
- Serious interface conflicts stemming from animal damage, restrictions on biomass use.
- Uncertain, often declining, political support.
- Paucity of infrastructure, human and fiscal resources.
- Poor human resource development — the principal constraint in the face of above adversities.
- Institutional weakness and poor professional capacity mainly due to lack of HRD.

3. PA Management Challenges

- Anti-poaching measures are now increasingly required to deal with big money traffickers. Besides the establishment of modern infrastructure for mobility and communications, it is now necessary to reinforce the effort through intelligence probes. Appropriate training for field personnel and for some wildlife forensic technicians is required.
- Wildlife health monitoring and preventive measures are needed against disease, epidemics and pollution of air and water in many PAs. Training veterinarians in wildlife health and also imparting basic training to field personnel is now a necessity.
- Management of small, isolated populations.
- Special habitat support, in-situ.
- Gene-exchange through translocation.
- Captive breeding and well-considered translocation.

3.1 Proper Habitat Management

- Amelioratory: mitigation of modification/degradation.
- Compensatory: providing habitat values lost due to deficient boundaries or small size of protected areas.

- Interventionary: to create or perpetuate secondary habitats favouring highly threatened species e.g. (1) Asiatic lion in Gir, India where much of scrub savanna habitat is lost to agriculture and bulk of available habitat is hilly and forested, and (2) Swamp deer (*Cervus duvauceli branderi*) in Central India where it survives on colonized secondary grasslands of human origin — a species representing biodiversity in secondary ecosystems of early man's creation. The Asian elephant in Sri Lanka and North-east India which thrived on secondary habitats of slash and burn agriculture may need similar support.
- Competent wildlife biology expertise that takes into account people's concerns is needed.
- Competent wildlife extension expertise that is aware of conservation concerns is required.

3.2 HRD Must Conform Directly to Management Requirements

- PAs are seen as an integral, compatible and important segment of a larger landscape including other land and resource uses.
- PAs must have systematic and scientific Management Plans.
- The planning process must include people participation not as an exercise in appeasement but to promote the understanding, mutual adjustment and community self-discipline prevalent in traditional management systems.
- Participatory planning should lead to rational zoning and a zonal plans package.
- Competent implementation of all components of management plans — biological, protection and people-related — by appropriately trained personnel.
- People's problems and pressures are best managed with ecodevelopment support — a package of measures such as alternate efficient utilization of energy and resources, substitution of resources, value addition process for produce collected and sold, additional compatible income generation activities, joint management of buffer zone segments under people's use etc.

3.3 What Should a PA Manager be?

- A Biologist?
 - A Resource Manager?
 - An Administrator?
 - An Extension Worker?
- Clearly the answer to this is that a park manager should be all-in-one. However, efficient and expert support from biology and extension specialists is essential.

ager should be all-in-one. However, efficient and expert support from biology and extension specialists is essential.

Thus a park manager must have adequate knowledge and practical understanding of wildlife biology and extension, with full professional skills in resource management. A successful manager needs also to have a good understanding wildlife law and its enforcement, and to be a competent leader at his own level in the field. A park manager's course at any level must include components conforming to these requirements.

In addition, there is need for education/training in wildlife biology and wildlife extension in order to have specialists to provide the essential research, monitoring and extension support.

4. Training Requirements

A look at protected areas in South Asia is given in Table 1.

4.1 Personnel Requirements

The average area of each protected area unit is 440 square kilometre. In terms of personnel per PA unit, this means:

– Park Director/Superintendent/Warden	1.0
– Asst. Director/Asst. Superintendent (Management - Extension)	1.5
– Biologist	0.5
– Rangers (one per 100 sq km, for territorial, extension, tourism management works)	4.4

Table 1. Protected Areas in South Asia

Country	Number of PAs	Total Area (sq km)
Bangladesh	8	968
Bhutan	5	9,061
India	331	131,596
Maldives	-	-
Myanmar	2	1,733
Nepal	12	11,085
Pakistan	53	36,550
Sri Lanka	43	7,837
Total	454	198,830

Source: 1993 United Nation List of National Parks and Protected Areas.

Note: Above 10 sq km only.

- Beat Officers/Range Asst. 11
- Wildlife Guards (one per 10 sq km) 44

For the total number of PAs in South Asia (see Table 1), the following would be required:

- Park Director/Supdt./Warden 450
- Asst. Director/Asst. Supdt./Asst. Warden 675
- Biologists 225
- Rangers 2,025
- Beat Officers/Range Asst. 4,950
- Wildlife Guards 20,250

4.2 Training Centres

Training programmes for rangers and other staff should, as far as possible, be run within respective countries. For managers/biologists, where programmes are difficult to run within the country, training centres preferably within the region (south and south-east Asia). The Wildlife Institute of India or universities offering analogous courses, can be used. See Table 2.

4.3 Experience at the Wildlife Institute of India

- WII's development presents a good case study of an institution specially set up to support

wildlife research, education and training as specifically required in a developing South Asian country.

- The Institute offers all the recommended courses for biologists and managers up to the level of rangers and has developed training syllabi for Range Assistant and Wildlife Guard training which are being used by some training schools in Indian states. It has also developed a wildlife management component for the training syllabus at the post-graduate forestry course being conducted by India's Indira Gandhi National Forest Academy.
- WII also trains research biologists and extension specialists through on-field research during special PhD programmes.
- Both WII programmes on research and training are based on extensive interaction with PA managers, scientists in institutions and universities, as well as conservation NGOs. WII's research, supervised by the institute's faculty, helps it stay abreast of scientific and technological progress while also being in direct touch with field realities. This ensures that teaching by WII's multi-disciplinary faculty — biologists, park managers and socio-economists — remains relevant at all times.

Table 2. Training Programmes Requirement

Target Trainers	Required Course	Duration
1. Park Managers (Director/Asst. Director level)	Masters/Post Graduate Diploma in Wildlife Management	One year after post-graduate forestry training or 2 years after BSc
2. Biologist	Masters/PhD in Wildlife Biology	Two to four years
3. Rangers	Senior Certificate Course	6 months after forestry training or 2 years after Senior Secondary school (10+2 years)
4. Range Assistant	Junior Certificate Course	6 months after forestry training or 1 year after secondary school
5. Wildlife Guards	Primary Certificate Course	6 months after 8 (preferably 10) years of school
6. Specialized Certificate Courses for Directors/Assistant Directors/Research Biologists/Extension Specialists		
i. Management Planning for PAs		6 months
ii. Remote Sensing/Geographical Information Systems		6 months
iii. Ecodevelopment Planning/Education-Interpretation		6 months

5. Conclusion

As the next century looms ahead in the distance, we stand at a cross roads. Among decision making circles, there is widespread awareness of conservation as an essential ingredient for the long term welfare of the global community. Nevertheless, expedient concerns often get the better of such wisdom, leading to half hearted action with wavering political support.

We need to realize that despite the concern of the global community, and notwithstanding the impressive growth in PAs in developing countries, the following remain as the main drag factors:

- Neglect of meaningful human resource development (multi and interdisciplinary, and balanced training) in PA management and biodiversity conservation.
- Rare and sporadic efforts at securing local people's involvement in field conservation.
- Paucity of financial resources, both national and international, to support conservation on a large scale.

The above drag factors are listed according to their importance because, without skilled managers neither meaningful participation of people nor proper utilization of resources is possible.

Even in the decision-making circles directly responsible for conservation, conviction about the need for training seems to be less than firm. This is reflected in under-utilization of training facilities within the region and/or of the training slots available in internationally assisted projects.

Often, training opportunities are used to 'over train' a small number of individuals, while much of the workforce remains blissfully unaware. There is also not enough emphasis in all South Asian countries on the training of trainers for the effective running of in-country training centres.

The challenges that beset conservation in South Asia are daunting but tractable if the drag factors are addressed properly and adequately.

Broad based training programmes as suggested here would perhaps give conservation a better chance in the next century.

Future Cooperation on Protected Areas with Emphasis on Information Collection in the South Asian Region

Professor Pei Shengi

International Centre for Integrated Mountain Development, Nepal

It is my pleasure to have this opportunity to attend the IUCN-CNPPA 42nd Working Session in Islamabad, Pakistan. I am honoured to have this opportunity of presenting some ideas about future cooperation on PAs with special emphasis on information collection in the South Asian region.

First of all, let me take a few minutes to introduce the International Centre for Integrated Mountain Development (ICIMOD). ICIMOD is an international centre with particular focus on the Hindu Kush–Himalaya region. One of its main priorities is a regional perspective for its mandated activities. This includes biodiversity and ecosystem conservation in the vast region. As the highest, largest and youngest systems in the world with a high diversity of nature, cultures and social systems, the HKH region is an area which has long attracted international attention. But the fragile mountain systems of the HKH region have been facing an overall environmental degradation since the 1970s. It was in these circumstances that eight countries of the region joined hands and with the help of UNESCO, established ICIMOD in 1983 in Kathmandu. ICIMOD is not a traditional research institution or a development agency rather it is a facilitator between these two areas of sustainable development. ICIMOD plays four roles in a regional context: (a) as a focal point for information exchange; (b) to conduct applied or problem solving research in collaboration with actual institutions; (c) to provide consultancy services for the region and (d) to provide training on capacity building for regional countries.

