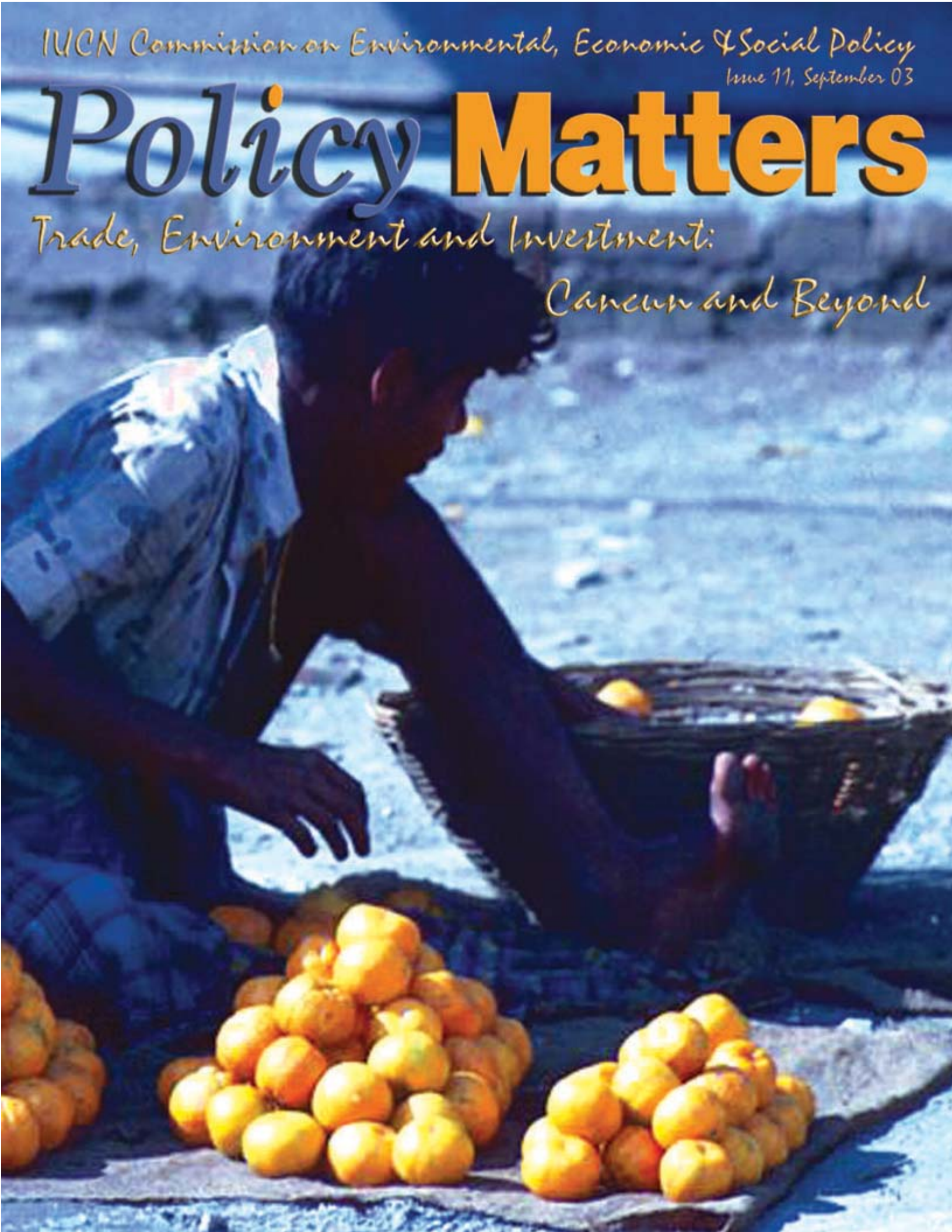
IUCN Commission on Environmental, Economic & Social Policy
Issue 11, September 03

Policy Matters

Trade, Environment and Investment: Cancun and Beyond



Why is it that when so many heads of state get together they prove themselves totally incapable of reaching agreement on the real solutions to the problems for which they are responsible?

Sustainable development is about nothing short of the universal eradication of the scourge of poverty and a complete end to the shameful extinction crisis.

IUCN-CEESP Working Group on Sustainable Livelihoods (www.iucn.org/themes/ceesp/wkg_grp/sl/sl.htm)

Table of Contents

LETTER FROM THE CHAIR—Why mince our words?

M Taghi Farvar

"Sustainable development" is about nothing short of overcoming the twin crisis of poverty and biodiversity loss. *The universal eradication of the scourge of poverty and the complete stopping of the shameless extinction crisis* are the heart of the matter. These are the ultimate goals against which we must all gauge our progress.

Why is it that when so many heads of state get together they prove themselves totally incapable of reaching agreement on the real solutions to the problems for which they are responsible?

The conservation community has tried to enrich itself with the opportunities offered by the major global forums. The presence of IUCN in Johannesburg last September at the centre of the World Summit on Sustainable Development provided an opportunity for conservationists to participate in the debate on the central issue of our times: "Will the world manage to save the Earth and the diversity of its inhabitants?" From the African continent, the world asked its political leaders whether thirty years since the Stockholm Conference of 1972 and a multitude of global forums later, the commitments towards sustainable development have actually resulted in any real progress towards both the eradication of the scourge of poverty and stopping the loss of biodiversity. While the final Declaration of the Johannesburg Summit contained some elements of hope, on the whole the fanfare was a tolling of the bells for the inability of governments to come to terms with either of these issues. The odds against success are more than great.

The inability of governments to take decisive action on the most crucial crises of the times showed itself not only in Johannesburg, but in June of 2002 in the World Food Summit: *five years later.* The World Food Conference of 1974 had set a target of eliminating all of hunger within 10 years. When world leaders got together 22 years later in 1996, they realised not much had been achieved, and the number of hungry in the world had increased to 800 million people. Rather than seeking ways of intensifying efforts to solve the problem, they decided to cut back on expectations and set the target of eliminating half of the hunger (400 million people) in twice the time, namely two decades. When they got together 6 years later to assess progress, government statistics showed that only 1% per year of the number of hungry people was supposedly being reduced. At this rate, it would take a hundred years to wipe out hunger affecting the present hungry! But we know that hungry people don't live long anyway…

Sustainable development is about nothing short of the universal eradication of the scourge of poverty and a complete end to the shameful extinction crisis.

Why is it that when so many Heads of State get together, they prove themselves utterly incapable of agreeing on the real solutions to the problems of which they are in charge? Are these not the same leaders who are capable of mobilising some of the best capacities in their countries—and thousands of millions of dollars—for armaments and war? And the matter is not only ingenuity or money. Some fair "rules of the game" and the willingness to get them respected may be even more important than direct outside inputs and aid. But such fair rules of the game are openly in contrast with the "free market lie," and it is a very uphill battle even to get them discussed, let alone agreed upon.

What can we conclude? As Ricardo Melendez sums up in his guest editorial in this issue, civil society must not be content with raising the issues for the governments to examine, but needs to play its own active role in enunciating and communicating the links between trade and sustainable development. Chief among civil society actors and yet too often powerless are

local communities, including indigenous peoples. It is time communities and their supporting institutions realised that while pursuing thepath of influencing policy to solve the fundamental problems facing humanity, they cannot count on governmental and intergovernmental mechanisms alone. Empowering civil society, especially local communities, is an essential parallel way, including in finding alternative, pro-poor trade and conservation mechanisms. One would hope that this could be one of the main results of the civil society meetings in Cancun. Possibly, the promises of sustainable development could still be maintained, despite all the odds.

Empowering civil society, especially local communities, is an essential parallel way, including in finding alternative, pro-poor trade and conservation mechanisms.

Taghi Farvar, Chair, CEESP

The Cancun Ministerial—the debate is not about abstract rule-making or commercial gains

The Editor

Governments at the Fourth WTO Ministerial Conference in Doha in November 2001 reaffirmed their commitment to the objectives of sustainable development. Eighteen months on we are still waiting to see this commitment translated into concrete outcomes of the trade negotiations. And the expectations are high and rising. As I write this note, *development* risks becoming the most uttered intangible buzz word in the talks and around them and even though issues related to trade and *environment* are an integral part of the Doha round negotiations and will feature during discussions at the Fifth WTO Ministerial Conference in Cancun in September, they are unlikely to top the agenda.

Inserting sustainable development policies and concerns into trade policy-making is not only a priority and responsibility of governments and negotiators. Civil society, including the conservation community, has a key role in enunciating the links between trade and sustainable development and conveying these and other concerns to relevant actors. Such efforts are crucial and opportune not only for negotiations at the WTO, but also for the many other—and proliferating—regional and bilateral trade negotiation processes currently going on.

In order to ensure that issues related to trade and equity, including on the use of biological resources and on effects on their diversity, don't drown in the backwater in Cancun amidst pressing commercial interests, the conservation community needs to step up efforts to articulate its own environment and development concerns and ensure their incorporation in the trade agenda. We need to stress that this debate is not about abstract rule-making at the international level, but above all about livelihoods in developing countries, the sustainable management of natural resources and ultimately eradicating hunger and poverty. There is an urgent need to balance the promotion of intensive natural resource use, driven by trade liberalisation and its continued focus on market access as the engine for economic growth, with supportive action for the environment and for the conservation and sustainable use of these resources both in developed and developing countries. The Cancun Ministerial provides a timely opportunity to raise these issues in the context of the Doha mandate and beyond in an effort to ensure that trade liberalisation works for, rather than against sustainable development.

In addition to the WTO Ministerial, *the Global Biodiversity Forum—Cancun*, the *High Level Roundtable on Trade and Environment* in Cozumel, Mexico and the *Fifth World Parks Congress—Benefits Beyond Boundaries* in Durban, South Africa, all set to take place in early September 2003, are important opportunities for the conservation community. We need to lever Johannesburg *World Summit for Sustainable Development* outcomes and discussions around the Convention on Biological Diversity towards building an international trade and environment regime that prioritises public interest policy objectives over the mercantilist approach prevalent in the construction of the current global architecture. In order to achieve this, we need to move away from a reactive agenda to a proactive course.

This issue of *Policy Matters* presents knowledge that should help to formulate this agenda not only for the Cancun Ministerial but also for the years to come. The contributors to this issue are primarily drawn from the Working Group on Environment, Trade and Investment (GETI) of IUCN's Commission on Environmental, Economic and Social Policy (CEESP).

With no illusion that we would cover such a multifarious theme in an exhaustive manner, the commentaries in this issue have been chosen in order to reflect its complexity and—borrowing semantically from Jacobsen's title—to provide a *flavour* of the intricate debate. It is not by chance that this issue focuses primarily on systemic aspects of international governance. Nations seem to have discovered contracts as the preferred device to assemble the puzzle of their interdependence and they currently find themselves intensively engaged in negotiations leading to binding rules. In such a mode, public policy aspirations, embracing the values and hopes of people, are in this way traded on a platform of rules on which the benefits and costs are not evident and the *quid-pro-quos* are not always of comparable nature.

In **Section I** of this issue, on **crafting the link between trade, environment and biodiversity,** and aimed at making sense of this all, **Gallagher** and **Nadal** explore some of the challenges posed to economics by the precepts of sustainable development and what we are doing there; **Rahman** presents an outlook from a largely populated vulnerable camp—the least developed countries; **Meléndez-Ortiz** runs very succinctly over develop-

Eighteen months after the governments in Doha reaffirmed their commitment to sustainable development we are still waiting to see this translated into concrete outcomes of the trade negotiations.

This debate is… about livelihoods in developing countries, the sustainable management of natural resources and ultimately eradicating hunger and poverty.

ments on the trade and environment linkage at the mid-term of this Doha Round; **Altieri** and **Nicholls** look at native seeds—the object of much international trade interest and biopiracy—and argue its importance for peasant agriculture. In a second article, they argue for rescuing organic agriculture from an industrial model of production and distribution commanded by large-scale trade and globalisation, in order to make it accessible again to peasant producers. **Borregaard** motivates negotiators to resolve one of the most daunting issues in the debate, posed by the inescapable fact that the way goods are processed or manufactured for trade determines its relevance to the environment and the sustainability of the resources involved; **Sugathan** follows with an analytical proposal to tackle standard-setting through differentiation; **Borregaaard** *et al.*, look at the intricacies of defining environmental goods and services and the potential interest of developing countries in the so-called triple-win purpose of liberalising trade in them; and, **Cameron** offers us an overview of the talks on reducing subsidies for fisheries with the dual aim of confronting diminishing fisheries stocks and levelling the commercial playing field—yet another daunting dossier in the negotiations.

Section II is a selection of writings dealing with the **operational relationship between regimes**. **Wijnstekers** and **Vasquez** take a forward-looking lens to reviewing the effectiveness of the most obvious trade and environment agreements, the Convention on International Trade in Endangered Species, thirty years into being and at a time now when it faces dealing with potentially or actively heavily-traded species. **Buck** tackles another challenge for the emerging order, applying socio-economic considerations to the establishment and development of regulatory and management frameworks to deal with the uncertainties and potentials of genetically-modified organisms. Two other *relatively novel* subjects of international governance in urgent and continuous need of enlightening thinking—climate change and traditional knowledge—are taken up by **Assunção** and **García** (exploring trade and investment implications of the Kyoto Protocol) and **Vivas-Eugui**, **Ruiz** and **Espinosa**, through a prescriptive reflection on possibilities of effective cooperation between concerned institutions.

Section III offers some **regional and national experiences of the articulation of trade and environment**. **Deere** makes the case for inserting environmental considerations in the emerging Western Hemispheric order under negotiation in the context of the Free Trade area of the Americas. **Jesdapipat** looks at the experience of China, Pakistan and Thailand with liberalization of services, from a sustainable human development perspective, and concludes with some positive thoughts on its impact on the environment. **Yang** examines the perspective of China in dealing with the trade and environment challenges now that it has embraced the WTO. **Benbrook** and **Baumuller**, and then **Fold** and **Jacobsen**, give critical marks to the handling in Argentina and Malaysia of the sustainability aspects of trade-induced agricultural production. The Argentinean case refers to expansion of genetically-modified soy in contrast with the Malaysian case of diverse type of farmers dealing with pepper production. **Perry** presents a refreshingly optimistic example of the use of bio-based technologies to improve the livelihoods of small holders while protecting agro-biodiversity in Colombia, and **Gallagher** synthesises for the uninformed reader, the intricacies of dealing with the unintended damages—current and potential—caused by undesirable non-indigenous species in economies and ecosystems, and does so by looking at the case of the United States of America.

We close in **Section IV** with a presentation by **Chouchena-Rojas**, Head of IUCN Policy, Biodiversity and International Agreements Unit, on the development of a strategic niche for IUCN in trade—the object of support for GETI's and IUCN's engagement.

The reader that follows is the product of many helping and supporting hands. Above all I would like to thank Marianne Jacobsen, the GETI focal point at ICTSD, for keeping GETI alive and coordinating development of this issue of Policy Matters, and the CENESTA and CEESP teams, especially Maryam Rahmanian and Jeyran Farvar, for their fine production skills. And not least, all my GETI colleagues and other guest writers for their involvement and friendship.
GETI seeks to fulfil the mandate entrusted to it at the 2000 Amman World Conservation Congress to: "help in defining the IUCN niche in trade and environment, focusing on providing practical information services to the IUCN membership on the interface between international trade rules and biodiversity." We offer this publication towards that end.

Ricardo Meléndez-Ortiz

Ricardo Meléndez-Ortiz (rmelendez@ictsd.ch) is the Chair of GETI, Vice Chair of CEESP and Executive Director of the International Centre for Trade & Sustainable Development (ICTSD).

The economics of globalization and sustainable development: perspectives for progress

Kevin Gallagher

The beginning of this millennium has witnessed an unprecedented opening of the global market place. The previous decade saw, at the global level, the transformation of the General Agreement on Tariffs and Trade (GATT) into a stronger and more and encompassing World Trade Organization (WTO). At the regional level, free trade and investment agreements were initiated in Europe, Asia, Africa, Latin America, and North America. Since 1990, the value of world trade has tripled, and flows of foreign direct investment have increased by 14 times.

Increased flows of international trade and investment are driving the phenomenon of "globalization" - the rapid growth and integration of markets, institutions and cultures. The speed of change is too fast for many people to make sense of. An escalating series of protests at the WTO meeting in Seattle in 1999, the Washington IMF/World Bank meetings in the spring of 2000, the July, 2001 G-8 meeting in Genoa and the Summit of the Americas meeting in Quebec in April 2001, illustrate the breadth and depth of concerns of a growing but ill-defined constituency about the potential impacts of an unfettered global marketplace. As the decade closed, for a moment the process paused. Efforts to extend global trade disciplines to the movement of capital, through a Multilateral Agreement on Investment, and to further broaden the role of the WTO met with resistance, and collapsed. Fundamental questions have been raised, and answers are being demanded.

For many environmentalists, each new initiative at promoting economic liberalisation raises questions about the potential impact on the earth's ecosystems, and on government's development choices. They see liberalisation as driving the demand for greater consumption of natural resources and as creating pressures to dismantle environmental regulation. A growing but disparate scholarly and popular literature has emerged to answer these questions.

There is an emerging consensus among economists about the relationship between trade and investment liberalisation and sustainable development. Without the proper environmental and social policies in place, economic integration can create new problems for nations working to develop their economies in a sustainable manner and can exacerbate existing problems. Unfortunately, in the context of countless other priorities demanded by the liberalisation process, many developing countries lack the capacity to institute the necessary social and environmental policies needed to facilitate and balance economic integration.

Economists have begun to develop a broad theoretical framework for analyzing the trade and sustainable development relationship. Economic integration has direct and indirect effects on environment and development. The indirect effects are those that need the most attention, and those that economists have focused most on. As an example of the former, a recent study of the increasing levels of transportation due to the North American Free Trade Agreement (NAFTA) found that NAFTA trade has directly contributed to air pollution in the five key transportation corridors that link North American commerce. Such pollution is estimated to be 3 to 11 percent of all mobile source nitrous oxide emissions in those regions, and 5 to 16 percent of all particulate matter emissions (NACEC, 2001b). A second direct effect is the introduction of alien invasive

species through trade. Again, the example of NAFTA is telling, where increased trade in alien-invasive species has been found to have "decreased biological diversity that cost North America millions of dollars" (NACEC, 2001a).

Economic integration can also have indirect effects on sustainable development. Economists have outlined four mechanisms whereby trade and investment liberalisation have indirect effects on environment and development: scale, composition, technique, and regulatory effects. Scale effects occur when liberalisation causes an expansion of economic activity. If the nature of that activity is unchanged but scale is growing, then pollution and resource depletion will increase along with output. Ever-increasing levels of carbon dioxide emissions due to the expansion of the world economy in the 1990s are often cited as examples of scale effects.

Composition effects occur when increased trade leads nations to specialise in the sectors where they enjoy a comparative advantage. When comparative advantage is derived from differences in regulatory stringency (i.e. the pollution-haven effect), then the composition effect of trade will exacerbate existing environmental and social problems in the countries with relatively lax regulations. If "dirty" or "socially irresponsible" industries begin to concentrate in nations with standards that are relatively weak, it is feared that a "race to the bottom," in standard-setting will occur.

By and large there has not been the broad shift of dirty production that many had predicted. However, there is a great deal of anecdotal and more recent empirical evidence that supports this hypothesis, thus not ruling out that pollution havens *could* occur. Others have suggested that perhaps we should be looking for pollution havens in the developed world, not the poorer nations. Economists such as James Boyce and Alejandro Nadal have shown how sustainable jute production in Bangladesh and corn production in Mexico have been jeopardized by globalization. In each instance, more sustainable practices - both socially and environmentally - in these two countries have been displaced because the higher pollution costs of synthetic fibres and pesticide-intensive agriculture were not internalised in the prices of their developed country trading partners. Such changes in Mexico may cause social displacement, dramatic losses in genetic diversity, higher levels of migration from rural areas, and increased pressure on land, aquifers, and forests.

Technique effects, or changes in resource extraction and production technologies, can potentially lead to a decline in pollution per unit of output. The liberalisation of trade and investment may encourage the transfer of cleaner technologies to developing countries. In 1990 foreign direct investment (FDI) flowing to the developing world was US$44 billion, but reached over US$650 billion in 1998 - while official development assistance continued to hover at close to US$50 billion annually. It is argued that these foreign investors often set up operations with modern technologies and management systems that are more advanced, and less polluting, than those that exist locally.

This possibility of an intriguing "win-win" solution has its limits. Of all FDI flows in 1998, only 25 percent went to the developing world. Moreover, three nations - China, Mexico, and Brazil - received almost half of the developing world's share. These figures suggest that many of the world's poorer nations will not benefit from the possible transfer of cleaner technologies through FDI. Moreover, massive capital flows to the developing countries are not a sustained guarantee; such flows have proven to be erratic and volatile over time. There is also evidence that sometimes FDI comes in the form of outdated, environmentally harmful technology.

The fourth mechanism whereby trade and investment liberalisation affect environment and development is referred to as the regula-

tory effect. For developing countries, economic integration can crowd out the creation of development-friendly policies and institutions. The World Bank has estimated that the average developing country needs to spend US$150 million to implement the requirements for just three WTO agreements - the equivalent of one year's development budget for the world's poorer nations. In a discussion of these results, economist Dani Rodrik notes that such commitments entail costly trade-offs in the realm of fiscal and human resources.

The economist Lyuba Zarsky discusses how economic integration leaves developing countries' social and environmental policies "stuck in the mud." She notes that the constraints of competitiveness hinder the capacity and willingness of nations (especially developing countries) to impose any cost on themselves or on domestic producers. Moreover, she adds that the introduced policies will be only those that are in force for primary competitors. For developed nations, she argues that competitiveness pressures create a "regulatory chill," whereby such nations fail in raising the level of standards for fear of capital flight to poorer nations with more lax standards.

This contrasts sharply with the broadly accepted argument that as economic liberalisation increases income levels, newly affluent citizens will demand a cleaner environment. David Vogel has noted that, in the case of the formation of the EU at least, trade liberalisation has strengthened the ability of nations to protect environmental and social standards. Importantly, however, he acknowledges that this did not happen automatically. According to Vogel's analysis of the EU, a positive regulatory effect can occur, when powerful (often correlating with wealthy) nations prod their trading partners to strengthen their policies in the integration process.

Some have argued that these effects (scale, composition, and technique) might combine to form an inverted U-shaped relationship between trade, environment, and development - the so-called environmental Kuznets curve in which first things get worse, then they get better. Early studies suggested the "turning point" at which economies would begin to get more environmentally benign was a per capita income of approximately US$ 5,000. These early studies were falsely generalised by policymakers who prescribed that the environment could wait, since trade-led economic growth would eventually (and naturally) result in environmental improvement.

More recent studies have called into question both the specific findings and the broad generalisations of this early work. Among a number of the limitations he identifies, Stern shows that such relationships were found to be true only for a limited number of pollutants and countries, namely localised air pollutants in OECD countries. Secondly, the range of "turning point" estimates are now thought to fall between US$ 5,000 and US$ 100,000, depending on the pollutant, indicating that environmental degradation could occur for decades before "turning" around - if it ever does.

The challenge is to link trade policy with the design of proper social and environmental policies, which will help trade facilitate sustainable development, not hinder it. There are a number of innovative ways for governments, industries, and citizens to successfully link social and environmental policy with trade policy.

Whether in the form of international treaties, national and local legislation, or "ecolabels" and voluntary standards, a growing number of scholars are beginning to argue that sustainable development policies can enhance competitiveness. Michael Porter has shown that regulation-inspired innovation to decrease environmental degradation can lead to reduced costs and therefore increased competitiveness. Environmental regulation can lure firms to seek ways of increasing resource productivity and

therefore reduce the costs of inputs. Such "innovation offsets" can exceed the costs of environmental compliance. Therefore, the firm leading in introducing cleaner technologies into the production process, may enjoy a "first-mover advantage" over those industries in the world economy continuing to use more traditional, dirtier production methods.

Rhys Jenkins (1998) has offered a synthesis of the Porter hypothesis, arguing that regulation is more likely to lead to "innovation offsets" under three conditions. Note that each condition requires a firm to have substantial market power in an industry in which there is substantial innovative activity. First, because cost reductions are more likely to occur where new clean technologies are developed rather than in industries that adopt end-of-pipe solutions, the level of R&D is likely to be a factor in determining the impact on competitiveness. Second, innovation offsets are more likely in industries or firms that have the ability to absorb environmental costs, which is most often determined by profit margins and firm size. Finally, they are more likely in firms that have the ability to pass increased costs on to consumers in the form of higher prices.

Creative policy does not have to be designed by government. Advocacy organizations have used certification processes to reward firms producing and trading goods with high social and environmental standards in the production processes. Through such efforts, the Forest Stewardship Council has certified 60 million acres of forest between 1995 and 2001, accounting for more than five percent of the world's working forests. Working on the demand side of the equation, advocacy groups set up market campaigns to pressure firms to buy these products. Indeed, some retail giants are now actually *seeking* to participate in these processes. When governments or citizens' groups recognise more sustainable practices in the developing world, there are avenues to gain market access for production processes that would be deemed inefficient by an unfettered marketplace.

Many private firms are also setting their own internal policies for environmental compliance. The automobile manufacturer, DaimlerChrysler, has begun requiring all of its suppliers, many of them from the developing world, to receive third-party environmental certifications. Many point to these efforts, in addition to those of citizens and governments, to urge developing countries to make fair trade and sustainable development a "rallying call."

Kevin Gallagher is a GETI Steering Committee member and research associate at the Global Development and Environment Institute at the Fletcher School of Law and Diplomacy and Tufts University.[1]

Notes

[1] This article is adapted from the introduction of International Trade and Sustainable Development, edited by the author and Jacob Werksman, and available through Earthscan Publications.

References

Boyce, J. " The Globalization of Market Failure," in *International Trade and Sustainable Development* (edited by Kevin P. Gallagher and Jacob Werksman). Earthscan, 2002.

Jenkins, R (1998) "Environmental Regulation and International Competitiveness: A Review of the Literature", INTECH Working Paper #9801, Maastricht, United Nations University.

NACEC, 2001b North American Commission for Environmental Cooperation, www.cec.org.

NACEC, 2001a North American Trade and Transportation Corridors: Environmental Impacts and Mitigation Strategies, Montreal, NACEC.

Nadal, A. (2000). *The Environmental and Social Impacts of Economic Liberalization on Corn Production in Mexico.* World Wide Fund for Nature, Oxfam.

Porter, M. "Towards a Reconception of the Environment-Competitiveness Relationship." in *International Trade and Sustainable Development* (edited by Kevin P. Gallagher and Jacob Werksman). Earthscan, 2002.

Rodrik, D. (1997). "Trading Illusions," *Foreign Policy*. May/June.

Vogel, D (1997) *Trading Up: Consumer and Environmental Regulation in a Global Economy,* Cambridge, Harvard University Press.

Zarsky, L. (2002). "Stuck in the Mud? Nation States, Globalization, and the Environment." in *International Trade and Sustainable Development* (edited by Kevin P. Gallagher and Jacob Werksman).

Macroeconomic policies and the environment

Alejandro Nadal

Introduction

Macroeconomic policy is not neutral when it comes to the environment. It can impose economic stagnation, aggravate inequality and put additional pressure on the environment. Or it can contribute to reckless growth patterns that rely on unsustainable natural resources usage rates. In other words, if macroeconomic policy allocates adequate resources to redress market failures, it may go a long way in promoting sustainable development. If, on the contrary it fails to address them, it may become one of the most powerful forces behind social disruption and environmental deterioration.

In the past few years, the environmental implications of trade liberalization, an important macroeconomic policy, have been recognized and have been the object of an important analytical effort. However, trade liberalization is only one aspect of macroeconomic policy-making. It coexists with policies that regulate the money supply and credit, as well as those that determine fiscal (tax and non tax) revenues and public expenditures. It also coexists with the elimination of controls on capital account transactions (at the international level) and domestic financial deregulation. These components of macroeconomic policy are the main determinants of growth or stagnation, investment and consumption patterns, as well as income and wealth distribution. In fact, the management of restructuring under an open economy regime is even more seriously affected by these policies than by tariff deregulation.[1]

Macroeconomics deals with such phenomena as aggregate supply and demand, growth, recessions, the rate of inflation and the rate of unemployment. It is also concerned with the external accounts of an economy, such as the trade balance and a country's balance of payments.[2] Macroeconomic policies affect all dimensions of an economy because they deal with strategic prices such as the exchange and interest rates, or the evolution of real wages. These key prices condition the choices of all economic agents, whether they operate in the sphere of financial and monetary variables (such as the stock exchange or banks) or in the so-called real sectors of an economy (agriculture, industry and services). Thus, through a complex chain of causality macroeconomic policies have critical implications for the state of the environment and a country's natural resource base.

However, the systematic study of the linkages between these policies and environmental variables has been rather neglected. This may be due to the fact that macroeconomic theory remains in a state of flux (Blanchard and Fischer 1989) after the long controversies detonated by the rational expectations critique of standard macroeconomic theory, the comeback of the new classical theories and the survival of the Keynesian paradigm in the more recent open economy models. Or, to put it in terms of a well known textbook (Dornbusch, Fisher and Startz 1998), macroeconomic theory is rather untidy at the edges. Unfortunately, the edges are rather broad and the untidiness sometimes dominates the entire field. If macroeconomic theory has difficulties solving its main theoretical problems, it is only natural that its impact on the environment remains obscured by the confusion at the more theoretical level.

The restrictions on credit, and the drastic reduction (and sometimes downright withdrawal) of State support for rural producers, aggravate the plight of entire populations and induce them to increase pressure on the environment.

This paper provides an overview of how the two main components of macroeconomic governance, monetary and fiscal policies, may affect the environment. The analysis takes into consideration the context of deep financial liberalization in which macroeconomic policy design and implementation takes place. The paper's final section is devoted to some concluding remarks about future avenues for research.[3]

Monetary Policy and Financial Deregulation

In 1973 the world saw the demise of the Bretton Woods system and its system of fixed exchange rates, which allowed countries to pursue full employment policy objectives. Spurred by these policies, growth rates increased without parallel in economic history during the period 1945-1965, supporting rapid capital accumulation in the world economy. But the development of the Eurodollar market across the North Atlantic marked the beginning of enormous pressures on fixed parities (especially on the dollar price of gold) and led to abandoning the Bretton Woods system and to the opening of financial markets. Unpredictable changes in exchange rates became everyday events.

Under the regime of fixed parities, exchange rate risk was squarely supported by the public sector. When this system disappeared, the risk stemming from exchange rate adjustments had to be endured by private sector agents.[4] Thus, although flexible exchange rates brought about new opportunities for profits, they were accompanied by new hazards. In response new financial instruments had to be created and regulatory barriers removed.

The move towards international and domestic financial deregulation was actively promoted by international financial institutions created by the Bretton Woods accords, the International Monetary Fund and the World Bank. As a result of this process, capital flows increased exponentially. In 1977 daily cross border foreign exchange trading was 18 billion dollars; in 1989 these daily transactions had increased to 590 billion dollars. By 2000 the amount of daily transactions represented a staggering 1.6 trillion dollars.[5]

Once financial deregulation had taken a firm hold, it became customary to consider that monetary policy had to adopt a passive posture. The relevant policy purpose and *raison d'être* of monetary policy was macroeconomic stability, especially in so far as the evolution of the general price level (inflation) was concerned. At the international and domestic levels, the rationale of financial deregulation was that interest rates would drop, investment would increase, and greater efficiency in resource allocation would be attained since capital would be directed to higher productivity sectors and long term investments. Growth would follow as the allocative powers of markets were unleashed in a context of financial stability.

In this context, the main (even the sole) objective of monetary policy was controlling inflationary pressures. The dominant approach in anti-inflationary policies was to restrict aggregate demand, and for monetary policy, this involved in most contexts restricting the money supply and curtailing credit. Another instrument used to limit aggregate demand was to contain real wages: in many developing countries where stabilization and structural adjustment programs were imposed as a result of negotiations with the IMF, indexing wages to expected (but not actual) inflation led to significant losses in real wages.[6]

Frequently, inflation was controlled at the cost of reducing growth, augmenting unemployment and inequality.[7] The combination of inadequate growth rates and the unfavorable evolution of real wages led to increased poverty levels. In Latin America, this explains why up to sixty percent of the population does not meet minimum calorie and protein requirements. In Mexico, official figures show that more than fifty percent of the population lives below the poverty line. In other regions of the world, in Africa and Asia, a majority of the population lives in dismal conditions and suffers chronic undernourishment.

Under these conditions, incentives increasing natural resources usage rates become a matter of life or death. This puts pressure on water bodies and aquifers, forests, grasslands, and genetic resources, and is a complex phenomenon. In many regions, as poverty and migration undermine the social tissue and weaken collective resource management institutions, such things as overgrazing and deforestation worsen. In other cases, poverty can also degrade the capacity of producers to develop and manage their crop genetic resources. The restrictions on credit, and the drastic reduction (and sometimes downright withdrawal) of State support for rural producers, both stemming from macroeconomic policies,

aggravate the plight of entire populations and induce them to increase pressure on the environment.

Fiscal policy and the environment

From the viewpoint of fiscal revenues and public expenditure, the era of deregulated capital flows and trade liberalization posed new challenges. According to the dominant view in macroeconomic policy-making, fiscal deficits need minimization in order to attain macroeconomic stability and growth. This line of thought assumes that if the fiscal deficit is out of control, the government must finance it through new emissions of fresh money or through the domestic or international capital markets with negative economic effects.

The standard wisdom in macroeconomics is that if the deficit is monetized (i.e., if the central bank simply emits more bank notes to cover the deficit), inflationary pressures will ensue. Although this is not always the case, the accepted view is that inflation is always caused by the expansion of the money supply in response to fiscal needs. However, fiscal deficits can be a powerful tool for financing the launching of State-owned firms, or they can serve to develop infrastructure and productive R&D and other technology-intensive initiatives. Although these investments do not necessarily lead to greater inflation, the slogan became widely accepted.

If, on the other hand, the government decides to finance the deficit in the domestic capital market this puts pressure on the interest rate. In this case, when the deficit is large, absorbing credit from the capital market contributes to interest rate increments and a crowding out process in which resources are moved away from productive investments. The process leads to slower growth and greater inefficiency. Once again, this is only true in the case of full employment; where resources are not fully utilized, increased fiscal expenditures can augment income and the level of savings. The expansion in savings permits financing larger fiscal deficits without crowding out the private sector. In spite of this important caveat, the easy slogan against fiscal deficits has been widely accepted as a scientific truth.

From the point of view of revenues, the redistributive implications of fiscal policy are also of strategic importance. However, the neoliberal macroeconomic policy package was completed with the view that tax reductions were desirable to spur investment. Although this naïve view (inherited from supply-side economics) has not fulfilled its objectives, it has remained in place as a proven recipe. Typically, the IMF and the World Bank have recommended developing countries to rely more on taxes on consumption (such as the value added tax). Indirect taxes treat with equal pressure unequal income and wealth strata, increasing inequity. The combination with falling real wages is a powerful generator of inequality and poverty.

Macroeconomic policy for open economies during the globalization of the economy (under what has been called the Washington Consensus) was supposed to lead the world economy to greater stability, growth and efficiency gains.

Since the central policy objective was the elimination of fiscal deficits, and raising direct (income) taxes was discouraged, the adjustment had to come through cuts in public expenditures. Fiscal policy is probably the most important instrument for State-led development processes, but reducing expenditures curtails this possibility. Social investment in food security, health, housing and education is of critical importance in redressing inequality and market failures, as well as for enhancing human capital. Fiscal expenditures are also crucial in the realm of transport and telecommunications infrastructure. Both social welfare and competitiveness are at stake here.

At a time where State support is required to meet the challenges of structural adjustment in the context of deep financial and trade deregulation, restricting public expenditures is not the best policy. In many instances, trade liberalization has been rapidly implemented without the required investments ensuring an orderly transition to new economic structures. A good example is found in trade liberalization in Mexico's agricultural sector, where investments were needed to redress negative income and wealth effects. But given the fiscal imperatives, the investments in

hydro-agricultural infrastructure promised during the NAFTA negotiations never materialized. As a result, the loss of value in land assets of agricultural producers was not compensated and the comparative advantages that were supposed to exist could not be exploited. The objectives of a restrictive fiscal policy led to greater rural poverty and the structural weaknesses of the sector have worsened. Poverty in the rural sector has led to greater pressure on land, water and genetic resources.[8]

Concluding Remarks

Macroeconomic policy for open economies during the globalization of the economy (under what has been called the Washington Consensus) was supposed to lead the world economy to greater stability, growth and efficiency gains. Following the Kuznets curve hypothesis, this would lead to a significant improvement in environmental health. However, the macroeconomic policy mix associated with financial and trade liberalization has not offered good results.

Greater volatility in financial markets has dominated the economic landscape as international financial crises followed in rapid succession. The really bad news was that by the end of the nineties, it became clear that greater volatility had not been the price for improved economic performance in terms of growth. Growth rates were slower in the entire world and by regions during the halcyon days of the Washington Consensus. For the world economy, GDP growth was 4.9% between 1950-1973, then slowed down to 3% between 1973 and1992, and to 2.5% between 1991-1998. The current recession will bring this rate to lower levels.