The first two days of this meeting are of most interest to ICIMOD as the issues addressed focus on the regional context of PAs management in South

Asian countries including those with common boundaries. ICIMOD recently concluded a series of meetings on indigenous knowledge systems and biodiversity management. One of the recommendations was that ICIMOD play an increasingly more important role in promoting regional collaboration among the HKH countries in PAs management in the HKH ecosystem. The social dimensions included in this session are thus particularly relevant as ICIMOD is keen that the information exchange among PA and biodiversity managers in the HKH region be improved. Particularly important is the development of a common or, at least, compatible biodiversity data management system which would facilitate monitoring trends in biodiversity conservation and PAs coverage in the future. Dr Jim Paine of WCMC has mentioned this in detail in his paper so I need not discuss it further.

In conclusion, I would like to propose the following points for future cooperation with IUCN-CNPPA in the region:

- Cooperation in information collection on PAs and biodiversity.
- Cooperation in transboundary conservation between all countries sharing common boundaries in the region.
- Active networking: a regional network on biodiversity must be formulated and established for the sharing of information and experiences. Training and coordination in joint projects in the area is recommended.

I do hope that interaction and collaboration between ICIMOD and IUCN will be further strengthened in the field of PAs and Biodiversity Ecosystems Conservation in the HKH region.

Capacity Building for Protected Areas in South Asia: Future Challenges

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1. Introduction

It has taken 17 working sessions for the CNPPA to refocus attention on the South Asia region — nearly 10 years since the 25th session at Corbett National Park, India. Is this a realistic time frame within which to have a meaningful review of the progress made in the implementation of the Corbett Action Plan (CAP)? Perhaps not — complacency is bound to set in over such a long period, even more so in the absence of regular monitoring and assessment of efforts for operationalising the CAP.

The South Asian region has witnessed significant changes over the past decade and rapid developments continue to take place, particularly in the economic and political spheres. In this swiftly evolving scenario, priorities also change frequently and developmental considerations take precedence over conservation needs as the countries in the region seek to integrate with the global economy. Events like UNCED, IUCN's General Assembly and the World Congress on National Parks and Protected Areas help to bring conservation imperatives back to centre stage, but largely at a macro-level with very little trickle-down effect to help PA conservation at the field level.

The CNPPA, therefore, needs to step in to fill this gap and plan a more active role in improving the level of PA network development and management. For this it will have to establish a strong and permanent regional presence in South Asia with decentralised powers and functions, not only to facilitate greater and more frequent regional cooperation but also to sustain its advocacy efforts and catalyze the implementation of PA conservation priorities. If this were already a reality, a different picture would have emerged from our assessment of the CAP, as it would have been possible to monitor its implementation closely and more frequently through review meetings, regional consultations and actual field visits. The need for a regionalized CNPPA management structure has been recognized

recently for Africa and this concept needs to be extended to the South Asia region as well.

2. Capacity Building — Priority Concerns

Goal 2 of CAP recognises the development of management capability for PAs as a priority concern. Five distinct objectives are identified which deal with the following key issues:

- Strengthening of the wildlife administrative authorities to make them effective.
- Establishment of training facilities.
- Development of management policies and preparation of management plans.
- Provision of adequate financial and infrastructure resources.
- Establishment of research and monitoring facilities and programmes.

An assessment of the implementation of CAP in the region reveals several shortcomings in the achievement of the stated objectives, which specifically deal with strengthening the capacity to manage PAs at various levels. Consequently, PA network, development and management efforts remain largely inadequate, which is in turn is reflected in their poor conservation status.

Although there has been a steady increase in the network of PAs in some countries, both in terms of their biogeographic representation as well as in their total area coverage, this has not been matched by commensurate growth in management capability. According to the IUCN's 1992 Review of the Protected Areas of the World, the PA coverage in the South Asian countries reveals the following (see Table 1).

According to available information, only Nepal and Sri Lanka have separate wildlife administrative authorities at the national level. In the remaining countries, wildlife and PA conservation is the responsibility of the forest administration. Although an independent authority may not by itself

Table 1

Country	PAs		% of PA area to GA
	No	Total Area	
Bangladesh	12	1,084	0.75
Bhutan*	9	10,508	21.00
India*	490	140,262	4.26
Nepal	12	10,910	7.70
Pakistan	170	72,000	9.00
Sri Lanka	67	7,838	12.00
Myanmar	2	1,731	0.26
* (updated figures)			

be an ideal system, particularly in the case of India and Pakistan which have strong provincial governments at the state levels, it does reflect a firm commitment to direct concerted management attention to the wildlife sector. The advantages include a separate budget and a separate cadre of professionals, while the disadvantages could be in the form of potential conflicts with the forest administration and lack of coordination for resolving interface problems and buffer zone management issues etc. However, the choice of system should best be left to the respective countries to make; whichever system is used, the need is to develop a strong, professional and effective authority which can plan, promote and coordinate PA and wildlife conservation programmes and emerging challenges.

In-country professional training facilities for wildlife and PA personnel exist only in India and these are also being utilised, albeit sparingly, by other countries in the region. They also have affiliated training programmes with countries such as New Zealand, the US, etc. However, there is a wide gap between the desired levels of training inputs and those presently available. Consequently, professional standards in management are very low and this is particularly true where there is frequent interchange of personnel between the wildlife and forestry wings because of a common cadre. In India, for example, where there are nearly 500 PAs, the number of officials trained up to 1990-91 at the managerial level was only 230, and those trained at the field executive level was only 108. The picture is not very different elsewhere in the region. The difference is only of scale, depending upon the size of the protected estate and the number of personnel. Lack of trained personnel is recognized as a severe handicap for PA management in

Bangladesh. In 1989, the number of wildlife staff stood at only 53 in Bhutan, while Myanmar had 498 staff within the Forest Department for wildlife conservation in 1987.

The progress of management planning for PAs has been equally slow. An evaluation report on the management of PAs in India published in 1989 revealed that only 43% of the National Parks and 28% of the sanctuaries surveyed had management plans and not all of them of the desired quality. Preparation of management plans, thus, continues to remain a high priority task for the PAs in the region. Recognising this need, the Wildlife Institute of India (WII) at Dehra Dun now offers a specialised annual training programme for PA management planning in an effort to bridge this gap. This is in addition to the management planning inputs already being provided under the regular wildlife management training course for PA managers. Unfortunately, the existence of management plans does not necessarily guarantee their implementation.

In the absence of adequate financial resources to support infrastructural and manpower development, and to implement protection enforcement and other PA management measures, management plans and action plans will remain largely on paper. No matter how well-intentioned or desirable a particular piece of legislation may be, it will be ineffective in the absence of an adequate enforcement machinery. This is also the case with the plans for effective management of PAs. In 1992-93 an amount of only Rs. 213 million was allocated as central financial assistance to the Indian states for the development of PAs. Considering that the states on their own are able to provide only minimal resources and that too mainly for maintenance related activities, this additional input is too meagre for any meaningful capacity building and development exercise in the country's 490 PAs covering an area of over 140,000 sq km. An analysis of budgetary support for PAs in the other countries reveals similar inadequacies. In Bhutan, the wildlife budget was only US\$ 110,000 in 1989; NRs 124.3 million for Nepal during 1990-91, much of which was utilised for protection enforcement; Rs. 332 million in Pakistan for the five year period between 1988 and 1993; and in Sri Lanka too the Department of Wildlife Conservation is severely handicapped by a lack of financial resources. Funding is critical to the efforts at capacity building for PAs anywhere, but even more so in the developing countries of South Asia. These fall under the low and lower-middle

income categories, and thus require international funding support to finance such programmes.

The application of science to PA management is an impossible task in the absence of adequate financial, infrastructural and human resources to establish research facilities and carry out even basic research (e.g. resource inventory) and monitoring activities. Only a handful of PAs have permanent in-house research facilities and their development too is hampered on account of the paucity of funds and lack of growth opportunities for scientific personnel. Although sporadic scientific studies may have been carried out in some PAs, what is lacking is a systematic and comprehensive research programme for each PA, at least for those of high conservation significance, covering the ecological, environmental and socio-economic aspects of management. Even where management plans do exist, these have not been based in most cases on research findings. Therefore, developing research capability remains a priority of capacity building.

3. Future Challenges

The South Asian region's ecological and cultural diversity, coupled with rapidly growing demographic pressures, presents management challenges that are in themselves rapidly evolving. The principal challenge, therefore, is to quickly build up PA management capability to a level where it is able to respond effectively to the new situations and enhance the conservation status of PAs. The human population of the seven countries taken to comprise this region, estimated at about 1,172 million in 1990, is expected to grow to a staggering 1,783 million by the year 2025. Livestock population also has an equally fast growth rate and totals nearly half the human population. Together they represent pressures that are going to compete for the scarce natural resources, and it is very often the forests and PAs which fall victim to these mounting pressures because they are expediently viewed as common property resources (CPRs). The need is to gear up administrative mechanisms and management systems not only to successfully face this onslaught but also to respond positively by demonstrating the various values of PAs and wilderness areas.

Viewed in this context and in the light of the progress made so far towards strengthening PA management capabilities, a number of key issues emerge which constitute the priorities for action. These may not be new issues since they find mention in the Bali, the Corbett and the Caracas Action Plans, spanning a period of 10 years, but the very

fact that they need to be reiterated in successive action plans is an indication that they continue to remain relevant primarily because action has not matched precept, at least to the desired extent. However, although these critical issues are being underscored once again, an attempt has been made at a qualitative difference in their treatment. This is being done in recognition of the fact that strait jacket approaches will have to yield to innovative strategies in view of the changed circumstances in which they are to be implemented. Besides, one has to account for regional and inter-regional differences also, while making recommendations for actions. This is a major limitation of most 'action plans' as they deal mainly with generalities, when what is required are recommendations for specific actions. These can only be developed by individual countries within the framework of their own legal and institutional structures, while regional and international efforts can be aimed at facilitating implementation by helping to overcome various financial and technical constraints which stand in the way.