Growth rates in Western Europe were 4.7% in 1950-1973 and 2.2% in 1973-1992. In Latin America, GDP growth attained a rate of 5.3% en 1950-1973, and this fell to 2.8% in 1973-1992. The rest of the decade saw extremely sluggish growth and a drop in per capita GDP in most of the region. In the case of Africa, growth reached 4.4% during 1950-1973, and then fell to 2.8% in 1973-1992.[9]

Financial liberalization was supposed to promote productive investment. However, real gross domestic capital formation rates actually decreased during the period in which financial liberalization was fully implemented. At the world level, real gross domestic investment dropped from 6% in 1966-1973 to 2.2% in 1974-1979. This rate increased marginally to 2.8% in 1980-1989, and then dropped to 2.7% in the period 1990-1996. It dropped to even lower levels in the years preceding the current recession. The OECD countries did not escape this syndrome: the corresponding rates dropped from an annual average of 6.3% in 1960-1973 to 1.5% between 1973-1979. The improvement in the eighties (with a 2.4% rate) was not enough to recover the levels of the sixties. Furthermore, between 1989 and 1998, the rate dropped to 1.7%.

We should not expect much in terms of economic good health from this model of open economy.

Financial liberalization was also meant to lead to a decrease in real interest rates. Once again, this did not happen: in the G-7 countries, average long term interest rates were 2.6% in 1959-1970, 0.4% in 1971-1982, 5.6% in 1982-1989, and 4% in 1990-1997.

Finally, as a result of this poor performance, unemployment rates increased under the regime of deep financial liberalization. For the OECD countries, during the period 1960-1973 the average unemployment rate was 3.2%. This rate increased to 5% for 1973-1979 and to 7.4% for 1979-2000. At the same time, the rate of labor productivity fell from 4.6% during 1960-1973 to 1.7% between 1973 and 1997.

Can the dominant model of macroeconomic policy making in the context of financial deregulation work in the future and contribute to sustainable development? This remains an open question. From the purely economic standpoint, the model appears to have several important built-in contradictions between policy objectives and instruments.[10] For example, although flexible exchange rates are considered a key element in balancing external economic relations, there are built-in rigidities that prevent timely exchange rate adjustments (for example, capital flows and anti-inflationary objectives lead typically to exchange rate overvaluations). Another

example is provided by the need to sterilize some of the incoming capital so that money supply remains stable; while this helps reduce inflationary pressures, it distorts the role of the interest rate as a key adjustment variable governing capital flows. These and other contradictions affect the economic performance of the entire policy package. The verdict is that we should not expect much in terms of economic good health from this model of open economy. Sustainable development will not emerge from the economic model based on financial deregulation and restrictive macroeconomic postures.

Alejandro Nadal is a member of the CEESP and the GETI Steering Committee. Dr. Nadal is Professor of Economics and Senior Fellow at the Center for Economic Studies and Coordinator of the Science and Technology Program at El Colegio de México.

Notes

[1] This is not to say that trade policies are unimportant, but these other macroeconomic policies condition the coverage and rate of trade liberalization and not the other way around. One indication of the above is that trade liberalization has been less of an engine of globalization than financial flows. One of the myths of globalization is that trade has increased as a proportion of GDP. This is not so for the world as a whole. Consider the following data. And it is also true for the groups of countries.

[2] Macroeconomic policies deal with such variables as monetary aggregates and fiscal revenues and expenditures, the exchange rate and the wage rate, as well as regulatory aspects of the financial (banking and non banking) sectors.

[3] In this paper I do not examine two issues important from the macroeconomic perspective, the so-called Kuznets curve hypothesis relating per capita income and environmental health, and the development of green national accounting. Both themes already attract considerable attention as the growing body of literature attests. The Kuznets curve hypothesis is a very general device and must always be approached with caution. A limitation that has not been well analyzed in the literature is that as income improves in a country, domestic environmental indicators may very well improve as the hypothesis predicts. However, the environmental footprint of that country's multinational firms in other parts of the world can leave behind widespread environmental damages. The classic reference here is Grossman and Krueger (1995), and a recent contribution is Hecht (2000).

[4] See Eatwell and Taylor (2000) and Tirole (2002). The trend towards globalized, highly interdependent financial markets owes more to the forces of speculative capital and the move towards deregulation than to the innovations in telecommunications and transportation that the naïve view of globalization sometimes uses to explain the shaping of the economic landscape during the last twenty years.

[5] The data come from the Annual Reports of the Bank for International Settlements (BIS). The ratio of foreign exchange trading to world trade was 2.4/1 in 1977. By the end of the nineties, this ratio was 70/1.

[6] The anti-inflation toolbox included the overvaluation of the exchange rate, a point to which we return below.

[7] The flow of incoming capital led in most cases to overvaluations of the exchange rate (as the demand for instruments denominated in the domestic currency increased). In turn, this helped reduce inflationary pressures, albeit at the cost of further deteriorating the trade balance (as exports and imports became more expensive and cheaper, respectively).

[8] For a detailed analysis of how this is leading to the loss of corn genetic resources in Mexico (the center of origin of *Zea mays*), see Nadal (2000). Another example of how the same fiscal policy restrictions led to overexploitation of natural resources in Mexico can be found in oil production. Since 1982, crude production and exports became one of the main sources of fiscal revenues. Revenues accruing to PEMEX were siphoned systematically to meet the government's needs to service internal and external debt. This resulted in a marked decline in investments needed to modernize machinery and equipment, as well as for exploration. Reserves dropped as usage rates increased dramatically and there was greater stress on the company's performance. All of this led to increased carelessness in extractive activities and greater environmental damages in the country's main oil producing regions.

[9] Only Asia was able reach higher growth rates during the nineties than in the previous twenty years (6% versus 5%). But Asian countries maintained an approach of State intervention in the development strategy.

[10] For a detailed analysis of these contradictions see Nadal (2001).

References

Blanchard, Olivier Jean, and Stanley Fischer (1989)

Lectures on Macroeconomics, Cambridge, Massachusetts: The MIT Press. [650]

Bradford, David F., Rebecca Schleickert and Stephen H. Shore (2000)

"The Environmental Kuznets Curve: Exploring a Fresh Specification", NBER Working Paper Series, Working Paper 8001, November. [40]

Eatwell, John and Lance Taylor (2000)

Global Finance at Risk. The Case for International Regulation. New York: The New Press. [258]

Grossman, Gene M., and Alan Krueger (1995)

"Economic Growth and the Environment", Quarterly Journal of Economics (CX-2) May. [353-377]

Hecht, Joy E. (2000)

"Lessons Learned from Environmental Accounting: Findings from Nine Case Studies", Washington, D.C.: IUCN, The World Conservation Union. [vi + 42] (Available in .pdf format at www.iucn.org/places/usa.

Nadal, Alejandro (2000)

The Social and Environmental Consequences of Trade Liberalization in Mexico's Corn Sector. Gland: WWF, WorldWide Fund for Nature. [xii + 130]

—- (2001)

"Contradicciones del modelo de economía abierta", in Calva, J.L. (editor), Desarrollo sustentable con equidad. México: Juan Pablos Editores. [83-112]

Tirole, Jean (2992)

Financial Crises, Liquidity, and the International Monetary

System. Princeton: Princeton University Press. [151]

Interlinkages between trade, investment, poverty and biodiversity: perspectives and concerns of the least developed countries

Atiq Rahman

The greatest challenge facing the planet today is the rampant poverty of at least one third of the global population. After sixty years of development efforts the world has still not seen a significant reduction in the number of poor. The 49 countries termed as Least Developed Countries (LDC) hold a large amount of the worlds poorest, which mainly base their livelihoods on biological resources. Many of them live in non-formal economies and a large part of their existence, activities and transactions often do not enter magnetised formal economies. However, the fact that the poor living in informal economies often not benefit from changes in the formal economy, does not immune them from the traumas and shocks of the formal economy. The emerging global regimes, particularly being promoted by and through the World Trade Organisation (WTO), face the challenge of threatening many of the practices of the poor, particularly farmers who depend on biological and natural resources for a living.

The interlinkages between trade, investment, poverty and biodiversity are multiple, complex and very crucial in the unequal but globalised world. The world has seen fundamental but pervasive changes in the last 50 years. The trends toward globalisation have been driven in part by new technologies and in part by reduced barriers to international trade or trade liberalisation and investment flows. However, globalisation trends have increased global inequality; and the benefits of growth have been unevenly spread and skewed in favour of the developed northern countries. Further, in many cases trade and investment destructed the ecology, biodiversity and livelihood of millions of poor particularly in the least developed and developing southern countries. Linkages between trade policy and the conservation or loss of biological resources proliferate in an increasingly global marketplace. International trade policies can undermine national and international conservation laws and policies. Trade liberalisation can also increase exploitation of natural resources and exacerbate the associated negative impacts on biodiversity. Despite this, a growing number of developing countries and Least Developed Countries (LDCs) look to trade and investment as a central part of their development strategies (IIED and DFID, 2002; UNCTAD, 1999; IISD and UNEP, 2000).

Biodiversity makes up the structure of the ecosystems and habitats that support essential living resources, including wildlife, fisheries and forests. It helps provide for basic human needs such as food, shelter, and medicine. It composes ecosystems that maintain oxygen in the air, enrich the soil, purify the water, protect against flood and storm damage and regulate climate. Biodiversity also has recreational, cultural, spiritual and aesthetic values. Maintaining biodiversity and access to it, while obviously a planetary public good, is crucial for the poor. The World Health Organisation (WHO) has estimated that 80 percent of Africa's population uses traditional medicine, derived from local plant varieties, for their primary health needs. Wild plants, in field and forest, make a significant contribution to the diet of many poor communities. In many developing countries, poor communities are able to draw at least half their food from forest products, and consequently have never faced famine (Koziell I. et al., 2001).

The WSSD in Johannesburg recognises that globalisation, open market and interdependence among the regions and countries offer many opportunities and challenges for trade, investment, poverty alleviation and environmental conservation. Serious challenges remain, including financial crisis, insecurity, poverty, exclusion, inequality within and among the societies and regions. Many optimistic commentators saw the WSSD outcomes as a strong signal to governments to integrate sustainable development considerations into WTO negotiations. Others, however, noted that the conference was unlikely

to have a significant influence on the Doha Round as the implementation plan essentially repeated commitments made at the WTO Ministerial Conference in Doha. Nevertheless, with the recognition of trade as a 'means' of implementing a wider sustainable development objective, the trade agenda has now become more political and better integrated in the global agenda (BRIDGES, Post Johannesburg Summit Issue, September 2002).

The question is how trade could be put to work in favour of social development, poverty alleviation, and environmental conservation than merely economic growth? How can negative environmental and social impacts from trade and investment be minimised and positive effects be encouraged through enhancing poverty alleviation, the poor's rights and conservation efforts particularly in the southern countries?

Linkages between Trade, Poverty, Environment and Biodiversity

Trade and environment are directly interrelated, because all economic activities are based on environmental resources, economic and social capitals. It is the basis for all primary input i.e., metal, mineral, food, forest, and fisheries and for the energy to process them. Due to weak legal and institutional structure and lack of good governance, unfair trade and investment in LDCs over-exploit the natural resources base and destruct the bio-resources in those countries.

The emerging global market forces, technological innovation and commercial interest encourage mono-cropping. High technical input and huge investment, supported by commercial interest in agriculture and other farm level production have often destroyed local knowledge and local resources management practices. This process seriously affected the natural resources bases and degraded bio-resources. This process also dislocated millions of marginal and poor people from their traditional occupation and thus affected their livelihood resulting in landlessness, poverty and impoverishment. Rapid expansion of shrimp farming and huge investment in shrimp sector by the non- resident rich and power elites in the coastal region of Bangladesh is one of the classical examples of such unsustainable trade and investment regimes.

Unfortunately, most of the multinationals and global financial institutions such as the World Bank, the International Monetary Fund (IMF), or the Asian Development Bank (ADB), have very often supported the commercial production and high technologies. As a result, a small section of people, mainly big merchants, local agents, few government officials, who control the production, processing and exporting of goods and services have been greatly benefited. The process not only disadvantaged the poor in terms of their loss of livelihood and reduced access to natural resources and productive assets, but also eroded their capacity and skills in relation to gaining sustainable livelihood, resources management and conservation of biodiversity. Plantation of exotic tree species in the Madhupur forest in Bangladesh, dislocating indigenous people could be an example of such bad investment, where few corrupt government officials and local power elites played a key role in an ADB supported forestry programme.

Population, Poverty, Biodiversity and Development linkages

There are at least two major issues related to the population, environment and development nexus. In the first instance, one can reasonably ask if population pressures have not added to the stress on natural resources prompted their overuse and a subsequent decline in the productivity of those resources, just at a time when increased demand for development and higher levels of production has grown, thereby exacerbating the problem of overuse and depletion of a finite resource base. Secondly, are there not definite limits or at least natural resource related constraints to continue population growth and development? Even if the answer is yes to this question, the socio-political and management realities make it very difficult to contain and manage population growth in most part of the Asia Pacific region.

The linkages between population, poverty, biodiversity and development must be considered in the context of the people and available natural resources. In the first case, it is evident that the extremely high population density of a country such as Bangladesh has contributed to the intense use of forests, fisheries and to a certain extent even soil and water resources. A majority of households in many parts of Asia pacific region are already without sufficient areas of land to raise enough food to meet their needs. For example fuel wood stocks have been depleted and diminished to the point where over 84 percent of the total domestic energy requirements must be met by crop residues and dung, only 16 percent are met by fuel wood. Particularly, when considering the projected population levels of the year 2000 and beyond, it does appear that population density has clearly outstripped the potential for sustained domestic energy consumption from existing sources of supply.

Global Picture of Poverty, Poor's Livelihood and Biodiversity

In September 2002, when the world leaders gathered in Johannesburg for the World Summit on Sustainable Development (WSSD), the total wealth of the planet was never any greater. Simultaneously, the number of people below poverty line and the extent of environmental degradation facing them were never greater. However, the majority of the world poor live in LDCs and developing countries. The WSSD Plan of Implementation (2002) and the UN Millennium Declaration have emphasised poverty alleviation as a cross-cutting issue. The stated goal is to "halve, by the year 2015, the proportion of the world's poor whose income is less than US$1 a day and the proportion of people who suffer from hunger and, by the same date, to halve the proportion of people without access to safe drinking water". The unfortunate corollary is that even in its intentions and declarations, the global community has condemned half of the global poor to live in poverty even after 2015 (Rahman A, in UPDATE, 4/2002).

According to a recent World Bank report, more than 23 percent of the world population live in extreme poverty and the number of poor people remained almost constant in the past decade (Poverty Net, 2002). The majority of poor people live in Sub-Saharan Africa, South Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean. The poor depend on natural resources to manage their livelihood portfolios. Any degradation and loss of access to natural resources deprives them of their livelihood potential. Despite all the technological and economic achievements, there are over one billion people who live on less than US$ 1 a day. Another billion live on less than US$ 2 a day. These are the people who are most vulnerable to natural disasters, health hazards and economic downturn.

The physical environment provides services to the population. People develop specific social systems, institutions and technologies to interact with the environment to gain livelihood supports. The absence or denial of these basic environmental services constitutes absolute poverty. Unequal access to basic necessities and other environmental resources is the foundation of relative poverty. In addition to being excluded from access to basic resources, the poor are also most likely to be subjected to the degrading or polluting impacts of the consumption patterns of others. Where local sustainable patterns of agriculture are diverted to monoculture for the global market, the breaking of traditional fertility cycles is associated with negative changes in social structures and economic relationships. The poor have been systematically supplying their share of resources for environmental and global benefits but are continually disadvantaged due to structured societal disempowerment and are thus being forced to move towards more environmentally vulnerable areas.

Why Biodiversity is so important?

Society's growing consumption of resources and increasing populations have led to a rapid loss of biodiversity, an erosion of the earth's natural systems capacity to provide essential goods and services on which human communities depend. Human activities have raised the rate of extinction to 1,000 times its usual rate. If this

continues, the Earth will experience the sixth great wave of extinctions in billions of years of history. Already, an estimated two of every three bird species are in decline worldwide, one in every eight plant species is endangered or threatened, and one-quarter of mammals, one-quarter of amphibians and one-fifth of reptiles are endangered or vulnerable. Also in crisis are forests and fisheries, which are essential biological resources and integral parts of the earth's living ecosystems. Forests are home to 50-90 percent of terrestrial species, provide ecosystem services such as carbon storage and flood prevention, and are critical resources for many linguistically and culturally diverse societies and millions of indigenous people. However deforestation continues. Over-fishing, destructive fishing techniques and other human activities have also severely jeopardized the health of many of the world's fish stocks along with associated marine species and ecosystems. Over one billion people, mostly in developing countries, depend on fish as their primary source of animal protein.

There is often confusion as to why biodiversity has become a focus of attention through the establishment of the Convention on Biological Diversity. Why not simply pay attention to natural resources – surely that is enough? But biodiversity is so much more – it encompasses all living natural resources, and harbours the processes and interactions within and between them, and the ecosystems within which they fall. Thus biodiversity forces a more holistic and more comprehensive thinking about natural and agricultural systems, than does a singular focus on natural resources management.

There are also other reasons why biodiversity should not be overlooked. For instance biodiversity in any one location, at any specific time provides a range of resources and services that provide people with *choice.* Choice is important because it gives people options. For instance, as biodiversity provides 'replacements', it allows resource users to switch from one resource to another, if the first becomes scare, or if market fluctuations demand changes. Access to diverse species enables the diversification of livelihood sources through for instance planting multiple crops, staggering food production throughout the year, or engaging in alternative income-generating activities, such as collection of non-timber forest products. The availability of diverse resources also allows different genders, cultural or age groups to engage and benefit from different activities. This is especially important as it can help reduce competition or conflict that might otherwise occur if each group had to compete for the same resources – as is indeed the case in many parts of the world where diversity and the choices it supports have become scarce. There are many other notable benefits that biodiversity offers – and some are also highly under-appreciated by the public as well as policy-makers such as the ecosystem services that sustain society itself.

Food Security

Human society is highly dependent on genetic resources, including those from wild and semi-domesticated sources, for the productivity of its agriculture, livestock, and fisheries. These resources also provide communities with an adaptation capacity so varieties can be created that best cope with changing local conditions. Biodiversity is also a source of alternative food products during periods of scarcity.

Health Improvements

Biodiversity is a source of the invaluable information and raw materials that underpin medicinal and health care systems, both for the 'informal' sector which meets local health care needs of some 60 percent of the world's people, and the 'formal' sector which derives a majority of the world's modern drugs from biodiversity. Poor people also suffer most when water and air are scarce or polluted as well as from diseases associated with disrupted ecosystems. Further, a variety of food sources support better nutrition and therefore improved health.

Reduced Vulnerability

Poor people are most often exposed to, and least prepared to cope with, unpredictable

events such as fluctuations in access to food and other resources, and to environmental shocks and risks. Ecosystem degradation exacerbates the frequency and impact of droughts, floods, landslides, forest fires and other natural hazards, and can intensify competition and the potential for conflict over access to shared resources such as food and water.

Ecosystem Services

Forests, wetlands, coastal ecosystems, provide essential services that contribute in numerous ways to the productive activities of rural and urban poor people, including through the generation of water, cycling of nutrients, replenishment of soil fertility, prevention of erosion, etc. These services are public goods, providing indirect values that are not traded in the market place but are vital to the livelihoods of all people (Koziell I et at., 2001).

Biodiversity and Intellectual Property in Tropical and Sub-tropical Countries

The Asia -Pacific is the largest of all the biogeographic regions and includes about 35 percent of the world's total land surface. Forests and wooded land of the region comprise about 17.7 percent of the world's forest cover. Asia holds 30,629,000 hectares of resource and anthropological reserves or 8.5 percent of the world's 358,840,000 hectares. Its coastline stretches to about 163,609 kilometers which is 28 percent of the world's total. The combination of high population density and growth, rapid industrialisation and urbanisation, and poverty has taken its toll on the region's natural resource base, accelerated environmental degradation and led to a substantial increase in pollution. Other significant environmental problems include land degradation caused by deforestation and inappropriate agricultural practices, water loss, and mangrove clearance for aquaculture.

Agricultural plants in the South, developed by farmers over thousands of years, have been bred and adapted to suit location conditions. For example, of the hundreds varieties of corn grown in Mexico, each has unique characteristics and features: some more adaptable to frost or drought, other grow in higher altitudes, some produce late in the season, others early. The free exchange of this knowledge, as well as local sale and exchange of seeds, has been an essential aspect of food security among the poor. In the developing word, only 10 per cent of seed is bought commercially, and many poor farmers buy seed only every five years. Thus it is usually the rural poor in developing countries - indigenous peoples and resource poor farmers who know most about age-old, time tested seed varieties, medicinal plants and other useful biological resources, whether cultivated or wild. Research has shown that both men and women play important and distinct roles in maintaining biodiversity. In many countries, women do much of the seed saving and seed selection, particularly for food crops (Sreenivasan G, 2002).

While geography and biology favour the South in matters of biodiversity, the agro and pharmaceutical corporations that require knowledge of and access to genetic resources for 'product development' are overwhelmingly based in the North. One of the chief ways corporations have tried to secure this access is by extending the use of intellectual property rights (IPRs) into the realm of living things. Intellectual property rights include patents, copyrights and trademarks, whose purpose is to ensure that creators of intellectual property receive adequate recognition and 'protection' in the market place to ensure returns for their investment in research and development. The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) regulates and establishes rules for the use and trade of intellectual property rights.

Many developing countries and LDCs consider the TRIPs Agreement unbalanced, as they accuse it of favouring developed countries and transnational corporations. At the WSSD the representatives from LDCs and NGOs criticised the TRIPs agreement on the ground that it imposes costs on developing countries in the form of more expensive agricultural input, drugs and foreign technologies without producing long-term gains in areas like trade and invest-

ment to offset these costs (BRIDGES, September 2002).

The current WTO rules are influenced too heavily by the powerful trading nations, and multinationals and trade liberalisation has not yet benefited the LDCs. The TRIPs agreement obliges countries to provide patent protection for inventions. Developing countries had until the year 2000 to bring legislation into place to assure this; to least developed countries the deadline is the end of 2005. Article 27.3(b) of the TRIPS agreement requires countries to provide patent protection for certain lower life forms: micro organisms, non-biological and micro-biological processes. It allows countries to exempt from patentability higher life forms of plants and animals, as well as "essentially biological processes for the production of plants or animals". But the article requires that if patent protection is not afforded for plant varieties, some other "effective" specially designed (sui generis) system for IPRs must be provided, or some combination of a patent and a sui generis system. Thus, the TRIPS agreement does not provide any guarantee or safeguard ensuring that the poor share in billions of dollars that may be made from the South's biological resources or the application of traditional knowledge. Most importantly, TRIPs reduces the farmers access and control over agricultural resources including seeds, which are essential for their traditional food production.

The Trade Scenario in LDCs

LDCs are identified as the weakest segment of the international community in terms of economic and social development. The precarious condition of these countries is manifested through the abject poverty of their people as well as the inadequate economic, institutional and human resources. The countries are particularly ill equipped to develop their domestic economies and to ensure an adequate standard of living for their populations. These economies are also acutely vulnerable to external shocks and natural disasters. Currently, there are 49 LDCs (UNCTAD/LDC'99) as against 42 about a decade ago. The LDCs always suffer from trade imbalance. They export low price primary commodities based on natural resources and import high price finished product from the industrialised countries.

In today's global competitive environment, LDCs are at a disadvantage because the competitive edge is determined, more than anything else, by access to knowledge in both production and marketing. Thus natural resource endowments, cheap labour or other aspects of static comparative advantage have now become subordinated to the knowledge-based dynamic comparative advantage. Knowledge is the foundation for production innovation, which in turn largely determines the competitiveness of products. For LDCs, the major elements of the structural weaknesses that underlie their poor productive capacities and competitiveness are supply-side constraints, including:

- the lack of linkages within and between productive, service and infrastructural sectors, which limits the potential for specialisation and gain in productivity;
- insufficiently developed human resources, which lead to a scarcity of managerial, entrepreneurial and technical skills;
- shortcomings in production units related to weak technological capability and adaptive research;
- deficiencies in the physical infrastructure (e.g. transport, power and storage facilities) and such other support services as telecommunications, financial services and other technical support service institutions, particularly for making input and outputs; and
- the inability of LDC economies to generate adequate resources for investing in all alleviating the above constraints in order to enhance productive capacity. The expected levels of financial and technical support from the international community that were meant to complement domestic resources have, in turn, not materialised;
- lack of proper governance structures, institutional weakness, poor accountability, trans-

parency in decision making have thwarted the economic growth and welfare of the people;

- lack of proper integration of natural resource management and environmental considerations into development planning has threatened many of the natural resource sectors including pollution, poor public health and low sustainable development and human development indicator.

Impact of Trade Liberalisation and Globalisation in LDCs

LDCs have generally failed to derive appropriate benefits from the ongoing processes of liberalisation and globalisation. The social tensions and sometimes resultant violence which afflict several LDCs are caused, in part at least, because of poor governance and by increasing deprivation and inequality. The economic structures of these countries are dualistic and poorly integrated, and development interventions quite often bypass the majority of the people who still derive a livelihood from low-productivity traditional sectors.

Most of the founding fathers of the independence movements and important leaders of Asia Pacific LDCs failed to fulfil their high and lofty promises to their respective nations and have in some cases no capacity to govern effectively. This costs the people of Asia Pacific LDCs serious deprivation resulting in poor quality of life and physical and material insecurity. Despite different stages of democratisation, the suffering, rights and concerns of the people are still not the highest on the agenda of the governments of the day. Power often concentrated to the elite rather than good governance is often the motivating and moving spirit of the politics of many of these countries.

The problem with LDC exports as a source of investible resources is that these countries' relative export prices are subject to a secular downwards trend. Therefore, a greater export drive on the part of LDCs, within the framework of established concentrated production structures tends to aggravate the problem. This means that LDCs are trapped in a vicious circle whereby the existing production structure can generate little diversification and export earnings in the absence of new investment. But this requires substantial amounts of foreign exchange and imports. Export growth is thus constrained by the low availability of imports, which cannot be increased because of inadequate export earnings and capital inflows. Furthermore, the generally low GDS rates mean that the capacity of LDCs as a whole to mobilise internal resources for development is extremely low.

Conclusion: Searching for Solutions and Establishing Positive Linkages

The above analysis leads to the following solutions;

- Trade should create wealth and well-being for people
- Trade and investment to be integrated in development strategies
- Sustainable trade and investment can reduce poverty
- New investment for enhancing social capital and biodiversity conservation

The UNCED Agenda 21 suggested making trade and environment mutually supportive for achieving sustainable development for the global community. The Agenda 21 stresses that in order to accelerate economic growth, poverty eradication and environmental protection - particularly in developing countries - there is a need to establish macroeconomic conditions and to create institutions both in developed and developing countries. Other Multilateral Environment Agreements such as the Convention on Biological Diversity (CBD) also highlighted the rights of the owners and users of biodiversity, who are mostly poor. Recent global initiatives lack concrete commitments on finance and clear timeframe. Many of the so-called partnerships emerging out of WSSD are mostly old, ineffective, failed or limited initiatives of the private organisations and interna-

tional agencies repackaging in WSSD language.

The WSSD Plan of Implementation calls on countries to support the creation and explanation of domestic and international markets for environmentally friendly goods and services including organic products. But the great disappointment was the absence of new benchmark, target or timelines in the areas addressed in the action plan (BRIDGES, September 2002).

The poorest communities and families are often in the non-formal and non-monetised economy. To eke out a living they depend on managing often precarious livelihood options. Their limited product-base needs to enter the market chain. Furthermore, their product base must be broadened in varieties, numbers and period of use and availability.

The poorest are most vulnerable to the impact of international trade, trade related intellectual property rights regimes, industrialised countries import needs for higher quality constraints and certification phyto-sanitary requirement etc.

Further the private sector investment is confined to larger markets and communities with high entitlement and purchasing power.

If the Millennium Development Goals are to be achieved, all efforts must be made to extend development to the poorest parts of the global community. This expansion of services must be re-thought so that a new market emerges in the poor economies, particularly in the LDCs so that this new economic resources can be tapped by the investors. The greedy traditional high profit, high investment and low social responsibility world which created the poverty, is not the answer.

A new regime of socially responsible and environmentally sensitive private sector, particularly social entrepreneurship has to be encouraged. There are many examples across the world particularly amongst progressive NGOs and Civil Society activities that point towards this direction.

The new initiative under the UN Global Compact responding to the nine universal principles of human rights, labour and environmental principles if done properly can offer such an opportunity. The role of the private business, investment supported by governments and international financial organisations are paramount. The multinationals alone will not be able to address these adequately. Small and medium sized enterprises and socially responsible organisations must be integral part of such initiatives. The civil society can play a watchdog, service delivery, awareness and demonstration and modeling, research and advocacy and bridging roles.

By increasing the purchasing power of the poor a new market and economy where fair trade can play a key role will be created. By unshackling the poor's market capacity a virtuous cycle can be initiated as opposed to a vicious cycle of increasing poverty and environmental degradation. This offers one of the best strategies for reaching the Millennium Development Goal and make globalisation work for both the poor and the environment.

Atiq Rahman is GETI Vice Chair and Executive Director of BCAS, Bangladesh; Internet: http://www.bcas.net; email: atiq.rahman@bcas.net

References

BRIDGES, "A Debatable Outcome for Trade and Sustainable Development" BRIDGES Monthly between Trade and Sustainable Development, Year 6 No. 6

IISD & UNEP, *Trade and Environment: A Handbook*, International Institute for Sustainable Development, Winnipeg, Canada.

Koziell, I. and Saunders J. (eds.) Living of Biodiversity: exploring livelihoods and biodiversity issues in natural resource management. International Institute for Environment and Development, London, UK, 2001.

Poverty Newsletter, "Draft World Development Report 2003: Sustainable Development in a Dynamic Economy" 42 (6), 2002.

Rahman, A., *"Poverty and Environment Linkages"*, UPDATE Newsletter of the International Human Dimensions Programme on Environmental Change, 4, 2002. Available at Internet: http://www.ihdp.uni-bonn.de

UNCTAD, *The Least Developed Countries 1999 Report*, United Nations Conference on Trade and Development, Geneva, 1999.

Environment at Cancún: issues in the current trade round

Ricardo Meléndez-Ortiz

On 14 November 2001, after many hours of continuous debates during which environment orbited the halls as a divisive issue, the WTO's 142 Members launched the ninth round of negotiations of the multilateral trading system. The outcome, termed *The Doha Development Agenda,* came in the form of a *Ministerial Declaration*, which defined areas for collective study and negotiation and established a negotiating infrastructure and terms, and a *Decision on Implementation-related Issues and Concerns* containing almost 50 paragraphs detailing work or changes in specific provisions of the WTO Agreements where developing countries had been seeking resolution or re-balancing.[1] At the WTO's Fifth Ministerial Conference in Cancún, Mexico, in September, environment issues will no doubt again find their way into ministerial discussions. The ongoing talks on reductions in fisheries subsidies, the relationship between multilateral environmental agreements and WTO rules — in particular between the Convention on Biological Diversity (CBD) and the WTO Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPs) — liberalisation of environmental goods and services, market access issues, and observer status for MEA secretariats will provide grist to the Cancún trade and environment discussions.

Despite the multifaceted Doha environment mandate, however, the environmental debate is likely to be less visible than other negotiating issues, which Members have identified as more pressing. This is not least because most environment discussions are yet at the 'examination' stage, and face no significant deadlines in the lead-up to or at Cancún. Instead, trade ministers are expected to focus on issues that have missed deadlines, such as agriculture, intellectual property & health and special and differential treatment (S&D), or for which Cancún-relevant timelines exist, such as the so-called Singapore issues[2] or the multilateral system for geographical indications. But whether or not ministers highlight environmental concerns at Cancún it is crucial to continue and advance the discussion on how the mandated trade and environment negotiations will impact on the work of the biodiversity and conservation communities. As such it is imperative to further untangle and define the multifaceted interlinkages between trade and environmental issues in order to feed innovative and operational solutions into the multilateral trading system.

Cancún will provide an important opportunity for civil society organisations, policy makers and other stakeholders to review progress made on the Doha environment mandate since November 2001.

This note will give a brief update on the trade and environment discussions at the WTO since Doha and highlight what can be expected from Cancún.

Sustainable Development and Inclusion of Environment

In the Doha outcomes, sustainable development, broadly understood, as well as environment in more specific terms, was for the first time given prominence in the works of the WTO-GATT system. In addition to preambular language reiterating the commitment of the WTO to sustainable development as an objective of its operation and reaffirming Agenda 21 language on the mutuality of trade and sustainable development, the Committees on Environment (CTE) and Development (CTD) have been given a unique opportunity to mainstream sustainable development concerns in the WTO negotiations. Under paragraph 51 of the *Declaration*, the two Committees are charged with a monitoring and prescriptive role to identify and debate developmental and environmental aspects of the negotiations "in order to help achieve the objective of having sustainable development appropriately reflected". To date, however, this opportunity has gone largely unused. The CTE and the CTD con-

Whether or not ministers highlight environmental concerns at Cancún it is crucial to continue and advance the discussion on how the mandated trade and environment negotiations will impact on the work of the biodiversity and conservation communities.

tinue to have difficulties in determining the approach to take and thus no progress has been made to meaningfully put the mandate into action. It appears unlikely at this stage that any Members would have the political will to push for an approach that would allow the two Committees to effectively operationalise the paragraph 51 mandate.

Also unprecedented for the multilateral trade system is a mandate in the *Declaration* for the WTO to work with non-governmental "relevant international environmental and developmental organizations" (e.g. IUCN; ICTSD; WWF). This is a highly unusual decision for a body characterised for its obstinacy to remain isolated from other global governance processes. In addition, although some Member countries had pushed for an early "positioning" of the WTO with respect to the World Summit on Sustainable Development (WSSD), the trade community was merely visible in the lead up, or at the summit. But still the negotiations on the trade-related aspects of the Plan of Implementation were one of the most contentious. Several summit participants highlighted a number of provisions that could directly influence the trade negotiations, while others pointed to the outcomes of the Summit as a strong signal to negotiators at the WTO to integrate sustainable development considerations in the negotiations. So far, the interaction between the Plan of Implementation and the Doha round of trade negotiations, as well as the interaction between the WTO and relevant international environmental and developmental organisations has left a lot to be wished for.

Negotiations on Trade & Environment

In addition to the broader sustainable development aspects, environment made it into the operational segments of the *Declaration* and the *Decision* from two perspectives. There are elements of the EC agenda[3] which seek clarification of the relationship between MEAs and WTO rules; the definition of rules on the use of ecolabelling; and the inclusion of the precautionary principle in the WTO and in trade policy formulation. There are also elements of what can be described as a "surfacing southern agenda on trade and environment", that is the environmental policy-related demands that developing countries have been advancing in WTO forums other than the CTE or at a political level.

Building mutually-supportive trade and environment regimes

Para. 31(i): *Relationship between existing WTO rules and specific trade obligations set out in Multilateral Environmental Agreements (MEAs).*

Of all Doha trade and environment issues, the WTO-MEA relationship issue has garnered most attention and discussion among Members. There are no deadlines mandated for Cancún under paragraph 31(i), and the EC, which continues to push for a wide interpretation of the mandate, is hoping to avoid any further discussions at the Ministerial meeting and move directly into the next negotiating phase following Cancún. However, at Cancún, the issue is likely to be raised by civil society groups, who have repeatedly expressed concerns that the outcome under 31(i) could establish a hierarchy in international trade and environment regimes by placing WTO rules above MEAs. These groups can be expected to push the EC to avoid any such outcome and pursue related discussions on the MEA-WTO relationship in forums outside the WTO.

Para. 31(ii): *Procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status.*

The assumption here is that the regular information exchange would lead to a strengthening of the interaction between MEA secretariats and the WTO, for whatever that is effectively worth. While no concrete decisions have yet been taken, a number of suggestions have been made. These include regularisation/institutionalisation of existing MEA information sessions

So far, the interaction between the Plan of Implementation and the Doha round of trade negotiations, as well as the interaction between the WTO and relevant international environmental and developmental organisations has left a lot to be wished for.

focused on specific topics, enhanced co-operation at the national level between trade and environment officials and at the international level between MEA and WTO Secretariats. So far, MEA Secretariats were not allowed to follow para. 31(ii) negotiations, this has raised concerns with regards to how they are supposed to establish a system of information exchange if they were not allowed in the room.

The question of observer status for MEA secretariats awaits official resolution at the level of the WTO General Council, where it is blocked due to political considerations. As with para. 31(i), there is no specific deadline for Members to meet on para. 31(ii) with regards to Cancún. A proposal of the EC, again as a demandeur in this area, that the CTE recommend that Ministers in Cancún consolidate the ad hoc invitations extended to various MEAs and UNEP to the special sessions was rejected by several Members, including the Philippines, Malaysia, Pakistan and Egypt, and no consensus could be reached on how to unblock this debate in the CTE.

It is important to note that the para. 31 mandate has been qualified in a typical trade policy "constructive ambiguity" such that negotiations on (i) are "limited in scope to the applicability of such existing WTO rules as among parties to the MEA in question" and that work under (i) and (ii) "shall not prejudice the WTO rights of any Member that is not party to the MEA in question". This is language, which has prompted some observers, notably Greenpeace, to caution the further strengthening of the so-called "chilling" effect of WTO rules on the use of trade measures by MEAs and become a disincentive for countries to sign on to MEAs. On the other hand, developing countries' long-standing reservations and defiance to a clarification seem to be properly appeased with the language on preservation of rights. However, this affirmation of rights, precluding the reach of the clarification exercise, would seem to strengthen the position of non-parties of key MEAs such as the US in the cases of the CBD, the Basel Convention and the Kyoto Protocol. All in all, the language is drafted in such a form that possible outcomes of negotiations on environment issues are shifted away from rule changes and towards clarifications or footnotes to existing rules.