4. Priorities for Action

The key aspects identified here as the priorities for action are critical elements of the capacity building exercise for PAs in the South Asia region. These constitute not only future challenges but are also present concerns which need to be addressed immediately. The priorities are:

- Development of professionalism.
- Financing issues.
- Constituency building.
- Protection aspects.
- International assistance.

4.1 Development of Professionalism

Professionalism among PA staff suffers on several counts. Firstly, where PA management is also a responsibility of the forest administration, interchangeability of officers and staff results in frequent turnover and loss of PA management experience and expertise which has to be acquired afresh by succeeding incumbents. This time-lag causes discontinuity of management inputs to the detriment of the PAs. Secondly, even if the administrative responsibility for PAs rests with a separate Wildlife or Parks Directorate, lack of resources ensures that the areas are understaffed, the staff are not provided with the desired requisites and cannot be provided professional training. This aspect of resource constraint will be discussed in greater detail under the relevant item. Thirdly, and perhaps most importantly,

the absence of professionalism results from very inadequate remuneratory levels, especially for the field executive staff. Apart from the PA manager/director and possibly his assistant, the remaining staff who are actually charged with implementing all management prescriptions, including protection enforcement, are very poorly paid. Such low levels of remuneration are disincentives to attracting the right talent with suitable qualifications and experience. Moreover, their career paths do not allow them to rise to the manager level even if they possess the right aptitude and acquire the relevant experience and expertise. This factor is again a disincentive to their acquiring the necessary training or qualifications as a means of career advancement. Fourthly, training facilities are mainly aimed at the manager level staff. The WII does offer a certificate course for the supervisory level (Range Officer) but there is no specialised training programme in the region for lower levels, who in some cases are exposed only to the basics of forestry training.

All the above mentioned are fundamental issues requiring urgent consideration to improve PA management efficiency. Organizational restructuring is essential to develop a permanent cadre of PA management professionals at all levels who should be offered higher salaries and service benefits. On-site training should be provided to the lower level field staff by a team of trainers from institutes such as WII who could travel from area to area to impart specialised training through appropriately designed training modules. Professional training facilities available within the region (e.g. WII) should be better utilised because they are both cost effective and relevant to the local conditions. The mobile seminar organized by WII a few years ago with support from UNESCO should be made a regular feature with greater coverage of representative PAs in the region including the mountain, desert, coastal, marine and forest ecosystems.

4.2 Financing Issues

This is perhaps the single most important factor which has wide ramifications, affecting every aspect of PA management. Starting from management planning to research and monitoring, the entire gamut of PA management issues are influenced by the availability and level of funding. In fact, without funding there can be no capacity building and without management capability available, funds cannot be efficiently utilised. As mentioned earlier, PA management authorities throughout the region suffer from a chronic shortage of

financial resources as government agency budgetary support is generally inadequate. The result is that available resources are spread too thinly. Therefore, in the given situation three policy options are available: (1) continue with the present system while making efforts to obtain enhanced fund allocations; (2) prioritise PAs on the basis of their conservation values and/or threats faced by them and direct available funds to the high priority areas; (3) seek supplementary funds from other sources, including international agencies. Efforts must be made on all three fronts but the third option seems to be emerging as a major strategy for financing PAs.

It is reported that 22 countries have, so far, established trust funds, also known as 'National Environmental Funds'. As these trust funds are administered independently and are able to garner funds from a variety of national and international sources, they offer steady and substantial sources of funding. Examples of trust funds in the region supporting PA development activities are: The Pakistan Wildlife Conservation Foundation, The Bhutan Trust for Environmental Conservation, and The King Mahendra Trust for Nature Conservation, Nepal. Greater resources are certain to become available in the near future as a result of the Rio agreements through sources like the Global Environment Facility, the funding mechanism to be established under the Convention for the Conservation of Biological Diversity, and several other multilateral and bilateral international funding agencies, so it would be advantageous for all the countries in the region to establish such trust funds.

Trust funds should be independent with both government and non-government representatives as well as representatives of special interest groups on the governing board to ensure unbiased consideration of proposals. Prominent NGOs in each country can take the lead in establishing such trust funds in collaboration with their government. Moreover, there is also justification for establishing a Regional Trust Fund, possibly under the aegis of CNPPA if it decides to establish a permanent presence in this region. The advantages of a regional fund would be to support activities of inter-country significance e.g. transborder PAs, or support certain activities of high priority to the CNPPA in selected PAs of the region. A danger to guard against, however, would be the possible withdrawal or reduction of government budgetary support to the PAs in the face of liberal funding by the trust fund(s). Such sources should only be viewed as additional and supplementary to the government effort.

The trust funds, in addition to principal contributions from international funding agencies, should also be able to tap sources within the country such as the business sector, industry and corporations, funds generated by the PAs through tourism, other income generating activities and so on. One of the recommendations of the Caracas Action Plan is to levy a charge on hydroelectric generating facilities which benefit from the watershed protection services provided by the PAs. With the private sector now getting involved in the power sector, this innovative strategy for generating revenue is a distinct possibility. Therefore, a variety of strategies need to be considered for increasing financing and generating revenues to support the PA management efforts.

As mentioned earlier, availability of adequate funds is crucial to every aspect of capacity building for PAs. Preparation of management plans and their implementation is constrained due to a lack of financial resources. Similarly, infrastructure development cannot be undertaken, nor can research and monitoring facilities and programmes be established. Although these are also thrust areas of the capacity building effort, they will not be discussed here in further detail as they are chiefly influenced by the availability or otherwise of adequate finances.

4.3 Constituency Building

More effort needs to be directed towards eliciting public support for PAs in the region. General awareness levels about the need for and value of PAs is very low, partly due to the fact that education/literacy levels are correspondingly low and much of the population is rural-based. Therefore, efforts also need to be directed towards these two fronts, in addition to the other target groups. Apart from the general public, specific target groups would be the political leadership, local resident populations and special interest groups such as NGOs, adventure/recreation groups (such as mountaineering, trekking, rafting etc.) and business groups, particularly in the service sector such as tourism, hotels, transport, and others which benefit directly from the PAs.

Local community participation in PA affairs and their deriving economic benefits from them would be the surest method of building up a strong constituency in favour of PAs which would also help in resisting outside threats. PA ecodevelopment strategies need to be planned and implemented for this purpose so that the local people realize the relevance of PA conservation to their livelihood and economy. The WII, Dehra Dun has recently started

a specialised training programme with FAO-UNDP assistance in PA Ecodevelopment Planning. Full advantage needs to be taken of such facilities within the region as a means of capacity building.

Environmental NGOs will have to play a major role in the constituency building effort. Local self-government institutions should also be used as vehicles for this purpose: for example, in India the Panchayati Raj institutions have recently been strengthened through a constitutional amendment and enactment of relevant legislations. A variety of local area and rural development schemes and programmes have been entrusted for implementation to the village panchayats and other intermediate and district level people's institutions. The possibility of entrusting some PA management activities, such as border patrolling/protection, tourism related facilities etc. to such people's institutions should be considered seriously as a means of enlisting their support. Similarly, rehabilitation of degraded forest areas through people's institutions (Village Forest Protection Committees) has achieved notable success under the Joint/Participatory Forest Management initiative in many parts of India. Therefore, this concept can easily be extended to PAs, with certain modifications.

The political leadership is another very important segment of the society which needs to be developed as a support group. Forums like the Parliamentary and Legislative Environmental Forums need to be established and activated as a means of educating politicians. This is necessary to bring conservation on the agendas of the political parties. The local leadership in particular needs to be won over and requested to use their influence for getting enhanced resources for the PAs, resisting adverse developmental threats etc. Therefore, developing an effective constituency in favour of PAs can contribute greatly towards their conservation.

4.4 Protection Aspects

These, like financing issues, are chronic problems for PAs, particularly in developing countries with high population densities which are rural-based and dependent upon the natural resource base for their livelihood and survival. Moreover, the attractions of high economic returns from forest and wildlife products has led to increased poaching activities, which can be successfully countered only by adequate capacity. Armed conflicts and insurgency related threats have lately added yet another dimension to PA protection. Several instances have

come to light where terrorists/insurgents have used PAs as hideouts and for generating revenue through wildlife and timber poaching. With limited manpower and financial resources at their disposal, PA authorities are ill-equipped to deal with such emerging challenges.

A multi-pronged approach is, therefore, required to deal with such protection issues. Firstly, as pointed out earlier, local village level institutions should be constituted and part of the protection funds transferred to them for protection enforcement and intelligence gathering activities. Secondly, the PA authorities can even consider entering into a dialogue with the leaders of insurgent outfits and convince them not to damage the forest and wildlife resources. Thirdly, effective anti-poaching capability needs to be developed through the provision of trained personnel who are also adequately equipped with arms and provided with modern communication facilities. Protection task forces, comprising ex-servicemen, can also be raised on the pattern of the ecological task forces in India which have proved very effective in undertaking afforestation projects in ecologically difficult areas such as deserts and mountains. By doing so, the military training of these ex-servicemen can be gainfully utilised in anti-insurgency/poaching operations within the PAs prone to such threats. PA administrative authorities at the national levels will have to take the lead in formulating and promoting such innovative schemes.