Fisheries subsidies

Members' agreement to conduct negotiations on clarifying and improving WTO disciplines on fisheries subsidies, "taking into account the importance of this sector to developing countries" was pushed in the CTE through a 'Friends of fish' group of countries, in particular by Peru, Philippines, Iceland and the US, as well as by several environmental NGOs (most conspicuously, WWF) who have repeatedly pointed to fisheries subsidies as one of the main factors contributing to over-fishing. Engaging countries in the WTO on immediate negotiations "to clarify and improve" rules in this regard, is from a sustainable development perspective, the best result on this controversial and complex area. The straightforward application of disciplines on subsidies on fisheries, which was an alternative that remained open to countries to use for many years, would have generated the sort of tension that comes with using trade rules for environmental purposes, without an adequate support framework.

In the lead-up to Cancún, talks on fisheries subsidies remain blocked, as the 'Friends of Fish' group continues to face opposition from Japan and Korea in its efforts to tighten fisheries subsidies disciplines. At Cancun, ministers will take stock of progress thus far in this area; they are likely to conclude that the first phase, consisting of clarification of the issues, has been completed, and move to the next phase — negotiations. At this stage, delegates do not foresee fisheries subsidies to gain much attention in Cancún, but to move with the rest of the Rules issues in accordance with the overall package (see article 1.7 this volume for more details on the WTO fisheries negotiations.)

Agriculture

The Doha mandate refines the mandate for negotiations on agricultural policy reform and in so doing recognises "development needs, food security and rural development" policy objectives of developing countries. Moreover, it confirms "that non-trade concerns will be taken into account in the negotiations". All this is trade jargon that includes measures and policies for environmental purposes in the area of agriculture. "Non-trade concerns" is a technical term used to cover approaches to agricultural policy such as "multifunctionality" (recognized in Agenda 21), a battle horse of the EU to keep its Common Agriculture Policy (CAP) structures. "Non-trade concerns" is also used by a number of other developed and developing countries to cover concerns such as food security, biodiversity conservation, landscape preservation and other aspects of rural environmental management and development. WTO Members continue to disagree on how such concerns should be taken into account, including how to deal with subsidies linked to environmental programmes and compliance with environmental standards.

The success of the Doha negotiations is widely seen to hinge on Members' ability to reach an agreement in Cancún on the agriculture negotiating modalities after having missed the 31 March deadline. Countries remain at an impasse on how to proceed. While the EU, after long and difficult internal discussions, finally agreed on a reform of the CAP, the Commission is unwilling to use the leeway it has gained unless they are sure to receive something in exchange, in particular concessions from the US to reduce its agriculture spending, as well as agreement from the Membership on other agriculture-related demands, such as extended protection for geographical indications, precaution, and food-labelling. Members' ability to move on a variety of issues at Cancún will be contingent on how far the two key players in the debate — the US and the EU — can garner the political will to overcome their significant differences on agriculture, and the reaction of other Members to a possible bilateral EU-US deal.

Relationship between intellectual property and biodiversity

The *Declaration* instructs the TRIPs Council to continue the 27.3 (b) review, originally to be have been finalised by 2000, and to "examine the relationship between the TRIPs Agreement and the Convention on Biological Diversity" and "the protection of traditional knowledge". The CBD issue has been a long-standing demand of Brazil and India, principally, exposing divergent views on how to tackle it. Mainly Peru, some Central Americans and most recently Switzerland and Norway have demanded references to traditional knowledge.

Since Doha and in the lead-up to Cancún, momentum has been building to address these issues, driven from both inside and outside the WTO. Developing countries are hoping that these issues, which also form part of the 'outstanding implementation issues', remain high on the TRIPs Council agenda and that their proposal for requiring disclosure of origin and evidence of benefit-sharing and prior informed consent in patent application would be discussed and adopted as part of the Doha round of trade negotiations. Given the already very heavy agenda of the Cancún meeting and the large number of other development-related issues and deadlines still outstanding — including TRIPs & health — the TRIPs-CBD related issues might not feature at the top of developing countries' list of priorities. The EC is unlikely to raise these issues, waiting instead for the developing country demandeurs to push the debate. However, even if no significant progress can be made in Cancún, developing countries remain confident that there will be further room for debate and agreement at a later stage in the Doha round.

Environmental goods and services

Paragraph 31(iii) calling for the "reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services" responds to a long-standing demand of the US, helped by the requirement of developing countries such as India to move forwards on the transfer of environmentally sound technology.

The exact meaning of this mandate, for the environment, still needs to be assessed.

Environmental goods: The fundamental dilemma for Members here is how to balance the need to include products of export interest to developing countries within the category of environmental goods while avoiding criteria based on process and production methods (PPM), which many developing countries remain wary of. While a number of proposals have been submitted, negotiators seem to be keenly awaiting a Kenyan submission on environmental goods, in which Kenya is expected to elaborate on its previous references to organic agricultural products as goods of export interest to developing countries. While most countries do not appear to expect any significant outcome by Cancún, many hope that the forthcoming Kenyan proposal might help to kick-start efforts by developing countries to move beyond general statements towards engaging in a substantive and proactive manner in this area to ensure that their interests are reflected (see article 1.7 for more details of the discussion).

Environmental services: Currently, most of the negotiations are at a 'bilateral' request-offer stage. The general feeling within trade-circles seems to be that not much can be expected in environmental services by Cancún. However several observers from the civil society and academia are developing strategies and recommendations for how developing countries on how to best position themselves in the negotiations on environmental services (see article 3.1).

Mandate of the Committee on Trade and Environment

Members agreed to emphasise, and re-focus, work in the CTE to concentrate primarily on three of the ten items in its agenda, with a view to identifying possible areas of negotiation ("any need to clarify relevant WTO rules") before the Fifth Ministerial meeting:

(i) Possible triple-win outcomes of trade liberalization: Instances where "elimination or reduction of trade restrictions and distortions" results in benefits for the environment, development and trade. The typical examples used to illustrate such situations are fisheries subsidies and the reform of agricultural policies. Although this item provides an important entry point for both the environmental community and for developing countries to raise their sustainable development concerns, the debate has so far progressed at a slow pace. Much room remains for stepping up efforts to actively steer the discussions towards outcomes that reflect and balance the needs and priorities of developing countries and environmental concerns.

A first step, and a step which should have been taken long ago, is to seek more clarity on the Doha mandate.

(ii) Environment-related provisions of the TRIPs Agreement. Left open, as it is, it provides ample scope for the review of all aspects of TRIPs from an environmental perspective. So far, however, discussions here have largely mirrored those at the TRIPs Council. Members generally agreed that the key aspects of the debate on the CBD-TRIPs relationship were being dealt with appropriately by the TRIPs Council (or even outside the WTO) and the CTE should avoid duplicating work.

(iii) Labelling requirements for environmental purposes. A difficult discussion tied to the issue of PPMs and precaution, which developing countries have so far not felt comfortable enough raising or discussing. The EC is the great demandeur here and even though it wanted negotiations out of Doha, this compromise result in the form of highlighting attention in the CTE, is probably closer to what was possible at the time. The issue is not expected to attract much attention in Cancún and has no priority status.

Members have thus far declined to 'fast track' any of these issues to a negotiating level, and the report to the Ministerial meeting is primarily a report of discussions thus far at the CTE.

Technical Assistance and Capacity Building

_Finally, technical cooperation and assistance drip from the agreements in Doha. UNEP is recognised for the first time as a WTO partner, albeit not an exclusive one. Presumably, MEA secretariats — as mentioned before — are recognised as "other intergovernmental environmental organizations", also for the first time. And, as stated above, Ministers have encouraged "efforts to promote cooperation between the WTO and relevant international environmental and developmental organizations" in contrast to the above "inter-governmental environmental organizations".

Despite valuable efforts to try and correct some of the past shortcomings in the WTO's technical assistance and capacity-building work, assistance, including that related to trade and environment, still remains essentially standardised. There is a need to move away from the approach of 'one-off' seminars and workshops towards a more durable and lasting inter-action which contributes to building local capabilities in developing countries and is more responsive to the diversity of recipients' needs and to their distinct and diverse trade and environment policy agendas and strategies. To be effective, this approach also entails broadening the target audience beyond government officials to other relevant stakeholders. Such efforts need to be complemented by a greater coordination of capacity building activities of other relevant organisations in this area, thereby making the WTO part of a wide network of institutions all acting within their priorities, capabilities and resources.

Conclusion

The Doha mandate on trade and environment is a rich programme; one that explicitly recognises and contains the elements to make *operative* the objective of sustainable development. In unprecedented form in multilateral trade, it places development and environment at the centre of the multilateral trade system. One could argue for more forceful language and for a better articulation and implementation of development and also of the environment concerns. However, for an observer of the system for the past thirteen years, this is what was feasible at this stage. More ambitious movements need to address systemic and structural failures such as the asymmetry in negotiating capacity between developed and developing countries; real-world shortcomings, such as the asymmetry in environmental and sustainable development management capacity between countries at different levels of development; or the limited or non-existent participation of non-trade and non-state actors in the formulation of trade policy. However, even the existing opportunities provided by the Doha mandate have so far gone largely unused and the agenda in front of us as we go into Cancún is challenging and daunting. The ball to a great extent is now with entities like IUCN to use the entry points provided by the Doha mandate to prove that the multilateral trade system can be made better for all Members and the environment. A first step in this direction, and a step which should have been taken long ago, is to seek more clarity on the Doha mandate. To seek clarity both with regards to specific terms, such as environmental goods and services, but also clarity with regards to what enhanced trade liberalisation in these sector means for biodiversity and conservation, in particular in developing countries. The conservation community and other civil society groupings are in a position to contribute to the discussions at the WTO - and they urgently need to make use of this position to ensure that trade liberalisation takes sustainable development objectives into account.

Ricardo Meléndez-Ortiz is CEESP Vice Chair and Chair for the Working Group on Environment, Trade and Investment, he is also the Executive Director for the International Centre for Trade and Sustainable Development (ICTSD). For more information please see Internet: http://www.ictsd.org; email: ictsd@ictsd.ch

Notes

[1] All final documents and key negotiation drafts can be found at the front page of http://www.ictsd.org. A diary of negotiations, with brief analysis and context setting, the *BRIDGES Daily Update,* can also be retrieved from ICTSD's website.

[2] Singapore issues cover investment, competition policy, transparency in government procurement, and trade facilitation.

[3] The EC has been the lauder and clearest *demandeur* of inserting environment in the WTO, and has been practically isolated in this endeavour since Seattle.

Native seeds: humankind patrimony essential for the cultural and ecological integrity of peasant agriculture

Miguel A. Altieri and Clara I. Nicholls

Ecological and cultural diversity in traditional agriculture

One of the salient features of traditional farming systems throughout Latin America is their high degree of biodiversity. These traditional farming systems have emerged over centuries of cultural and biological evolution and represent accumulated experiences of peasants interacting with the environment without access to external inputs, capital, or scientific knowledge (Chang 1977, Grigg 1974). Using inventive self-reliance, experiential knowledge, and locally available resources, peasants have often developed farming systems that generate sustained yields (Harwood 1979). In Latin America alone, more than two and a half million hectares are under traditional agriculture in the form of raised fields, polycultures and agroforestry systems, documenting the successful adaptation of a set of farming practices to difficult environments (Altieri 1991). It is generally accepted that these microcosms of traditional agriculture offer promising sustainable models for other areas as they promote biodiversity, thrive without agrochemicals, and sustain year-round yields. Many of these traditional agroecosystems, still found throughout the Andes, Meso America and the lowland tropics, constitute major in-situ repositories of both crop and wild plant germplasm. These plant resources are directly dependent upon management by human groups; thus, they have evolved in part under the influence of farming practices shaped by particular cultures and the forms of sophisticated knowledge they represent (Klee, 1980). It is no coincidence that countries containing the highest diversity of plant forms also contain the greatest number of ethnic groups.

As peasants directly link to the market economy, economic forces increasingly influence the mode of production characterized by genetically uniform crops and mechanized and/or agrochemical packages.

Figure 1. This is my quinoa! *(Courtesy Grazia Borrini-Feyerabend)*

The existence of such genetic diversity has special significance for the maintenance and enhancement of productivity of agricultural crops in developing countries characterized by variable agro-climates and heterogeneous environments. Such diversity provides security to farmers against diseases, pests, droughts and other stresses and also allows farmers to exploit the full range of agroecosystems existing in each region but that differ in soil quality, altitude, slope, water availability, etc. A wide variety of plant species represent an important resource for subsistence farming communities as they form the foundation to sustain current production systems and biological systems essential for the livelihoods of local communities (Clawson, 1985). Folk crop varieties, also known as landraces or traditional varieties, are also valued by farmers because of the cultural values with which they are imbued, such as their symbolism in religious ceremonies or their use as gifts in weddings or rewards in community work projects. At the same time such folk varieties are extremely important for industrial agriculture because they contain a vast amount of genetic diversity, including traits needed to adapt to evolving pests, and changing climates and soils.

The proponents of the Green Revolution assumed progress inevitably required the replacement of local crop varieties for improved ones...

Biodiversity loss is expected to be aggravated by the technological evolution of agriculture based on emerging biotechnologies.

Although these traditional varieties are considered as part of the common heritage of humankind, they have been subjected by many western organizations to a processes of appropriation (biopiracy) without properly rewarding rural communities that served as stewards of this patrimony . The perception of folk varieties as "raw material" to be freely used for the breeding of modern crop varieties and now transgenic varieties directly collides with indigenous notions of intellectual property rights (IPR), leading to conflicts with indigenous communities who claim rights of control over their own folk varieties against those of industrial-world plant breeders or corporations (Cleveland and Murray, 1997). This is a relevant consideration in the context of Mexico and the Andean region where important indigenous movements (i.e. Zapatistas, Ecuadorian and Bolivian Indian movements) have a very different view of the value and proper use of genetic resources. When such farmers share seeds with outsiders it cannot be assumed to be because of lack of a concept of IPR in their folk varieties, but may rather reflect an implicit assumption that those who receive the seeds will treat them with the same respect as the farmers who gave them and not use them for commercial purposes. Manipulation of these folk varieties by plant breeders or molecular biologists from public and private institutions comprises a direct violation of any implicit IPR right with indigenous farmers. This has been strongly manifested by various Mexican peasant unions in a recent statement denouncing the contamination of local varieties by transgenic crops in the Sierra Juarez de Oaxaca (Gonzalez 2002): "The contamination of our traditional maize undermines the fundamental autonomy of our indigenous and farming communities because we are not merely talking about our food supply; maize is a vital part of our cultural heritage. The statements made by some officials that contamination is not serious because it will not spread rapidly, or because it will increase our maize biodiversity,are completely disrespectful and cynical."

The development and commercialization of these technologies are increasingly concentrated and under the control of a few corporations.

The green revolution and peasant crop diversity

As mentioned earlier, traditional agroecosystems are the result of a complex coevolutionary process between natural and social systems, which resulted in ingenious strategies of ecosystem appropriation. In most cases the indigenous knowledge behind the modification of the physical environment is very detailed. Ethnobotanies and folk taxonomies are perhaps the most complex of all forms of indigenous knowledge (Brokenshaw et al., 1980). The ethnobotanical knowledge of certain campesinos in Mexico is so elaborate that the Tzeltal, P'urepecha, and Yucatan Mayans can recognize more that 1200, 900 and 500 plant species, respectively (Toledo et al. 1985). Throughout the region there are several systems in which farmers plant multiple varieties of each crop, providing both intraspecific and interspecific diversity, thus enhancing harvest security. For example, in the Andes, farmers cultivate as many as 50 potato varieties in their fields and near Ayacucho, indigenous people from Quispillacta maintain an average of 11 crop species and 74 ecotypes within their small plots (Brush, 1982). The resulting genetic diversity heightens resistance to disease that attack particular strains of the crop, and enables farmers to exploit different microclimates and derive multiple nutritional and other uses from genetic variation within species .

There is no doubt that traditional agroecosystems are complex; much of this complexity is due to the fact that crop genetic resources are more than just a collection of alleles and geno-

In the meantime, the public sector is increasingly withdrawing from being a major provider of research and extension services to rural communities.

Figure 2. Me, my child and the landscape....
(Courtesy Grazia Borrini-Feyerabend)

types of native crops and wild relatives, but that also include ecological interactions such as gene flow via cross-pollination among crop populations and species, and human selection and management guided by systems of knowledge and practice associated with genetic diversity, especially complex folk taxonomies and skills to select varieties adapted to heterogeneous environments. Today it is widely accepted that indigenous knowledge is a powerful resource in its own right and is complementary to knowledge available from Western scientific sources. Agronomists, other scientists, and development consultants have struggled to understand the complexities of local farming methods and their underlying assumptions. Unfortunately, more often than not, they have ignored traditional farmers' rationales and imposed conditions and technologies that have disrupted the integrity of native agriculture.

It is under these conditions of systemic market failures and lack of public external assistance that local skills and resources associated with biological and cultural diversity should be available to rural populations to maintain or recover their production processes.

Part of the problem arises from the fact that the association of genetic diversity with traditional agriculture is perceived in development and scientific circles as negative, and thus linked to underdevelopment, low production and poverty. Many people involved in international agriculture view on-farm conservation of native crop diversity as opposite to agricultural development (Brush, 2000). The proponents of the Green Revolution assumed progress and achieving development in traditional agroecosystems as inevitably requiring the replacement of local crop varieties for improved ones, and that the economic and technological integration of traditional farming systems into the global system is a positive step that enables increased production, income and commonly well being (Wilkes and Wilkes, 1972). But as evinced by the Green Revolution integration meant to peasants more problems than benefits as the Green Revolution involved the promotion of a package that included modern varieties (MVs), fertilizer and irrigation, marginalizing a great number of resource-poor farmers who could not afford the technology. In areas where farmers adopted the package, the spread of MVs greatly increased the use of pesticides, often with serious health and environmental consequences. Moreover, increased uniformity caused by sowing large areas to a few MVs increased risk for farmers. Genetically uniform crops proved more susceptible to pests and diseases, and also improved varieties did not perform well in marginal environments where the poor live. The net result was genetic erosion and this replacement of folk varieties also represents a loss of cultural diversity, as many varieties are integral to religious or community ceremonies.

Transgenic crops and the integrity of native crop diversity

Concerns have been raised about weather the introduction of transgenic crops may replicate or further aggravate the effects of MVs on the genetic diversity of landraces and wild relatives in areas of crop origin and diversification and therefore affect the cultural thread of communities. The debate was prompted by Nature's controversial article reporting the presence of introgressed transgenic DNA constructs in native maize landraces grown in remote mountains in Oaxaca, Mexico (Quist and Chapela 2001). Although there is a high probability that the introduction of transgenic crops will further accelerate the loss of genetic diversity and of indigenous knowledge and culture, through mechanisms similar to those of the Green revolution, there are some fundamental differences

in the magnitude of the impacts. The Green Revolution increased the rate at which modern varieties replaced folk varieties, without necessarily changing the genetic integrity of local varieties. Genetic erosion involves a loss of local varieties but it can be slowed and even reversed through in-situ conservation efforts which conserve not only landraces and wild-weedy relatives, but also agroecological and cultural relationships of crop evolution and management in specific localities. Examples of successful in-situ conservation have been widely documented (Brush 2000).

Utimately, if biodiversity conservation is indeed to succeed among small farmers, the process must be linked to rural development efforts that give equal importance to local resource conservation and food self-sufficiency and some level of market participation.

The problem with introductions of transgenic crops into diversity regions is that the spread of characteristics of genetically altered grain to local varieties favored by small farmers could dilute the natural sustainability of these races (Nigh et al 2000). Although many proponents of biotechnology believe that unwanted gene flow from GM maize may not compromise maize biodiversity (and therefore the associated systems of agricultural knowledge and practice along with the ecological and evolutionary processes involved) and may pose no worse a threat than cross-pollination from conventional (non GM) seed. In fact some industry researchers believe that DNA from engineered maize is unlikely to have an evolutionary advantage, but if transgenes do persist they may actually prove advantageous to Mexican farmers and crop diversity. But here a key question arises: Can genetically engineered plants actually increase crop production and, at the same time repel pest, resist herbicides, and confer adaptation to stressful factors commonly faced by small farmers? Thermodynamic considerations suggest they cannot; traits important to indigenous farmers (resistance to drought, food or fodder quality, maturity, competitive ability, performance on intercrops, storage quality, taste or cooking properties, compatibility with household labor conditions, etc) could be traded for transgenic qualities which may not be important to farmers (Jordan, 2001). Under this scenario risk will increase and farmers will lose their ability to adapt to changing biophysical environments and produce relatively stable yields with a minimum of external inputs while supporting their communities' food security.

Most scientists agree that teosintes and maize interbread. One problematic result from a transgenic maize-teosintle cross would be if the crop-wild relative hybrids would be more successful by acquiring tolerance to pests (Ellstrand, 2001). Such hybrids could become problem weed upsetting farmers' management but also out-competing wild relatives. Another potential problem derived from transgenic crop – to – wild gene flow is that it can lead to extinction of wild plants via swamping and outbreeding depression (Stabinsky and Sarna, 2001)

Creating safeguards against homogenization

In today's globalized world, technological modernization of small farms, through monocultures, new varieties and agrochemicals is perceived as a critical prerequisite for increasing yields, labor efficiency and farm incomes. As conversion from subsistence to cash agricultural economy occurs, the loss of biodiversity in many rural societies is progressing at an alarming rate. As peasants directly link to the market economy, economic forces increasingly influence the mode of production characterized by genetically uniform crops and mechanized and/or agrochemical packages. As adoption of modern varieties occurs, landraces and wild relatives are progressively abandoned, becoming relics or extinct. Greatest loss of traditional varieties is occurring in lowland valleys close to urban centers and markets than in more remote areas (Brush, 1986). In some areas, land scarcity (resulting mostly from uneven land distribu-

While in the eyes of development specialists, marginal rural communities represent failure in economic development; to agroecologists they represent success in relation to diversity conservation.

tion) has forced changes in land use and agricultural practices resulting in the disappearance of habitats that formerly maintained useful non-crop vegetation including wild progenitors and weedy forms of crops (Altieri et al., 1987).

The above situation is expected to be aggravated by the technological evolution of agriculture based on emerging biotechnologies whose development and commercialization is increasingly concentrated and under the control of a few corporations, accompanied by the increased withdrawal of the public sector as major provider of research and extension services to rural communities (Jordan, 2001). The social impacts of local crop shortfalls, resulting from genetic uniformity or changes in the genetic integrity of local varieties due to genetic pollution, can be considerable in the margins of the developing world. In the extreme periphery, crop losses mean ongoing ecological degradation, poverty, hunger and even famine. It is under these conditions of systemic market failures and lack of public external assistance that local skills and resources associated with biological and cultural diversity should be available to rural populations to maintain or recover their production processes.

As globalization leads to greater homogeneity between and within societies, the "difference" that remains within marginal environments (e.g., landraces free from transgenic contamination) comprises one of the greatest resources of poor farmers.

Diverse agricultural systems and genetic materials that confer high levels of tolerance to changing socio-economic and environmental conditions are extremely valuable to poor farmers, as diverse systems buffer against natural or human-induced variations in production conditions (Altieri, 1995). Impoverished rural populations must maintain low-risk agroecosystems that are primarily structured to ensure local food security. Farmers in the margins must continue to produce food for their local communities in the absence of modern inputs, and this can be reached by preserving in-situ ecologically intact locally adapted agrobiodiversity. For this, it will be necessary to maintain pools of genetic diverse material, geographically isolated from any possibility of cross fertilization or genetic pollution from uniform transgenic crops. These islands of traditional germplasm within specific agroecological landscapes will act as extant safeguards against the potential ecological failure derived from the second green revolution imposed in the margins.

In-situ conservation and rural development in GMO-free peasant agriculture regions

Given the above described destructive trends, many scientists and development workers have emphasized the need for in-situ conservation of local crop genetic resources and the environments in which they occur (Prescott-Allen and Prescott-Allen 1981). Maintenance of traditional agroecosystems is the only sensible strategy to preserve in-situ repositories of crop germplasm. Any attempt at in-situ crop genetic conservation must struggle to preserve the agroecosystem in which these resources occur. In the same vein, preservation of traditional agroecosystems cannot be achieved isolated from maintenance of the socio-cultural organization of the local people (Altieri and Merrick, 1987). Ultimately if biodiversity conservation is indeed to succeed among small farmers, the process must be linked to rural development efforts that give equal importance to local resource conservation and food self-sufficiency and some level of market participation.

Preservation efforts should be linked to an overall rural development agenda that focuses on conservation opportunities rather than exclusively on possibilities to enhance production. In this case, the primary aim of traditional agriculture shifts to one which focuses on productive forms of conservation targeting those populations most at risk from poverty and food insecurity and, that are least able to benefit from agricultural modernization, but rather may suffer the unintentional consequences of intensification such as genetic pollution. The idea is to design sustainable farming systems and appropriate technologies aimed at upgrading peasant food production for self-sufficiency by incorporating native crops and wild/weedy relatives within and

around production fields to complement the various production processes (Altieri and Merrick, 1987; Brush, 2000).

While in the eyes of development specialists, marginal rural communities represent failure in economic development; to agroecologists they represent success in relation to diversity conservation. It is precisely this ability to generate and maintain diverse crop genetic resources that offers "unique" niche possibilities to marginal farmers that can not be replicated with uniform and highly productive systems in the more favorable lands. As globalization leads to greater homogeneity between and within societies, the "difference" that remains within marginal environments (i.e.landraces free from transgenic contamination) comprises one of the greatest resources of poor farmers. Such "difference" can be strategically utilized by exploiting unlimited opportunities that exist for linking traditional agrobiodiversity with local markets, but also with tourist and international markets, as long as these activities are carefully planned in participatory modes and remain under grassroots control.

Basing a rural development strategy on traditional farming and ethnobotanical knowledge not only assures continual use and maintenance of valuable genetic resources but also allows for the diversification of peasant subsistence strategies including links with external markets (Alcorn 1984, Caballero and Mapes 1985). But in order for peasants to have a truly competitive edge, they will need to be able to produce "unique" agricultural crops (i.e. GMO free) for niche markets. Such "uniqueness" is also crucial for the maintenance of the stability of their local farming systems in times of uncertainty.

Miguel A. Altieri and Clara I. Nicholls are at the Department of Environmental Science, Policy and Management, University of California, Berkeley

References

Altieri, M. A. 1995. Agroecology: the Science of Sustainable Agriculture. Westview Press, Boulder.

Altieri, M. A., M.K. Anderson, and L.C. Merrick. 1987. Peasant agriculture and the conservation of crop and wild plant resources. J. Soc. Conservation Biology. 1:49-58.

Altieri, M.A. and L. C. Merrick. 1987. In situ conservation of crop genetic resources through maintenance of traditional farming systems. Economic Botany 4:86-96.

Brokenshaw, D.W., D.M. Warren and O. Werner. 1980. Indigenous Knowledge Systems and Development. University Press of America, Lanham.

Brush, S.B. 1982. The natural and human environment of the central Andes. Mountain Research and Development 2:14-38.

Brush, S.B. 1986. Genetic diversity and conservation in traditional farming systems. J. Ethnobiol. 6:151-167.

Brush, S.B. 2000. Genes in the field: on-farm conservation of crop diversity. Lewis Publishers, Boca Raton, Fl.

Claveland, D.A. and S.C. Murray. 1997. The world's crop genetic resources and the riphts of indigenous farmers. Current Anthropology 38: 477-492.

Clawson, D.L. 1985. Harvest security and intraspecific diversity in traditional tropical agriculture. Econ. Bot. 39:56-67.

De Grandi, J.C. 1996. El desarrollo de los sistemas de agricultura campesina en

America Latina. Serie FAO-Gestion de Sistemas de Explotacion Agricola #12. FAO, Rome. P83. Division, Santiago.

Ellstrand, N.C. 2001. When transgenes wander, should we worry?. Plant Physiology 125: 1543-1545.

Gonzalez, A.R. 2002 Contaminacion de maizes natives por trangenicos en la Sierra Juarez de Oaxaca, Mexico. UNOSJO, S.C. www.rafi.org

Jordan, C.F. 2001. Genetic engineering, the farm crisis and world hunger. BioScience 52: 523-529

Nigh, R, C. Benbrook, S. Brush, L. Garcia-Barrios and R. Ortega-Packa 2000. Transgenic crops: a cautionary tale. Science 287:1927.

Ortega, E. 1986. Peasant agriculture in Latin America. Joint ECLAC-FAO Agriculture

Prescott-Allen, R. and C. Prescott-Allen. 1981. In situ conservation of crop genetic resources: a report to the International Board for Plant Genetic Resources. IBPGR, Rome.

Pretty, J. 1995. Regenerating agriculture. World Resources Institute. Washington, DC.

Quist, D and I.H. Chapela. 2001. Transgenic DNA introgressed into traditional maize landraces in Oaxaca, Mexico. Nature 414: 541-543.

Richards, P. 1985. Indigenous Agricultural Revolution. Westview Press, Boulder.

Stabinski, D. And N. Sarno. 2001. Mexico, centre of diversity for maize, has been contaminated. LEISA magazine 17: 25-26.

Rissler, J. & M. Mellon (1996). The Ecological Risks of Engineered Crops. Cambridge: MIT Press.
Robinson, R.A. (1996). Return to Resistance: Breeding Crops to Reduce Pesticide Resistance. Davis: AgAccess.

Toledo, V.M. 1980. La ecologia del modo campesino de producion. Antropologia y Marxismo 3: 35-55.

Toledo, V.M., J. Carabias, C. Mapes, and C. Toledo. 1985. Ecologia y Autosuficiencia Alimentaria. Siglo Vientiumo Editors, Mexico City.

Tripp, R. 1996. Biodiversity and modern crop varieties: sharpening the debate. Agriculture and Human Values 13: 48-62

Wilkes, H.G. and K.K. Wilkes. 1972. The green revolution. Environment 14:32-39.

Agroecology: rescuing organic agriculture from a specialized industrial model of production and distribution

Miguel A. Altieri and Clara I. Nicholls

Organic farming is a production system whose objective is to sustain agricultural productivity by avoiding or largely excluding synthetic fertilizers and pesticides. The original philosophy that guided organic farming emphasized the use of resources found on or near the farm. These internal resources include solar or wind energy, biological pest controls, and biologically fixed nitrogen and other nutrients released from organic matter or from soil reserves. The idea was for organic farmers to rely heavily on the use of crop rotations, crop residues, animal manures, legumes, green manures, off-farm organic wastes and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients, and to regulate insect pests, weeds, and diseases. Original adherents to the movement were typical small and/or family farmers, growing diverse enterprises for the local markets, who envisioned farming as a way of community life closely linked to the rhythms of nature.

Thanks to the pioneering efforts of these farmers and the advocacy work of many organic agriculture promoters, organic farming is now widespread throughout the world and is growing rapidly. 3.5 million hectares are under certified organic farming in Europe. In Germany alone there are about 8,000 organic farms occupying about 2 percent of the total arable land. In Italy organic farms number around 18,000 and in Austria about 20,000 organic farms account for 10 percent of total agricultural output. In North America about 1.1 million hectares are certified organic with 12,500 organic farmers in the USA doubling the organic acreage between l992 and l997. In 1999 the retail organic produce industry generated US$ 6 billion in profit. In California organic foods are one of the fastest-growing segments of the agricultural economy, with retail sales growing at 20-25 percent per year for the past six years. But are these new organic farmers and associated industry following the original precepts of the pioneers? Or is organic farming being incorporated into the systems of intensified production, finance, management and distribution typical of conventional agriculture? Is organic agriculture replicating the conventional model that it so fiercely opposed?

There is no question that demand for organic food is increasing, but it seems confined to the rich and especially to populations of the industrialized world.

Realities attempting against organic farming

There is no question that demands for organic food is increasing, but seems confined to the rich and especially to populations of the industrialized world. As Third World countries enter the organic market, production is mostly for agroexport and thus contributing very little to the food security of poor nations. As organic products are increasingly traded as international commodities, their distribution is slowly being taken over by the same multinational corporations that dominate conventional agriculture. Locally owned natural food stores and organic brands are becoming consolidated into national/international chains.

It is possible that some of the above problems could have been minimized ,if the organic movement would have not disregarded three important factors that now have come back to haunt them:

The size of farms to be certified: By not limiting the maximum amount of land that a particular farmer or company could certify as organic, now big corporations have joined the fad and are displacing small organic farmers. In California over half of the value of organic

production was represented by 2% of the growers who grossed over US$ 500,000 each. Growers grossing $10,000 or less comprised 75 % of all growers and only 5 % of the sales. The consolidation of multiple farms, packing plants, and regional hubs under a single corporation requires the adoption of conventional big business practices. This system is excellent for consolidating wealth and power at the apex of a pyramid, but it is antithetical to the goals of community and local control that were part of the original inspiration of the organic movement. As it is already being observed, once bigness dominates the organic industry, local community values are inevitably left behind, while targeting niche yuppie markets.

Figure 1. Inter-cropping increases ecosystem stability and reduces vulnerability to pests.

Solidarious and flexible certification standards: The movement was quick to develop rules that sought to standardize practices that inevitably vary by farm or region. The high variability of ecological processes and their interactions with heterogeneous social, cultural, political, and economic factors generate local organic systems that are exceptionally unique. When the heterogeneity of these systems is considered, the inappropriateness of standardized technological recipes or blueprints becomes obvious. Many guidelines proved unworkable for some farmers for technical reasons. Some farmers were offended at being told to alter their on-site proven methods, especially when they saw only higher costs as a result. Such standardization process proved particularly culturally and economically inappropriate to small farmers in the developing world whose farming rationale is rooted in biodiversity and traditional knowledge. In fact many people in the south perceive organic standards as an imposition and as a form of protectionism from the north. Now standards are under threat and as organic standards erode, marketers will replace organic food with a perception of organic integrity created through advertising and political control of regulatory agencies as is happening in the USA. As a consequence many farmers are opting out and together with consumers, many are creating their own standards and solidarious certification procedures as well as more locally centered marketing strategies.

As Third World countries enter the organic market, production is mostly for export and thus contributing very little to the food security of poor nations.

Social standards: Most certification protocols did not include social considerations to distinguish organic produce. For this reason today in California it is possible to buy organic produce that may be environmentally produced but at the expense of the exploitation of farmworkers. There are no major differences in liv-

Figure 2. "No-till" conservation farming in Brazil.

ing conditions, labor practices or pay for a farmworker working in an organic versus a conventional farm operation. Might this be a reason why for example in California the United Farmworkers have not wholeheartedly endorsed organic farming? There is no question, organic agriculture must be both ecologically and socially sustainable. For this to happen organic techniques must be embedded in a social organization that furthers the underlying values of ecological sustainability. Ignoring the complex social issues surrounding commercial and agroexport oriented organic agriculture is undermining the original agrarian vision of organic farming.

Input substitution

Structurally and functionally speaking, large-scale commercial organic farms do not sharply differ from conventional homologs (Table 1). The most important difference between these types of agriculture is that organic farmers avoid the use of chemical fertilizers and pesticides in their farming operations, while conventional farmers may use them extensively. However a large number of organic farmers do use modern machinery, recommended commercial crop varieties and adopt monocultures. Due to their inherent low levels of functional biodiversity, these simplified systems lack natural regulatory mechanisms and therefore are highly dependent on external (organic/biological) inputs to subsidize functions of pest control and soil fertility. Adoption of such practices but that leaves the monoculture intact does little to move towards a more productive redesign of farming systems. Farmers following this regime are trapped in an input substitution process that keeps them dependent on suppliers (many of a corporate nature) of a variety of organic inputs, some of questionable effectiveness and environmental soundness. Clearly, as it stands today, "input substitution" has lost its "pro-sustainability" potential. It is precisely the heavy use of these inputs that has been the target of organic farming detractors (the biotech industry) who accuse organic farmers of promoting insect resistance due to continual use of Bt sprays, of contaminating soil and water with copper sulphate and eliminating beneficial insects with rothenone and other non selective botanical insecticides.

It is important however to emphasize that only a minority of organic farmers, but that control large tracts of land and amaze much capital, follow the input substitution model. Most small and medium size farmers still feature legume based rotations, application of compost and a series of diversified cropping systems such as cover crops or strip cropping, including crop-livestock mixtures. Research shows that these systems exhibit acceptable yields conserve energy, protect the soil while inducing minimal environmental impact. A recent study in Washington State revealed that organic apple

Are these new organic farmers and associated industry following the original precepts of the pioneers? Or is organic farming being incorporated into the systems of intensified production, finance, management and distribution typical of conventional agriculture?

orchards gave similar apple yields than conventional and integrated orchards. Moreover, the organic system ranked first in environmental and economic sustainability as this system exhibited higher profitability, greater energy efficiency and lower negative environmental impact. Despite the benefits, such farming systems can evolve beyond their present status if guided by agroecological principles.

Is organic agriculture replicating the conventional model that it so fiercely opposed?

Agroecological conversion

The monoculture nature of organic farms can be broken by adopting diversification schemes that feature optimal crop/animal assemblages, which encourage synergisms so that the agroecosystem may sponsor its own soil fertility, natural pest regulation and crop productivity. This system redesign involves the transformation of agroecosystem function and structure by promoting management guided to optimize processes such as nutrient cycling, organic matter accumulation, biological control of pests and constancy of production.

Promotion of biodiversity within agricultural systems is the cornerstone strategy of system redesign, as research has demonstrated that:

- Higher diversity (genetic, taxonomic, structural, resource) within the cropping system leads to higher diversity in associated biota
- Increased biodiversity leads to more effective pest control and pollination
- Increased biodiversity leads to tighter nutrient cycling
- Increased biodiversity minimizes risks and stabilizes productivity

Agroecological principles to improve farm performance can be applied by way of various techniques and strategies. Each of these will have different effects on productivity, stability and resiliency within the farm system, depending on the local opportunities, resource constraints and, in most cases, on the market. The ultimate goal of agroecological design is to integrate components so that overall biological efficiency is improved, biodiversity is preserved, and agroecosystem productivity and its self-sustaining capacity are maintained.