4.5 International Assistance

Assistance from international agencies and organizations is crucial to the capacity building task in this region, as should be evident from this discussion. The principal area of assistance is the provision of technical expertise through training and consultancy, and financial assistance to support management and development efforts. Other forms would include facilitating greater regional cooperation in PA issues. Although regional forums such as the South Asian Association for Regional Cooperation do exist, PA conservation issues can be better addressed through a specialised body such as CNPPA and therefore a suggestion has been made for a permanent presence in this region. Such a presence can promote greater advocacy of PA concerns and oversee the implementation of various policies and guidelines. With the recommended decentralization of CNPPA's management structure it would also be possible to monitor various developments more closely.

To promote excellence in PA management, CNPPA should consider instituting a system of regional awards for the best managed PA, for outstanding services by PA personnel, acts of valour etc. It can also recognize certain PAs in the region as 'Centres of Excellence' for a particular field of management or for specialization in a particular ecological setting e.g. deserts, mountains, coastal, marine, rainforest etc. Such centres of excellence can then be used for training of personnel from other PAs in the region in relevant aspects of management. With most of the Rio conventions and agreements providing for the transfer of substantial financial resources to the developing world, CNPPA through its presence can ensure that adequate resources are transferred and effectively utilised for strengthening PA management capability in the region. Thus there are many areas of PA management in which international assistance is indispensable and needs to be stepped up manifold to achieve the desired levels of management capability in the region.

5. Conclusion

Progress in developing management capability for PAs in the South Asia region has not been very satisfactory. Moreover, given the existing demographic pressures and the levels of inputs into this effort there is not likely to be any significant improvement in the near future unless investments are stepped up on all fronts. At the same time new management challenges are emerging in a region which is characterized by extreme socio-cultural diversity, economic disparities and different political systems. These are developing countries and there are many competing demands for the scarce financial resources, which are mainly channelised into the core sectors of development.

A concerted effort is, therefore, required to bring conservation firmly onto the political and developmental agenda by building up an effective constituency of various support groups. Conservation in general and PA conservation in particular, should not be viewed in isolation from the process of socio-economic development. They are both complementary and supportive of each other and constitute the bedrock of sustainable development. Programmes of poverty alleviation, literacy, population control etc., are very relevant and contribute directly to conservation efforts and, therefore, need to be integrated and closely coordinated with nature conservation programmes.

In the post Rio era substantial obligatory financial resources are certain to flow into the region

from the industrialised nations and various international organizations. Suitable national and regional institutional mechanisms must be established to capture these funds and direct them to the task of capacity building of PAs. Rather than depend upon the technical expertise and facilities in the developed world, which are in many cases inappropriate to the local conditions, countries of the region should aim at developing indigenous and regional expertise and training facilities, in addition to fully utilizing the existing resources in this field.

Future challenges in PA development will consist of deciding 'how' to deal with a particular situation rather than 'what' to do, which is fairly well known by now. Innovation will be the key to success and local solutions more relevant to the particular conditions in the region. It is important that CNPPA play a more active role to promote, facilitate and monitor PA development activities within the region. For this purpose it should seriously consider separating the South and South-East Asia regions into two and establish a permanent regional presence in South Asia, preferably in India, which should be distinct from and in addition to the existing regional office of IUCN. Hopefully then, a brighter picture will emerge in the next review of the PA system of the South Asia region.

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Future Priorities for Protected Areas in South Asia

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Almost 10 years ago in February 1985, the first full meeting of the members of this commission from 12 countries of the Indo-Malayan realm took place in the picturesque natural setting of the Corbett National Park in India, to review the status of Protected Areas in this region. It was the first such in-depth review on the subject. At the end of five days of hard work, the then Chairman, CNPPA, Harold Eidsvik, described the meeting as 'a most productive one'. The major output of the meeting was the Corbett Action Plan, which was the first such exercise for the Protected Areas network of the Indo-Malayan realm.

The Plan laid down a set of five main goals. Under each goal, several objectives and activities to be carried out at the national and international levels were identified and set down. These provided the general direction and guidelines as well as a kind of check-list for necessary actions to improve the expansion and management of PAs in the countries of the region, no doubt to be modified and applied in accordance with the situation and requirement of each country.

I had felt then, and do more so now, that Goal 5 of the Corbett Action Plan, which pertained to the monitoring of the Action Plan's implementation, was crucial. The emphasis was on continuous monitoring of the relevant activities set down in the Action Plan. For this purpose, the following action points had been identified at the national level:

- Promote the implementation of the Corbett Action Plan through wide publicity among citizen groups and government departments.
- Contribute to international coordination by keeping IUCN/CNPPA informed about actions contributing to the Corbett Action Plan.
- In each country the non-governmental conservation organizations should monitor implementation of the Corbett Action Plan.

And, at the international level:

- Promote the implementation of the Corbett Action Plan through wide publicity in the region and internationally. (Action by IUCN).

- Monitor the implementation of the Corbett Action Plan and update at future Indo-Malayan working sessions of CNPPA. (Action by IUCN).

In retrospect, the emphasis on monitoring was indeed appropriate. The negligible attention given to this aspect in the past decade is both sad and unfortunate. The fact that we are meeting after nearly 10 years is in itself a poor reflection on the noble intentions expressed at Corbett. In this context, the opening statement of the Corbett Action Plan is worthy of note: "the next 10 years provide what may be the last chance to achieve significant additions to the world's network of Protected Areas" and also that "the situation is particularly critical in South and East Asia, where rapidly increasing human populations are exerting unprecedented pressure on some of the richest and most diverse living natural resources on earth".

There is little doubt that the situation as it stands today, 10 years since the Corbett Action Plan was formulated, gives no cause for satisfaction or complacency. On the contrary, the situation is definitely more critical than ever before, and I have no doubt that one of the principal reasons for this is that we have collectively not lived up to the expectations and intentions agreed upon at Corbett. We have lost precious time by neither undertaking sustained follow-ups nor monitoring implementation at the national and international levels. It is not the purpose of this paper to apportion blame or responsibility for this serious lapse. The crux of the matter is that unless all concerned take the follow-up and monitoring stages seriously and ensure proper implementation of the agreed activities, convening such meetings or conferences and preparing further strategies and action plans is an exercise in futility. It is necessary, therefore, to reiterate that the first and foremost priority for any serious action in the future is scrupulous adherence to Goal 5 of the Corbett Action Plan — i.e. continuous and rigorous monitoring of implementation. To ensure this, a

proper mechanism for such monitoring, along with the requisite process and institutional structures, needs to be worked out at both the national and international levels.

At Corbett in 1985 in a paper titled An Overview of the Conservation Status of the National Parks and Protected Areas of the Indo-Malayan Realm. I had stated that:

"The major threats to the continuation of the protected areas of the realm, as well as much of the rest of the world, come not from within the areas but from the human pressures outside. It is to these threats that conservationists must increasingly address themselves. Conservation must no longer be seen as an alienation of rights of the rural people, but as a positive factor in the long-term process. But this requires careful planning with considerably greater inputs than appears on the surface.

Perhaps three distinctive fields of endeavour can be identified as being crucial in this major thrust to solving the human dimension of conservation. The first is to achieve a greater awareness of the importance of the PAs network at all levels of society from the international to the rural populations themselves. Second, there is the need to involve local people in conservation and to plan conservation so as to stimulate rural development. Third, we must demonstrate conservation benefits practically, a show-by-results campaign. This applies to education of conservation cadres and the training of managers just as much as of the rural people."

It is my considered view that this statement and the priorities indicated therein are as valid now, as ever before. Hence, instead of reinventing the wheel, which is not really necessary in any case, I intend to reiterate and elaborate on the same theme.

Taking the second point about the involvement of the local people first, it is becoming increasingly clear that conservation of biological diversity within PAs cannot be carried out without recognising and fulfilling the bonafide needs of the local people.

PA managers have traditionally tried to discharge their responsibilities in accordance with the prevailing policy of keeping people out of PAs with the assistance of aids such as fences, guards, guns, etc. While this strategy may have been successful in a few instances and for a certain period of time, it

has actually resulted in alienating the local communities, arousing their hostility towards the concept of PAs and the species which they seek to preserve.

It has become increasingly clear that PAs cannot be protected without the active support of the indigenous people living within and around them. What needs to be defined, however, is the role that they can play in PA management and protection.

Given the restrictions imposed on forest use within national parks and sanctuaries under the existing laws, at least in India, a practical way by which local people's antagonism towards PAs can be overcome, and their cooperation and participation elicited for PA management and protection, is by 'ecodevelopment,' also referred to as 'integrated conservation and development'. The term ecodevelopment essentially refers to the strategy of protecting PAs by recognising that the local people have biomass, income and other dependencies on the natural resources within the PAs which are sought to be protected. These dependencies manifest themselves in activities like grazing, fuelwood collection, etc. If the needs of the local people can be met by providing them with viable alternatives, the conflict between them and PA managers can be minimized. Much of the latter's hostility can also be overcome by adequately compensating crop damage, and human and livestock death and injury.

The management of PAs (of which ecodevelopment should be considered an integral part) needs to be carried out in a way in which there is greater participation of the local communities. This will lead to greater support for the PAs. Various ways in which participation of people can be enlisted are:

- Providing them with direct employment for carrying out work such as soil and moisture conservation, fire protection, wildlife protection, etc.
- Recruiting them as PA staff.
- Sharing with them the biomass which may be generated through the management of grasslands or through removal of exotic plantations from certain PAs.
- Employing the revenues generated through activities such as ecotourism within and around the PAs for the benefit of the local community in a participatory manner according to the activities identified by them.
- Involving the local people in decision-making at the PA management level. This involvement is especially crucial in making decisions pertaining to the prevention of damage to crops and livestock as well as to human injuries and deaths.

- By establishing institutions where local people can participate in identifying the sites where PAs can and/or should be set up, their area and boundaries should be, and where work on related issues can continue.

At present, ecodevelopment or integrated conservation and development projects are being initiated in the Indo-Malayan region. If these projects succeed in reducing and/or removing pressure on the PAs around which they are centred, then the 'show-by-results campaign' which I have mentioned earlier needs to be set into motion. Success stories, if widely publicised, will go a long way towards convincing the general public that the conflicts between conservation and development, which in any case exist only in the short run, can be resolved in a manner that allows the objectives of both to be met. This would help in not only strengthening and consolidating the existing PAs network, but would also allow for the expansion of the PAs network in the Indo-Malayan realm.

One important reason why PAs are threatened today is that there is a lack of awareness among the general public about the role of PAs in the environment as well as in a nation's economy. Launching multi-media awareness programmes

aimed at all sections of the society can help overcome this and build up a constituency in support of PAs, which, in turn, will ensure the long-term survival of PAs in the Indo-Malayan realm.

Environmental education programmes are the stepping stones to capacity building for the protection of PAs. However, if these programmes are to have an impact, they too must be designed through a process which is participatory, and integrated not only into formal educational structures, but also into informal ones.

At the same time, different sections of society should be targeted by appropriate environmental education programmes. For instance, it would be more appropriate to inform local rural communities of the better soil conditions or water regimes that arise out of the existence of PAs. For urban target groups on the other hand, it may be better to emphasise PAs' aesthetic value. The benefits of biodiversity conservation also need to be clearly explained to both the local as well as the distant urban communities.

While action needs to be taken on a broad range of issues after a comprehensive action plan is developed, the priorities which must be emphasised in order to extend public support for PAs, are the ones discussed above.

Future Priorities for Investment in Protected Areas in South Asia

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1. Introduction

It is well known that the South Asia region is marked by great geographic and biological diversity. The region includes the world's largest mountain system, rich rainforest complexes, deserts, coral reefs and mangrove areas, and encompasses segments of two of the world's eight biogeographic divisions, as well as the Indian Ocean. These characteristics account for great species diversity, with India being among the 12 so-called 'megadiversity' countries.

The region is home to over a billion people, a figure that is estimated to increase by two-thirds within the next 35 years. Pressure on the region's biodiversity is therefore intense, and will continue to grow. It is also clear that people cannot conserve natural resources if this is in conflict with their immediate survival needs.

The challenge in the region then, is to conserve as much of the region's biological resources as possible while reconciling people's needs as well.

2. Biodiversity Conservation Priorities for the Region

The findings and recommendations of the World Bank's publication *Conserving Biological Diversity: A Strategy in the Asia-Pacific Region* (1992), which was reviewed at the 1991 Indo-Malayan Protected Areas Workshop in Bangkok, as well as by several international NGOs, provides the basis for the Bank's biodiversity work in the region.

The strategy accepts the position that setting up comprehensive and well-managed PA systems is likely to be the most practical way to preserve the greatest amount of biodiversity and the ecological processes that define and mould it. For this reason,

it suggests that initial efforts should help support the establishment and maintenance of PA systems by promoting policy change, incorporating local people into Protected Area management, and mobilizing financial resources for conservation and protection. Broadly, four key areas for priority action are recognized.

2.1 National Programmes

Since every country in South Asia has PAs of international significance, most of which are under threat, national programs to protect biodiversity are vital. Given that the value of threatened resources and their link to economic activity is uncertain and that all countries require additional technical and financial support to protect their biological resources, there must be a regional strategy (to be developed at this meeting) that strives to identify and protect resources of national importance within each country.

2.2 Models to Follow

Investments in the region should focus on programme development rather than exclusively on the protection of specific sites. Obviously, when sites of global significance are identified, a major effort should be made to protect them. This is particularly important in countries with limited institutional capacity, or in areas under very severe threat. In the South Asia region in general, however, there is widespread respect and reverence for nature and an emerging willingness to support conservation if social and financial obstacles can be overcome. Therefore, primary attention should be given to supporting policy systems, promoting linkages between small-scale village-based development and conservation, mobilizing financial resources, and producing model projects rather than simply concentrating on protecting single sites.

1. The findings, interpretations and conclusions expressed in this paper are entirely those of the author and should not in any manner be attributed to the World Bank or its affiliated organizations.

2.3 The Economic Viewpoint

Parallel efforts should also be made to conserve biodiversity in areas intended for economic purposes, particularly agriculture and other landscape activities. If the region does attain the IUCN-recommended goal of bringing 10% of its land area under protection, what will happen to biodiversity in the other 90%? And how will these affect the PAs themselves? From a biological point of view, PAs that become 'isolated' islands amid agriculture and human settlements, invariably result in a progressive erosion of genetic diversity. Multiple-use agriculture or improved management of watersheds and forests around PAs can offer opportunities for extending the range of biodiversity protection while achieving economic objectives. Similarly, regional landscape strategies are necessary to protect wetlands and marine ecosystems, areas that have not received serious attention in the past.

2.4 People's Organizations

Concerted efforts by governments and local and international NGOs are also needed to increase public awareness of the importance and value of biodiversity. To enhance these efforts, it is necessary to strengthen developing countries' NGOs and grass roots organizations and promote their participation in biodiversity policy-making and planning.

3. Biodiversity and the World Bank

Donor support, of course, remains important for promoting biodiversity conservation in the region. The World Bank has, in the past few years, made great strides in supporting policies, economic and sector work and investment projects related to biodiversity conservation. Much of this growth preceded and now supplements the Bank's involvement in the Global Environment Facility, and has resulted both from increasing national and international concern about biodiversity and rapidly evolving Bank operational policies (e.g. wildlands, natural habitats, environmental assessment, forestry and water resources management). At present, the basic elements of the Bank's biodiversity conservation work programme include policy formulation and guidance; country economic and sector studies; preparation of country biodiversity conservation strategies and action plans; the design of specific regular lending projects that include activities for biodiversity protection; and client country training and advice. In all these activities, the Bank seeks collab-

oration with bilateral agencies and national and international NGOs and academic institutions.

The World Bank is currently developing a paper on biodiversity conservation, highlighting its areas of current involvement as well as of future emphasis.

The heightened support for biodiversity conservation in client countries is illustrated by the trend in global financing for biodiversity within the Bank's natural resource management projects, particularly those directed at agriculture and forestry. For example, in the period between 1984 to 1991, 4.5% or US\$ 155 million of the Bank's global forestry lending constituted direct support for National Parks and other PA activities. During the period 1992 to 1994, 11.3% or US\$ 281 million of forestry lending was for PAs and National Parks (Progress Report on World Bank GEF Operations, June - July 1994).

4. Bank Involvement in the Region

The Bank's support for biodiversity conservation in the South Asia region focuses on three key areas: (1) investment lending; (2) strategy formulation; and (3) regional studies.

4.1 Investment Lending

Although overall bank lending for biodiversity conservation in the South Asia region is comparatively limited, there are indications that countries in the region are becoming more inclined towards borrowing for biodiversity conservation. There are currently nine World Bank investment projects in forestry and natural resources in South Asia (excluding GEF projects) that provide US\$ 30 million for PAs and biodiversity conservation activities. Although precise figures are not available at the moment, future projects for PAs in the region are likely to include approximately another US\$ 25 million within the next year or two. A list of current Bank lending projects in the region, at the preparation as well as implementation stages, is given in Table 1.

In India, the Bank, is committed to supporting the country's efforts to sustainably manage its large forest estate, and it will assist a number of state-wide forestry projects in the country. So far, four state-wide forestry projects are under implementation, and a number of additional projects are under preparation or being considered for future funding. Most bank-financed forestry projects in India would include between 10% to 15% of the total project investment for PA activities. In Pakistan, rehabilita-

Table 1. South Asia Region: Bank Biodiversity Conservation Components Under Implementation and Proposed

Country	Fiscal Year	Project	Component	Cons. Compon. Cost (Est. \$m)	Total Project Cost (Est. \$m)
Bangladesh	1992	Forest Resources Management	Developing and strengthening environmental capacity within the Department of Forestry; biodiversity assessments and establishment of databases; protected area investments in Sundarbans; and development of management plans in other PAs.	2.3	58.7
Bhutan	1993	Forestry III	Developing environmental monitoring capability	-	8.9
India	1992	West Bengal Forestry	Conservation of biodiversity, including protection of rhino, leopard and wetlands, and management	2.6	39.0
	1992	Maharashtra Forestry	Establishment of a protected areas system; institutional strengthening; ecodevelopment; notification and legal settlement for priority protected areas	7.2	124.0
	1994	Forestry Research, Education and Extension	Integrated conservation and development activities in two protected areas; institutional strengthening and conservation research	5.3	56.0
	1994	Andhra Pradesh Forestry	Establishment of a protected area system; institutional strengthening, ecodevelopment and improved park management	6.5	84.0
	1995	Madhya Pradesh Forestry	Establishment of a protected area system; improved management in 24 protected areas; institutional strengthening; ecodevelopment	9.6	67.3
	1996	Bihar Forestry	State-wide biodiversity action plan; improved management of 12 protected areas; integrated conservation and development; institutional development and research	16.0	95.0
	1996	Kerala Forestry	(to be determined)	tbd	tbd
	1998	Uttar Pradesh Forestry	(to be determined)	tbd	tbd
Nepal	1995	Forestry IV	Developing and strengthening environmental capability; biodiversity assessment and database establishment; and preparation of management plans	1.5	23.0
Pakistan	1993/4	Environmental Protection & Resource Conservation	Institutional strengthening of federal and provincial Environmental Protection Agencies and natural resource rehabilitation, including rangelands and wildlife populations	1.5	62.3
	1994	Balochistan Natural Resource Management	Hazarganj-Chiltan National Park development; institutional strengthening; inventory and infrastructure	1.5	17.8
Sri Lanka	1990	Forest Sector Development	Establishing an environmental unit within the forest department; developing a database; drafting environmental guidelines for conservation	1.3	31.4
	1996	Environmental Action 1	Biodiversity Conservation Fund in support of training, public awareness; participatory programme; and university and NGO research	tbd	tbd

tion of rangelands and wildlife populations and improved management of key Protected Areas are components in two Bank-financed projects. The Bank's forestry portfolio in the region also includes the development of institutional capabilities for biodiversity assessment and PA management planning in Bangladesh and Sri Lanka, and the development of environmental monitoring capability in Bhutan.