The key challenge for the 21st century organic farmers is to translate ecological principles into practical alternative systems to suit the specific needs of farming communities in different ecoregions of the world. Examples already abound; according to researchers at the University of Essex who examined 208 agroecological projects implemented in the developing world, about 9 million farming households covering about 29 million heaters have adopted sustainable agricultural systems. A major strategy followed by these farmers in the design of a more sustainable agriculture was to restore agricultural diversity in time and space by following key agroecological guidelines. Some worldwide examples include:

Figure 3. Another kind of inter-cropping.

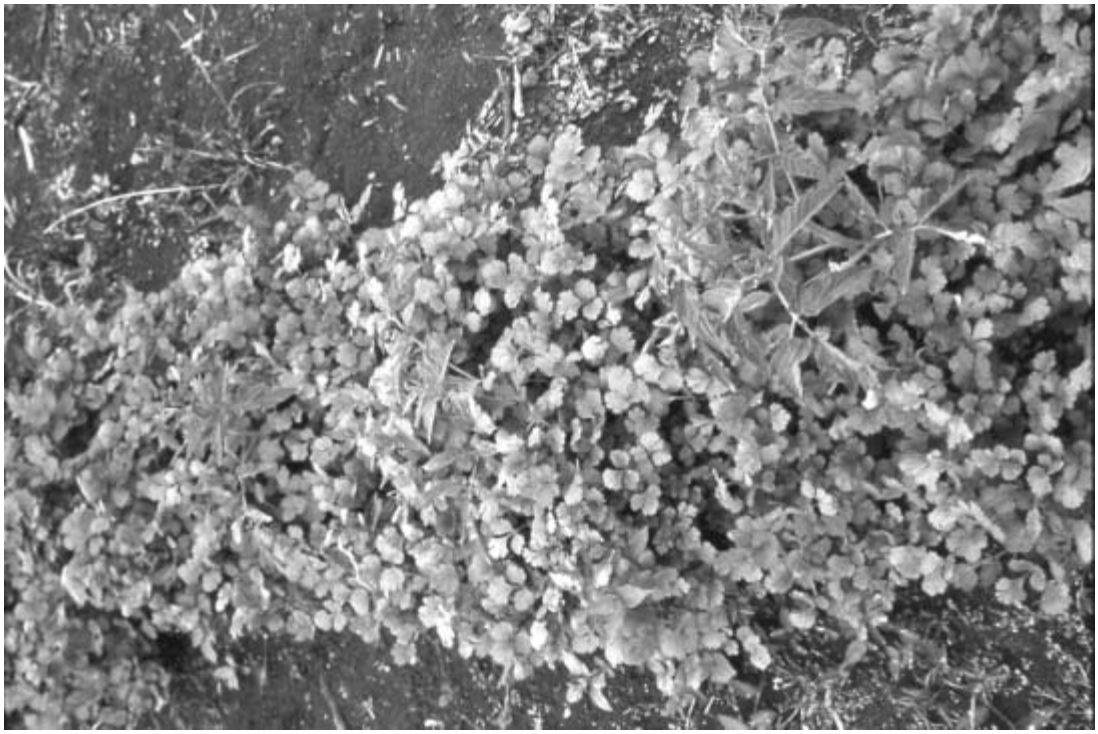


Figure 4. Growing organic tomatoes in Costa Rica.

- ***Increase species diversity in time and space through intercropping***. In Africa, scientists an intercropping system which uses two kinds of crops that are planted together with maize: a plant that repels these borers (the push) and another that attracts (pulls) them. The push-pull system has been tested on over 450 farms in two districts of Kenya and has now been released for uptake by the national extension systems in East Africa. Participating farmers in the breadbasket of Trans Nzoia are reporting a 15-20 percent increase in maize yield. In the semi-arid Suba district plagued by both stemborers and striga a substantial increase in milk yield has occurred in the last four years, with farmers now being able to support grade cows on the fodder produced. When farmers plant maize, napier and desmodium together, a return of US$ 2.30 for every dollar invested is made, as compared to only $1.40 obtained by planting maize as a monocrop. Two of the most useful trap crops that pull in the borers' natural enemies are napier grass (*Pennisetum purpureum*) and Sudan grass (*Sorghum vulgare sudanese*), both important fodder plants; these are planted in a border around the maize. Two excellent borer-repelling crops which are planted between the rows of maize are molasses grass (*Melinis minutifolia*), which also repels ticks, and the leguminous silverleaf (*Desmodium*). This plant can also suppress the parasitic weed *Striga* by a factor of 40 compared to maize monocrops; its N-fixing ability increases soil fertility; and it is an excellent forage. As an added bonus, sale of *Desmodium* seed is proving to be a new income-generating opportunity for women in the project areas

- ***Encourage presence of flowers and other vegetation in annual cropping systems to enhance habitat for natural enemies***. Several researchers have introduced flowering plants as strips within crops as a way to enhance the availability of pollen and nectar, necessary for optimal reproduction, fecundity and longevity of many natural enemies of pests. *Phacelia tanacetifolia* strips have been used in wheat, sugar beets and cabbage leading to enhanced abundance of aphidophagous predators especially syrphid flies, and reduced aphid populations.

The key challenge for the 21st century organic farmers is to translate ecological principles into practical alternative systems to suit the specific needs of farming communities in different eco-regions of the world.

In England in an attempt to provide suitable overwintering habitat within fields for aphid predators, researchers created "beetle banks"

sown with perennial grasses such as *Dactylis glomerata* and *Holcus lanatus.* When these banks run parallel with the crop rows, great enhancement of predators (up to 1500 beetles per square meter) can be achieved in only two years.

The major constraints to the spread of truly sustainable forms of farming are the powerful economic and institutional interests that are trying to de-rail and control the organic industry and its regulations.

- ***Diversification of perennial systems with agroforestry designs including the use of cover crops in vineyards and orchards.*** In such systems the presence of a flowering undergrowth enhances the biological control of a series of insect pests. The beneficial insectary role of *Phacelia flowers* to enhance parasitism f key pests in apple orchards was well demonstrated by Russian and Canadian researchers more than 30 years ago. In California organic vineyards, the incorporation of flowering summer cover crops (buckwheat and sunflower) leads to enhanced populations of natural enemies which in turn reduced the numbers of leafhoppers and thrips.

- ***Increase genetic diversity through variety mixtures, multilines and use of local germplasm and varieties exhibiting horizontal resistance.*** Researchers working with farmers in ten townships in Yumman, China, covering an area of 5350 hectares, encouraged farmers to switch from rice monocultures to planting variety mixtures of local rice with hybrids. Enhanced genetic diversity reduced blast incidence by 94% and increased total yields by 89%. By the end of two years, it was concluded that fungicides were no longer required.

- ***Intensify use of green manures for soil fertility regeneration and soil conservation.*** In Central America about 45,000 families using velvet bean tripled maize yields while conserving and regenerating soil in steep hillsides. In southern Brazil no les than 50 thousand farmers use a mixture of cover crops that provide a thick mulch allowing grain production under no-till conditions but without dependence on herbicides.

- ***Enhance landscape diversity with biological corridors, vegetationally diverse crop-field boundaries or by creating a mosaic of agroecosystems and maintaining areas of natural or secondary vegetation as part of the agroecosystem matrix.*** Several entomologists have concluded that the abundance and diversity of predators and parasite within a field are closely related to the nature of the vegetation in the field margins. There is wide acceptance of the importance of field margins as reservoirs of the natural enemies of crop pests. Many studies have demonstrated increased abundance of natural enemies and more effective biological control where crops are bordered by wild vegetation from which natural enemies colonize. Parasitism of the armyworm, Pseudaletia unipunctata, was significantly higher in maize fields embedded in a complex landscape than in maize fields surrounded by simpler habitats. In a two year study researchers found higher parasitism of *Ostrinia nubilalis* larvae by the parasitoid *Eriborus terebrans* in edges of maize fields adjacent to wooded areas, than in field interiors. Similarly in Germany, parasitism of rape pollen beetle was about 50% at the edge of the fields, while at the center of the fields parasitism dropped significantly to 20%.

One way to introduce the beneficial biodiversity from surrounding landscapes into large-scale monocultures is by establishing vegetationally diverse corridors that allow the movement and distribution of useful arthropod biodiversity into the center of monocultures. Researchers in California established a vegetational corridor which connected to a riparian

forest and cut across a vineyard monoculture.

Major changes must be made in policies, institutions, markets and research to scale-up organic agriculture.

The corridor allowed natural enemies emerging from the riparian forest to disperse over large areas of otherwise monoculture vineyard systems. The corridor provided a constant supply of alternative food for predators effectively decoupling predators from a strict dependence on grape herbivores and avoiding a delayed colonization of the vineyard. This complex of predators continuously circulated into the vineyard interstices establishing a set of trophic interactions leading to a natural enemy enrichment, which in turn led to lower numbers of leafhoppers and thrips on vines located up to 30-40 m from the corridor.

Moving ahead

A key agroecological strategy to move farms beyond organic is to exploit the complementarity and synergy that result from the various combinations of crops, trees, and animals in agroecosystems that feature spatial and temporal arrangements such as polycultures, agroforestry systems and crop-livestock mixtures. In real situations, the exploitation of these interactions involves farming system design and management and requires an understanding of the numerous relationships among soils, microorganisms, plants, insect herbivores, and natural enemies. But such modifications are not enough to achieve sustainability as it is clear that the livelihood of farmers and the food security of communities is a much more complex problem determined by economic, social and political factors. How can organic farmers produce enough food in ecologically, environmentally and socially sustainable ways without adopting a specialized industrial model of production and distribution? How can advocates of organic farming promote an agriculture that is local, small-scale and family operated, biologically and culturally diverse, humane, and socially just? Is it possible to replace the industrial agriculture model with a new vision of farming deeply rooted in the original precepts of organic agriculture?

Surely, technological or environmental intentions are not enough to disseminate a more agroecologically-based agriculture. There are many factors that constraint the implementation of sustainable agriculture initiatives. Major changes must be made in policies, institutions, markets and research and development agendas to make sure that agroecological alternatives are adopted, made equitably and broadly accessible, and multiplied so that their full benefit for sustainable food security can be realized. It must be recognized that major constraints to the spread of truly sustainable form of farming are the powerful economic and institutional interests that are trying to de-rail and control the organic industry and its regulations.

The evidence shows that throughout the world there are many organic agricultural systems that are economically, environmentally and socially viable, and contribute positively to local livelihoods. But without appropriate policy and consumers support, they are likely to remain localized in extent. Therefore, a major challenge for the future entails promoting institutional and policy changes to realize the full potential of a truly organic approach. Necessary changes include:

Existing subsidies and policy incentives for conventional chemical approaches must be dismantled.

- Increase public investments in agroecological research methods with active participation of organic farmers, thus replacing top-down transfer of standardized technology model with participatory technology development and farmer centered research and extension emphasizing principles rather than recipes or technological packages.
- Changes in policies to stop subsidies of conventional technologies and to provide support

and incentives for agroecological approaches.

- Appropriate equitable market opportunities including fair market access and expand local farmers markets and CSAs with pricing systems accessible to all

Corporate control over the food system, including the organic industry must also be challenged.

- Create policies that intervene the market by opening opportunities for local organic producers (i.e. ordinances that mandate that all food served in school and university cafeterias should be organic)

- Democratize and provide flexibility to the certification process, encouraging emergence of solidarious and locally adapted certification

- Include farm size and social-labor considerations in organic standards, and limit certification to operations that leave a large ecological footprint.

In summary, major changes must be made in policies, institutions, markets and research to scale-up organic agriculture. Existing subsidies and policy incentives for conventional chemical approaches must be dismantled. Corporate control over the food system, including the organic industry must also be challenged. The strengthening of local institutional capacity and widening access of farmers to support services that facilitate use of accessible technologies will be critical. Governments and international public organizations must encourage and support effective partnerships between NGOs, local universities, and farmer organizations in order to assist and empower organic farmers to achieve success. There is also need to increase rural incomes through local and equitable market opportunities emphasizing fair trade and other mechanisms that link farmers and consumers more directly. The ultimate challenge is to scale-up forms of organic agriculture that are socially equitable, economically viable and environmentally sound. For this to happen, the organic movement will have to engage in strategic alliances with peasant, consumer and labor groups around the world and with the anti-globalization movement and also conquer political representation at local-regional and national levels so that the political will is present in municipal or state governments to implement and expand the goals of a truly sustainable organic agriculture.

Table 1. Characteristics of Conventional and Organic Farming

CHARACTERISTICS	CONVENTIONAL	ORGANIC
Petroleum Dependency	High	Medium –high
Labor Requirements	Low, hired	Medium -high, usually hired
Management Intensity	High	Medium –High
Intensity of Tillage	High	Medium –High
Plant Diversity	Low	Low-medium
Crop Varieties	Hybrids	Hybrid or open pollinated
Source of Seeds	All purchased	Purchased, some saved
Integration of Crops and Livestock	None	Little (use of manure)
Dependence of external inputs	High	Medium-high
Insect Management	IPM-Chemical	IPM, biopesticides, some biocontrol
Weed Management	Chemical, tillage	Cultural control, tillage
Disease Management	Chemical, vertical resistance	Antagonists, horizontal resistance, multilane cultivars
Plant Nutrition	Chemical, fertilizers applied in pulses, open systems	Microbial biofertilizers, organic fertilizers. Semi-open systems
Water Management	Large-scale sprinkler irrigation	Sprinkler and drip irrigation

Miguel A. Altieri and Clara I. Nicholls are at the Department of Environmental Science, Policy and Management, University of California, Berkeley.

Greening trade in the Americas

Carolyn Deere

In November 2003, governments from across the Western Hemisphere will meet in Miami for the third Summit of the Americas Trade Ministerial. The official goal will be to advance negotiations for the completion of a Free Trade Area of the Americas (FTAA) by 2005.

The last Summit of the Americas Trade Ministerial in Quebec City in 2001 was accompanied by protest about the anticipated social and environmental fallout of the proposed FTAA. The public concern should not surprise us. The Western Hemisphere is host to some of the world's poorest countries, the greatest extremes of income inequality and serious environmental threats. Among the most pressing challenges are natural disasters, deforestation, biodiversity loss, over fishing, erosion and air and water pollution. This dwindling of the region's natural resource base threatens the long-term viability of development strategies dependent upon it. As countries prepare for the Miami talks, we can thus expect ongoing public pressure to ensure that any regional policies respond directly to these social and environmental challenges.

At the first Summit of the Americas in Miami in 1994, governments acknowledged the intersections of their social, economic and environmental priorities, calling for progress on all three policy dimensions.[1] The ongoing negotiations for a new trade agreement for the Americas offer governments an opportunity to refocus attention on this original vision of a hemispheric integration process to advance both development and environmental protection. However, fraught with conceptual and political problems, the current FTAA negotiations stand poised to squander that possibility.

On the conceptual front, the FTAA negotiating framework fails to expressly or coherently address either development or environment priorities, despite the fact that each of the countries in the Americas has a clearly articulated set of priorities on each front. The FTAA proposes the integration of economies at vastly different stages of development. Beyond some minor concessions and assistance for smaller economies, the FTAA fails to provide a comprehensive development framework that addresses the economic priorities of all countries or the need for differentiated timelines, obligations and commitments, and for capacity building for its weaker members.

The FTAA fails to provide a comprehensive development framework that addresses the economic priorities of all countries or the need for differentiated timelines, obligations and commitments, and for capacity building for its weaker members.

On the political front, the FTAA faces several challenges. Most governments in the Hemisphere view international trade agreements that expand market access and foreign investment as a critical component of their development strategies. Yet many of these governments are now actively resisting the negotiation of what is increasingly seen as a mercantilist agreement designed to advance the U.S. interests over the development priorities of less powerful countries in the region. Indeed, recent talk of a shift toward an "FTAA-lite" provides evidence of the discomfort among many governments with the pace and scope of negotiations. At recent informal discussions among ministers of North and Latin American countries, governments conceded for the first time that they may need to scale back the ambitious scope of the FTAA negotiations. The proposed "FTAA-lite" approach, which will be discussed at the Miami Ministerial in November, would likely still cover the same nine negotiating areas, but the commitments and disciplines would not aim for the WTO-plus standards originally envisaged (BRIDGES, 2003).

Governments across the Americas also confront political pressures from powerful groups *within* their countries calling on them to rethink their approaches both to economic development and to international trade agreements.[2] National legislatures are becoming increasingly engaged on trade issues. Debates in several national parliaments, for example, reveal increasing concern

about the potential impact of free trade agreements on national policy independence, social indicators and environmental goals. The Canada-Costa Rica Free Trade Agreement, for example, faced considerable opposition from legislators when it was presented to parliament for ratification in 2002. Similarly, the Brazilian elections in late 2002 brought a significant group of FTAA-skeptics into the Brazilian congress and government (Anderson & Cavanagh, 2002) Together with civil society organizations and a growing number of academics, some legislators are calling for a more careful approach—one that provides countries to properly assess what is in the best interests of national sustainable development.[3] As anticipated by economic theory, trade-induced economic growth and structural changes produce distributive impacts—some industries, workers and sectors gain, others lose—over both the short and the long run. Societies are increasingly arguing that they need time and "policy space" to manage these distributive impacts.

On the environment front, the FTAA's failure to incorporate environmental issues is largely due to resistance from some key developing countries in the region. [4] Most commonly, developing country governments fear protectionist misuse of environmental provisions in ways that will diminish their producers' competitiveness and access to markets. On the other hand, some civil society groups and legislators call for adjustments to the FTAA negotiation process to address explicitly environmental concerns. Increasingly, however, there is a call for the FTAA negotiations to be abandoned altogether in favor of a fairer and more comprehensive approach to integration—one that truly takes development, social and environmental objectives as the end goals.

The purpose of this article is to set out some of the critical environmental elements that should be incorporated into any future trade agreements in the region. While a full discussion of the critical development dimensions of trade agreements is beyond the scope of this article, I do, wherever possible, locate the discussion of environment issues within the context of development priorities. I begin with an overview of some of the key dimensions of the trade and environment link and then provide a series of policy recommendations.[5] The good news is that governments in the region have dealt with the environment before. Some countries, such as Chile, have shown a willingness to lead in putting forward a constructive environment agenda, and several models for progress exist.[6]

Inescapable Linkages

International trade and investment inescapably affect the environment and environmental regulation. Where they promote economic growth and industrialization without adequate strategies to control pollution and manage natural resources, trade and investment liberalisation can lead to more pollution and resource consumption. In this regard, the increasing number and scale of pollution-spewing maquiladoras along the US-Mexico border provides a clear example of such "scale effects" and the risks that unsophisticated and unmanaged trade liberalisation can pose. Absent attention to trans-boundary pollution and the management of environmental resources, trade policy and expanding liberalisation can lead to irrational economic outcomes. Common resources, such as fisheries and the atmosphere, will be overexploited. Similarly, failures to "internalize" externalities will distort economic competition and generate air- and water-pollution spillovers that will be costly in economic terms as well as in political, environmental, and human terms. In such circumstances, countries may decide to liberalize at a slower pace to avoid resource overexploitation or severe economic and social dislocations that could lead to environmental damage.

But trade can also be environmentally positive. It can be a useful mechanism for the transfer of pollution-control devices. In some cases, an environmentally sensitive trade strategy will argue for rapid liberalisation, perhaps to improve access to technologies that facilitate cleaner production processes and more efficient use of natural resources. To the extent that engagement in international trade spurs economic growth, it can help governments generate resources to dedicate to enhanced environmental protection. In some circumstances, growth-enhancing trade may help

The good news is that governments in the region have dealt with the environment before. Some countries, such as Chile, have shown a willingness to lead in putting forward a constructive environment agenda, and several models for progress exist.

alleviate income poverty and the ecological degradation that often accompanies it.

Trade agreements also affect the environment insofar as countries accept "disciplines" that constrain their regulatory freedom. There is the possibility that trade commitments may be invoked to "trump" or challenge environmental rules and programs with respect to pollution control, management of natural resources and sanitary standards, through cases brought under dispute-settlement procedures. Some economic integration initiatives, such as those advanced within the European Union, involve the harmonization of standards, including environmental laws and regulations. Such broad-based collaboration could strengthen environmental-protection efforts. However, many environmentalists fear that such policy coordination will translate into downward harmonization at the lowest common denominator or some other low level. Well-structured provisions of trade agreements also have the potential to yield environmental gains. Where government subsidization results, for example, in overexploitation of energy, agriculture, forestry, fisheries, and water resources, trade agreements may commit governments to reducing the harmful subsidies.

At the same time, environmental policy can significantly affect international trade flows. Public health rules, air and water emission limits, food safety standards, waste management regulations, labeling and recycling requirements, and other environmental policy demands channel—and may constrain—market access, particularly for goods and services from developing countries. Rather than avoid these issues, governments need to work together to develop ways to distinguish legitimate domestic standards from unfairly disguised barriers to trade and to build the capacity of developing country producers to meet those legitimate standards.

In short, the choice is not whether to address trade and environment issues but how to address them. Governments can develop policies overtly, transparently, thoughtfully, and systematically, or they can do it in an unstructured and ad hoc fashion. This kind of refined and sophisticated trade policy requires structural analysis, careful decision making, and active implementation. In 1994, the NAFTA directly addressed a series of environmental concerns both in the agreement and in an unprecedented "side agreement" on the environment.[7] More recently, the Mercosur agreement among the Southern Cone countries incorporates a number of significant environmental dimensions. Similarly, the Chile-Canada Free Trade Agreement, the U.S-Chile Free Trade Agreement and the Chile-Costa Rica Free Trade Agreement all boast several significant improvements on NAFTA's treatment of the environment. None of these approaches is without flaws, but they do provide a baseline from which to build.

Linking Trade and Environment in the Americas

This section sets forth recommendations for a serious but carefully circumscribed strategy of folding environmental considerations into trade arrangements. The recommendations that follow fall into three broad categories:

Process-Oriented Commitments

Governments involved in trade negotiations in the Western Hemisphere should make a number of procedural commitments to ensure that environmental issues are fully considered. Both the negotiations and the implementation of any resulting agreements should be conducted with a framework of open dialogue and thorough debate both at the national and regional levels. In the context of ongoing FTAA negotiations, governments should:

- Commit to addressing trade and environmental issues expressly.
- Create a transparent process to fold environmental sensitivity into the FTAA analysis and negotiations.
- Abolish the FTAA's existing but entirely ineffective Committee on Civil Society. In its place, governments should create a Regional Civil Society Forum

There is no substitute for strong national environmental programs as a way to reduce trade-environment tension.

engaging local, national, and regional NGOs, community-based groups, and representatives of business in an ongoing process of discussion on a range of public interest issues relevant to trade policy (environmental, labor, social priorities, human rights, etc) and devising policy proposals and alternatives. The forum would include formal mechanisms for periodic consultations with government officials on substantive topic areas and an annual meeting. Representatives at the regional Forum could be drawn from national consultation processes (Lucas 2000).

- Maintain regular contact with civil-society organizations as well as small and medium size businesses, workers organizations and informal sector enterprises at the national level to complement the existing engagement with representatives of the community of larger businesses. Trade ministries should also engage in consultations with non-trade ministries at the national level in the development of trade policy.
- Conduct regular briefings on issues under negotiation to inform the public and to elicit analyses and options on how best to address these issues
- Conduct environmental reviews of the potential effects from strengthened economic integration across the hemisphere[8].
- Establish an Environment Negotiating Group composed of qualified government officials that would ensure that pollution and resource management issues are systematically addressed in the FTAA negotiation process.
- Establish a high-level Trade and Environment Advisory Group that would meet regularly with representatives of the nine FTAA negotiating groups and the proposed Environmental Negotiating Group (see below). The Advisory Group would consist of a rotating group of around 30 advisors selected from the countries of the hemisphere.
- Each of the FTAA's nine existing negotiating groups should take up environmental concerns by drawing from environmental reviews, support from the proposed Environment Negotiating Group, the advice of a Trade and Environment Advisory Group (see below), and input from civil-society organizations (see Box 1 for examples).[9]

Environmental Provisions within Trade Agreements

Certain elements of the trade-environment rela-

Box 1. Examples of development-friendly environmental elements for negotiations

	Examples of development-friendly environmental elements for negotiations
Market Access Negotiating Group	- Negotiate toward zero tariffs on environmental goods (e.g., to promote trade in pollution-control and clean-energy technologies) and services. Negotiators could consider expanding the definition of environmental goods and services to promote market access for goods and services produced in an environmentally-friendly manner (sustainably harvested forestry products) or which have provide complementary environmental benefits (ouputs of agriculture production methods that help preserve genetic diversity). - Pursue the elimination of trade-distorting and environmentally damaging subsidies in natural-resource sectors such as energy, water, agriculture, fisheries, and forest products.[10]
Agriculture Negotiating Group	- Advance measures to coordinate health, plant-health, and environmental standards and rules in order to facilitate agricultural trade flows. - Develop transition strategies for the communities likely to be affected by economic restructuring due to trade, and mechanisms for conserving genetic resources and diversity (e.g., native crop varieties).

Investment Negotiating Group	Structure investment rules to: - Stimulate efforts to control pollution and to manage natural resources sustainably. - Stipulate a series of base-line environmental requirements to be met by foreign investors in all projects. - Avoid NAFTA-style expropriation provisions. - Promote transparency and public access to information in investment dispute proceedings.
Dispute Settlement Negotiating Group	Establish a structure for settling environment-related disputes that would - Promote the use of supportive policy measures to directly address environment issues in lieu of trade sanctions. - Ensure access to scientific and technical expertise. - Commit to balancing trade goals and the environmental aims and principles enumerated in international environmental agreements as well as domestic laws. - Promote transparency and public access to information in dispute proceedings.
Intellectual Property Negotiating Group	- Ensure that FTAA intellectual property standards do not exceed WTO requirements contained in the TRIPs Agreement. - Provide countries options to develop *sui generis* systems for the protection of plant varieties and traditional knowledge. - Include provisions to promote transfer of technologies (particularly environmental technologies). - Include requirements related to disclosure of information about the origin of genetic resources referred to in patent applications. - Include requirements for full consideration of prior art in patent examinations. -Preserve the right of countries to exclude "living organisms" from patentability (including genetic resources, biological processes, animals, and micro-organisms).

tionship are so tightly intertwined that they should be dealt with in the main text of any trade agreement. Here, the NAFTA experience is particularly instructive. Despite the controversy about many aspects of the NAFTA, there is a strong case for using several NAFTA-like provisions as a minimum foundation. For example, agreements should include provisions that:

- Make clear that trade commitments and rules do not overrule existing international environmental agreements. Other international standards, including provisions for trade measures as enforcement mechanisms in international agreements such as the Montreal Protocol, the Convention on International Trade in Endangered Species, and the Basel Convention as well as regional and bilateral environmental agreements, should be expressly acknowledged.
- Provide for deference to national environmental standards, as long as they reflect legitimate environmental policy making and are applied non-discriminatorily to both domestic and foreign products.
- Place the burden of proof on the party that challenges another party's environmental or health measures.
- Discourage countries from lowering environmental standards or relaxing environmental enforcement in efforts to enhance competitive

advantage or attract foreign investment.
- Establish a dispute-settlement process that provides ready access to environmental, scientific, and technical expertise.

In other critical regards, some of NAFTA's should not be replicated in the hemispheric context. In particular, negotiators should eliminate the threat of environment-based trade sanctions from future agreements.[11] One alternative option to consider is the process established in the Canada-Chile Free Trade Agreement's parallel environmental agreement whereby accusations of environmental non-compliance are first addressed through dispute resolution and dialogue. Another model to consider would be the NAFTA's draft environmental provisions as of 1993 (before the sanctions provisions were added) emphasizing dialogue and disclosure of weak performance.

On the other hand, those aspects of the NAFTA with specific implications for environmental regulation, such as its Chapter 11, ought to be considerably rethought.[12] Many developing countries and civil society groups have deep concerns about existing proposals to integrate investment into trade agreements. Many governments agree that agreements on investment could be useful. However, they emphasize that NAFTA-style investment agreements seem overwhelmingly focused on protecting the interests of international investors, rather than balancing these with other development policy objectives (such as the fostering of local industry and employment and competition). NAFTA's provisions on expropriation have generated particular resistance from the environmental community as well as some local governments. In future agreements—where investment issues feature—governments should ensure that they eliminate provisions for expropriation claims by investors when environmental standards are realigned. The general principle should be that governments are free to revise their regulatory standards without compensating those whose economic position is adversely affected. Claims for compensation should be extremely limited.

Finally, regional trade agreements in the Americas could be strengthened by adding new environment provisions that were not in the NAFTA but which address sources of ongoing trade-environment tension. Specifically, it would be useful to:
- Refine the environmental "exceptions" clause that is found in the NAFTA (and in article XX of the General Agreement on Tariffs and Trade (GATT)). These clauses state that environmental measures that restrict trade have to be justified in terms of whether they are "necessary". The word "necessary" should not be interpreted in ways that present an insurmountable hurdle to legitimate environmental policies and standards.[13]
- Recognize that environmental standards related to production processes and methods (PPMs) can be legitimate. If they derive from international, regional, or bilateral environmental agreements, or if they address issues that have trans-boundary effects with measures that are proportionate to the environmental harm in question and are applied non-discriminatorily, PPMs should be considered legitimate (Deere, 1999).
- Declare eco-labels to be consistent with the terms of the trade agreement subject to specific disciplines so long as such labels are not arbitrary (i.e., lacking a scientific basis or applied discriminatorily) or a disguised barrier to trade, even if they address production processes and methods.

The choice is not whether to address trade and environment issues but how to address them. Governments can develop policies overtly, transparently, thoughtfully, and systematically, or they can do it in an unstructured and ad hoc fashion.

Environmental Parallel Track

There is no substitute for strong national environmental programs as a way to reduce trade-environment tension. With this reality in mind, governments across the Americas should ensure that environmental officials are part of a collaborative effort to strengthen environmental performance within each country and across shared borders. Specific environmental finance and cooperation initiatives and institutions in the spirit of those that accompany NAFTA are necessary

counterparts to the commitments being made for deeper economic integration.[14]

In the FTAA context, and in keeping with the 1994 Miami Declaration of the Summit of the Americas, governments should commit to a parallel track of environmental negotiations (led by environmental agencies with the participation of trade and other officials) focused on significantly improving attention to environmental issues arising in the context of regional economic integration. The goal of an ultimate agreement would be to support environmental cooperation for improved national and regional environmental results, with clear points of intersection with the trade negotiations, the ultimate trade agreements, and the implementation of the economic integration strategy.

The key functions of the agreement would be to advance:

- Environmental data gathering and analysis to enable more rigorous decision-making. Difficulties comparing existing data across countries combined with methodological challenges of linking environmental data with economic data to show cause-effect relationships limit governmental capacity to identify optimal strategies for preventing and addressing environmental challenges.
- Capacity building, coordination, policy exchange, and sharing of "best practices" among national and inter-governmental environmental institutions and initiatives. For example, integrated common border plans designed to jointly manage shared natural resources (especially fisheries and forests) and to prevent and address pollution spillovers should be undertaken wherever trans-boundary issues arise in the Americas.
- Environmental compliance and public participation. To support governments' efforts to monitor compliance with environmental legislation, governments should also provide a NAFTA-like procedure for citizen submissions and independent investigations relating to compliance with the environmental provisions of the FTAA. In designing public participation strategies, governments can seek guidance from 1996 Inter-American Strategy for the Promotion of Public Participation in Decision-Making for Sustainable Development (developed by the OAS in response to a mandate from the 1996 Bolivia Summit of the Americas on Sustainable Development).
- Financing to ensure that adequate resources are available to build the necessary environmental infrastructure at the local, provincial/state, and national levels across the hemisphere. Environmental bonds or other innovative financing approaches, such as national Environment Funds, could be an important addition to an overall infrastructure initiative.
- Private-sector environmental cooperation and environmental technology transfer. Options include efforts to strengthen implementation of environmental management systems (such as ISO 14000) and private sector engagement in national systems for environmental certification and accreditation. Governments should also work to leverage private-sector financing for the environment through strategic partnerships.
- Environmental reviews of trade agreements, including clear mechanisms for the provision of technical expertise and advice as well as financial assistance to governments as they undertake both prospective and retrospective environmental reviews of trade policy options.

Several institutional forms to facilitate these functions are possible. One compelling option could be the establishment a Hemispheric Environmental Commission (HEC) which could build on but be more flexible than that of the NAFTA's North American Commission for Environmental Cooperation. With a modest commitment of resources and official time and energy, governments could leverage a lean, decentralized public policy "network" of existing national environmental institutions, the secretariats of multilateral, regional, and bilateral environmental agreements (e.g., UNEP's Regional Office for Latin America), and other relevant regional organizations (the Economic Commission for Latin America and the Caribbean, the NACEC, the OAS Trade Unit, and the Division of Integration, Trade and Hemispheric Issues of the Inter-American Development Bank). The priorities of the Commission should be shaped by an annual

A carefully constructed trade and environment agenda, respecting the legitimate goals of both trade policy and environmental policy, must and can be developed in the Americas.

meeting of regional environmental ministers (building on existing annual meetings of the region's environmental ministers hosted by UNEP (UNEP, 2000)). The HEC should also meet on a periodic basis on substantive issues with whatever secretariat emerges for the FTAA. Both groups should be charged with jointly gathering and responding to input, issue identification, and analysis on trade and environment issues from the FTAA's aforementioned high-level Trade and Environment Experts Advisory Group and Regional Civil Society Forum.

Moving Forward

Trade policy making occurs under conditions of uncertainty and inevitably requires complex tradeoffs among goals. While factoring environmental variables into the calculus complicates the process, there is no reason why economic and environmental performance cannot advance in tandem. A carefully constructed trade and environment agenda, respecting the legitimate goals of both trade policy and environmental policy, must and can be developed in the Americas.

The recommendations set forth in this article—including an express *ex ante* approach to environmental issues, a commitment to dealing with core trade-environment links in the trade agreements, a focus on institutionalizing environmental cooperation, creation of mechanisms to promote broad public dialogue, funding for environmental infrastructure investments and addressing problems of capacity—should be incorporated as minimum requirements in whatever trade agreements emerge in the region. The recommendations can be integrated into the FTAA process as well as into the network of bilateral and sub-regional trade negotiations under way in the Hemisphere (such as the Central American Free Trade Agreement (CAFTA)). If the FTAA process flounders, the same trade and environment principles will be relevant to new efforts to create a new more balanced, transparent, and fair approach to economic integration.

Carolyn Deere is a GETI Steering Committee member and is currently an independent consultant on trade and sustainable development issues and a DPhil candidate in International Relations at Oxford University. She was formerly Assistant Director of the Global Inclusion program at the Rockefeller Foundation.

Notes

1 The Miami Declaration specifically states: "Social progress and economic prosperity can be sustained only if our people live in a healthy environment and our ecosystems and natural resources are managed carefully and responsibly. . . . We will advance our social well-being and economic prosperity in ways that are fully cognizant of our impact on the environment." For the complete text of this declaration, see http://www.ftaa-alca.org.

2 See Anderson & Cavanagh (2002) for an overview of the State of Play on negotiations. Mackay (2002) also presents an overview of some of the challenges facing governments.

3 See, for example, Hemispheric Social Alliance (2002).

4 Traditionally, Mexico has led the opposition to trade and environment issues (see, for example, de la Calle, 1999). The appointment of Victor Lichtinger (former Executive Director of the NAFTA's Commission for Environmental Cooperation) as Minister of the Environment is boding well for a more sympathetic Mexican disposition toward environmental issues.

5 The recommendations set forth in this article draw extensively from Deere & Esty (2002).

6 See, for example, Matus and Rossi (2002), Segger et al (2000).

7 The North American Agreement for Environmental Cooperation (NAAEC),provides a plan for US-Mexico-Canada environmental cooperation and also establishes the North American Commission for Environmental Cooperation (NACEC), an ongoing mechanism for addressing trade and environment issues. It remains unclear how strongly the Bush administration will take up and advocate environmental considerations in the trade context. But the history of NAFTA, WTO, and fast track negotiations in the US strongly signals that no US administration will succeed in expanding external trade relations without significant concessions to domestic environmental constituencies.

8 The EU, Canada, and the US have each developed methodologies for, and implemented, environmental reviews of several trade policy initiatives. For more information on the European efforts, see the European Commission's official page on trade issues: http://europa.eu.int/comm/environment/eia/sea-studies-and-reports/ sea_approach.pdf. The Canadian Ministry of Foreign Affairs and International Trade has released several documents regarding its methodologies and conclusions (2001). A useful starting point for information on the US process is the Clinton administration's Executive Order 13141 on environmental reviews of trade agreements. The NACEC is also conducting considerable analytical work on methodologies and has commissioned a number of reports analyzing the environmental impacts of NAFTA (NACEC 1999). Finally, the World Wildlife Fund has played an important role in stimulating discussion of methodologies for assessment. The WWF recently released its report of an International Experts Meeting on Sustainability Assessments of Trade Liberalisation (2000). In 1999,

the NACEC released three case studies of environmental impacts of the NAFTA. A further 14 case studies were commissioned and presented at a NACEC Trade and Environment Symposium held in October 2000. The NACEC's work takes both a sectoral approach (e.g., agriculture, electronics, energy, tourism) as well as an environmental media approach (e.g., water, forests). The NACEC, a direct institutional product of the NAFTA, has generated significant research on methodologies for environmental reviews. In 1999, NACEC officials commissioned a series of trade and environment case studies to evaluate the analytical framework it developed (NACEC 2000). A landmark North American symposium in 2000 on the NACEC's methodology underscored the need to make progress in the fine-tuning of the analytical framework, but also highlighted the potential of environmental reviews as a tool for integrating environmental sensitivity into the trade policy making process.

9 The FTAA's Trade Negotiations Committee (TNC) has divided negotiations among nine FTAA negotiating groups that have specific mandates from ministers and the TNC to negotiate text in their subject areas. They were established for market access; investment; services; government procurement; dispute settlement; agriculture; intellectual property rights; subsidies, antidumping and countervailing duties; and competition policy. The negotiating groups meet regularly throughout the year. For further information on the FTAA negotiating process, see http://www.ftaa-alca.org.

10 Interest in the environmental and trade impacts of "perverse" subsidies is high. For a review of the scale and scope of perverse subsidies in agriculture, fossil fuels/nuclear energy, road transportation, water and fisheries, see Myers 1998. In working to reduce harmful subsidies, governments must bear in mind that the removal of subsidies may be a necessary but not sufficient condition for improved environmental management, that some subsidies may help promote transitions to more environmentally sound modes of production, and that some subsidies may be important in developing countries for food security and livelihoods, particularly on a short-term basis.

11 This recommendation does not imply, however, that trade measures for environmental purposes should not be pursued in other contexts. The utility of trade measures to promote compliance with the provisions of several multilateral environmental agreements has been repeatedly demonstrated (Brack 2001). John Audley (1997, 2001) presents useful information on the debate around sanctions, and the case for moving beyond them in the context of trade agreements.

12 For more information about investment provisions in the NAFTA, GATT and FTAA regimes, see CIEL et al. 1999, Mann and von Moltke 1999, and Mann and Araya 2002.

13 For a discussion of the issue in the GATT realm, see Esty 1994.

14 See also Audley and Sherwin (2002) for a set of recommendations from a similar perspective.

References

Anderson, S. & J. Cavanagh 2002. State of Debate on the Free Trade Area of the Americas. Institute for Policy Studies: Washington, D.C.

Audley, J. 1997. Green Politics and Global Trade: NAFTA and the Future of Environmental Politics. Georgetown University Press.

Audley, J. and E. Sherwin. 2002. "Politics and Parallel Negotiations: Environment and Trade in the Western Hemisphere", Working Paper #25. April 2002.

Audley, J. 2001. "Back to the Bad Old Days of NAFTA." Paper presented at NWF/Yale Center for Environmental Law and Policy conference on "Trade and Environment in the Americas: Lessons Learned from the NAFTA," April 2000; revised April 2001. Available at http://www.ycelp.org.

Brack, D. 2001. "Environmental Treaties and Trade: Multilateral Environmental Agreements and the Multilateral Trading System." In Trade, Environment and the Millennium, ed. G. Sampson and W. Chambers. Tokyo: UN University Press.

BRIDGES. 2003. "Latin America: Ministers Consider an FTAA-Lite", BRIDGES, No. 5, June 2003, p21.

Canadian Ministry of Foreign Affairs and International Trade. 2001. Framework for Conducting Environmental Assessments of Trade Negotiations. Ottawa: DFAIT.

CIEL et al. 1999. Investment Agreement of the Americas: Environmental, Economic and Social Perspectives. Center for International Environmental Law, Instituto del Tercer Mundo, and Preamble Center.

Deere, C. & D. Esty. 2002. Greening the Americas: NAFTA's Lessons for Hemispheric Trade, MIT Press: Cambridge.

Deere, C. 1999. Ecolabelling and Sustainable Fisheries. Rome and Washington: FAO and IUCN.

de la Calle, L. 1999. Presentation at WTO High Level Symposium on Trade and Environment. Available at http://www.wto.org.

Esty, D. 1994. Greening the GATT: Trade, Environment and the Future. Washington: Institute for International Economics.

Hemispheric Social Alliance. 2002. The Free Trade Area of the Americas Exposed: Civil Society Critique of the Official Draft Text. Discussion Draft #1. www.asc-hsa.org.

Lucas, N. 2000. "Some Issues for Consideration on Participation." Paper presented at Washington conference on "The FTAA and the Environment: What Can We Learn from the NAFTA Model?"

Mackay, D. 2002. "Challenges Confronting the Free Trade Area of the Americas", FOCAL, June 2002.

Mann, H., and M. Araya. 2002. "An Investment Regime for the Americas: Challenges and Opportunities for Environmental Sustainability." In this volume.

Mann, H., and K. von Moltke. 1999. NAFTA's Chapter 11 and the Environment: Addressing the Impacts of the Investor-State Process on the Environment. Winnipeg: International Institute for Sustainable Development.

Matus, M., and E. Rossi. 2002. "Trade and the Environment in the FTAA: A Chilean Perspective." In this volume.

Myers, N. 1998. Perverse Subsidies: Tax $s Undercutting Our Economies and Environments Alike. Winnipeg: International Institute for Sustainable Development.

NACEC. 1999. Assessing Environmental Effects of the North American Free Trade Agreement (NAFTA). An Analytic Framework (Phase II) and Issue Studies. Environment and Trade Series no. 6, North American Commission for Environmental Cooperation.

Segger, M., M. Munos, P. Meirles, J. Taurel, and V. Paul. 2000. Trade Rules and Sustainability in the Americas. Winnipeg: International Institute for Sustainable Development.

WWF. 2000. Report of International Experts Meeting on Sustainability Assessments of Trade Liberalisation. Gland: World Wildlife Fund.

How a positive and cooperative attitude towards ecolabeling could help unlocking the debate on PPMs – and be a contribution to biodiversity protection

Nicola Borregaard

A small cocoa cooperative in Ghana is interested to produce organic cocoa as the farmers have heard about the win-win opportunities this could provide them with. A domestic market for the organic cocoa does not exist. There are no special government incentives to embark on the conversion of production. About the international market little is known. Premium prices might exist, but the range of prices is not clear. Market outlets are rather different from the conventional outlets and contacts do not exist yet. Certification procedures are rather complex and the cooperative would have to certify with an international certifier that is recognized in the importing countries. Special tariff treatment is not granted to the organic products. Finally, the cooperative decides not to go ahead with conversion, given that there are too many obstacles and too few incentives for doing so.

This is a very real case. It is the modern face of great part of the debate on a conflictive topic in international trade, closely related to environment: PPMs, or processes and production methods.

The PPM debate

According to an OECD study on PPMs,[1] these refer to "the way in which products are manufactured or processed and natural resources extracted or harvested." The same document also elaborates the following categories of PPMs: the first category relates to product related PPMs, and the second to non-product related PPMs. The latter category also holds four different subcategories, including those where the PPMs relate to a transboundary pollution, to migratory species and shared living resources, to a global concern, or finally to environmental and other effects limited to the territory of the country applying the PPM.

Whereas the first category would be regulated under WTO, specifically the Agreement on Sanitary and Phytosanitary Standards (SPS) and the Agreement on Technical Barriers on Trade (TBT), the second category is not. Ecolabeling is especially relevant in the second category. The first three of the second category often fall into Multilateral Environmental Agreements (MEA), whereas the last is, in general, not regulated through any multilateral, bilateral or international agreement of any sort.

In the mid to late nineties there was a very lively debate on non-product related PPMs in the World Trade Organisation[2], in several international organizations, such as the above-cited OECD or UNEcoSoc[3], as well as in more academic circles[4].

The main issues raised in this debate referred to the need for harmonization of PPM measures, the need to analyze economic instruments and their role in PPMs, the need to establish financial and technical assistance to help countries attain environmentally sustainable PPMs, as well as the need to pay more attention to eco-labeling systems.

Following this debate there has hardly been any progress towards an international agreement on how to deal with PPMs, which have basically been regarded as new means to discriminate against developing country exports, evoking strong reactions whenever they have been mentioned. The well-known tuna-dolphin case (ref.) on US import restrictions designed to impose particular techniques on the fishing of tuna beyond the limits of US territory in order to minimize the by-catch of dolphins, has become a sort of straightjacket to the PPM debate.

Labelling and PPMs

Voluntary environmental certification and ecolabeling, particularly in the area of natural resource extraction and management, have been the market´s answer to avoid the lengthy and frustrated discussions in the WTO. Every year many additional ecolabeling schemes enter the

market, by now about a 2% of world trade is in so called "green products", not including ISO 14000 certification. In 2001 85 million hectares of forests were certified in sustainable management, representing about a 10% of productive forests.[5] The market of organic products was in 2001 estimated to lie around US$20 billion, with expected annual growth rates of 5-10% over the next decade.[6] For the year 2000 it is estimated between 40 and 60% of tourism was nature-related, some of which was officially labeled eco-tourism. There is also increased reference and encouragement towards the use of ecolabeling schemes in multilateral environmental agreements such as CBD, RAMSAR and others. Whereas the OECD guidelines to the use of PPMs were directed at policy makers, today, most non-product related PPMs are managed not by policy makers but by the private market. Concern about market access problems related to these labeling schemes is similar to the one expressed concerning non-product related PPMs in general.

This concern is based on:

The lack of guidance and directions on good practice regarding issues such as transparency, participation and effects on third parties. Information being minimal and very dispersed, so that information costs to the individual producer are extremely high.

The complexity of certification procedures; most developing countries lack institutional structures to adopt domestic certification schemes; the vast amount of different certification systems makes mutual recognition and harmonization essential for developing country producers´ participation; criteria often reflect developed country realities only.

The necessity of institution and capacity building in different ways in order to assure that also smaller producers in developing countries can participate in the schemes.

The lack of cooperation between countries, and between different stakeholders along the supply chain, especially with regard to capacity and institution building (the dissemination of good practice examples, promotion of products, product design, etc.).

One should proceed by asking questions such as whether such issues as the supervision, the rules on transparency, participation and information, and the question of mutual recognition and harmonization can and should be left in the hands of private institutions or whether there is a need for multilateral government intervention?

The lack of evaluations on the environmental or social benefits of ecolabeling; even though there might be consensus on the overall positive effects, there is still little understanding on the magnitude of environmental effects as well as the distribution of the private benefits, both important points regarding the design and principles of the system as well as the important reference points for an increased marketing of the schemes

Finally, there does not seem to be a single and simple answer to the question of how to best regulate ecolabeling and market access – different cases vary , but a lot can be learnt from case studies that show how ecolabeling practices can be improved.

The market can no longer be ignored, neither can the problems related to this extremely dynamic and (economically, environmentally and possibly socially) promising market segment be disregarded. A commitment towards fostering sustainable development prescribes progress on the above-mentioned aspects.

Time to get involved and take decisions

Today, on a multilateral scale and within the WTO, the debate on PPMs has a re-opened, this time in fact looking specifically at ecolabeling, in the context of the new WTO Doha round, stipulating in paragraphs 31-33 of the Declaration discussions on "the effect of environmental measures on market access, especially for developing countries", as well as on environmental labeling requirements". The Committee on Trade and Environment (CTE) is to look at the impact of eco-labeling on trade and examine whether existing WTO rules stand in the way of eco-labeling policies. Parallel discussions are to take place in the Committee on Technical Barriers to Trade (TBT) "In conducting its work on the

issues mentioned above, the Committee on Trade and Environment should identify any WTO rule that would need to be clarified."

WTO negotiators as well as international and national, governmental and non-governmental organisations, will have to think thoroughly about how to confront this issue – on the one hand progress is necessary, but on the other hand, the issues should be dealt with and brought under the auspices of the most adequate fora and institutions. One should proceed by asking questions such as whether such issues as the supervision, the rules on transparency, participation and information, and the question of mutual recognition and harmonization can and should be left in the hands of private institutions or whether there is a need for multilateral government intervention? If the latter is the case, then in which form and function? As a control body within WTO? As a cooperative or assistance body under one of the UN agencies? Should there be a split of different functions between different agencies and how could cooperation between these be arranged?

Several of the issues at stake might be WTO related. For example, the Doha mandate includes negotiations on the reduction or elimination of tariff and non-tariff barriers to environmental goods and services. The final definition of environmental goods and services might well include several labeled products which are produced in an environmentally-sound manner. Even though the identification of these products and the recognition of the labeling schemes might be carried out under private institutions, this special tariff treatment would be subject to WTO rules. Also, rules on government procurement policies, dealt with under the WTO´s Committee on Government Procurement, can become an issue in ecolabeling schemes.

Other issues such as cooperation, information exchange or even guiding principles of good practice might be dealt with under the auspices of a United Nations Agency, such as UNEP or UNCTAD, or a combination of these, or alternatively through concerted action between bilateral donor agencies and non governmental institutions.

Finally, harmonization and mutual recognition might be something that can be dealt with in the respective already existing private bodies such as associations or private certification systems. The first steps taken in this direction in recent years, include discussions under the Global Environmental Labeling Network, discussions in the forestry sector between the large certification schemes, discussions between the International Federation of Organic Agriculture Movement, IFOAM, and national organic labeling schemes, furthermore discussions between environmental labeling schemes and fair trade labeling, will have to be strengthened and pursued more vigorously.

The first sector that would benefit in the developing world from progress in this area would be the natural resource sector, including a wide range of products and producer groups such as Ghanaian cocoa producers[7], Chilean organic wine producers[8], Colombian cut flower producers[9], or wood products from sustainably managed forests in Guatemala[10].

What seems clear is that one institution alone cannot solve this issue and coordination between the various actors involved seems essential. Cooperation between the WTO, United Nations Agencies, and private institutions is an imperative to unlock the debate on PPMs and ecolabeling. Doha offers an opportunity to initiate this coordinated action if enough space is left and resources are provided for this cooperation to happen.

NGOs such as IUCN, with a background in international trade and sustainability, will have to participate in the discussion and confront the questions raised above, from an NGO perspective, contributing to an expansion of sustainable production and exports, safeguarding both, the environment as well as social concerns. Specifically, they confront for example the question of whether and how to put stronger pressure for obtaining observer status in the WTO´s CTE. IUCN will also have to be clear about potential effects of ecolabeling and PPMs on biodiversity protection, and will have to consider,

amongst others, what its role in TRAFFIC implies in this context.

Nicola Borregaard is GETI Steering Committee Member; and Executive Director, Recursos e Investigacion para el Desarrollo Sustenable (RIDES); email: nborregaard@rides.cl, Internet: www.rides.cl

Notes

[1] See OECD (1997)

[2] See for example WTO (1998)

[3] United Nations Economic and Social Commission for Asia and the Pacific (1997)

[4] See for example Lind, S.N. (1996)

[5] See FAO (2001)

[6] See Willer and Yussefi (2001)

[7] See for example OECD and WBI (2002)

[8] For a discussion of this case see Borregaard et al. (2002)

[9] See WTO (1998)

[10] See Finger-Stich (2002)

References:

Borregaard,N., Dufey,A., Geisse,G., Ladron de Guevara,J. (2002) Green Markets – often a lost opportunity for developing countries? IISD, CIPMA, RIDES. Santiago
FAO (2001), "State of the World´s Forest 2001"
Finger-Stich,A. (2002) Community forest concessions in the Mayan biosphere reserve of Guatemala – Certification, legitimacy and the cultura of participatory governance, PolicyMatters 10, CEESP, September 2002
ICTSD (1998) Eco-labeling and certification. www.ictsd.org/pubs/recommandr/ecolabelling.pdf
Lind, S.N. (1996) "Eco-Labels and International Trade Law: Avoiding Trade Violations while Regulating the Environment" 8 INTERNATIONAL LEGAL PERSPECTIVES 113.
OECD (1997) Processes and production methods (ppms): Conceptual framework and considerations on use of ppm-based trade measures. Paris
OECD (2000) NGO consultation. Joint Working Party on Trade and Environment. COM/ENV/TD/M(2000)83. Paris
OECD and World Bank Institute (2002) International Workshop on Market Incentives for Biodiversity Conservation and Sustainable Use. Seminar Dakar, Senegal, 25th-27th of June 2002
Sampson,G. (1999) World Trade Organisation and agreements to deal with the environment in: http://www.geic.or.jp/interlinkages/docs/Sampson.PDF
United Nations Economic and Social Commission for Asia and the Pacific (1997) TRADE EFFECTS OF ECO-LABELLING, Proceedings of a seminar held in Bangkok, 17-18 February 1997, New York: United Nations, 164 p.
WILLER H Y YUSSEFI M (2001) "Organic Agriculture Worldwide, Statistics and Future Prospects"
WTO (1998) Environmental Labels and market access: case study on the Colombian flower-growing industry. WT/CTE/W/76 and G/TBT/W/60. Geneva
WTO (2001) Symposium on issues confronting the world trading system – summary reports by the moderators. 6th and 7th July, Geneva
WTO (2001) The Doha Declaration explained. http://www.wto.org/english/tratop_e/dda_e/dohaexplained_e.htm

Reflecting sustainable development in standard-setting and implementation: towards a balanced and differentiated approach

By Mahesh Sugathan

Standard-setting and implementation is an important component of any sustainable development strategy. Standards especially environmental standards that regulate production processes or products lay down benchmarks or objective criteria that provide measurable indicators of progress along a sustainable development trajectory. Standards are, amongst others, used for regulating technical, health, safety and environmental performance.

From an environmental perspective, production and process standards that regulate production methods are more significant than those that regulate *final* products. 'This is because the way a product is produced is one of the three central questions for an environmental manager: how it is made, how it is used and how it is disposed of.'[1] The environmental impact of a final product may only be on the territory where the product is consumed, i.e only at the stage of disposal as compared to the more far-reaching effects in terms of resource-depletion and/or pollution that

In the application of a standard as well as in the formulation of standard-related rules, a conflict may arise between the different components of sustainable development, namely the economic, social and environmental.

a production-process may involve. International trade rules set by the WTO rules however permit Member states only to set standards affecting final products, rather than the production processes themselves. One of the reasons for this limitation is understandably, a suspicion among many developing countries that economically powerful countries, during the standard-setting process could suitably twist process and production standards to reflect their own environmental priorities. Developed countries could also set standards in a way which benefit their own domestic industries or create competitive disadvantages, for industries in developing countries lacking the technical and financial means to comply with them and maintain cost-competitiveness at the same time. Process and production based environmental standards, if incorporated in WTO rules could, according to developing countries, enable economically powerful Member states to enforce standards formerly under the sole mandate of domestic environmental law and domestic authority. This could be made possible through trade measures embodied in the WTO dispute settlement system where developing countries would have little choice but to comply.

It is obvious that while many developing countries would have no reason to object the attainment of higher environmental standards *per se*, their fear is that these might come at a cost-in terms of job losses and economic growth. This then raises the question how such fears on implementation of genuinely desirable environmental standards can be allayed. Before looking at this with respect to process and production methods, it might be worthwhile to take a critical look at how environmental and other product standards are set and applied as well as at WTO rules governing the provision of technical assistance. Plugging the weaknesses in the system will help ensure credibility and remove the fears and suspicions now present amongst many developing countries on formulating and implementing a set of multilaterally acceptable environmental standards dealing with the issue of Process and Production Methods (PPMs).

This article argues that the key to addressing these concerns lies in two areas: a) the process of standard-setting themselves and b) in the nature and provision of technical assistance that may be required to meet these standards. The article also argues that policy-making in these two areas could in turn be governed by a set of cross-cutting principles. These would include seeking to balance all elements of the sustainable development equation - the environmental, social and economic aspects. Moreover it would include the concept of Conditional Differentiation applying either with respect to the stringency of the standard, or in the provision of technical assistance.

Standard setting and technical assistance: **Balancing the elements of sustainable development**

Integrating sustainable development into Standard-setting

In the application of a standard as well as in the formulation of standard-related rules, a conflict may arise between the different components of sustainable development, namely the economic, social and environmental. A well-known example is the apparent conflict between protection of natural resources such as forests and maintaining the livelihoods of people dependent on the forest for economic sustenance. Another example would be measures aimed at the protection of health that might conflict with the economic viability of an industry and consequently employment. Hence any setting of standards should take these other aspects of sustainable development into account to the maximum extent possible. Sometimes an accurate and timely estimation of its impact on livelihoods, exports cannot be done especially if the need for the standard is urgent. In such cases technical and financial assistance will have

Harmonised environmental standards to tackle environmental problems, must make their objective mandatory, while giving enough flexibility to countries to decide *how* the objectives are to be achieved.

a greater role to play. A proper understanding of the technical and financial capabilities of the countries for which these standards would have the greatest impact is also important.

Addressing sustainable development needs in Standards-related Technical assistance

In the case of technical and financial assistance, consideration of all the elements of sustainable development would be important. In some cases, technical and financial assistance could focus on enabling a developing country to achieve a desired level of health or environmental protection. This might enable the country to achieve the desired level with a minimum of impact on other sustainable development indicators such as exports or livelihoods. However in other cases achieving a desired level of protection even with technical assistance might still result in negative impacts on other sustainable development indicators. For example, technical assistance for forest conservation and re-afforestation schemes could result in increasing forest cover over a period of time but could also mean that populations dependent on logging would lose opportunities to benefit from exploiting timber resources in that area. Should multilateral or bilateral technical assistance then also take the form of safety nets, to enable occupationally displaced people, to help earn alternative livelihoods that are less or not environmentally demanding, or train them in more sustainable techniques of wood-harvesting? Or should such safety nets be the sole right of national governments? Raising resources for such broad-reaching technical assistance to address all the elements of sustainable development will be a challenge. However, it may become essential especially in situations where there is a negative correlation between two or more of elements of sustainable development.

Conditional Differentiation in standard-setting and technical assistance

Differentiation is an important principle widely accepted in both international trade as well as in environmental policy-making. Within international trade rules these are reflected in the WTO provisions providing for Special and Differential treatment for developing countries. Within the environmental sphere differentiation is reflected in the principle of common but differentiated responsibilities, in Principle 7 of the 1992 Rio Declaration on Environment and Development.

The standard should also not upset other elements of the sustainable development equation such as income growth, competitiveness and livelihoods. This implies for instance, that if a country signs on to an agreement providing for differentiated standards, the levels of obligations it assumes will also increase with levels of economic development.

Where the nature of the problem requires harmonized standards in terms of objectives and/or processes

In the standard-setting process, differentiation could be made conditional upon the urgency of the problem to be tackled. Environmental protection is a good example. For trans-boundary problems of a serious nature for instance, some degree of harmonization of standards including process and production methods may be necessary in the absence of evidence that different techniques suited to differences in geography and development would not result in the desired environmental objective. Otherwise, harmonised environmental standards to tackle environmental problems, must make their objective mandatory, while giving enough flexibility to countries to decide *how* the objectives are to be achieved.

In all cases where harmonisation of standards is needed, whether in terms of process or objectives, but especially in terms of process, technical assistance must be made obligatory. In particular, if developing countries would need technical assistance to comply with these standards. Differentiation can then occur in the levels of technical assistance depending on the needs and capabilities of the countries concerned.

In a nutshell, where the same level of environmental protection or the same environmental objective is the target, differentiation may apply only to the methods needed to do so or in the level of obligatory technical assistance.

Where the nature of the problem allows for differentiated standards in terms of

objectives and/or processes.

A different situation arises when the problem sought to be addressed by the standard, is not of an urgent nature or is not of a global magnitude. In such cases differentiation in the levels of protection should be considered. Many problems might require a gradual transition from one standard to another, as income levels and resources available to the country increases. Such standards should as far as possible be evolutionary in that as a country develops economically, the level of standards prevailing are raised higher. But as far as a country remains at a certain stage of economic development, the standard it meets must be one attuned to its capabilities and resources. The standard should also not upset other elements of the sustainable development equation such as income growth, competitiveness and livelihoods. This implies for instance, that if a country signs on to an agreement providing for differentiated standards, the levels of obligations it assumes will also increase with levels of economic development. This level must then be defined by a set of economic indicators, which would include not only per capita income but also human and social development indicators.

Differentiating standards however implies that these must be sustainable for example in terms of future impact on the environment. Where these are perceived to be unsustainable, despite a developing country's inability to pursue such standards, technical assistance must be provided so that the countries can evolve to the next or higher levels of protection.

Mahesh Sugathan works with Economics and Trade Policy Analysis, at the International Centre for Trade and Sustainable Development (ICTSD); email: smahesh@ictsd.ch; Internet: http://www.ictsd.org

Note

[1] Environment and Trade: A Handbook, IISD and UNEP, 2000. p.34

Getting to green: overcoming obstacles to liberalizing environmental goods and services under the WTO

Nicola Borregaard, Annie Dufey and Kevin P. Gallagher[1]

Introduction: Environmental Goods and Services and the Doha Round

The proposal to liberalize markets for environmental goods and services has become one of the more controversial issues to confront the WTO since the Doha Round officially commenced in late 2001. Paragraph 31(iii) of the Doha Ministerial Declaration calls for negotiations on the liberalization of environmental goods and services. Environmental *goods* will be negotiated under the Negotiating Group on Non-agricultural Market Access. Negotiations regarding environmental *services* will be negotiated under the Council for Trade in Services (CTS). The ministerial declaration does not clearly define what environmental goods and services are. Thus, controversy starts over how to define the goods and services under negotiation.

Several intergovernmental organizations such as OECD/Eurostat, APEC and UNCTAD have each elaborated separate but similar definitions of environmental goods and services, including also to some extent cleaner technologies, and activities to prevent environmental damage. With the exception of UNCTAD, which includes environmentally preferable products (EPP) within its definition, all of them only consider those EGS in which developed countries are net exporters. At the level of individual countries, they have also expressed different shades of opinion on the

definitional aspects of EGS,[2] ranging from narrower definitions to broader ones. In general, countries support the definition of APEC/OECD on environmental goods and the EC´s definition related to environmental services. Colombia is one of the few developing countries that, besides taking position at the WTO, has elaborated its own definition of EGS which also includes sustainable products.

The CTE Special Session (CTESS) has acted as a forum for attempts to address definitional and other issues in parallel to the negotiations themselves. Pursuant to the single undertaking agreed to in Doha, negotiations on both environmental goods and environmental services must be completed by January 1, 2005.

Dating back to the Uruguay Round negotiations, environmental issues have long been a source of tension between the developed and developing nations. In general, developed country proposals to incorporate environmental issues into trade negotiations have been perceived by developing countries as a means to further restrict developing country access to developed country markets. Negotiations over environmental goods and services in the WTO offer an opportunity to move beyond traditional environmental conflicts. On the other hand, if the negotiations are not conducted in a more open, multilateral, and accommodating manner, they could exacerbate existing tensions to a point beyond which they can be repaired.

This briefing describes some of the more technical issues that surround these debates, offers a range of solutions to the current gridlock, and outlines suggestions for future research.

Political Economy of Benefits and Costs of Liberalization

The EGS Global Market

Regardless of how they are defined, environmental goods and services are a large and growing part of the world economy. Even defined in the narrowest of terms, the industry grew 14 percent between 1996-2000, reaching US$ 518 billion[3]. Indeed, the market is expected to reach US$ 640 billion in 2010 what represents an annual growth rate of 8 percent. Such growth would place the environment industry at roughly the same size as the pharmaceuticals or information technologies industries[4]. Revenues generated from the provision of services account for 50 percent of the market, while the remainder is divided between equipment sales and the sale of environmental resources, such as water or energy[5].

The environmental industry is dominated by developed country firms. Indeed, OECD country firms represent over 90 percent of the market[6]. The US is the world´s biggest producer and consumer of these products, and is the third largest net exporter after Germany and Japan. The world market is characterized by a few dominant multinationals in sectors, mostly from the developed countries but including some developing countries firms[7].

A glance at future projections for the EGS market reveals the negotiating positions of the developed world. The current market for EGS in the developed world is close to saturation, while the market in the developing world is growing rapidly. In spite of the importance of industrialized countries in the EGS market today it is in developing countries and economies in transition where the market grows fastest. On an annual basis, the developed country market for EGS is projected to grow at less than one percent per year. In the developing world however, EGS markets are projected to grow by 8.6 percent per year. Indeed, these trends have already begun, the average growth between 1998 and 2000 in Asia was 12 percent, 10 percent in Latin America, and 8 percent in Africa the Middle East and Eastern Europe. Global annual growth during this period was estimated at 3 percent[8]. Although 90 percent of the market for EGS now resides in the developed world, more than half of the market will be in the developing world by 2024. Thus, it should come as no surprise that the industrialized countries, looking for new market opportunities, are now pushing for market liberalization. Tariffs applied to environmental goods by industrialized countries are relatively

low, in most cases not exceeding 3 percent. In contrast, tariffs applied by developing countries are much higher, often surpassing 30 percent[9]

Whereas the developed countries stand to gain most from the liberalization of traditional EGS, developing countries could emerge as winners if the regime for the sustainable consumer goods mentioned above (environmentally preferable products (EPP) such as organic products, sustainable forest products, sustainable fisheries, and sustainable tourism) was liberated. For many of these products and services, the developing countries potentially display comparative advantages – especially if such goods and services are deemed to be different products from their "like" equivalents. In other words, if shade-grown coffee, which is less environmentally harmful than its conventionally grown counterparts, was deemed to be a different product, countries like Mexico would have a clear comparative advantage in such coffee production.

If shade-grown coffee, which is less environmentally harmful than its conventionally grown counterparts, was deemed to be a different product, countries like Mexico would have a clear comparative advantage in such coffee production.

Potential Benefits of Liberalization

Liberalization of EGS can create win-win outcomes[10]. The removal of trade barriers could improve efficiency in the allocation of resources, foster technology transfer and international competitiveness, enhance opportunities for market development and perhaps attract foreign direct investment. In addition, although developed countries dominate the traditional EGS industry, some developing countries are already including environmental services within their export supply[11]; thus trade liberalization could also improve their market access. From an environmental point of view, the reduction of tariffs and other trade barriers could enhance market access to environmental technologies, which are important elements to alleviate and prevent environmental problems, especially in developing countries. Thus, the most important environmental benefits are the roll-out of clean water and waste collection services; reductions of wastage and/or inequitable access to scarce water; increased availability of drinking water; use of waste recycling to create alternative source of energy[12], among others. Furthermore, a wide range of fastest growing industrial sectors in developing countries could benefit from enhanced market access including pulp and paper processing, steel smelting and refining, energy, coal, textiles and footwear[13]. Also, an important sub sector of the EGS is related to FDI[14]. In addition, in case of a wider definition of EGS industry – i.e. including EPP - market differentiation and liberalization can have environmental benefits, help sustainable development and foster clean production. Furthermore, the inclusion of sustainable products could send a powerful policy and market signal to consumers and producers about the significance of this EGS[15]

The Potential Costs of Liberalization

On a global scale, the traditional EGS market is rife with externalities (both positive and negative) and market imperfections. Because of this, many nations across the world have inserted a number of policy interventions that are often justified from national development perspectives. The following is a list of concerns that will arise if such interventions are lifted in the name of trade liberalization in the sector on a global scale:

The definition problem: there is no definition nor any internationally agreed criteria to classify environmental goods. Environmental services are defined in the Services Sectoral Classification List (W/120), which is criticized for being too narrow since it only includes pollution prevention services. Proposed definitions of EGS involve those EGS in which industrialized countries have a strong export advantage. Developing countries have done very little work on defining a convenient definition. Besides the need for analyzing definitions which would represent developing country interest as well, there are additional def-

initional challenges to confront such problems as multiple use, dual motivation and embedded technologies, among the most relevant. The lack of a custom code in the Harmonized System to identify environmental goods is an additional problem[16].

The subsidies problem: almost all industrialized countries subsidize selected productive sectors and support export development, especially also in environmental/sustainable products.[17] Grants and favorable interest loans for the promotion of cleaner technologies are also common practice[18]. In contrast, subsidies for environmental goods and services in developing countries are very limited and not systematized. Thus, for developing countries EGS trade liberalization implies direct competition with highly subsidized products from industrialized countries. If the issue of subsidies was included in the discussion, developing countries might, on the other hand, risk concessions on the basis of the infant industry argument.

The export credit problem: the existence of tied credits and incentives linked to export promotion policies is a common practice in industrialized countries[19]. Even though such a practice helps to promote technology transfer, it can also lead importing countries to adopt inappropriate technologies, and sets a scenario of unfair competition for developing countries´ exports in the respective technologies.

The competition problem: The global EGS market is dominated by a handful of multinational firms from the industrialized countries. In other words they are oligopolies. Thus, trade liberalization could lead to a further concentration of this global market. There could be two subsequent ramifications that would detriment developing countries. First, in the short term oligopolies from the industrial economies could lower their prices and wipe-out their developing country EGS competitors. Second, in the face of oligopolistic pricing, developing country firms in pollution intensive sectors such as pulp and paper or steel may eventually face higher prices for pollution abatement technology. Not only would this put these developing country firms at a competitive disadvantage for their products, it would also create an incentive to evade pollution regulations.

The public good problem: In the environmental services sector, trade and investment arises from deliberate decisions of governments to open up service provision to private actors, and to undertake trade and investment liberalization to permit and encourage the participation of foreign private actors[20]. Public utilities, in particular, considering water as private good or water distribution as a private service is relevant given that practically all countries -industrialized and developing- have stipulations regarding government participation in that market and/or are inclined to prefer domestic, usually, local suppliers. Waste water treatment and solid waste disposal are also sectors that present important trade barriers. In addition, in the case of non traditional environmental goods, government procurement can be used for protectionist or discriminatory purposes, for instance, the directives of some European governments to procure only from certified national producers of forest goods, in detriment of certified foreign producers.

The certification problem: the way in which consumers identify sustainable products and services is through eco-labeling. Developing countries have little and mostly unsuccessful experiences with national certification systems due to the complexity of certification procedures and the lack of institutional structures and capacity building to create effective domestic certification schemes. Thus, in practice they have to opt for international schemes of certification whose criteria often reflect industrialized countries' reality only, involve higher certification costs -especially relevant for smaller producers- and create foreign dependence. In addition, the vast amount of different certification systems makes mutual recognition and harmonization essential for developing countries.

The PPM problem: Linked to non-traditional goods and services, and certification, the problem of lack of clarity of regulation of PPMs at the international level should be mentioned. The inclusion of these goods and services in the EGS definition implies that the whole issue of PPMs

has to be discussed in WTO, given that these goods and services then are classified according to the way in which they are produced (or carried out, in the case of services).

In addition to these specific problems, perhaps one of the most cumbersome facts is that the EGS debate is subject to numerous issues that go far beyond the scope of any one Committee in particular. This requires a high degree of coordination among different Committees, issues and expertise. The lack of coordination could inevitably lead to inefficiencies in the results of the liberalization process.

Getting to Green: Creating Value for the WTO Negotiations

Thus, as they are currently structured, the EGS negotiations are far from a straightforward "win-win" scenario for the developing countries. If the negotiations remain a discussion over the liberalization of end of pipe technologies in the global economy and if they are concentrated mainly on issues of definition, because of the structure of EGS markets, the developing countries stand to lose an emerging and potentially lucrative market while subjecting their economies to the potential of higher costs for environmental protection abatement strategies. We offer the avenues that are both intra-EGS and inter-Doha approaches to overcoming current gridlock. It should be stressed that the negotiations are not about deregulating an unwieldy industry on a global scale, but about re-regulating it.

Broaden Definition

Broadening the definition of EGS to include EPPs gives many developing countries something to bargain with during the negotiations. Currently, many nations are poised to simply reject or accept traditional EGS liberalization without any of their concerns being addressed. A broader definition will not only add value to the CTS and the Negotiating Group on Non-Agricultural Market Access, but could add value to other important areas across the entire WTO negotiations themselves. This end, the CTESS should be reinvigorated; EPP liberalization could be "traded" within the EGS negotiations, and could be traded across the Doha negotiations as a whole:

Invigorate the CTESS to convene developing country working groups to define EPP related EGS so that they may be considered alongside the current APEC and OECD definitions for traditional EGS. CTESS, perhaps co-convened by UNEP in a participatory manner, should also address labeling issues related to broadening the definition of EGS to include EPPs. In this context the topic of production process methods (PPMs) will have to be discussed. Given that most developing countries have, in the past, rejected this discussion, the subject has to be presented from a completely reversed perspective, that is here it is dealt with **positive** differentiation of products with preferential treatment. A precedent has been set in this context by the European Union with the inclusion of products from sustainably managed forests in its Generalized System of Preferences (GSP).

Safeguard Against Unfair Competition

In order to gain access to developing country EGS markets the industrialized nations need to demonstrate that it is not their intention to wipe-out competition on a global EGS scale, but that in the spirit of the WTO, they will eventually enhance competition by creating a more level playing field for these goods and services. The following are proposals that could add value to the negotiations within the Negotiating Group on Non-agricultural Market Access and the CTS:

Slower tariff phase-outs for selected developing countries. Many nations, such as India, Brazil, and Mexico have emerging industries in many of the more traditional EGS sectors. A slower phase-out for such countries would allow developing country firms more time to gain a foothold in their own countries by gaining access to other countries that will be liberalized on a faster timetable. Fairly simple metrics could be invented to allocate which countries could get longer phase-outs (such as those countries where national firms have a large share of the domestic market and that are beginning to export).

Preferential tariffs for sustainable products from developing countries. It would improve its market access and also would send a positive sign for environmental policy in the sense not only economic factors matters. However, it also represents a problem because puts sustainable producers in disadvantage in comparison to traditional producers in developed countries, for example, in case of organic production. Also, it implies competition with highly subsidized production from developed countries. In addition, it requires discussing the PPMs issue at the WTO.

Capacity building so that developing country firms can participate in reducing the barriers to entry into the global EGS market. Developed countries could offer to support developing country efforts to reduce the transaction and informational costs of entering global markets by conducting workshops and training programs for developing country firms. A fund could be created for developing country capacity building at UNCTAD, UNIDO, or UNDP. Also technical assistance (for instance, for the elaboration and implementation national certification systems) can be negotiated in a quid pro quo to subsidies to sustainable production or EST technologies in industrialized countries.