4.2 Strategy Formulation

Recently, Bank economic and sector studies have examined biodiversity issues in a number of Asian countries, including India. The Bank has supported the development of National Environmental Action Plans or their variants in all the countries of the region. The NEAPs include treatment of biodiversity conservation and have provided valuable inputs into country economic work. Given its mandate in policy analysis and sector work, the Bank is well placed to contribute towards the preparation of country biodiversity action plans (BAPs) and is working with the governments of Pakistan and Sri Lanka in this respect. Within the Asia-Pacific region, the Bank has already assisted Indonesia and China in producing BAPs.

4.3 Regional Studies

With the assistance of Dutch funds, the Bank is updating the Indo-Malayan Review of Protected Areas (MacKinnon and MacKinnon, 1986). This will serve to (1) update the database on the status of PAs in the Indo-Malayan realm as a basis for re-evaluating and revising regional conservation priorities; and (2) enhance existing database management and provide training in its application to conservation management problems in order to establish a standardized approach to storing, retrieving and analyzing biodiversity information for the realm. The latter is to be achieved through sub-regional workshops to build consensus among the countries on priorities for conservation action. The update is timely in the light of the numerous initiatives which have recently been undertaken in the region such as NEAPs, numerous GEF projects and the recent Biodiversity Convention which calls for each participating country to develop biodiversity action plans or strategies.

5. Critical Questions Related to Biodiversity Conservation

Despite the increasing support for biodiversity conservation in the region, there are critical questions that still need to be answered to ensure that invest-

ments are efficient and cost effective. In particular, information is required: (1) to identify geographical distribution of important sites where national and regional priorities overlap with global interests; (2) to make explicit and then test the hypotheses on human-biodiversity interaction that underly ongoing or planned PA policies and activities; (3) to define appropriate tools and approaches to link investments in socio-economic development around PAs with biodiversity conservation; and (4) given the limits of resources available, identify the most cost-effective ways to conserve the greatest amount of biodiversity and ensure financial sustainability of investments. Acquiring this information will entail collaboration between governments, local and international NGOs, and donors.

6. Conclusion

South Asia's rapid loss of biological resources affects us all and addressing it is a responsibility that we all share. These issues cannot be resolved around the conference table, but only by collective action between national governments, local and international NGOs, donor agencies and through the participation of local communities. The Bank, for its part, intends to continue supporting biodiversity conservation in the region through its economic and sector work and, most importantly, through financing for PAs and projects that integrate people's needs with conservation.

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Towards the Next Century – Funding Mechanisms for Protected Areas in South Asia

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1. Introduction

This paper will cover three broad areas:

- The issue of financing Protected Areas — why is it important?
- Examination of some of the options for financing PAs on both the broad scale and the individual site level.
- Identification of important principles for financing PAs.

My aim is to provide a broad overview paper which summarizes the current global situation and derives valuable lessons for South Asia.

2. Why is Financing Protected Areas Important?

Adequate funding is essential if PAs are to survive into the next century. PAs have traditionally been managed by government agencies. In many parts of the world, the level of funding available for government agencies is diminishing and governments in general are being asked to do more with less. Looking into a crystal ball, I would predict that not only is this funding situation unlikely to change as we move into the next century, it is, if anything, likely to become tighter.

In many cases, the financial constraints are compounded by increasing pressure on PA agencies to 'pay their own way', that is, to generate more revenue to cover their capital and recurrent costs. In countries with developed PA systems, much has been done to implement and extend cost recovery systems, and recruit volunteer personnel. Where PA systems are less well developed, NGOs and the private sector are becoming increasingly involved in conservation efforts.

Given that finance in many parts of the world is one of the major challenges facing protected areas into the next century, it is necessary to review the range of options available and develop approaches which are appropriate to the needs of each country.

3. Options for Financing Protected Areas

Some of the options for financing Protected Areas include :

3.1 Private Sector Involvement

In many parts of the world, the assistance of the private sector for the establishment and management of PAs is vital. Such support can range from direct financial assistance for park development to direct management of PAs by private agencies. In the Caribbean, for example, a major hotel has provided direct support for the development of a national park in the British Virgin Islands. While such support is generally site-specific and ad hoc, more systematic cooperation programmes are in the pipeline.

Although there are limited examples to date of successful private sector management of PAs, a number of instances are emerging. For instance, the Kasanka National Park in Zambia, Africa, is managed entirely by a private trust under a lease arrangement from the government for a 10-year period. The management of PAs by trusts has also proved successful in the Bahamas, where National Parks are managed by the Bahamas National Trust.

Potential advantages of private sector involvement in PAs is the relative efficiency in management and economies of scale available to large companies. On the flip side is the need to ensure that conservation objectives are not eclipsed by short-term profit motives which would lead to resource degradation. This is particularly important considering the fact that few private companies are currently geared up for effective conservation management.

3.2 The Involvement of NGOs

An increasing number of NGOs are becoming involved in conservation activity around the world. Co-management by the government and the non-government sector is one option for PA manage-

ment, and usually requires some delegation of responsibility by the designated management agency to an NGO or an organized group of resources users. Many NGOs play active roles in conservation, ranging from small groups such as the Solomon Islands Development Trust in the Solomon Islands in the Pacific to The Nature Conservancy which is directly involved in the establishment and management of some rather large Protected Areas. The King Mahendra Trust for Nature Conservation in Nepal offers a very successful model of NGO involvement in the management of an important PA.

There are a number of spin-off benefits from the involvement of NGOs in PA management. NGO involvement can lead to increased local support for PAs. By demonstrating local commitment and in-kind support it can also provide an effective tool for external fund raising.

Co-management requires clear agreement on respective responsibilities of each party involved and can only succeed in a climate of cooperation and mutual respect.

3.3 Strengthening the Ability of Existing Government Structures to Generate and Retain Revenue

Apart from examining alternatives to the traditional government sector management of PAs, there is a need to examine how existing government structures can be strengthened in relation to revenue generation. An interesting trend in certain African countries such as Kenya, Tanzania and Uganda is the establishment of parastatal bodies, which have a greater level of independence and autonomy than traditional government agencies particularly in their ability to generate and retain revenue. Results to date indicate that this approach may have great potential for improving the efficiency of PA management, largely through the increased level of financial security associated with this option.

In the United States, the New Hampshire Parks System became a self-funding agency in 1991, which meant that the agency could retain all its earnings and reinvest these in new programmes, expansion of services and increased maintenance. Its direct source of income from fees, rents and commission services is supplemented by an innovative volunteer corps and partnership programmes. The organization is thus able to generate income in excess of its operating costs. This situation, however, is the exception rather than the rule: the US

National Park Service equivalent cost recovery figure is under 10% and the New South Wales (Australia) National Parks and Wildlife Service figure is around 15%. Nevertheless the New Hampshire Parks System provides an interesting model, which may represent the future for many park agencies around the world.

3.4 National Environment Funds

The establishment of trust funds for environmental purposes, known as National Environmental Funds (NEFs), is another recent initiative. Such funds can provide a flexible and unrestricted source of support for PA management. Experience has shown, however, that considerable effort is needed to set up a trust fund: a high level of initial capital, at least 10 times the desired annual income, is required for the purpose. Nevertheless, the experiment has been a successful one and it is clear that trust funds have significant potential as a means of financing PA systems.

NEFs are a recent initiative: approximately US\$ 370 million has been committed to NEFs in 17 countries, including the Philippines and Bhutan, since 1990. They share the characteristics of (1) governance by a board of directors; (2) capability of receiving funds from a variety of sources; (3) disbursement of grants to beneficiary organizations and agencies. The sources from which these funds can be capitalized include contributions from donor agencies, fees and various forms of levies, and funding from major international NGOs such as the World Wildlife Fund. There is some indication that donor agencies are becoming increasingly interested in NEFs. The Danish Parliament for instance, has reportedly adopted a new policy in favour of more trust fund programming instead of project funding.

A successful example of an Environment Fund is provided by the Jamaica National Park Trust Fund.

3.5 The Role of Donors

Donor agencies such as the World Bank and the European Union play a major role in the funding of conservation and PA activities. For example, the Global Environmental Facility, which is the interim funding mechanism for the Convention on Biodiversity, is operated in its pilot phase jointly by the World Bank, the United Nations Development Programme and the United Nations Environment Programme. To date GEF has allocated US\$ 303.5 million to 54 projects in 43 countries. Excluding the global UNEP projects, all but eight of the remaining projects address the needs of PAs. Two of them are

geared to establishing trust funds in Peru and Bhutan, while 11 of the other projects also incorporate a trust fund element to provide long-term support for activities.