Green light subsidies could be enacted to give domestic firms in developing countries the ability to pay for new EGS technologies without losing their competitive edge. During the Uruguay Round's Subsidies and Countervailing Measures (SCM) agreement, nations made provisions where 20% of the cost of adaptation of existing facilities to new environmental regulations were permissive as subsidies. These provisions are now defunct under a sunset clause. However, given that many WTO nations had agreed to this previously, the language of these portions of the SCM could be used as a starting point for EGS negotiations to the same end.

Dumping-like provisions could be incorporated into the EGS negotiations to ensure that developed country oligopolies will not lower their prices in the short term to gain access to developing country markets and thereby put domestic firms in developing countries at a competitive disadvantage. Doing so would allow industrialized oligopolies to raise prices above their marginal cost in the medium term and would result in welfare losses to developing country markets. The developed countries could agree to EGS specific clauses that safeguard against such possibilities. The topic of tied aid could also be raised in this context.

Trade Across the Doha Negotiations Themselves

Although a more cumbersome option, trading across the WTO regime could be an option to ensure the elimination of barriers for EGS in the global economy. Although many developing countries stand to lose by the reduction of tariffs in traditional EGS, many of the same nations stand to gain significantly from reductions in agricultural subsidies. Thus, an option could be to proceed with the EGS negotiations under a fairly narrow definition of EGS after a major commitment is made by industrialized nations to agree to reduce agricultural subsidies and that such a commitment would be reflected in culmination of the entire round of negotiations pursuant to the single undertaking. Under such a scenario the developing countries would essentially be giving up their ability to develop a comparative advantage in traditional EGS in exchange for enhancing their comparative advantage in agricultural products. Such a route may take the pressure off the need to differentiate among developing country agricultural products. In addition, the net gains in welfare terms from such a trade would be beneficial from a developing country perspective.

Take a more incremental approach

The argument could be made that EGS liberalization may not be ready for the WTO. Perhaps EGS liberalization would be more appropriate for bilateral or regional agreements as sort a "testing ground" before implementing before discussing them at the WTO level.

Nicola Borregaard is GETI Steering Committee Member; and Executive Director RIDES. **Annie Dufey** works within the Research branch of RIDES and **Kevin Gallagher** is also a GETI Steering Committee Member and research associate at the Global Development and Environment Institute at the Fletcher School of Law and Diplomacy at Tufts University.

Notes

2 See the Communications made at the WTO by different member states available at www.wto.org/onlinedocument.

3 *"Environmental Good and Services: An Assessment of the Environmental, Economic and Development Benefits of Further Global Liberalization",* OECD, 2000, Paris. p.7.

4 S/CSS/W/38 *"Communication from the European Communities and their Member States"* GATS 2000: Environmental Services.

5 UNCTAD (1998). p.6

6 OECD (2000). p.7

7 *"A Primer on Environmental Goods and Services: Definitional Challenges to the Negotiation for Further Liberalization",* Chaytor B. RSBP, 2002. p.2.

8 UNCTAD (1998) p.6

9 "*Future Liberalization on Environmental Goods and Services: ensuring environmental protection as well as economic benefits*", OECD, Paris, 1999

10 OECD (2000)

11 Latin American countries such as Brazil, Chile and Argentina are providing environmental services to other Latin American countries. See Borregaard N., Dufey A. Guzmán Z, (forthcoming)

12 WT/CTE/W/172 "*Environmental Good and Services: An Assessment of the Environmental, Economic and Development Benefits of Further Global Liberalization*", Information Note by the OECD Secretariat.

13 *"Cleaner Production and Waste Minimization in OECD and Dynamic Non-Member Countries",* OECD, Paris, 1998.

14 *"Bienes y Servicios Ambientales: Una Definición desde la Perspectiva Latinoamericana*", Borregaard N., Dufey A., Guzmán Z. RIDES-FLAA, Quito, (forthcoming). p.46

15 "*Trade Preferences and Environmental Goods*", Vaughan V., Trade, Equity and Development, Carnegie Endowment for International Peace, April 2003. p.1

16 However, Vaughan (2003) p.3 remarks that in January 2002 the World Customs Organization released revised HS codes, including for the first time stand-alone criteria covering environmental issues.

17 For example, Borregaard et al (2002) estimate that subsidies to organic production in the EU can reach twice the size of the already significant subsidies in the respective conventional product market.

18 "*Future Liberalization on Environmental Goods and Services: ensuring environmental protection as well as economic benefits*", OECD, Paris, 1999

19 OECD (1999) states between 1992 and 1996 the Development Assitance Comitte of the OECD (DAC) donors extended $22.7 billion to water and water treatment projects, renewable energies and general environmental protection. About one quarter of this amount went as tied aid or partially untied aid.

20 "*Environmental Services: the "win-win" role of trade liberalization in promoting environmental protection and economic development*", OECD, 2000, Paris

Subverting subsidies: could the WTO help alleviate the global fisheries crisis?

Hugo Cameron

When European explorers reached the northeast coast of North America in 1497, they reported that the fish were plentiful enough to scoop up in baskets and so numerous they could slow a ship. Five hundred years later, the Atlantic cod fishery off Newfoundland, Canada, had collapsed, devastating the local economy and marine ecosystem. Poor fisheries management was a major culprit, but so was Canada's fisheries subsidy programme. Begun in the 1960s, by the late 1980s government support had helped building a fleet that was five times bigger than that required to fish at sustainable levels: neither the cod nor the regional economy have since recovered[1].

The northwest Atlantic fishery is not an isolated case. Fish stocks are in steep decline worldwide, the result of both growing demand and enhanced fishing capacity that has fuelled a dramatic increase in fisheries extraction, imports and exports. The situation is underpinned in many cases by subsidies and other supports estimated at US$ 15 billion annually that have not only sent the wrong price signals to the global market for fisheries products, but have also raised global fishing capacity 30 to 100 percent beyond what is needed for efficient harvesting. Subsidies that promote overcapacity and artificially lower prices can also hurt the competitiveness of many developing countries - particularly those without the means to subsidise themselves - where local and artisanal fishing is a major employer. It is worth noting that leaders at the World Summit on Sustainable Development (WSSD) last September further endorsed eliminating certain types of fisheries subsidies[2].

However, the jury is not out on the fisheries subsidies case, which as of November 2001 forms part of wider negotiations on 'clarifying and improving' rules governing subsidies at the World Trade Organization (WTO)[3]. Talks on the issue remain stalled, with some countries - primarily Japan and South Korea - disputing that subsidies necessarily lead to overfishing. Further, WTO members from developing countries have yet to fully assess the impact stronger WTO fisheries subsidies disciplines might have on their economic development aspirations.

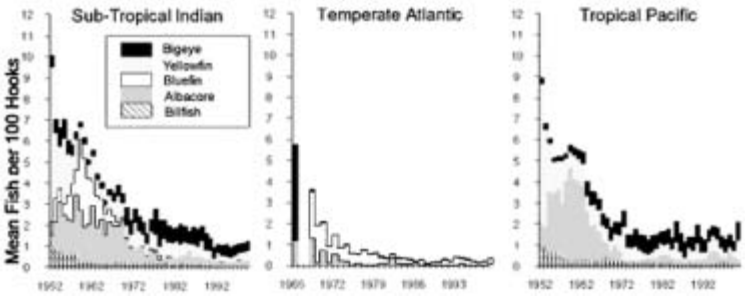
The WTO's fisheries subsidy mandate has attracted much attention from environmental groups and others as a potential 'win-win-win' situation: good for environment, good for development and good for trade. What prospects does the Doha mandate hold for dismantling perverse fishing subsidies that negatively impact the marine environment and development concerns? The following paragraphs will attempt to shed some light on the debate around fisheries subsidies and the course that WTO Members have set in agreeing to revisit the rules around them. They will also examine the fisheries subsidy issue from a broader, sustainable development perspective to ensure an outcome from the Doha negotiations that balances economic development priorities with social and environmental goals.

Trading, but for how much longer?

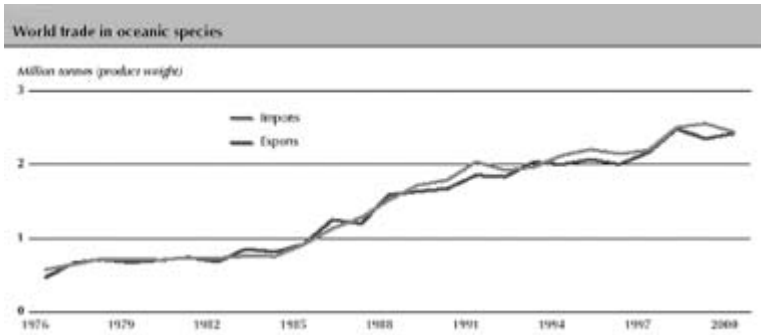
There is general agreement that the world's fisheries are facing a crisis engendered by commercial fishing. A recent report in Nature magazine[4] shows alarming declines of larger fish species — many of which are heavily traded — in many ocean regions (see Graph 1), creating potentially serious consequences for marine ecosystems (Myers and Worm, 2003). According to the UN Food and Agriculture Organization (FAO, 2002), 6 percent of global fish stocks are depleted, 15 percent are overfished and 50 percent are fully exploited, while only 3 percent are slowly recovering. This is attributed to rapid growth in marine fisheries production, which increased from 20 million tonnes in 1950 to over 120 million tonnes in 1997, though this trend is now slowing as upper limits are being reached.

Trade accounts for a significant and rising proportion of this activity. Annual total value of imports and exports ranges from US$ 55 to 60 billion. In 1996, 40 percent of fish and fish products were traded, and exports have risen fivefold since 1960. Close to half of all exports derive from developing countries, where in some cases fish products represent up to 80 per cent of total exports[5] (Dommen and Deere, 1999). The primary importers of fish and fish products are the US, Japan and the EU, which together account for three quarters of total imports. However, as Graph 1 demonstrates, the increase in fish harvesting and trade has not come without a significant cost to marine resources.

Graph 1: Decline in Biomass (Species and Regions). Source: Myers and Worm, "Rapid worldwide depletion of predatory fish communities", in Nature, 15 May 2003.



Graph 2: FAO Fisheries Department (2002), The State of World Fisheries and Aquaculture, FAO: Rome.



A kettle of fishing subsidies

The WTO has been mandated to tighten its subsidy rules in general, and on the fisheries sector in particular. However, as years of heated debate in the WTO over agricultural subsidies have shown, subsidy reform can be politically difficult. There can be a wide diversity in types of subsidies, and governments often differ on the effects they have, especially on foreign economies and ecologies. Fisheries subsidies are no exception. Indeed, it is the highly complex market structure of the fishing industry, and the difficulty in regulating fishing practices and defining what constitutes a WTO-inconsistent subsidy that has put fishing subsidies on the Doha.

Support for fisheries can take many forms, including tax exemptions on fleet renewal, provision of infrastructure, price supports, and financial assistance for access to foreign waters. By lowering costs of entry, so-called perverse fisheries subsidies can contribute to overcapacity and overfishing by attracting more fishermen into an already-full industry or by helping fishermen remain in the industry even if fish stocks are declining (Porter, 1998)[6]. Spanish fishing subsidies for trawler renewal, for instance, have contributed to building an overly large fleet that has drawn the anger of many countries - including Argentina, Canada, Chile and Peru - upset at Spanish vessels taking fish from within or just beyond their boundaries.

Most fisheries subsidies originate in developed countries that can afford them, thereby often disadvantaging those developing countries who cannot, for example by undermining market access for developing country fisheries products or by displacing more sustainable local production in poorer states with subsidised imports. As such, reducing production-oriented subsidies by richer nations could hold positive development implications, much as dismantling agricultural subsidies in the North holds the potential for levelling the uneven playing field in agricultural trade between developing and developed countries.

A number of developing countries also use domestic government support to develop or maintain their fisheries sectors, to mixed effect. Some export-oriented fisheries subsidies in developing countries can bring about negative long-term consequences from both a development and an ecological perspective. A series of case studies undertaken by the UN Environment Programme (UNEP) in amongst others, Argentina, and Senegal, show that while subsidies helped to boost exports in the short term (i.e. by 478 percent in Argentina between 1985 and 1995), they also led directly to fishing vessel overcapacity, depleted fish stocks and diminishing annual catches (UNEP, 2002). The UNEP reports also demonstrate that short-term gain derived from trade-enhancing policies can be substantially offset by long-term costs in the form of fisheries depletion and loss of income and employment for local fishermen[7].

The WTO has been mandated to tighten its subsidy rules in general, and on the fisheries sector in particular. However, as years of heated debate in the WTO over agricultural subsidies have shown, subsidy reform can be politically difficult.

Subsidies may not always play a harmful role from an ecological or social perspective. At a recent meeting of least-developed country trade ministers in Dhaka, Bangladesh, officials affirmed that subsidies could play an important role in economic development and poverty alleviation programmes. As such, they proposed that subsidies required for development, diversification and upgrading infant industries in the least-developed countries not be subject to penalties under the WTO dispute settlement (Dhaka Declaration, 2003).[8]

Countries also use subsidies directed at moving their industry towards a more sustainable fishing approach, such as restoring the ecology of local fisheries, and supporting small-scale or artisanal fishing practices. Some Pacific Island states, which are highly dependent on fish for employment and food, make use of fisheries subsidies to promote localisation of their fleets, thereby enabling coastal communities to support themselves in the face of (more heavily) subsidised and more efficient foreign fleets. Some of these

countries have voiced concern that their support to the fishing sector could be prohibited if stricter disciplines on fisheries subsidies were agreed on at the WTO.

Fish, friends and the WTO

In the leadup to the WTO's fifth Ministerial Conference in Cancun, Mexico in September, talks on clarifying and improving disciplines in the WTO's Agreement on Subsidies and Countervailing Measures (SCM)[9] are at an impasse. The debate is characterised by different points of view between a group of fish-exporting countries (the 'Friends of Fish'), on the one hand, and Japan and South Korea, on the other. With its recent agreement on a new Common Fisheries Policy, the European Union has moved more towards the approach of the Friends of Fish. While Cancun is unlikely to resolve the issue, the Ministerial will provide an opportunity for trade ministers to take stock of progress in the fisheries subsidies talks and perhaps provide much-needed momentum. Indeed, they are likely to conclude that the first phase, consisting of clarification of the issues, has been completed, and move to the next phase - negotiations[10].

So what exactly are WTO members bargaining over? Essentially, the negotiations launched in Doha could potentially make a significant contribution to achieving sustainable development. If the talks are to be successful, and lead to an outcome supportive of sustainable development, countries must ensure that development factors, such as those raised by LDC ministers in Dhaka that call for spaces for development policy, are considered together with economic and environmental interests.

The Agreement on Subsidies and Countervailing Measures

As it currently stands, the Agreement on Subsidies and Countervailing Measures (SCM) sets conditions on three types of subsidies: (1) prohibited, i.e. primarily subsidies for exports and for use of domestic over imported goods; (2) actionable i.e. not prohibited *per se* but which maybe are specific[11] and cause injury or 'serious prejudice' to a trading partner's industry[12]; and (3) non-actionable, i.e. either non-specific subsidies or specific subsidies that meet certain policy objectives, such as assistance for research activities or disadvantaged regions, or adaptation of existing facilities to new environmental requirements, within certain limits. However, the provisions outlining this latter group of specific subsidies (SCM Article 8) expired in January 2000, and a subsequent review process was conducted without any decision being reached on maintaining or amending the provisions.

Friends of Fish

The Friends of Fish - including Argentina, Australia, Chile, Ecuador, Iceland, New Zealand, Peru, the Philippines and the United States - who are the primary demandeurs in the push to reform the SCM, argue that further clarification of the subsidies code is needed for two reasons. First, in addition to the standard market distortions addressed by existing SCM rules, fisheries sector subsidies can also distort *access* to fisheries resources, making it difficult to determine which industries have been affected and by how much. Second, they argue that the heterogeneous nature of fisheries products, and the economic structure of the fisheries industry, make it more difficult to identify the *type* of market distortions at which SCM disciplines are directed. Further, the Friends of Fish say that the poor quality of fisheries notifications under the SCM agreement (which requires Members to notify all specific subsidies to the WTO), and the inaccessibility of information on government programmes in the fisheries sector, have made it difficult for researchers to develop authoritative assessments of the level of transfers[13]. As a result, the Friends have proposed creating a negotiating 'platform' that builds on fisheries subsidies categorisations already developed in other organisations[14]. This would enable Members to look specifically at different categories of subsidy, their nature and impacts as well as how they are addressed under existing WTO disciplines.

To this end, Chile — supported by the other Friends of Fish — in June 2003 submitted a pro-

If the talks are to be successful, and lead to an outcome supportive of sustainable development, countries must ensure that development factors, such as those raised by LDC ministers in Dhaka that call for spaces for development policy, are considered together with economic and environmental interests.

posal calling for a "red light" category in the SCM that would ban "all fisheries subsidies of a commercial nature, directly geared towards lowering costs, increasing revenues, raising production (by enhancing capacity), or directly promoting overcapacity and overfishing". Chile suggested classifying all other fisheries subsidies that did not fall into this class into an "amber light" category, provided they are notified to the WTO. Such an approach would be similar to the amber, blue and green box method used in the WTO agriculture talks to classify various levels of trade-distorting agricultural support.

Despite their nickname, it should be noted that the main concern of the Friends of Fish remains economic: reductions in overall subsidies to the global fishing sector would likely mean better conditions for their relatively efficient fishing industries. As such, their position needs to be weighed carefully against global environment and development priorities.

Japan & Korea

Japan and South Korea, which maintain significant subsidy programmes for their fishing sectors[15], argue that fisheries subsidies should not be treated in a special way at the WTO in terms of trade-distorting effects. Questioning the linkages between fisheries subsidies and overexploitation, they say that poor fisheries management, coupled with increasing world demand for fishery products, is the root cause of declining world fisheries resources. They see subsidies rather as a potential instrument to reduce capacity, for example through vessel buy-back programmes. As major importers, they are motivated not only by political resistance to subsidy reductions, but also by domestic market structure and food security concerns. Tokyo's and Seoul's stance also extends to market access negotiations under the Doha round, where they continue to resist efforts at eliminating tariffs on marine products. Many observers credit the lack of movement on the issue to the continuing resistance of these countries to SCM reform.

The EU

The European Union, which has traditionally supported the Japan-Korea stance, is taking a less defensive position on fisheries subsidies since the introduction of its Common Fisheries Policy in January 2003[16]. Motivated by rapidly declining stocks of cod and hake in the eastern Atlantic; pressure from domestic and international environmental groups; and by the Doha negotiations, the EU in agreeing its new policy faced up to strong pro-subsidy lobbies from Spain, Portugal, Greece and France. However, many environment and development non-governmental organisations (NGOs) say the new subsidy policy is too little, too late, and will continue to deplete threatened stocks.

Danger zone, but toward a solution?

From a conservation and social development perspective, the WTO talks represent two dangers. First, if due to entrenched positions there is no agreement at all on curtailing fisheries subsidies at the end of the Doha round, global fish stocks could well be worse off. Second, if agreement is reached that does not adequately balance concerns raised by developing and least developed countries (especially those highly dependent on fisheries) and by groups working on fisheries conservation, a final agreement might prove little more than a tool to further open market share for countries with more competitive fishing industries. A well-balanced agreement could help put urgent pressure on governments, as in the European case, to phase out their subsidy programmes or move them in a more sustainable direction, while also taking into account the special situation of poorer countries.

Article 8

One way forward could be for countries to revisit the provisions of the expired SCM Article 8, on non-actionable subsidies. Venezuela has recently attempted to kick-start debate around

this point, arguing in a December 2002 submission to the WTO that "non-actionable subsidies might be one of the tools needed to implement certain development policies in the framework of the multilateral trading system, under which a country can promote the transformation of its economic fabric, including production diversification and increased value-added output, in a sustainable manner consistent with its national economic and social policy objectives". Australia, a member of the Friends of Fish, has since responded somewhat favourably to the Venezuelan proposal, saying it "sees merit" in discussing non-actionable subsidies within the context of the SCM Agreement.

The Article 8 discussion could point the way toward addressing some of the complexities around fishing subsidies, for instance by listing and debating allowable subsidies that achieve legitimate long-term development goals. Talks here could borrow an idea from the agriculture negotiations and consider a 'development box' of subsidies that provide developing countries adequate policy space to support local fishing industries, within sustainable limits. The SCM already acknowledges that "subsidies can play an important role in the economic development programmes of developing country Members", and provides special and differential treatment to these countries, consisting primarily of longer implementation deadlines. Clarification could help to operationalise these provisions around fishing sectors in developing countries.

Balanced approach depends on process

While the WTO may have a mandate to allow for the "optimal use of the world's resources in accordance with the objective of sustainable development," it is questionable whether it has the competency to fully balance economic, environmental and social objectives. As such, involvement of trade policy-makers with those who can bring these perspectives to light is essential. Many civil society groups have urged a multi-stakeholder process supported by research and assessment that reflects the diversity of the debate on fisheries subsidies and helps lead trade policy-makers to conduct informed negotiations.

Through wider consultation processes, countries could use the Doha negotiations to make a compendium of all fisheries support mechanisms - much along the lines proposed by the Friends of Fish - and ultimately determine those that should be phased out and those that might be included into a renewed Article 8 as 'non-actionable', based on sustainable development criteria. Such an approach could not only help the WTO move towards its objective of sustainable development, but could ultimately help take some heat off of threatened global fish stocks.

Hugo Cameron is Director for Trade and Environment at the International Centre for Trade and Sustainable Development (ICTSD). Email: hcameron@ictsd.ch; Internet: http://www.ictsd.org

Notes

1 In April 2003, Canada's Fisheries Minister officially closed the Atlantic cod fishery, saying that the fish were at "historically low levels and show no signs of imminent recovery despite a decade of severe conservation measures." *Globe & Mail* (24 April 2003): Toronto.

2 The WSSD Plan of Implementation signed in Johannesburg affirmed the importance of eliminating subsidies that contribute to illegal, unreported and unregulated fishing and to over-capacity, while "completing the efforts undertaken at the WTO to clarify and improve its disciplines on fisheries subsidies".

3 According to para. 28 of the WTO's Doha Ministerial Declaration, WTO members "... agree to negotiations aimed at clarifying and improving disciplines under the Agreement ... on Subsidies and Countervailing Measures, while preserving the basic concepts, principles and effectiveness of these Agreements and their instruments and objectives, and taking into account the needs of developing and least-developed participants. In the initial phase of the negotiations, participants will indicate the provisions, including disciplines on trade distorting practices, that they seek to clarify and improve in the subsequent phase. In the context of these negotiations, participants shall also aim to clarify and improve WTO disciplines on fisheries subsidies, taking into account the importance of this sector to developing countries. We note that fisheries subsidies are also referred to in paragraph 31 [Trade and Environment]."

4 Myers and Worm (15 May 2003), "Rapid worldwide depletion of predatory fish communities", in *Nature*: London.

5 Dommen and Deere (1999), *Fish for Thought*, ICTSD: Geneva.

6 Porter, Gareth (1998), *Fishing Subsidies, Overfishing and Trade*, Environment and Trade Series No. 16, UNEP: Geneva.

7 UNEP (2002), *Fisheries Subsidies and Trade Liberalization*, UNEP Briefs on Economics, Trade and Sustainable Development, UNEP: Geneva.

8 Dhaka Declaration (2 June 2003), Second LDC Trade Ministers' Meeting: Dhaka, Bangladesh.

9 Slotted to finish on 1 January 1995, the subsidies negotiations form part of a much larger 'single undertaking' package comprising a wide range of other rules-based and market access talks that will necessitate a number of tradeoffs across different areas before a final agreement can be reached.

[10] The Chair of the Rules Negotiating Group, which is where fisheries subsidies talks are being undertaken, is preparing a compilation document of all issues and proposals tabled so far, which could serve as the basis for the next phase of work post-Cancun.

[11] A governmental program is specific if it is granted selectively to an enterprise or a group of enterprises. Thus if it is generally available for all sectors of the economy, it is not specific and therefore not a subsidy. Benitah, Marc (23 September 2002), "Canadian softwood lumber: What is the exact significance of the recent Canadian victory before the WTO?", available at http://csf.colorado.edu/forums/itcp/2002/msg00011.html.

[12] According to the WTO, serious prejudice may arise in any case where the effect of the subsidy is to displace or impede exports to the subsidising country Member; displace or impede exports to a third country; cause significant undercutting, suppression, or depression of prices, or loss of sales; or result in an increase in the subsidising Member's world market share for a primary commodity (see http://www.wto.org/english/thewto_e/whatis_e/eol/e/wto04/wto4_34.htm#note1).

[13] Submission from Australia, Chile, Ecuador, Iceland, New Zealand, Peru, Philippines and the United States (24 April 2002), *The Doha Mandate to Address Fisheries Subsidies: Issues*, TN/RL/W/3, WTO: Geneva.

[14] This could include the FAO's Committee on Fisheries (COFI), which coordinates action on fisheries subsidies among related intergovernmental institutions and analyses the impacts of fisheries subsidies on the sustainability of marine resources, on alleviating poverty and on fostering food security. The COFI has identified four subsets of fisheries subsidies; of which Set 2 corresponds most closely to the WTO definition of a subsidy that could be successfully challenged under dispute settlement. Namely, Set 2 subsidies include all interventions by government, regardless of whether they involve financial transfers, which can potentially reduce costs and/or increase revenues of producers in the short term.

[15] Japan spends USD2.5 billion and South Korea USD400 million annually on their fishery sectors. It should be noted that although part of the Friends of Fish group, the US still spends approximately USD 1 billion to support its fishing industry.

[16] In its 2003 Common Fisheries Policy, the EU agreed to focus more on the sustainable exploitation of living aquatic resources based on sound scientific advice and on the precautionary approach, as well as on sustainable aquaculture. To tackle the overcapacity of the European fishing fleet, subsidies for the renewal of fishing vessels are being phased out and will only be available until the end of 2004. *BRIDGES Trade BioRes* (23 January 2003), Volume 3 Number 1, ICTSD: Geneva.

Section 11: Environment and Trade Regimes: Relations and Linkages

CITES 30th anniversary: is there still a future for the world's wild animals and plants?

Willem Wijnstekers

This year, the international community commemorates the 30th anniversary of the creation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), concluded in Washington on 3rd March 1973. In those thirty years, wildlife conservation has been recognized as one of the most important human goals and CITES has developed into an agreement of growing importance, becoming by far the most effective international legal instrument in the area of nature conservation.

The number and shape of burning issues has differed greatly over these thirty years and of course the most publicised issues come to mind

such as rhino's, elephants, whales, sea turtles, tigers and sturgeon. These and other issues differ greatly from the problems that led the 1963 IUCN General Assembly to call for the adoption of an international convention on trade in rare or threatened species or their skins and trophies, which in 1973 became CITES.

CITES has set an effective platform on how we

CITES has a visible and positive impact on wildlife conservation, on poverty reduction and on sustainable development and is therefore worth investing in.

have to treat wild fauna and flora in international trade in every part of the world. CITES is well-placed to contribute to the conservation of a wide range of plants and animals through its rigorous system of trade permits and certificates, its ability to limit commercial trade when it proves detrimental to a species, and its support to national conservation and enforcement departments in developing countries.

However, the lack of financial resources for wildlife conservation is a serious concern. There is a very worrying and growing gap between the increasing number of activities and results that the international community expect from wildlife-producing developing countries and the means that are made available to fulfil these expectations. There is no compensation for the global benefits provided by these countries.

When talking about the availability of financial resources, one must mention the apparent lack of political priority given in many wildlife producing and wildlife consuming countries to CITES matters in general. CITES Management and Scientific Authorities are in many cases worse of than their colleagues in other government departments and lack the most basic resources. The lack of means to attend important meetings is but one symptom of this problem. There is a major task for all of us, including non-governmental organizations and the media, to increase awareness among politicians and the general public that CITES has a visible and positive impact on wildlife conservation, on poverty reduction and on sustainable development and is therefore worth investing in. Yes, there is a price. If the global community wants wild animals and plants of the developing world to be shared resources and if it wants them to be a shared responsibility then the bill for their management and conservation needs to be shared as well.

At our latest Conference of the Parties (Santiago, 2002), I remember very well looking out at delegates from 160 different countries, all united by a common vision: global wildlife conservation. However, their decisions were not often accompanied by the provision of adequate financial resources at the national and international levels. The budgetary decisions do not show how serious we take the conservation of our priceless wild fauna and flora. They do not show how serious we take this Convention and the role it could play in the future for the conservation and management of wildlife in wildlife-producing developing countries.

In the absence of the necessary core funding, CITES will not be able to fully exploit its great potential. In addition, we seriously risk to let down — not only the many animal and plant species we appear to attach such great importance to — but we also risk to let down the developing world in its struggle to conserve wildlife from the many threats it faces.

What has not been tackled so far, or at least insufficiently, is how CITES can be used in relation to international trade in species of high economic value such as the timber trade and commercial fisheries. Where the latter is concerned, I am glad we have made excellent progress concerning the conservation of sturgeon and the reduction of illegal trade in caviar. This clearly shows how CITES can have a positive effect and I hope this success will reduce the suspicion and doubts of people involved in commercial activities of this kind and size. It is also highly significant that after 10 years of discussion, the Parties to CITES agreed in Santiago (2002) to regulate the trade in Latin American mahogany. The well tested control measures developed under CITES will undoubtedly prove invaluable for discouraging illegal trade. This decision will also benefit local and indigenous communities who have lost out to the illegal traders.

Another truth, perhaps better understood now than formerly, is that the proper functioning of CITES depends on understanding, cooperation and mutual respect between the different agencies involved in the regulation of trade and environment. Different bodies and institutions do of course have different contributions to make to the functioning of CITES. Most important is the contribution of parliaments and central govern-

ments at the national level. We look to them to do, and encourage others to do, everything possible to eliminate the social and economic conditions that favour unsustainable trade and commission of wildlife crime, as well as to allocate the necessary funds to act on it.

In this regard, the CITES Secretariat prepared and submitted a paper on economic incentives and trade policy to our latest Conference of the Parties (Santiago, 2002). The Conference concluded its deliberations on 15 November 2002 with the adoption of Decision 12.22 on this matter (for an in-depth article on the decision please see xxx, this issue). I would like simply to draw your attention to the first paragraph of this Decision, directing the CITES Secretariat, in collaboration with the Parties that wish to participate, and with IUCN, ICTSD and others to:

"organize a technical workshop on wildlife trade policies and economic incentives applicable to the management of and trade in CITES-listed species, in particular in order to develop a methodology to review those policies and to make targeted recommendations on the use of those incentives".

So we may commemorate today, but we also should challenge ourselves, for there is much more to be done. If the Convention is going to keep its promise to future generations, a high level of commitment at all levels of governments will be needed to strengthen the capacity of CITES authorities to enforce existing wildlife laws and to educate people to halt consuming illegal wildlife products.

The best manner to celebrate is to continue our work for the conservation of world's priceless wild fauna and flora and to launch an International Wildlife Day (3rd March). This day will become an important one for the conservation of the world's wild animals and plants, for raising global awareness for wildlife issues in general and as a vehicle for raising public awareness for nature conservation.

My wish for the future of CITES - if it can only be a single one - is that it gets the high priority it deserves, on the long list of environmental issues individual countries and the international community have to cope with.

Willem Wijnsteekers is Secretary General at CITES. Email: willem.wijnstekers@unep.ch.; Internet: http://www.cites.org

CITES: the next 30 years and the road ahead[1]

Juan Carlos Vasquez

Wild fauna and flora in their many beautiful and varied forms provide numerous goods and services, both marketed and non-marketed, which have significant aesthetic, scientific, cultural, recreational and economic values. The international wildlife trade, both legal and illegal, is a major economic activity and it is estimated to be worth billions of dollars annually and involves millions of specimens of wild plants and animals every year (commercial fishing and the timber trade aside).

2003 is an important year for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This year marks the 30-year anniversary of its adoption. During the past three decades CITES has been regulating trade in wild fauna and flora, including parrots, crocodiles, butterflies, sturgeons, seahorses, spiders, cactus, orchids, several carnivorous plants — as well as the most familiar gorillas, elephants, leopards, tigers and bears - whose survival could be threatened if trade was not strictly regulated.

Figure 1: "...In the face of increasing human pressures on wildlife populations, the isolation of economic variables from biological, political, institutional and social settings appears inadequate." Vicuñas. *(Courtesy Heinz Plenge)*

Much of the time CITES was fumbling in the dark, mainly because the issues covered by the Convention concerns a *dynamic* world, one of continuous change - not only in terms of the status of the species populations but also change in the economic structure and behaviour of human beings. The world has changed a great deal since CITES was adopted. International trade has grown dramatically over the past few decades as new rules governing economic relations entered into force and improved transport has made it easier to ship wild animals and plants and their products anywhere in the world. In the new global age, borders have opened up, trade barriers have fallen and information speeds around the world at the touch of a button. There is therefore a lot more to do in order to incorporate the new realities into the CITES regulatory system.

But despite such uncertainties, sometimes resulting from simply not having enough knowledge, the Convention has evolved a set of formal and informal regulations that make it possible to have clear rules for ensuring that international trade in wild fauna and flora is not detrimental for the survival of the speices[2]. CITES regulations have been flexible, efficient and universally followed[3]. Thus, adaptive efficiency is certainly its main strength and constitutes an important contribution to the global debate on the relationship between trade and environment.

Some important things that CITES has been learning during these 30 years are: first, international wildlife markets do not work well if they are not structured. In this sense, the overexploitation of wildlife species under unregulated trade conditions must be recognized as a failure of the market, e.g. the decline during the 90's of sturgeon populations in the Caspian Sea after the Soviet Union collapse. Secondly, the duality between trade and conservation is a false dilemma. Trade is not only a threat but also an opportunity**.** In certain cases, well regulated trade may offer the best potential for conserving CITES-listed species in the long term. It is therefore crucial that the international community transcend the polarisation of ideas around these two concepts. Thirdly, CITES rules are not isolated vis-à-vis the international (environmental) law system and are affected by previous and ongoing political negotiations in other fora as well as by the different interests of developing and developed countries. In this sense, CITES rules do not exist as a separate, free-standing concern in a hypothetical "CITES unplugged world" disconnected of the global realities.

In the face of increasing human pressures on wildlife populations, the isolation of economic variables from biological, political, institutional and social settings appears inadequate. The international community has already recognized that there is an interdependence of economic-policy-biological and social factors. One of our main challenges in CITES is to create a structure that integrates all these factors as well as encompasses a built-in flexibility so that it can adjust to the tensions, strains, and unanticipated circumstances of tomorrow.

In the next paragraphs, we will introduce two elements for an integrated approach that may contribute to achieving this ambitious goal. It includes the use of well-targeted economic incentives (EIs) based on a thorough analysis of the underlying socio-economic causes for species loss.

Regulations have to be complemented by incentives

Since the objective of CITES is to conserve

biotic resources, through regulating trade in certain species of wild fauna and flora, economic and trade-related issues are intrinsic to the Convention and trade measures are essential to achieving its objectives. However, an unfortunate misconception is that economic issues should not be taken into account when it comes to wildlife conservation.

Yet economics plays a crucial role in wildlife conservation because human economic behaviour affects species survival, and hence the understanding of the relationships between economic and scientific aspects of wildlife conservation is essential in achieving the CITES objectives.

Although CITES has engaged in using balanced packages of measures, including both incentives and various forms of trade facilitating and restricting regulations, the measures it has adopted have so far been mainly focused on command and control regulations aimed at controlling international trade in listed species.

However, over the past two decades, particularly after the Bruntland Report (1987)[4], there has been an increased recognition that economic incentives could make an important contribution to achieving environmental goals. If properly chosen, designed and implemented, economic incentives (EIs) will contribute to the protection and use of wild fauna and flora in a sustainable and efficient manner. Nevertheless, it is worth to emphasize that if discriminatory or not well designed, these incentives could negatively affect market access or reduce economic welfare.

Bearing in mind that EIs have limitations and should not be seen as a panacea, Parties should consider using economic incentives and remove or mitigate harmful/negative incentives when developing national or regional strategies for the conservation and non-detrimental trade of wildlife. If incentives for public and private wildlife management and maintenance of their habitat are established to complement wildlife trade regulations, CITES will better achieve its final goal which is wildlife conservation. Each Party decides how and to what extent to incorporate those incentives, in accordance with its institutions and its legal system.

CITES rules do not exist as a separate, free-standing concern in a hypothetical "CITES unplugged world" disconnected of the global realities.

In order to encourage the adoption and implementation of EIs, the CITES Secretariat prepared a paper on economic incentives and trade policy that was submitted to the 12th meeting of the Conference of the Parties (Santiago de Chile, November 2002). Basically, the paper was divided in four inter-connected components: the use of economic incentives to ensure that wildlife trade is carried out in accordance with the provisions of the Convention; the design of national wildlife trade policies; the nature of the relationship between CITES and the World Trade Organisation (WTO); and the use of stricter domestic measures under Article XIV of the Convention. Additionally, the paper proposed a draft resolution and a draft decision containing some specific activities.

Generally, the discussions at the CoP reflected a positive attitude towards EIs. Major preoccupations concerned the relationship between CITES and the WTO and the application of stricter domestic measures, rather than the use of EIs themselves. The Conference of the Parties concluded its deliberations on 15 November 2002 with the rejection of the proposed Resolution owing to the concerns about the stricter domestic measures. However Parties adopted the Decision on "Economic Incentives and Trade Policy".

The adoption of this decision follows from the Strategic Vision through 2005 agreed by the Parties at the eleventh meeting of the Conference of the Parties (Nairobi, 2000). The Strategic Vision stresses the importance of the economic dimension and recognizes the need for *"economic incentives to ensure that wildlife trade is carried out in a responsible and sustainable manner".*

I would like to draw your attention to the first paragraph of this Decision, directing the CITES Secretariat, in collaboration with the

Decision 12.22 on Trade Policy and Economic Incentives

The Secretariat should, contingent on the availability of external funding and in collaboration with the Parties that wish to participate and with CBD, FAO, Fauna and Flora International, ICTSD, IFC, IUCN, OECD, TRAFFIC, UNEP-ETB, UNCTAD-BIOTRADE, the World Resources Institute, the World Bank and WTO:

a) organize a technical workshop on wildlife trade policies and economic incentives applicable to the management of and trade in CITES-listed species, in particular in order to develop a methodology to review those policies and to make targeted recommendations on the use of those incentives;

b) report at the 49th meeting of the Standing Committee the findings and recommendations of the workshop;

c) invite Parties to inform the Secretariat, on the basis of the results of the workshop, if they wish to be included in the trade policy review;

d) conduct, in cooperation with the Parties, a review of their national policy regarding the use of and trade in CITES-listed species, taking into account economic incentives, production systems, consumption patterns, market access strategies, price structures, certification schemes, CITES-relevant taxation and subsidy schemes, property rights, mechanisms for benefit sharing and reinvestment in conservation, as well as stricter domestic measures that Parties apply or are affected by;

e) compile and synthesize the information provided by the Parties, and produce a report analysing the economic impacts of wildlife trade policies in terms of socio-economic and conservation benefits and costs, economic value, levels of legal and illegal trade, improvement of the livelihood of local communities, and the role of the private sector involved in wildlife trade;

f) report at the 13th meeting of the Conference of the Parties on the progress made with regard to the implementation of this Decision; and

g) prepare and submit a project proposal to the Global Environment Facility, and other funding institutions and development agencies, to seek financial support to prepare the trade-policy reviews in the selected countries, in the context of their national and regional strategies for biodiversity conservation.

Parties that wish to participate, and with the IUCN and its commissions, ICTSD and others to organize a technical workshop on wildlife trade policies and economic incentives.

What is the purpose of a technical workshop?

The overall objective of a three-day workshop to be held in Geneva from 4 to 6 November 2003 is to develop specific economic tools for effective wildlife conservation strategies.

The aim of the workshop is therefore practical in nature: to provide the Parties with a practical methodology for reviewing, designing, implementing and assessing national wildlife trade policies on the one hand and for identifying and implementing targeted economic incentives in the context of those policies on the other hand.

The workshop is intended to address two issues, within the wider perspective of national wildlife trade policies. The first issue is how economic incentives can contribute to the effective implementation of CITES. The second relates more broadly to national wildlife trade policies (national frameworks for the use of economic incentives and other policy instruments as a kind of policy package for wildlife management), building on the recognition that many countries do not have such integrated policies in place when establishing wildlife harvest and trade regulations, and therefore lack a coherent approach to management of the wildlife trade.

This implies the consideration of other interconnected components, namely the analysis of the relationship between such trade policies and the conservation of wild fauna and flora; and the strengthening of strategic partnerships and sustained exchange of information with the interna-

tional organizations mentioned in the Decision 12.22.

Methodology

The Secretariat plans to prepare two background papers, one describing a methodology to design and implement targeted economic incentives that are or could be applied to the wildlife trade, and the second on the different types of national wildlife trade policies that have been established by CITES Parties and the ways forward to develop integrated management systems for wild fauna and flora with a focus on 10 mega-biodiversity countries.

Workshop participants will include a representative from a mega-diverse country; CITES Parties as well as strategic partners identified in Decision 12.22. It will draw on independent experts including national park planners and ranchers. The workshop furthermore aims to bring together a wide range of stakeholders to secure a rich exchange of experiences, perspectives and inter-linkages with similar processes. The case studies to be used in the workshop will be those mandated by the Conference of the Parties under several Resolutions and Decisions, namely regulation of trade in sturgeons, elephants, freshwater turtles, sharks, seahorses, vicunas, mahogany, devil's claw, aloe products and *Guaiacum* species, as well as nation-wide significant trade reviews.

Relevant Economic incentives in CITES might be classified in two orders:

1. Those directly related to trade such as: hunting licenses, CITES permits and certificates, quotas, labelling, community revenue sharing, harvesting fees, fines for illegal behavior.

2. Those related to wildlife management and conservation such as: property rights, land use policies, agricultural subsidies.

The workshop will focus on the first category but when feasible draw on the interactions between the two categories. In particular it is expected that the workshop will focus on:

a) help ensure that trade in Appendix-II species is sustainable and in compliance with Article IV of the Convention;

b) promote the recovery of Appendix-I species so that they may no longer meet the criteria for inclusion in Appendix I;

c) create mechanisms whereby direct and indirect economic benefits and income derived from trade in CITES-listed species can be reinvested by authorities and other beneficiaries in management and conservation of these species and their habitats;

d) halt, if not reverse, the decline of certain populations of CITES-listed species; and

e) encourage CITES authorities to work with sectoral ministries and agencies responsible for trade to promote harmonious coexistence and mutual supportiveness of the objectives of both CITES and the World Trade Organization.

The findings and recommendations of the workshop, which will be reported to the 50th meeting of the Standing Committee, are not expected to provide a comprehensive economic analysis of incentives for wildlife conservation but rather identifying more practically oriented tools and approaches that will be appropriate for the present and future needs of the State members of CITES. The Standing Committee will decide the road ahead. It is however important to keep in mind that CITES cannot prevent the loss of species and their habitats by itself. CITES should be viewed as only one part of a comprehensive set of tools for the conservation of our priceless wild fauna and flora.

If properly chosen, designed and implemented, economic incentives (EIs) will contribute to the protection and use of wild fauna and flora in a sustainable and efficient manner.

Juan Carlos Vasquez is Legal and Trade Policy Officer at the CITES Secretariat; email: juan.vasquez@unep.ch; Internet: http://www.cites.org

Notes

[1] *This article is based on a paper on Economic Incentives and Trade Policy submitted by the CITES Secretariat to the 12th meet-*

ing of the Conference of the Parties to CITES (Santiago de Chile, November 2002) and Decision 12.22 adopted by the Parties at that meeting.

2 see W. Wijnstekers, *The Evolution of CITES: A Reference to the Convention on International Trade in Endangered Species of Wild Fauna and Flora* (6th ed., 2001).

3 *To March 2003, 161 Countries are members to the Convention and implement the contracted obligations with different levels of compliance and enforcement. Effective implementation of the Convention implies important transaction costs that require additional financial resources, and a commitment from both the private and public sectors to fund necessary activities. CITES is a low national priority in some countries, given the fact that basic needs have not yet been met for the majority of the population. Funding allocations for wildlife conservation activities are thus likely to be limited in light of pressing, and sometimes conflicting, development needs from other economic sectors. Some Parties have advocated that a mechanism of payments from the consumer to the producer countries should be developed to facilitate conservation strategies, increase compliance and strengthen enforcement efforts.*

4 *Bruntland, G (ed) (1987). Our Common Future: The World Commission on Environment and Development, Oxford: Oxford University Press. In 1987 the United Nations Commission on Environment and Development (the Bruntland Commission) drew attention to the fact that economic development often leads to a deterioration, not an improvement, in the quality of people's lives.*

Applying socio-economic considerations in domestic biosafety frameworks: the international legal context

Matthias Buck

Most of the debate on the risks to biodiversity and health associated with the use of living modified organisms (LMOs) – particularly in agriculture – has so far centred on adequate risk assessment and risk management procedures, and on the role of precautionary measures in the light of scientific uncertainty. While risk assessment, risk management and precaution lie at the heart of domestic biosafety frameworks, such frameworks need to take on a broader perspective in order to be effective. They have to account for different levels in the capability of administrative and scientific institutions to assess and manage risks associated with LMOs. They also need to be sensitive to the indirect impacts of the use of LMOs on efforts to conserve and sustainably use wild and agricultural biodiversity. There is a clear link, for example, between more intensive agricultural practices and the increasing marginalisation of small-scale farmers which hold important traditional knowledge on the conservation and sustainable use of agricultural and wild biodiversity.[1] In this context, effective biosafety frameworks should also address the "economics of intellectual property rights" associated with LMOs. Intellectual property rights may threaten the ability of indigenous and local communities to engage in traditional planting and harvesting practices, or undermine markets for traditional products. In the debate on adequate biosafety frameworks, this broader set of issues is generally referred to under the rubric of "socio-economic" considerations.

The aim of this note is to identify the legal space under international law for applying "socio-economic" considerations in domestic biosafety frameworks. The most important international agreement in this context is the Cartagena Protocol on Biosafety. The Cartagena Protocol interacts with a range of other international and regional instruments, such as various agreements governed by the World Trade Organization, ongoing work in the FAO/WHO Codex Alimentarius Commission on foods derived from biotechnology, or the recently concluded International Treaty on Plant Genetic Resources.

In the following I will first provide an overview of the requirements on domestic biosafety frameworks set out by the Cartagena Protocol

and the way in which Article 26 of the Protocol refers to socio-economic considerations. I will then highlight the relevance of this provision for the operation of the Cartagena Protocol itself and discuss its implications for the international trade law obligations of Parties. I conclude that, by acknowledging the relevance of socio-economic considerations in domestic biosafety frameworks, the Cartagena Protocol has opened a window of opportunity, to address the potentially negative effects the use of LMOs might have on the ability of relevant stakeholders to conserve and sustainably use existing biodiversity. This applies in particular to biodiversity rich developing countries, especially regarding the value of biodiversity to indigenous and local communities. Using this window of opportunity in a meaningful way requires urgent work in two areas: First, there is a need for a "bottom-up" case-study based analytical process to demonstrate clear links between the use of LMOs, impacts on biodiversity and the socio-economic environment relevant for the conservation and sustainable use of biodiversity. This process should at minimum involve biodiversity stakeholders and experts on socio-economic issues. It would provide the basis for developing a set of operational guidelines for the application of socio-economic considerations in the context of domestic biosafety frameworks. Second, it is crucial to initiate a political process to build ownership for emerging concepts. This might include working with national ministries and with delegates at international negotiations and drawing together different constituencies from the environmental, development and business communities.

In both areas, IUCN can and should play a key role, given its unique ability to gather and synthesise "on the ground" experience and to feed it into relevant international and regional policy-networks.

Picture 1: Women working in rice fields, Nepal....."This might in turn undermine the ability of farmers to continue cultivating traditional plants and result in a loss of plant species as well as traditional knowledge on their cultivation". *(Courtesy UNDP Nepal)*

The Cartagena Protocol on Biosafety: An Overview[2]

The Cartagena Protocol on Biosafety (CP) was adopted by the Conference of the Parties to the CBD as a supplementary agreement to the Convention on Biological Diversity on 29 January 2000.[3] It will enter into force on 11 September 2003. Its main aim is to protect biodiversity from the potential risks posed by living modified organisms (LMOs) resulting from modern biotechnology. While the Protocol primarily applies to transboundary movements of LMOs, their transit, handling and use, the ability of Parties to take informed decisions on the import of LMOs, in line with the minimum standards established by the CP, hinges on the existence of effective domestic biosafety frameworks. The main international mechanism to support Parties in this regard is an extensive international system of information exchange, the so called „Biosafety Clearinghouse".

Decisions on the import of LMOs based on risk assessment, risk management and precaution

Decisions on the import of LMOs are to be based on a "scientifically sound" risk assessment. To this end, the CP, in its Annex III, sets

out detailed principles and methodological requirements for assessing the risks associated with the deliberate release of LMOs into the environment or their use as food or feed or for processing.

By acknowledging the relevance of socio-economic considerations in domestic biosafety frameworks, the Cartagena Protocol has opened a window of opportunity, to address the potentially negative effects the use of LMOs might have on the ability of relevant stakeholders to conserve and sustainably use existing biodiversity.

Case-by-case oriented risk assessments result in risk profiles of particular LMOs for specific environmental contexts. The CP requires Parties to address such risks in the context of risk management mechanisms, measures or strategies in order to prevent adverse effects of LMOs on biodiversity or health. Risk management may include efforts to prevent unintentional transboundary movements of LMOs or monitoring and observation obligations commensurate with the life-cycle of LMOs before these are put to their intended use.

Permeating the CP are references to the precautionary principle. These emphasise that lack of scientific certainty due to insufficient information and knowledge regarding the extent of potentially adverse effects of a LMO on biodiversity or health, does not prevent a Party of import from taking a decision with regard to the import of that LMO in order to avoid or minimise such potential adverse effects. The precautionary principle expresses a basic choice to act prudently under conditions of scientific uncertainty. Its effective application requires that scientific uncertainties are made explicit in risk assessments. Consequently, the risk assessment provisions of the CP underline that a lack of scientific knowledge or scientific consensus, should not be interpreted as indicating a particular level of risk, an absence of risk, or an acceptable risk.

Information exchange through the Biosafety Clearing-House

To support the establishment and operation of domestic biosafety frameworks and to facilitate the operation of the Protocol's import procedures, the CP establishes an international mechanism to facilitate the exchange of scientific, technical, environmental and legal information and experience with LMOs, the so called "Biosafety Clearing-House".[4] The Biosafety Clearing-House will contain i.e. summaries of risk assessments or environmental reviews of LMOs. It will furthermore list competent national authorities for operating the import provisions of the Protocol, relevant national laws, regulations and guidelines for implementing the Protocol and information required by the Parties for the operation of the Protocol's import procedures.

Procedures for deciding on the import of LMOs

Domestic biosafety frameworks and information provided through the Biosafety Clearing-House are the foundation for the effective operation of the CP's import procedures. The CP sets out an Advance Informed Agreement Procedure (AIA-Procedure) that in principle, applies prior to the first transboundary movement, transit, handling and use of all LMOs which may have adverse effects on the conservation and sustainable use of biodiversity or health. The aim of the AIA-Procedure is to ensure that countries are provided with the information necessary to make informed decisions before agreeing to the import of LMOs into their territory. It includes the requirement of prior notification, minimum requirements on the information provided by the exporter, and – in general – written consent by the Party of import. The CP stresses the right of importing Parties to apply a precautionary approach in taking its decision. Significantly, it also allows the Party of import to require the exporter to carry out the necessary risk assessment or, alternatively, to impose the costs of the risk assessment on the notifier. The latter opens the possibility for countries, which lack an effective domestic biosafety framework to mandate an independent public or private institution to conduct the risk assessment.

Certain categories of LMOs are, however, excempted from the application of the AIA-

Procedure. This is the case for LMOs in transit, LMOs destined for contained use, and, most importantly, LMOs intended for direct use as food or feed, or for processing (LMO-FFPs). At present, LMO-FFPs make up the bulk of LMOs traded internationally. In this regard, the CP sets out a simplified procedure, which essentially constitutes a mechanism for information exchange through the Biosafety Clearing-House: Parties are required to notify their domestic authorisations for LMO-FFPs through the Biosafety Clearing-House and to make copies of any national laws, regulations and guidelines applicable to their import available.

The Scope for Socio-Economic Considerations under the Cartagena Protocol

Article 26 CP explicitly states that:

"1. The Parties, in reaching a decision on import under this Protocol or under its domestic measures implementing the Protocol, may take into account, consistent with their international obligations, socio-economic considerations arising from the impact of living modified organisms on the conservation and sustainable use of biological diversity, especially with regard to the value of biological diversity to indigenous and local communities.

2. The Parties are encouraged to cooperate on research and information exchange on any socio-economic impacts of living modified organisms, especially on indigenous and local communities."

While the relevance of socio-economic considerations is explicitly recognised in Article 26, its wording provides only limited guidance on exactly how such considerations can be taken into account. Further work is needed to put this aspect of the Protocol into practice.

In this regard, three areas merit closer scrutiny: (1) The type of impacts potentially to be included under the rubric of socio-economic considerations, (2) procedural entry points for invoking socio-economic considerations in the implementation of the Protocol, (3) the relationship of this aspect of the CP to obligations resulting from international trade law.

(1) Type of Impacts: As a starting point, it is important to stress that Article 26 only allows to take into account those socio-economic considerations which arise from the impact of LMOs on the conservation and sustainable use of biodiversity. Clearly, potential changes in biodiversity, particularly in agriculture, which might result from the use of LMOs, and ensuing negative effects on, for instance, the livelihood of farmers who rely on the continued existence of traditional crops are within the scope of this wording. An impact to be considered in this regard might, for instance, be the large scale replacement of agricultural land used for traditional agriculture by intensive agriculture using LMO-crops. Furthermore, Article 26 explicitly mentions the possible consideration of negative impacts resulting from the use of LMOs on the value of biodiversity to indigenous and local communities.

It is less clear, whether some more indirect socio-economic impacts resulting from the use of LMOs can also be considered. Potentially relevant cases include the loss of viable markets for traditional products as a result of the import of LMO-FFPs. This might in turn undermine the ability of farmers to continue cultivating traditional plants and result in a loss of plant species as well as traditional knowledge on their cultivation. Significantly, Article 26 does not qualify the term "impact" to only "direct impacts", so there might be some scope for considering this broader and more indirect type of impacts.

What emerges from the wording of Article 26 CP, however, is the need to demonstrate clear and strong links between the use of LMOs, impacts on biodiversity and the socio-economic environment relevant for the conservation and sustainable use of biodiversity. This requires a wide-ranging effort

What emerges from the wording of Article 26 CP, however, is the need to demonstrate clear and strong links between the use of LMOs, impacts on biodiversity and the socio-economic environment relevant for the conservation and sustainable use of biodiversity.

The stronger the demonstrable linkages between the use of LMOs, impacts on biodiversity and socio-economic considerations arising from this impact are, the better the chances that measures taken to implement Article 26 CP will be regarded as in accordance with international trade law should a dispute arise.

to gather and synthese case-studies on the use of LMOs in specific contexts and ensuing consequences for the ability of societal groups to conserve and sustainably use biodiversity. Such effort would also raise the relevance of Article 26 paragraph 2 of the Protocol which encourages Parties to cooperate on research and information exchange on socio-economic impacts of LMOs. Ideally, Parties would be able to turn to a database of case-studies – publicly accessible through the Biosafety Clearing-House – to back their invocation of socio-economic considerations when reaching a decision on the import of LMOs.

(2) Entry points to take into account socio-economic considerations: Parties may take socio-economic considerations into account when "reaching a decision on import under this Protocol or under its domestic measures implementing the Protocol". This wording effectively leaves it to the discretion of Parties when and in what type of procedure to apply socio-economic considerations.

One might contemplate addressing socio-economic considerations in risk assessment procedures by, for example, enriching these with assessments of the potential consequences of the use of LMOs on the biodiversity available to local and indigenous communities. As part of their overall risk management strategies, Parties might decide to keep areas with indigenous communities that hold important traditional knowledge on biodiversity, entirely free of LMOs. At last, it seems important to explore the scope for addressing socio-economic considerations in invocations of the precautionary principle.

(3) Relationship to obligations resulting from international trade law: As pointed out in the introduction, the CP interacts with a range of other international and regional instruments. Its most important implications, however, arise in relation to international trade law, given that restrictions on the import of LMOs might be regarded as barriers to free trade and could possibly be challenged under agreements of the WTO-regime.

Article 26 CP itself provides guidance on how the relationship between socio-economic considerations under the CP and other norms of international law is to be addressed: Parties may take into account socio-economic considerations in ways "consistent with their international obligations". Parties thus have to ensure that the invocation of socio-economic considerations is in accordance with their obligations under WTO-law. Further guidance is provided by the CP's preambular paragraphs, which call for the establishment of a "mutually supportive" relationship between the CP and international trade agreements. This language calls on Parties of the CP to approach interactions between both regimes with the aim of safeguarding both the integrity of the Protocol and the rights and obligations of Parties under international law on trade.

If socio-economic considerations under the CP were taken into account in the context of risk assessment, risk management or precaution, their legality – from a WTO-law perspective – would most likely be assessed under the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

The SPS Agreement requires its Members to take into account "relevant economic factors" when assessing risks to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection.[5] At first reading this seems more narrow than the CP, which allows taking into account socio-economic considerations. On the other hand, the CP is more specific than the SPS Agreement as it limits socio-economic considerations only to those arising from the impact of LMOs on biodiversity.

These textual differences reflect broader differences between objectives and the regulatory approach of the SPS Agreement and the CP. The objective of the SPS Agreement is to avoid that SPS-measures create unnecessary barriers to free trade. While the agreement stresses the

right of Members to protect human, animal or plant life or health through SPS-measures, it takes a science-based economic approach to assessing costs and benefits of SPS measures. The CP, in contrast, primarily aims to ensure that the transfer, handling and use of LMOs does not have adverse effects on the conservation and sustainable use of biodiversity. It also lays out a science-based approach to managing risks related to LMOs. However, by doing so it places a greater emphasis on precaution and explicitly allows considering values of a non-material quality, such as the (traditional, spiritual) value of biodiversity to indigenous and local communities.

Another difference exists with respect to the strength of obligations: the SPS Agreement requires its Members to take economic aspects into account when determining the appropriate level of sanitary or phytosanitary protection, whereas the CP merely authorises its Parties to invoke socio-economic considerations arising from the impact of LMOs on biodiversity. This is interesting, because if measures to avoid risks associated with the use of LMOs also qualify as sanitary and phytosanitary measures under the SPS Agreement, the latter would – at least with respect to economic aspects – actually broaden the range of necessary factors to be considered in risk assessment procedures.

Overall, it is important to stress that despite these differences, there is no open incompatibility between the SPS Agreement and the CP with respect to the type of factors potentially to be considered in risk assessment, risk management or precaution. It should therefore be possible to invoke socio-economic considerations under the CP consistent with the SPS Agreement, thereby giving meaning to the call for establishing a mutually supportive relationship between the CP and international trade law.

A more detailed and reliable analysis would have to look at more specific (possibly hypothetical) cases to determine the best approach of invoking socio-economic considerations in risk assessment and risk management procedures and in the context of precaution.[6] Overall, however, considering the heavy emphasis of the SPS Agreement on a science-based approach to risk assessment, risk management and precaution, one thing seems clear: The stronger the demonstrable linkages between the use of LMOs, impacts on biodiversity and socio-economic considerations arising from this impact are, the better the chances that measures taken to implement Article 26 CP will be regarded as in accordance with international trade law should a dispute arise.

At last, the strong preference of the SPS Agreement for SPS measures taken according to international standards[7] should encourage Parties to the CP to seek recognition for operational guidelines concretising Article 26 of the Cartagena Protocol as "international standards" under the SPS Agreement.[8]

Conclusions

Article 26 of the Cartagena Protocol authorises Parties to take into account socio-economic considerations arising from the impact of LMOs on biodiversity when deciding upon the import of LMOs. Given its broad wording, Article 26 largely leaves it to the discretion of Parties when and how to apply socio-economic considerations. Most likely, such considerations will become of relevance in the areas of risk assessment, risk management and precaution. When invoking socio-economic considerations, Parties have to ensure that their obligations under WTO agreements are not violated. At least on an abstract level of analysis it seems that despite differences in detail, there are no open incompatibilities between relevant provisions of the CP and of WTO law. Remaining uncertainties will substantially be reduced, however, if it is possible to document clear and strong links between the use of LMOs, impacts on biodiversity and the socio-economic environment relevant for the conservation and sustainable use of biodiversity.

By acknowledging the relevance of socio-economic considerations in domestic biosafety frameworks, the Cartagena Protocol has opened a window of opportunity to address the potentially negative effects the use of LMOs might have, on the ability of relevant stakeholders to conserve and sustainably use biodiversity. This applies in particular to biodiversity rich develop-

ing countries.

Using this window of opportunity in a meaningful way requires urgent work in two areas:

First, there is a need for a "bottom-up" case-study based analytical process to demonstrate clear and strong links between the use of LMOs, impacts on biodiversity and the socio-economic environment relevant for the conservation and sustainable use of biodiversity. This process should at minimum include biodiversity stakeholders and experts on socio-economic issues. Its outcomes should be disseminated as part of the information-exchange under the CP. Ideally, it would result in a set of operational guidelines for applying socio-economic considerations in the context of national biosafety frameworks plus a database of case-studies – accessible through the Biosafety Clearing-House - to back the invocation of socio-economic considerations when reaching a decision on the import of LMOs.

Second, it is crucial to initiate a political process to build political ownership for emerging concepts. This should include working with national ministries and with delegates at international negotiations and drawing together different constituencies from the environmental, development and business communities.

In both areas, IUCN can and should play a key role, given its unique ability to gather and synthesise "on the ground" experience and to feed it into relevant international as well as regional policy-networks.

Time is somewhat pressing, given that the Intergovernmental Committee for the Cartagena Protocol, which serves as the interim working body to prepare the first Meeting of the Parties to the Protocol, has not addressed the issue of socio-economic considerations in its substantive work programme[9]. In addition, after entry into force of the Cartagena Protocol, the first two or three meetings of the Parties will take decisions that might fundamentally shape the direction the Protocol.

Matthias Buck is vice chair for legal affairs GETI; and associate fellow, Ecologic Institute for International and European Environmental Policy, Berlin, Germany. Email: buck@ecologic.de. His focus of work is International and European policy and law in the areas of environment, trade and investment.

Notes

1 See for instance the case study *Alejandro Nadal* (2000), "The Environmental and Social Impacts of Economic Liberalization on Corn Production in Mexico", WWF International/ Oxfam GB**.** Available at: **<**http://www.wwf.org.mx/pdf/Estudio%20del%20Maiz%20(ingles).pdf>.

2 IUCN's Environmental Law Centre and the Foundation for International Environmental Law and Development (FIELD) have recently published, in cooperation with the World Resources Institute (WRI), a comprehensive explanatory Guide to the Cartagena Protocol on Biosafety. The Guide is available online at: <http://www.iucn.org/themes/law/info04.html>.

3 The Cartagena Protocol is available at: <http://www.biodiv.org/biosafety/protocol.asp>.

4 Until the entry into force of the CP Parties agreed to develop the Biosafety Clearing-House during a pilot phase. See: <http://bch.biodiv.org/Pilot/Home.aspx>.

5 Economic factors named in Article 5 para. 3 SPS Agreement include potential damages in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease, as well as the costs of controlling or eradicating a pest or disease.

6 Comparative assessments of the two agreements' provisions on risk assessment, risk management and precaution have highlighted some differences but in general also scope for "mutually supportive" interpretations. The main problems exist in the area of precaution, because the wording of Article 5.7 of the SPS Agreement is more restrictive than precaution-related provisions of the CP. It should be noted, however, that recent decisions by the WTO's Appellate Body, have broadened the scope for enriching the interpretation of WTO-law with principles and norms established in public international law outside of the WTO-regime. As regards precautionary measures to prevent risks from LMOs, it seems that with entry into force of the Cartagena Protocol, it will be very hard, if not impossible to deny the firm recognition of the precautionary principle in international law, at least in the area of biosafety.

7 According to Article 3 para. 2 of the SPS Agreement, measures which conform to international standards, guidelines or recommendations are prima facie presumed to be consistent with the SPS Agreement and the GATT 1994.

8 Significantly, Annex A No. 3 d) of the SPS Agreement states that for matters not covered by standardising bodies explicitly mentioned in the SPS Agreement (explicitly named are: Codex Alimentarius Commission, International Office of Epizootics, International Plant Protection Convention), the WTO's Committee on Sanitary and Phytosanitary Measures can endorse „appropriate standards, guidelines and recommendations promulgated by other relevant international organisations open for membership to all WTO Members."

9 The Intergovernmental Committee for the Cartagena Protocol serves as the interim working body to prepare the first Meeting of the Parties to the Protocol. In its deliberations, the issue of socio-economic considerations has repeatedly been mentioned as an item which requires further consideration and research. However, it has so far not been addressed in any substantive way. For information on the Cartagena Protocol and documents resulting from the interim process before the Protocol's entry into force consult:< http://www.biodiv.org/biosafety/ >.

Trade and investment implications of the Kyoto Protocol

Lucas Assunção and Beatriz Garcia

The Kyoto Protocol (KP) adopted on 11

December 1997 marks the first step towards an international strategy to limit greenhouse gas emissions and represents a major push towards the establishment of a multilateral regime on climate change.[1] The KP will enter into force once it is ratified by no less than 55 parties to the United Nations Framework Convention on Climate Change (UNFCCC), which account in total for at least 55% of the total carbon dioxide emissions of the greenhouse gases for 1990 of the parties included in Annex I[2].

The Protocol's ultimate objective is to achieve the reduction in the emissions of greenhouse gases (GHG) by establishing quantified limitation and reduction obligations to industrialized countries . . Both developed and developing countries' main objective, in the KP negotiations, was to create and effective multilateral system for combating global warming and to ensure that the Protocol would not hinder strong and growing national economies and development claims. Developing countries were against taking emissions commitments under the Protocol. Their opposition was based on the fact that industrialised countries had a historical responsibility for causing the doubling of GHG concentrations in the atmosphere. Therefore, the Protocol sets up burden-sharing obligations, based on the principle of common but differentiated responsibilities.

Developed countries finally agreed to reducing their overall emissions of greenhouse gases by at least 5percent below 1990 levels in the first commitment period from 2008 to 2012. These countries are the only ones with quantified emission limitation or reduction commitments. . Developing countries have no international obligations in the first commitment period.

Policies aiming to prevent climate change will certainly have a bearing on world trade. Reducing greenhouse gas emission will affect various sectors in the world economy, such as transport, industry, energy sectors and production processes. Measures taken by Annex I countries to meet GHG emission reduction targets will affect the costs of production of traded products and therefore their competitive position in the world market.

There are two possible scenarios. Firstly, a reduction in Annex I countries' production of GHG intensive products will potentially lower their demand for industrial goods and services elsewhere and thereby decrease the growth of overall trade and investment. There could be, however, an incentive to the production of alternative goods and services and to the use of technologies requiring less GHG emissions. Secondly, Annex I countries may demand more industrial products from non-Annex I countries that are producing more cost effectively as they are not facing the Kyoto Protocol emission reduction commitments.

In any case, non-Annex I economies are likely to be affected through their investment and trade linkages with Annex I regions. In the first scenario, non-Annex I economies will be negatively impacted with an overall decrease in trade and investment. The GHG reduction policies in Annex I countries will raise the prices of energy and hence the production costs of related sectors. On the one hand, import costs of Annex I goods are projected to raise as a result of the higher production costs in these countries. On the other hand, exports from non-Annex I countries are foreseen to decrease. In the second

scenario, non-Annex I Parties are positively affected in terms of trade due to greater demand from Annex I countries' for industrial products and the resulting increase in exports.

Generally, countries that export a large amount of fossil fuels such as those within the Organization of the Petroleum Exporting Countries (OPEC) will be the most affected due to the lower Annex I fuel use. The Gross Domestic Product (GDP) of countries exporting fossil fuels tends to decline as a result of the reduction in their exports. Regions that export more emission intensive goods other than fossil fuels to Annex I countries, such as South Korea, China, India and Brazil, are generally projected to experience GDP gains as a consequence of improved export competitiveness against Annex I regions (Brown, 1999).

An important feature of the Protocol is that it provides Parties with enough flexibility to choose between various policy tools to meet their commitments. It specifies emission reduction targets per country in the period between 2008-2012, but it does not specify which policy interventions must address a specific economic sector (for example, transport), a specific energy carrier (such as oil, coal or natural gas) or a specific policy tool (say, a carbon or energy tax) (Assunção and Zhang, 2002). This allows countries to seek optimal ways to achieve GHG emission reduction and adjust their climate change strategies to the circumstances and special features of their economies.

An important feature of the Protocol is that it provides Parties with enough flexibility to choose between various policy tools to meet their commitments. It specifies emission reduction targets per country in the period between 2008-2012, but it does not specify which policy interventions must address a specific economic sector (for example, transport), a specific energy carrier (such as oil, coal or natural gas) or a specific policy tool (say, a carbon or energy tax) (Assunção and Zhang, 2002). This allows countries to seek optimal ways to achieve GHG emission reduction and adjust their climate change strategies to the circumstances and special features of their economies.

Using market mechanisms to meet obligations

The KP creates an opportunity for the use of market mechanisms towards the achievement of its purposes, allowing States to fulfil their obligations with a certain degree of flexibility. Three "Kyoto mechanisms" will assist Annex I Parties in meeting their targets: emissions trading (KP Article 17), joint implementation between Annex I Parties (KP Article 6), and the Clean Development Mechanism (CDM) (KP Article 12).

First, Emissions Trading allows exchange of GHG emission reduction allowances among Annex I Parties, enabling them to meet their commitments by selling or buying such titles. An Annex I country, which expects to emit more than its assigned amount, can thus buy the rights to emit GHG from another Annex 1 country that was able to emit less than its assigned amount. Second, Joint Implementation entails collaboration among Annex I Parties on projects to reduce greenhouse gas emissions from a baseline scenario. The baseline attempts to estimate what the future emissions levels would be if the project intending to reduce GHG emissions would not be implemented. Emission reduction below the baseline creates a "surplus" and can be used in the form of credits, which are attributable to the investing country. Third, the Clean Development Mechanism (CDM) will provide incentives to Annex I countries investing in emission reduction projects in developing countries. These projects may generate Certified Emission Reductions, being divided between the host country and the investor. The credit trading under the CDM is expected to achieve the dual objective of providing cost effective compliance to Annex I countries and at the same time generating resource flows for sustainable development in non-Annex I countries.

The market mechanisms are important because they minimise competitiveness loss or harmful impacts of GHG mitigation policies and they make of GHG emissions control a

source of profit (UNCTAD, 2001). Investment flows are expected to derive particularly from projects under the CDM. This is due to the fact that Annex I countries are generally willing to meet their GHG emissions targets extraterritorially so that their societies and economies are less affected. Non-Annex I States expect to benefit from the investments carried out by Annex I countries and the transfer of clean and modern technologies.

The Protocol and Environmental Protection

There are several uncertainties associated with the market mechanisms created by the Protocol and with their impacts in terms of trade benefits and environmental protection. Investment flows to developing countries under CDM projects tend to be geographically unevenly distributed, as least developed countries tend to attract fewer investments. In addition, developed and developing countries' priorities are not necessarily compatible. Annex I countries expect to achieve GHG emission reduction in the most cost effective way, through low-cost abatement projects in non-Annex I countries. Low-cost carbon mitigation projects, however, will not necessarily contribute to the sustainable development in non-Annex I countries. Furthermore, the mechanisms' complex structures and formal requirements to obtaining emission reduction credits could discourage private sector investment if not clearly established.

Investment flows deriving from GHG emission reduction projects are not necessarily desirable from an environmental perspective. Projects that are beneficial for carbon abatement are not necessarily so for sustainable development. For example, in India the replacement of conventional energy technology with alternative technology actually increased residual solid waste (Austin, 1999). The flexibility mechanisms may also affect the awareness of the need for structural changes, particularly in current energy policies and industrialised countries' life style. Moreover, there is a possibility that action to limit emissions in industrialised countries will consequently lead to emission increases in countries not constrained by GHG emission reduction targets, the so-called "emissions leakage", which is a potential consequence of the second scenario described above. This could undermine the actual effectiveness of action taken by industrialised countries.

The future of the Protocol

The non-participation of key States in the Kyoto system, particularly the United States and Australia leave the magnitude of the emerging carbon market unclear. The United States avoids the costs of mitigating GHG emissions and indirectly subsidises its industry by rejecting the KP objectives. The competitiveness of American products increases compared with those that have ratified the KP. The current U.S. administration position hinders for the moment the possibility of a strong carbon market and leads to the continuing incidence of natural disasters (World Disasters Report, 2002).[3] Actually, without the participation of the United States, negotiations for future commitments with more stringent targets for developed countries and greater developing countries participation become less realistic.

Despite the actual difficulties of implementing the Protocol's objectives, there is very little doubt that the future will be carbon-constrained. Economic losses related to unabated climate change have proved to be fairly high . Certainly, the emerging carbon market does not in itself provide the solution for the fight against global warming; however, it plays the essential role of a propeller and catalyst for achieving the KP objectives.

The scale of trade actually depends upon the implementation and outcomes of the flexibility mechanisms, which are still to be refined. Positive effects of a future carbon market would be that constraints in GHG emissions could change industrial structures and induce innovation in various ways, by stimulating growth of lower GHG-emitting industries (Brack, 1999). Financing provided particularly by the CDM could make renewable options and clean technologies more competitive. This could, in addition, better prepare developing countries to meet future obli-

gations after the first commitment period. A resilient and active carbon market would provide less costly solutions and finance for the achievement of GHG emission reductions and therefore, provide an incentive for countries to comply with the KP.

Lucas Assunção is Vice Chair for GETI and Coordinator, Climate Change and BIOTRADE Programmes – United Nations Conference on Trade and Development (UNCTAD) – Geneva and **Beatriz Garcia** is consultant for the Climate Change Programme – UNCTAD. For more information please see Internet: http://www.unctad.org

Notes

[1]By July 2003, 111 countries had ratified the Protocol. Ratifications by Annex I countries accounted for 44.2% of that group's carbon dioxide emissions in 1990 . The USA (36.1%) and Australia (2.1%) have declared their rejection of the KP. Thus, in order for the KP to enter into force, Russia (17.4%) needs to ratify it. Official pronouncements suggest that Russia is on track to ratify the KP in the coming months. The Kyoto Protocol includes six greenhouse gases, which are listed in Annex A: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), perfluorocarbons (PFCs) and hydrofluorocarbons (HCFCs). Greenhouse gases, according to Article 1 of the UNFCCC, means "those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation".