These projects average nearly US\$ 6 million each and can make an extremely valuable contribution to PA management. However, in increasing levels of donor funding, there is, to use an Australian expression, an inherent danger of the tail wagging the dog. It is vital that each country clearly define its particular needs and priorities, preferably through a National Systems Plan for Protected Areas which can be the basis of the allocation of external funding. Such a plan should clearly define the major issues facing PAs in that country and the priority programmes that are required to address them. However, few such plans exist, and few GEF projects support their preparation. The latter could provide a significant service if it could stimulate the preparation of such plans and ensure that future funding is allocated in accordance with the priorities identified in these.

There is also considerable scope for donor agencies to further define their priorities pertaining to funding for Protected Areas. An example of this approach is provided by the European Union.

3.6 Expansion of Funding for

Protected Areas at the Site Level

There is considerable potential for increasing funding for PAs at the site level. However, as for all revenue generation, here too there is a need for caution. Revenue generation must be the means to more effective conservation management rather than an end in itself. Empiricism has demonstrated the potential for revenue enhancement in increased charges for entrance and certain other services, such as concession development. User fees can be directly correlated to the costs of management and adjusted as costs change. In many countries revenue from Protected Areas is returned directly to the central treasury agency; this can be a disincentive for an agency to increase its efforts for revenue generation programmes. The success of the parastatal arrangement for managing PAs in some African countries stems partly from the agency's right to retain its revenue. A similar case is that of New Hampshire, cited earlier. Where possible, it is important to have mechanisms to ensure that fees collected are utilised for the management of the area and not returned to the central treasury.

Tourism focused on PAs also offers a significant opportunity to generate revenue. However, to

avoid 'killing the goose that laid the golden egg,' it is essential that developments associated with tourism do not detract from the inherent value of the PA which attracted the tourists in the first place. To counter this possibility, close collaboration between tourist operators and Protected Area managers is important. Clear and explicit guidelines must also be provided about the types of tourist related activities which are appropriate in and around PAs.

Category VI Protected Areas (Managed Use Protected Areas) incorporate conservation and sustainable development activities. There is, obviously, scope for revenue generation from development activities in such areas, where effective and equitable systems must be set up for sharing revenue with local communities that derive benefits from the PAs management. There is also a need for clear communication with local communities whenever benefit sharing is to take place, which must occur at all stages.

4. Principles For Funding Protected Areas

It is clear from the above that much interest has recently been displayed in financing PAs, and this issue will continue to grow in importance as we move into the next century. There are some important lessons that can be drawn from the experience to date:

4.1 Systems Plans

The fundamental principle is that funding must relate to priorities at both the national and site level. Governments need to make concerted efforts to prepare National System Plans for PAs which clearly identify major issues and define priorities for investment. The importance of such plans is underlined by the recent rapid increase in donor funding for PAs.

4.2 Diversification

Diversified funding strategies are more effective than dependence on a single source of support.

4.3 Modification

The effectiveness of national PA systems can be enhanced by developing a mixture of management options which may include the management of PAs by the private sector and NGOs. There is no one 'right' answer — each country needs to develop an individual system which most appropriately addresses its needs.

4.4 Partnerships

Partnerships among governments, NGOs and the private sector should be developed to take advantage of the range of financing options available and increase management capacity in general.

4.5 Minimal Government Dependence

One of the aims of any strategy should be to reduce dependence on government subventions, and with it the annual funding competition with other government agencies and budgetary uncertainties.

4.6 Funding Options

Funding options which are sustainable in the long term need to be explored. Short term donor interventions have in many countries led to projects that build infrastructure, such as roads and buildings, which are not possible to maintain in the long term,

beyond the life of the project intervention. Sustainable options such as National Environment Funds need to be examined in this context.

4.7 Working Relationships

For the purpose of financing PAs, there is a need to establish close and effective relationships between national governments and donor agencies which should aim to ensure that funds are clearly allocated in accordance with national priorities.

4.8 Priorities

At the site level, there is a need to ensure that priorities are addressed in a logical manner, ideally through the development of a management plan. Avenues for increasing revenue need to be explored though not at the price of destroying conservation values.

Part II.

Annexures

Developing a National Biodiversity Heritage Trust Park for Dulahazara Reserve and Protected Forest, Bangladesh

G. M. M. E. Karim
Regional Member for Asia, IUCN

The world we live in is an ecologically and biologically composite whole. Every organism, through its evolutionary growth, is dependent on nature's balancing ecology and the earth's biosphere.

In his insatiable appetite for self-serving industrial and scientific achievement, Man has ruthlessly exploited natural resources and destroyed wildlife and forests.

Now at the threshold of the twenty-first century, man's very existence on this planet is imperilled. Destruction of forests, pollution of air, water and soil, and of all other known natural resources, has brought mankind to the brink of disaster.

In 1980, UNEP commissioned IUCN to devise a World Conservation Strategy, calling upon the nations of the world to participate and cooperate in its implementation.

This strategy gives top priority to conservation of vegetation, water, air, and wildlife resources all with the help of local people's cooperation. All member nations have been requested to adopt this planning programme and various 'strategies' for the conservation of biological diversity and sustainable natural resources.

Bangladesh, as one of the signatories to the United Nations' environmental objectives is, therefore, also required to honour the implementation of the IUCN programme.

Bangladesh has enormous potential for conservation in its wealth of primary tropical and rain forests. These are located in the Chittagong Hill Tracts in the reserve forest areas in the Shishak, Rankhyong, Kassalong and the Subalong valleys, in the Fashiakhuli-Dulahazara and Jaldi Hills, the Chunati Forest in Cox's Bazaar Forest Division and the Sundarbans mangroves. These rich Reserve forests (approximately 290,974.30 hectares), Protected and Unclassified State Forests (460,655.67 hectares); as well as vast Protected, Unclassified and Acquired forests (390,287.29 hectares) all abound with innumerable wildlife species. However, exploitation and consequent

deterioration of these forests is adversely affecting wildlife habitats. Apart from the above mentioned forest areas, there are large tracts of denuded forest lands where no afforestation or plantation programme is in force. The gradual encroachment of these barren areas into adjacent Protected, Unclassified or Reserve forests has begun to affect natural watersheds for water resources as well as rainfall in the country and is also silting up river basins causing floods, devastating cyclones, and consequently, untold misery to millions of people.

Aware of the importance of addressing the above problems in the nation's own future interest, a number of concerned promoters recommended that the government immediately commission a National Forestry and Wildlife (Policy) Council, to promote and patronize all national environmental societies and agencies, both governmental and non-governmental, working towards the achievement of similar goals. Acknowledging the national responsibility to conserve the natural resources of the biosphere, a proposed Trust Body offers to establish, among others, a pilot project at Dulahazara, located in an ecologically suitable (Protected, Unclassified and Reserve) forest area in the Fashiakhuli Forest Range, to be known as the Dulahazara National Wildlife Heritage Trust and Safari Park. The organization also plans to set up a National Wildlife Research Institute dedicated to the research of the habitats, breeding habits, and diseases of those wildlife species which are immediately endangered, such as the tiger, deer, water fowl (e.g. the white-winged wood duck), etc. An evaluation and assessment of biodiversity status has already been prepared.

My proposal is to set up the aforementioned park in accordance with required strategies. These strategies, though principally aimed at the immediate preservation of wildlife, are part of a long term policy that would also conserve all types of forests and their resources, protect them from further deterioration and gradually increase

afforestation in Protected, Unclassified, and Reserve forest areas, as well as in the adjacent barren forests lands (vide 6.4.2, xii-page 199 of NCS draft report).

In order to implement the above strategies to conserve natural and renewable resources, field studies and research into wildlife habitats, zoology, biodiversity and forestry will be conducted. As a corollary it may be necessary for the government to declare these areas as being under the purview of a Trust Body. Field study groups and research scholars can, through the course of their activities related to wildlife management programmes for maintaining the area's natural and ecological balance, contribute to the growth of forest habitats suited to indigenous wildlife. They can also be of assistance in the implementation of people's participatory projects and forest conservation programmes, and develop techniques of natural breeding to increase and rehabilitate the wildlife population.

In terms of priorities, the immediate strategy is to be directed towards saving endangered species, such as the tiger, black panther, elephant, sambur deer, barking deer, hog deer, wild cat, crocodile (marsh and estuarine), monitor lizard, rhesus monkey, hill mynah, mathura pheasant, white-winged wood duck, red Indian jungle fowl and some species of herons, storks and water fowls within the park's forest and marsh 'wetland' areas. To achieve this objective, the scientific conservation policy and wildlife management projects are to be launched on a national-level footing.

The Trust further believes that, with government support on the policy, finance and management fronts as well as with practical and dedicated assistance from related government agencies/departments, it will be able to successfully achieve its objectives within 10 to 15 years.

Therefore, our first and immediate conservation target is the (1) tiger, (2) white-winged wood duck, (3) sambur, hog deer, barking deer, (4) monitor lizard, (5) black panther, (6) kalij (black) pheasant (7) gibbon, and other rare and endangered monkeys, (8) marsh and estuarine crocodiles (9) python and some snakes, as well as large varieties of rare birds, and herons, storks and water fowls (both endemic and migratory) within the safari park area.

Phasewise, therefore, the proposed priority for the first Five-Year Programme would be the Zone A forest areas in the Trust Park which are ecologically suitable as common habitats of the above mentioned species.

It is, therefore, suggested that a forest area of approximately 2,000 to 4,000 acres, contiguous with the existing fenced area of the Forest Department's Deer Breeding Centre which includes the new plantation area of 4,500 acres and extends into the reserve forest of the Chittagong Hill Tracts in the Fashiakhuli Range, be officially declared as the Wildlife Heritage Trust and Safari Park by the government. This move can be effected under the Trust's viable management plan, with the government permitting unhindered access to the Trust's scientific and research scholars for the purposes of research and implementation of the programmes in its first phase.

In the interests of wildlife conservation, the government should also:

- Permit the Trust's employees to work in collaboration with members of international environmental organizations;
- Permit the construction of temporary and semi-pucca sheds as accommodation for field research and investigating teams;
- Adopt the recommendations based on the results of the Trust's field research;
- Subsidise the Trust with an annual grant of Taka one crore for the first five years as a token of its contribution to and participation in the programme of the trust which is assisted, both financially and technologically, by its counterpart international organizations. This money can be raised annually by simply levying a charge of Rs 0.50 per cubic foot on the sale of forest timber and forest products in Bangladesh for the cause of the conservation of the environment, biological diversity and wildlife habitat as well as participatory forestry of the people around the Heritage Trust Park.
- Assist other sponsors in raising funds for the trust through a 'Wildlife Conservation National Appeal' through lottery, wildlife and nature conservation films and exhibitions, festivals, wildlife stamps and souvenir sales. Also through wildlife coinage, export or exchange of non-banned or over-populated wild animals to world zoos or research centres devoted to the promotion of wildlife causes and reintroduction of rare species into compatible forest areas and for the welfare of the local people.

It has been observed, in other parts of the world where such schemes are under implementation, that the sincere cooperation of the government

Agenda

CNPPA 42nd Working Session
NARC Auditorium, Islamabad, Pakistan
September 21—23, 1994

21 SEPTEMBER, WEDNESDAY

- 0900 - Recitation from the Holy Quran
- 0905 - Welcoming remarks - Mr Abeedullah Jan, Inspector General of Forests, and Ms Aban Marker Kabraji, Country Representative, IUCN Pakistan
- 0920 - CNPPA International and Asian Region Focus and Priorities - Mr Adrian Phillips, Chair, CNPPA
- 0940 - Objectives and Structure of the Meeting - Mr David Sheppard, Head, IUCN PAs Programme.
- 0950 - Inaugural speech - Nawab Muhammad Yousuf Talpur, Federal Minister for Food, Agriculture and Cooperatives
- 1000 - Tea

SESSION 1 - SETTING THE SCENE

Chair: Dr Zafar Altaf, Secretary MINFA, Pakistan

- 1030 - Overview of the Protected Area coverage in South Asia - Mr Jim Paine, Protected Areas Data Unit, WCMC
- 1100 - Country Presentation, Bangladesh - Mr Salamat Ali
- 1115 - Country Presentation, India - Mr S.C. Dey
- 1130 - Country Presentation, Nepal - Mr John McEachern
- 1145 - Country Presentation, Pakistan - Mr Abeedullah Jan
- 1200 - Country Presentation, Sri Lanka - Mr S. Medawewa
- 1215 - Discussion
- 1225 - Formation of drafting group for review of Corbett Action Plan, and for preparation of resolutions and recommendations
- 1230 - Closing remarks by the Chair
- 1235 - Lunch and prayer break

SESSION 2 - BROADENING THE TRADITIONAL FOCUS OF PAs IN SOUTH ASIA

Chair: Mr Abeedullah Jan, IGF; Co-Chair: Mr Abdul Rehman Khan

- 1330 - Integrating Sustainable Development and Conservation: the Future for PAs in South Asia - Mr S. Medawewa, Sri Lanka
- 1400 - Future Issues and Challenges for Marine Protected Areas in South Asia - Dr Ranjith De Silva, Fisheries Department, Brunei Darussalam
- 1430 - The Application of the World Heritage Convention and the Biosphere Reserve Concept in South Asia: Future Challenges - Dr N. Ishwaran, UNESCO, Indonesia
- 1500 - Tea
- 1515 - Two concurrent small working group sessions; one focused on Marine Protected Area priorities, the other focused on Protected Areas — linkages between sustainable development and conservation. A list of discussion questions was prepared and distributed
- 1625 - Reports of the working groups and discussion
- 1655 - Closing remarks by the chair

22 SEPTEMBER, THURSDAY

SESSION 3 - BUILDING COMMUNITY SUPPORT FOR PAs IN SOUTH ASIA

Chair: Mr S.C. Dey, India

- 0900 - Involving local communities in Protected Areas in South Asia: Future Challenges
Mr Sidhartha Bajracharya, Director, Annapurna Conservation Area Project, Nepal
- 0925 - Building Public Support for Protected Areas in South Asia - Ms Nafisa Shah, Pakistan
- 0950 - Biodiversity Conservation Through Local Community Participation: the Himalayan Jungle Project
Experience - Mr Guy Duke, Himalayan Jungle Project, ICBP
- 1015 - Tea
- 1030 - Two small working group sessions, (with different focus), on the topic of building community support for PAs in South Asia. A list of discussion questions was distributed.
- 1200 - Report of the working groups and discussion
- 1230 - Closing remarks by the chair
- 1235 - Lunch and prayers break

SESSION 4 - MAKING IT WORK - CAPACITY BUILDING FOR PROTECTED AREAS IN SOUTH ASIA

Chair: Mr Haroun Er Rashid, Chairman, IUCN National Committee, Bangladesh.

- 1330 - Towards the Next Century: Training Priorities for Protected Areas in South Asia -
Mr Hemandra Panwar, Advisor on Protected Areas, Sri Lanka, (paper presented
by Mr S.C. Dey, India)
- 1400 - Capacity Building for Protected Areas in South Asia: Future Challenges - Mr Kishore Rao,
Principal Chief Conservator of Forests, India
- 1430 - Towards the Next Century: Alternative Institutional Options for Managing Protected Areas in
South Asia
- 1500 - Tea
- 1515 - Two small working group sessions (with different focus) on the topic of capacity building for
Protected Areas in South Asia. A list of discussion questions was distributed.
- 1630 - Report of the working groups and discussion
- 1655 - Closing remarks by the chair

23 SEPTEMBER, FRIDAY

SESSION 5 - FINANCING PROTECTED AREAS IN SOUTH ASIA - FUTURE DIRECTIONS

Chair: Mr S. I. Ali, University of Karachi

- 0900 - Future Priorities for Protected Areas in South Asia - Mr Samar Singh, (paper presented by
Mr John Joseph, India)
- 0925 - Future Priorities for Investment in Protected Areas in South Asia - Mr Hikmat Nasr, World Bank
- 0950 - Towards the Next Century: Funding Mechanisms for Protected Areas in South Asia -
Mr David Sheppard, Head, IUCN Protected Areas Programme
- 1015 - Tea
- 1030 - Two small working group sessions (with different focus) on the topic of financing Protected Areas
in South Asia. A list of discussion questions was distributed.
- 1200 - Reports of the working groups and discussion
- 1255 - Closing remarks by the chair
- 1300 - Lunch and prayers break

SESSION 6 - WHERE FROM HERE? - THE FUTURE FOR PAS AND CNPPA IN SOUTH ASIA

Chair: Mr Adrian Phillips, CNPPA

- 1400 - Presentation of Review of the Corbett Action Plan by the drafting group and discussion.
- 1500 - Tea
- 1510 - Resolutions, recommendations and associated material by the drafting group, and discussion
- 1645 - Closing remarks by the chair

List of Participants

September 21—23, 1994, Islamabad

SPEAKERS

Nawab Muhammad Yousuf Talpur, Federal Minister
for Food, Agriculture and Cooperatives
Dr Zafar Altaf, Secretary, Food and Agriculture
Abeedullah Jan, Inspector General of Forests
Aban Marker Kabraji, Country Representative, IUCN
Guy Duke, Himalayan Jungle Project
A. L. Rao, IUCN

FEDERAL GOVERNMENT

Ashraf Moten, Environment Section, P&D
K. M. Siddiqi, Pakistan Forest Institute
Shah Alam, Tourism Division

PROVINCIAL GOVERNMENT

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Punjab
Mohammad Yousaf Qureshi, AJK
Rashid Mahmood Randhawa, CDA
Yar Mohammad Khan, NWFP

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Tanveer Arif, SCOPE
Umeed Khalid, NCCW

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M. Farooq Ahmed, Zoological Survey Department
Dr S. I. Ali, University of Karachi

TOUR OPERATORS

Kaiser Khan, Expedition Pakistan

NON-MEMBER NGOS

Manzoor Hussain, Alpine Club
Qazi Azmat Isa, BRSP

DONORS

A. Qaiyum, World Bank
Fatma Shah, UNDP
Neil Buhne, UNDP

OTHERS

Z. B. Mirza, Bio-tech Professionals

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Adrian Phillips (UK)
David Sheppard (Switzerland)
Dr Fernando (Sri Lanka)
G. M. M. E. Karim (Bangladesh)
G. M. Oza (India)
Haroun Er Rasheed (Bangladesh)
James Paine (UK)
John Joseph (India)
John McEachern (Nepal)
Kishore Rao (India)
Dr N. Ishwaran (Indonesia)
Pedro Rosabel (Switzerland)
Pei Shengji (Nepal)
Ranjith de Silva (Brunei)
S. C. Dey (India)
S. Medawewa (Sri Lanka)
Salamat Ali (Bangladesh)
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