[2] Annex I Parties to the FCCC are Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, European Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America.

[3] Changes in the sea level and temperature will trigger unpredictable changes in the frequency and intensity of extreme whether events such as cyclones and droughts. It is observed an a significant increase in the numbers of people reported affected by weather-related disasters: from 275,000 in the 1970s, to 1.2 million in the 1980s to 18 million in the 1990s – a 65-fold increase.

References

Assunção, L. and Zhang, Z.X., "Domestic Climate Change Policies and the WTO", UNCTAD Discussion Papers, N. 164, 2002.

Austin, D. et al, "How Much Sustainable Development Can We Expect from the Clean Development Mechanism", World Resource Institute, 1999, p. 7.

Brack, D. et al, "International Trade and Climate Change Policies", EARTHSCAN, 1999, p. 29.

Brown, S. et al, "Economic Impacts of the Kyoto Protocol: Accounting for the Three Major Greenhouse Gases", ABARE, 1999, pp. 10-11

International Federation of Red Cross and Red Crescent Societies, "World Disasters Report: focus on Reducing Risk", 2002, pp. 83-105.

UNCTAD, "Greenhouse Gas Market Perspectives: Trade and Investment Implications of the Climate Change Regime", 2001, p. 7.

International processes on genetic resources and traditional knowledge: options and negotiation alternatives[1]

David Vivas-Eugui , Manuel Ruiz and Maria Fernanda Espinosa

Introduction

The entry into force of the Convention on Biological Diversity (CBD) in December 1993 marked, the starting point for intense international, regional and national processes addressing, among others, two critical issues : first, the regulation of access to genetic resources and equitable benefit sharing (Articles 1, 15, 16, 19) and second, ensuring the legal protection of traditional knowledge (TK), particularly in its relation to biodiversity and intellectual property (IP) (Articles 10(c), 8(j)).

Over the past ten years, discussions of both these interrelated, yet distinct, issues have multiplied. Extensive legal, policy, economic and scientific debate has taken place in multilateral fora: The Convention on Biological Diversity (CBD), the Food and Agriculture Organisation (FAO), The

United Nations Conference on Trade and Development (UNCTAD), The United Nations Educational, Scientific and Cultural Organisation (UNESCO), The World Trade Organisation (WTO), The World Intellectual Property Organisation (WIPO), regional fora such as the Andean Community of Nations (CAN), The Organisation of African Unity, and the Pacific Island Forum; non-governmental fora (e.g. the IUCN Global Biodiversity Forum), indigenous peoples organisations, and many others.

In the case of the protection of TK, considerable progress has been made in the development of laws, treaty drafts, model laws and conceptual documents. However, two key questions remain open: first, ensuring an internationally recognised and sanctioned protection of TK, and second, defining which intergovernmental institutional framework should undertake the international policy process to pursue this end.

TK is not only a complex issue in itself. It can be addressed from different perspectives such as: conservation and sustainable use (i.e. CBD), social and cultural aspects (i.e. UNESCO), food and agriculture (i.e. FAO), intellectual property (i.e. WIPO) and economic development (i.e. UNCTAD, WTO). All these approaches are necessary pre conditions for developing sound and effective legal tools and instruments for TK protection. It is thus difficult to address and assess TK in an appropriate manner within the context of a single institutional framework, particularly at the intergovernmental level. Formal mandates of these international bodies, natural political trends, expertise and other factors determine the priorities, the focus and the approach. Given this situation and recognising the important advances and progress made in each of these different institutional frameworks (all have recognised the importance of TK), especially within the CBD and WIPO, the question of *where can* an interdisciplinary (holistic), transparent, open, participatory, international policy and legislative process take place, is extremely relevant.

In 2003, the initial mandate of the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore[2] (IGCGRTKF) is coming to an end. At this time, countries will have to decide on the ways and institutional frameworks in which the discussions should continue. Some countries believe that the Committee should continue in its current mode in order to allow countries more time to consider their positions regarding suitable systems for TK protection. Others believe that it is time to change the mandate of the Intergovernmental Committee from technical and assessment work to a negotiation mode, arguing that they are unwilling to spend more efforts on a process that has no mandate to advance towards adequate and clear solutions on the relationship between genetic resources, intellectual property and the protection of TK and folklore.

The first part of this article provides a brief analysis of the existing fora and the opportunities they provide for the negotiation of effective TK protection and equitable benefit sharing arrangements. We will then move on to exploring different institutional frameworks under which the negotiations on TK, Genetic Resources and IP may take place and offer some procedural aspects when assessing the suitability of these different options. The document ends with suggesting elements for a potential recommendation of the Intergovernmental Committee to the WIPO General Assembly.

Existing Fora and Negotiation Arenas

Different institutions and their specific fora, currently address similar issues regarding genetic resources and the protection of TK. Even if they do so from different perspectives and under different approaches, their activities and goals - often overlap. In the case of international bodies and intergovernmental fora, where formal negotiations take place, each has produced a wide array of results in terms of: commitments, research papers, information documents and work programmes. In the following we will provide a brief summary of the work, achievements and contributions of international institutions and intergovernmental fora for TK and genetic resources and explore the opportunities for an international negotiating process to design and approve a legal regime for the protection of TK:

The Convention on Biological Diversity (CBD). The objectives of the CBD are: the conservation and sustainable use of biodiversity and ensuring an equitable sharing of benefits derived from access to and the use of genetic resources (ABS). Since its entry into force, ABS and TK have been considered as priority issues in the Convention's agenda. The need to regulate access to genetic resources, ensure benefit sharing and protect TK has been addressed in various COP Decisions and Recommendations from the Subsidiary Body on Scientific, Technical and Technological Advices (SBSTTA). The *Panel on Experts of Access and Benefit Sharing* and the *Ad Hoc Open Ended Working Group on Access and Benefit Sharing* – which led to the adoption of the *Bonn Guidelines on Access to Genetic Resources and Benefit Sharing*– have both made considerable conceptual contributions in many of the areas related to ABS and motivated further policy/legal debates at national and international levels. The call of the Plan of Implementation that emerged from the World Summit on Sustainable Development regarding the negotiation of an international regime on benefit sharing arising from the use of genetic resources has created additional momentum for ABS negotiations. *The Ad Hoc Open Ended Intersessional Working Group for the Implementation of Article 8(j)* was established to provide advice on the application and development of legal and other appropriate forms of protection for the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation of biodiversity and *recommend which of the work-plan objectives and activities should be referred to other international bodies or processes and identify opportunities for collaboration and coordination with other international bodies or processes.* Through Decision V/16 a specific Programme of Work on Article 8(j) was adopted by the CBD COP.

Opportunities: The CBD has focused on TK as it relates to conservation and, sustainable use of biodiversity and access to and benefit sharing from the use of genetic resources. It has proven to be a receptive forum to the considerations and concerns of countries and indigenous and other local communities on TK Protocols to the CBD thus a Protocol in the area of TK protection could be envisioned. The successful negotiation process of the *Cartagena Protocol on Biosafety* and the Bonn Guidelines demonstrate the possibilities of the CBD, in providing a suitable institutional framework under which a policy process could be undertaken. WSSD has called for a regime on benefit sharing to be developed under the CBD. However, specific and comprehensive guidelines as well as good reporting processes could also serve to ensure an appropriate treatment of TK.

World Trade Organization (WTO). The WTO, formed by parties to the *General Agreement on Tariffs and Trade* (1994), is in charge of the administration of trade related agreements and seeks to promote free trade worldwide. The WTO, especially through its *Committee on Trade and Environment* (CTE), has occasionally addressed the experiences of several country members with legislation in the area of the protection of TK[3].

The WTO has also addressed biodiversity and TK related concerns in the context of the review of the TRIPs Agreement regarding article 27.3.b. This article allows governments to exclude animals and "essentially" biological processes from patenting, but plant varieties have to either be eligible for patent protection, fall under a *sui generis* system, or a combination of both. The discussion of Article 27.3.b, which began in 1999, also included the pros and cons of plant variety protection systems, moral and ethical issues, TK and the rights of communities regarding genetic materials, and whether the TRIPS Agreement presents a conflict with the CBD. Paragraph 19 of the Doha Declaration of the WTO Ministerial Meeting (2001), specifically addresses the need to assess the relations between TRIPs, CBD and TK.

Opportunities: The discussions on TK issues at the WTO have shown that it can *recognise* the importance of TK but only strongly conditioned to trade rules and commitments. Negotiating blocs and alliances could prevent "new" issues

from disrupting or altering already set priorities in the trade agenda. Negotiating a TK protection regime within the WTO context would certainly put TK in the spotlight but in terms of the process itself – even if this negotiating option was possible – trade considerations may prevail and affect substantive propositions. In this regard the WTO is perhaps not suitable for TK negotiations. Clear commitment to implement the Doha agenda and specific commitments by the WTO towards supporting work in other forums could certainly assist in the negotiation process for TK.

World Intellectual Property Organization (WIPO): WIPO is a UN international organization in charge of the administration of a wide range of IP agreements and seeks to promote IP throughout the world. WIPO´s involvement in TK began in 2000 when its General Assembly decided to establish *the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore*. The mandate of the Intergovernmental Committee relates to three interrelated issues: the access to genetic resources and benefit sharing, b) the protection of TK and c) the protection of expressions of folklore. The overlaps with the CBD have lead to a formal collaboration between the CBD and WIPO Secretariat through a memorandum of understanding.

The Intergovernmental Committee has had four sessions in which Member States have discussed, inter alia, legal, policy, economic and scientific aspects related to TK, case studies on TK protection, analysis of IP principles, and *sui generis* alternatives for TK protection. Within this forum the, probably, largest part of the substantive debate has taken place. The range of documents developed to inform these discussions has contributed significantly to the literature and overall progress on TK protection[4].

Opportunities: Over the past three years WIPO's Intergovernmental Committee has worked extensively on the analysis of different alternatives and proposals for the protection of TK. It has produced extensive documentation and expertise and has influenced other processes within WIPO (i.e Patent Cooperation Treaty negotiations) with relevant TK information. WIPO´s overall experience and records in coordinating international negotiations on IP related topics, may provide a good basis for any TK related process. However, the strong IP orientation of WIPO and the leverage exercised by some nations and particular industries throughout the history of negotiating IP agreements, could limit the possibility of addressing this issue from a comprehensive and balanced stand.

United Nations Food and Agriculture Organization (FAO): FAO is an international specialised UN Agency. FAO´s mission is to raise levels of nutrition and standards of living, to improve agricultural productivity, and to improve the condition of rural populations. Within this very broad mandate, FAO supports the development of particular projects and initiatives related to the enhancement and preservation of TK, specifically as it relates to agriculture.

FAO´s relation to TK goes back to the early 1980´s when the *International Undertaking on Plant Genetic Resources* was adopted (1983). The issue of Farmers Rights – a key element for future discussions on TK – was extensively debated within FAO and formally recognised through FAO Resolution 5/89 and, more recently, through its *International Treaty on Plant Genetic Resources for Food and Agriculture*. During these discussions, the questions on how to compensate farmers and communities for their conservation efforts (of plant genetic resources) and protect TK (in the agricultural context) received great attention and recognition. At present, FAO is pursuing a strategic framework and a medium term plan, which include issues regarding ecological knowledge (knowledge of biodiversity gained through agricultural practices), a critical factor of TK.

Opportunities: Over the past 20 years FAO has worked extensively on issues related to Farmers Rights, which, to a certain degree, reflects many of the issues of the TK debates. However, the focus on genetic resources related to food and agriculture limits the scope of work on TK issues. The recent culmination of the FAO IT negotiation

(after years of intense efforts) could also limit possibilities of short-term commitments by FAO. The fact that Farmers Rights were excluded from the international context in the new FAO Treaty, leaving the substantial development and implementation to national policies and legislation, could be a sign that under FAO auspices, an international TK protection mechanism could be difficult to promote.

United Nations Educational, Scientific and Cultural Organization (UNESCO): UNESCO makes a concerted effort to address the cumulative body of knowledge, know-how, practices and representation of local communities worldwide. Some of the organization's activities include research on traditional resource use in land and water ecosystems, pursuing partnerships between indigenous and other local communities and the multi-use of protected areas, cultural dimensions and the creation of an international normative instrument on the protection of TK. Some of the recent developments of UNESCO´s work include discussions of knowledge systems at the UNESCO-ICSU World Conference on Science (Budapest, June 1999), the Indigenous Knowledge Side Event at Johannesburg in 2002, and UNESCO's new intersectoral project launched in 2002-2003 on "*Local and Indigenous Knowledge in Systems in a Global Society*" (LINKS), along with an ICSU report on science and TK in 2002.

Opportunities: UNESCO offers an interesting "neutral" forum where TK fits into the overall objectives of the organisation. UNESCO has also a specific mandate to promote science education and culture. These objectives are directly linked to issues of sustainable use of genetic resources and protection of TK. UNESCO is an organization with a leading experience on folklore issues and the cultural heritage of nations and humanity.

United Nations Conference on Trade and Development (UNCTAD): UNCTAD was established in 1964 and aims at the development-friendly integration of developing countries into the world economy. UNCTAD is the focal point within the United Nations for the integrated treatment of trade and development and the interrelated issues in the areas of finance, technology, investment and sustainable development. At the "*Sixth Session of the Commission on Trade in Goods and Services, and Commodities*", UNCTAD addressed the issue, raised by developing countries, that the TRIPS Agreement needed to include the protection of TK and biodiversity. Prior to this meeting, the Fifth Session focused on "Agreed recommendations on the sustainable use of biological resources: Systems and national experiences for the protection of traditional knowledge, innovations and practices" (TD/B/COM.1/L.16 – 27/03/01). A press release in 2001 discussed the wide-ranging arguments behind the need to protect TK in, "*New avenues needed to protect traditional knowledge, urge experts at UNCTAD meeting*," (TAD/INF/PR/068 – 03/11/00). UNCTAD also has papers available from its "*Expert Meeting on Systems and National Experiences for Protecting Traditional Knowledge, Innovations and Practices in November 2000*"[5] UNCTADs Biotrade[6] Initiative also includes references on the need to protect TK as it relates to trade in biodiversity and its components (or ensure equitable benefit sharing from its use).

Opportunities: UNCTAD offers opportunities and elements which may favour the positive protection of TK (although it might not be possible to actually negotiate an international regime under its institutional framework). These are the development perspective when addressing issues of political nature and the technical capacity to support the development of products and services of indigenous and other local communities. UNCTAD can also assist in the identification of market opportunities and ways to overcome existing trade barriers for biodiversity friendly products and services.

Are there options for finding synergies regarding international processes?

The section above shows that there is a proliferation of parallel processes with overlapping and sometimes competitive mandates in the different international fora. These processes can encompass discussions, analytical and technical work

and sometimes negotiations. In some cases parallel processes are being coordinated and in other cases they simply run in parallel. Efforts to build coherence and synergies on these issues have been minimal to date. They have often lead to confusion on where and how to address the issues and how to avoid potentially counterproductive or conflicting outcomes. For countries, a proliferation of parallel processes can have negative impacts on the defence of their interests due to lack of capacities and resources to follow them effectively. Finding solutions to the relationship between genetic resources, intellectual property and the protection of TK, seems to be a very complex task that cannot be resolved by isolated processes.

In WIPO's Intergovernmental Committee, some Members, Non-Governmental Organizations (NGOs) and indigenous and other local communities, have expressed doubts about whether the process alone can address all concerns over genetic resources, intellectual property and TK. It seems overly ambitious that only one forum addresses issues under discussion when they are interdisciplinary, systematically complex, subject to various bodies of international law and covered by the mandates of various international organizations from different perspectives and mandates. These issues are interdisciplinary due to the variety of approaches, related bodies of knowledge and number potential uses; they are systematically complex due to the close interactions with the environment, biological and human diversity, as well as various systems of values.

As outlined above, various bodies of international law have regulated directly or indirectly issues on genetic resources, intellectual property and TK. Having or finding an adequate process and synergic relationship among different international organizations will have fundamental implications for countries, NGOs, indigenous and other local communities in WIPO's Intergovernmental Committee. Processes *per se* are not objectives themselves. Processes are means for achieving the various objectives sought by relevant actors. These objectives vary in range and substance and depend on whether we are dealing with the relationship between genetic resources and intellectual property or the protection of traditional knowledge or both. Different objectives do not necessarily have to be contradictory. If adequately managed at the international level, they should be mutually supportive.

There is an urgent need to assess the suitability of the various forums to deal with the relationship between genetic resources, intellectual property, and the protection of traditional knowledge. Furthermore, one should assess the different forums can complement each other in the effort to ensure the sustainable use of genetic resources, fair and equitable benefit sharing of benefits and effective TK protection.

In the international arena there are useful experiences with different level of cooperation or association seeking specific results whether normative or institutional. Box 1- Box 3 present some examples of successful precedents of cooperation at the international level in areas of common competence.

All these precedents have shown that existence of cooperation and joint processes among

Box 1: An example of "joint" International rule making.

The Rotterdam Convention: UNEP/FAO. The Convention on Prior Informed Consent Procedures for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) was created as a means to address the dramatic growth of chemical and pesticides production and trade in the past three decades, as well as the lack of adequate infrastructure and procedures when trading these chemicals. In response to these concerns, the Rio Summit called for the adoption of a legally binding instrument on PIC procedure by 2000. Consequently the UNEP Governing Council and FAO Council instructed their executive heads to initiate negotiations. In 1998 FAO and UNEP jointly formed the Secretariat for the convention during an interim period until the Convention enters in force. The Convention might be finally administered by an independent secretariat created by UNEP and FAO.

Box 2: An example of a "joint" organisation

The International Trade Center (WTO/UNCTAD). The International Trade Centre was created by the WTO and UNCTAD to provide technical assistance for operational and enterprise oriented aspects of international trade. The ITC is not a rule making organization but a cooperation institution. It supports developing countries and countries with economies in transition, and particularly the business sector, in the strengthening of their full potential for developing export and import operations. It was created in 1964 and since 1968 was jointly administrated by the former GATT and UNCTAD. It is also an implementation agency of UNDP.

Box 3: An example of inter-secretarial technical work and cooperation.

UNESCO/WIPO Model law on expressions of folklore. Joint technical work by WIPO and UNESCO regarding expressions of folklore started in the late 1970's. WIPO and UNESCO convened a Working Group in 1980 and 1981 to study the draft Model Provisions intended for national legislation that were being prepared by WIPO at that time, as well as possible international measures for the protection of works of folklore. The outcomes of those meetings were submitted to a Committee of Governmental Experts, convened by WIPO and UNESCO in 1982. This Committee finally adopted the "Model provisions for National Laws of Expressions of Folklore Against Illegal Exploitation and Other Prejudicial Actions" in 1982.

governments acting in various international organizations and secretariats are not only possible but also commonly used in areas where overlapping mandates and competences exist.

Are joint international processes an option?

In 2003, the initial mandate of WIPO's Intergovernmental Committee is coming to an end, and countries have to decide on where and how the discussions should continue. This article provides some options for finding synergies at the international level addressing aspects of genetic resources, intellectual property and protection of traditional knowledge more comprehensively. One way to generate synergies at the international level is to cluster parallel processes in a single joint process that may take a more comprehensive approach.
Joint processes can have two formats:

Inter-institutional processes of governments inside two or more international organizations acting together with the support of their respective secretariats or;

Inter-secretarial processes[7] composed by two or more secretariats of international organizations.

The main options for joint processes that have been identified are the following:

Inter-institutional processes

Inter-institutional partnerships. Practice has shown that this type of partnership can be managed by up to three international organizations. The work to be undertaken could go from joint discussions to rule making processes (creation of soft law[8] or international agreements) and implementation of common obligations. In the case of the Intergovernmental Committee there are three possible tripartite inter-institutional joint partnerships these include the following constellations: i) WIPO, CBD and FAO; ii)WIPO, CBD and UNESCO; iii) WIPO, WTO and CBD. The first tripartite inter-institutional partnership would emphasise issues regarding genetic resources and traditional knowledge. The second would take the same issues but add a further balance by including some expressions of folklore. The third would add emphasis on trade issues, and, if normative results are achieved, they could be subject to the dispute settlement of the WTO. In the event the process results in an international agreement, any member of the three organizations could sign and ratify that agreement. This case could be similar to the processes of the Rotterdam and Rome Conventions. The results of the work under this option could be administered and implemented by the secretariats of the three organizations or by a new secretariat specifically created for this purpose.

Work in one central governmental forum with compatibility check by members of other international organizations on potential results. Under this option one international organization, supported by its secretariat, would carry out all the

work, whether it refers to a discussion or a negotiation. Once a particular result is close to being achieved, other pre-selected organizations with common areas of competency could ask for the review of the potential results (i.e. a diplomatic conference) in case they believe there might be a direct conflict with their own agreements. This option has not yet occurred in practice.

Work in one central forum in coordination with the members of other international organizations. This option would entail that members of one international organization supported by its secretariat undertake the work in close consultation with the members of other international organizations, and reporting on those consultations. This option would allow other organizations to give their comments as the process advances. Results of the consultations would be non-binding. Nevertheless, the members of the central forum would display *bona fide* (in good faith*)* efforts to address comments and concerns presented by the members of other international organizations in areas of common competency. This option has not yet occurred in practice.

Work in one central forum and results administrated jointly with other international organizations. Under this option members of one international organization carry out all the work and other international organizations would only participate as observers. Once a particular result is agreed in the central forum, it could be jointly implemented. This solution is feasible when financial resources need to be obtained from different sources to implement the results. IUCN is an example of an organization that implements common lines of action and cooperation activities decided by a diverse constituency with funds obtained form various sources, including private and public.

For initiating any of these joint processes there is a need to obtain a specific decision from the highest decision making bodies in the respective organizations.

Inter-secretariat processes

Joint programme of work. More than one International organisation can engage in joint programmes of work in areas of common competences. This is the case of the Programme of Work between the Ramsar and the CBD Secretariats on wetlands and biodiversity. The governing bodies of the two international organisations have endorsed this joint programme.

Joint technical work. Joint technical work has been undertaken by secretariats of international organizations in many occasions. The technical work could include preparations of joint model laws, documents, research, reports, etc. Examples of joint technical work are the model law and the consultations processes prepared and organized by WIPO and UNESCO. Joint documents have also been prepared in the context of the current debate on trade and environment in the Committee on Trade and Environment of the WTO. Examples of these documents are:

"Technical Assistance, Capacity building and Enhancing Information Exchange"[9] prepared with inputs by WTO, UNEP and Multilateral Environmental Agreements (MEAs) Secretariats in 2002 and;

"Compliance and Dispute settlement in the WTO and in MEAs"[10], note by WTO and UNEP.

Exchange of information. The exchange of information by secretariats is very common and can take place on a formal basis through the creation of a particular mechanism or on an informal basis through staff meetings of different secretariats. An example of this type of collaboration between secretariats can be found in the Memorandum of Understanding between WIPO and CBD Secretariat. Another example how international organizations, and more specifically MEAs and the WTO, are negotiating procedures for regular information exchange is the case of the mandate of paragraph 31(ii) of the Doha Ministerial Declaration.

Options for joint processes above presented above are just some of many possible procedural blends that could be examined by WIPO members in their effort to find adequate solutions to issues surrounding genetic resources, intellectual property and traditional knowledge.

Some procedural elements to be taken into account when approaching options for processes regarding genetic resources, intellectual property and traditional knowledge.

When member states are developing their national positions, they may wish to consider the following elements:

The complex nature of TK and the disciplines required for a comprehensive understanding of its implications requires a multidisciplinary approach for a suitable negotiation process.

Multidisciplinary in the case of genetic resources and TK is a precondition for the design and development of sound international legally binding instrument.

The focus and mandates of existing international organizations and institutional frameworks may limit the possibility of this multidisciplinary approach.

Countries may wish to consider the advantages and disadvantages of existing institutional frameworks before deciding about the most appropriate institutional arrangement for an international negotiating process.

Objectives and history of results of previous international processes could provide key information to assess and ensure that the appropriate framework is chosen.

Indigenous and other local communities should, as title/rights holders, be part of national delegations when initiating a negotiation process.

Countries may wish to consider alternative approaches to a negotiation process (i.e. through individual processes, enhanced cooperation, or joint or tripartite institutional arrangements).

Conclusion

The different fora as well as regional and national initiatives reveal the growing interest regarding the access to genetic resources and its associated traditional knowledge. Growing markets in biodiversity related products require new and creative options in order to guarantee that access regimes and benefit sharing arrangements are fair and equitable and recognise the rights of countries of origin and TK holder.

WIPO's Intergovernmental Committee has contributed significantly to technical, legal and policy discussions and analysis. However, there is recognition that national measures and the use of existing IP instruments and mechanisms (including the international IP system in general) are limited and fragmented. Given the complexity of the relationship between genetic resources, intellectual property and TK; and the multiple fora and processes that are addressing these issues, it is urgent to consider different scenarios and alternative institutional frameworks in which a comprehensive negotiation process could be undertaken. This process should aim at establishing an international regime for the protection of TK and regulating access and use of genetic resources. The different options presented in this paper seek to establish cooperation and synergies among existing institutions in order to join efforts and expertise and ensure that any international arrangement responds to the complexity of the issue, and is consistent with the principles of sustainable development.

David Vivas is Programme Manager, Intellectual Property, Technology and Services at the International Centre for Trade and Sustainable Development (ICTSD) (dvivas@ictsd.ch); **Manuel Ruiz** is Programmes Director at Sociedad Peruanas de Derecho Ambiental (SPDA) (mruiz@spda.org.pe); **Maria Fernanda Espinosa** is the Advisor Indigenous Peoples and Conservation Policy, Policy Biodiversity and International Agreements Unit, based in IUCN SUR(fernanda.espinosa@sur.iucn.org)[11].

Notes

1 A more comprehensive version of this article was presented during an IUCN, ICTSD and SDPA informal dialogue held on 11 July 2003. The paper and more information on the dialogue is available at Internet: http://www.ictsd.org/dlogue/2003-07-11/11-07-03-desc.htm

2 Hereafter the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore will be referred to as the "Intergovernmental Committee".

3 See : (Environment: Trade and Environment News Bulletins, TE/035 – 20 February 2001, Item 8 of "Trade-related aspects of intelltual property rights- TRIPs").

4 For a complete summary of the IGCsee: WIPO. *Overview of Activities and Outcomes on the Intergovernmental Committee* WIPO/GRTKF/IC/5/12.

5 Papers available at www.unctad.org/trade_env/index.htm.

6 See www.biotrade.org

7 Some authors may call them inter agency processes, when they occur in the framework of the United Nations.

8 Soft law refers to non-binding bodies of rules that are designed to provide guidance and orientation. It has an important value as precedent in the interpretation of law, i.e. recommendations, guidelines, etc.

9 See WT/CTE/W/203, 2002.

10 See WT/CTE/W/191, 2001.

11 The opinions given herein belong solely to the authors and do not involve any of the organisations mentioned in this work.

Environmental Services Trade, GATS and Human Development: Asian Experiences[1]

Sitanon Jesdapipat

Introduction

Human development is an important consideration for economic and social development, and freeing environmental services trade should link to mechanisms which could deliver enhanced human development - otherwise development will only be partially fulfilled and fall short of being sustainable. Of particular concern is an assurance that free trade in environmental services would not deprive the vulnerable groups of access rights and, while not being made better off, that they would not be made worse off as a result of increased private sector roles in providing such services. While maintaining the public provision of basic needs, including basic environmental services such as clean water and sanitation, GATS compliance in environmental services must not further erode the ability of the public sector to continue providing such basic services. The implicit private participation in providing environmental services on commercial terms should become instrumental to further such capacity in expanding the coverage of services, improving its quality and encouraging human development-based provision of such services.

The three countries (China, Pakistan and Thailand) have similar priority environmental services sector, judged from prevalent environmental challenges and investment gaps. Wastewater and solid waste are the two prominent sectors that have been identified. Future human development looks bleak in all countries, if population pressure, prevalent poverty and environmental challenges are not addressed promptly and efficiently. The existing investment gaps provide a good opportunity for freeing environmental services, allowing increased private sector participation. All countries, however, need to reform and/ or rearrange their institutional architecture to accommodate increased competition, should commitments be made and implemented. Among others, enhancing new competition between local and foreign firms must be conducted in a transparent and accountable manner, keeping in mind also consequent impacts on human development goals.

Emerging Asia and Sustainable Development Agendas

At the turn of the millennium Asia was projected to be the new economic powerhouse of the world, to be led by China, providing a new momentum for global economic growth as growth elsewhere was waning. This projection is indeed an exciting one, if the environmental context is used to frame alternative future scenarios. A reinvention scenario within which nations fully implement Agenda 21 and other sustainable development measures, for instance, would imply a sustainable development path for Asia, while the business-as-usual scenario represents rather pessimistic outcomes for the environment, such as intensification of wastewater; solid waste and trade-offs of emissions for modernization and much-inspired improved standards of living. Without more stringent measures for population control more people will be chasing after increasingly fewer resources, whilst adding more pollution of all forms to the ecological reservoir. Imagine, for example, what would the state of environment of Asia, and for the world in fact, be if a few hundred millions more passenger cars are used in China in the next few years. Rapid, low quality growth of China

It is true that freeing international trade in goods and services could in some instances worsen the environment, but trade also brings about capital for addressing the environmental challenges.

(already near two digit numbers) could be a nightmare for both the local and the global environment.

A moderate scenario might be more comforting. It suggests "managed" and participatory growth along side with improved environmental protection in Asia, especially among countries that have the capacity to deal with the necessary technological transition, to be imported into Asia and locally bred by many excellent environmental technology centres in the region. Somehow large investment gaps created by expanding demand and the declining role of public funds have to be filled with foreign direct investment from outside the region. This certainly requires major institutional rearrangements - an action required by all three countries to cope with increased and widespread pollution intensity and external calls to liberalize trade in services. Despite their diversity, there is one common reality for Asian countries: all are facing a strong and sweeping tide of globalization and pressure to develop sustainably. A pertinent question is what development strategy would assure "quality growth" for emerging Asia, fulfilling, for instance, both environmental and human development goals.

There certainly are such options, and environmental services certainly have a crucial role to play. Studies indicated that air pollution pressures are akin to rapid growth of China and Southeast Asian countries, and there are opportunities for these countries to solve the problems in a drastic manner through several measures if early actions are taken (Economist, 1998). Development, however, is a matter of priority and choices, to be determined by nations themselves. For most poor nations of Asia, development priority by the same token is reducing wide-spread absolute poverty, the provision of basic needs and catching up with their counterparts in modernizing its standard of living. Indeed for most of these countries, environmental degradation, if ever mentioned, is inevitable reality induced by lack of no better choice.

Alleviating poverty does not automatically turn Asia into an environmental haven, unless environmental protection is an integral part of the whole economic and social policies. Hence, arresting environmental challenges becomes a sustainable development norm, not an exception for future development of emerging Asia.

Poverty has destined a large number of people of Asia to accept jobs opportunities that pose high health risk; to live in environmentally unsound conditions, depriving them the right to safeguard for themselves human development opportunities.

For instance, the population pressure and the prevalence of absolute poverty are the two most visible drivers that could easily derail future sustainable development, and the economic leadership of Asia (Table 1), if not properly and promptly addressed. They are the true dilemmas: Asia's future is to be plagued with too many mouths to feed, and too poor to find better options for decent human quality. Though the large number of population may enable China to gain comparative advantage from labour-intensive production, and secures huge domestic demand, the sheer size of population requires high economic growth to "take off" the economy. Though the massive size of population of Asia signifies huge market potential for environmental services, future implications for environmental services are even more relevant as the population pyramid indicates high dependency ratios and the less ability of the public sector to continue fund projects.

Poverty has destined a large number of people of Asia to accept jobs opportunities that pose high health risk; to live in environmentally unsound conditions, depriving them the right to safeguard for themselves human development opportunities. Improved environmental services will also increase the general public welfare. But alleviating poverty does not automatically turn Asia into an environmental haven, unless environmental protection is an integral part of the whole economic and social policies. Hence, arresting environmental challenges becomes a sustainable development norm, not an exception for future development of emerging Asia.

Table 1: Major Economic Statistics of China, Pakistan and Thailand

Statistics	China		Pakistan		Thailand	
	1998	2000	1998	2000	1998	2000
Population	981 (1980)	1,271 (2001)	83 (1980)	141 (2001)	47 (1980)	63 (2001)
Average population growth (%)	0.9 (95/00)	0.7 (00/01)	2.4 (95/00)	2.2 (00/01)	1.0 (95/00)	0.8 (00/01)
GNP (mil. USD)	923,560	1,062,900	61,451	61,000	131,961	121,600
GNP/cap	750	840	470	440	2,160	2000
GDP growth (%)	7.8	8.0	1.2	4.4	-10.5	4.6
Service sector growth (%)	8.3	9.5	1.6	4.8	-10.0	4.0
HDI	0.59 (1985)	0.72 (1999)	0.4 (1985)	0.5 (1999)	0.68 (1985)	0.76 (1999)
Population in poverty (%)	3.1 (urban 1997)	3.7 (rural 1999)	32.2	na	12.9	na

Note: na = not available
Source: www.adb.org

The sustainable development concept, which accentuates the needs to address poverty; protect much precious environment; and sustain growth to meet exploding population, becomes necessary for Asia, which actually established national mechanisms to implement Agenda 21.

There is also a growing consensus that trade and investment regimes could be important instruments to realizing sustainable development, as they expand the capital requirements for development and sustaining growth. Over the past decades, trade expansion has been faster than GDP and population, enabling Asia to increase per capita income and investment in human capital development. Empirical evidences of China and Thailand have shown that trade has enabled high growth of national economies. (See Tables 1 and 2). Wherever share of trade in GNP is low, such as the case of Pakistan, economic growth seems rather modest. But the environment could be worsened as a result of increased trade. Thailand is such an example, followed by China at the present time. However, if domestic measures to deal with environmental problems are lagging, the situation of low-trade countries could be worsened too.

Table 2: Trade Indicators and FDI of China, Pakistan and Thailand. Source: www.adb.org

Statistics	China		Pakistan		Thailand	
	1990	2001	1998	2000	1998	2000
Trade as % of GNP	29.7	44.7	28.7	34.3	66.5	112.1
Trade balance	2.2	2.0	-4.6	-2.5	-11.8	2.7
FDI (billion USD)	3.5	38.4	0.2	0.3	2.4	3.4
Official ODA flows from all sources (billion USD)	2.4	2.8	1.5	0.7	0.5	1.1

It is true that freeing international trade in goods and services could in some instances worsen the environment, but trade also brings about capital for addressing the environmental challenges. Finding trade and environment synergies becomes thus necessary, and as the traditional government-financed investment for environmental protection becomes scarce as a result of the global economic slump and the Asian financial crisis, the investment gaps would have to be filled by non-government sources, as official overseas development assistance is either unchanged or drying up. Existing investment gaps signal the role of private sector finance that could become prominent and promising (Table 2).

The non-government sector would have a dual role to play. On the one hand, it could bring in new technologies, more capital to invest in infrastructure and the operation of environmental services facilities. Technology transfer becomes an integral part of such investments, and the private sector is normally quicker to respond to technological change than the public sector. Innovations, new production technologies and new social demand for green products and sound environmental management systems provide a vast array of choice for investors, consumers and producers of environmental goods and services. New materials for packaging, voluntary eco-labeling, ISO series of environmental management systems and new directives from Europe are but a few examples that developing nations of Asia need to be aware of and consider adopting, if market shares of its goods and services are to be maintained.

China and Pakistan, and to a certain extent Thailand, seem to have a positive outlook to environmental services trade liberalization, although domestic laws and regulatory regimes need to be explored *before* a commitment is made.

The second role of the non-state entity is in consumption. The private sector in this capacity directs consumption patterns, products and production processes. Today consumers and global market place looks beyond product quality to assurance for upholding environmental integrity at home and in the production and delivery lines, while ascertaining niche markets for greener products. Consumers could make sound decisions only when product prices include costs of environmental services of those goods. And a private scheme stands a better chance of rationalizing such prices, than the government-funded ones, that fear political resistance of consumers or users.

In a nutshell, catching up on a new sustainable development ban-wagon requires that Asia fulfils its very basic development challenges, while addressing to protect its own house in good order. The sheer size of population and its growth from the very large base implies two connotations: that a paradigm shift in development policies of Asian countries to harness best environmental protection is most pressing; and that the capacity to deal with the environmental challenges be enhanced to quickly close the gaps between demand for and supply of environmental services. Expectations for greener products and cleaner environment, enabled by increased income per head resulted from high growth and innovations in environmental sciences, are reasons for hope for Asia to choose win-win development strategies that its fore-runners had so little of. Thus, sustainable development to be promoted in Asia will have to also meet human development criteria, not simply a sustained growth and improved environmental protection. Human development contains four components:

Basic human needs (i.e., food, clothing, housing, medicine and education).

Human rights.

Employment and income equity, and;

Environmental quality.

Environmental Services and GATT

Many observers fear that freer services trade would fall short of bringing accompanying human development benefits. True, GATS is the new negotiation process that developing countries of Asia would have to learn to capture its

benefits, and to reduce potential risks on human development goals. Studies of the three countries, namely, Thailand, China and Pakistan, did not reveal any strong pro-human development in their investment policies - not to mention that little is known of GATS itself outside the circles of few close observers of the WTO processes. National policies often aim to solve environmental challenges in isolation of social goals. If freeing environmental services trade is to deliver win-win outcomes for the environment and human development, linkages between these services and human development must be identified and translated into policy prescriptions for GATS negotiations and scheduled commitments.

Two major points of departure need to be discussed further in this very strong, though not necessarily direct, connection:

Role of the State and that of the private sector in providing environmental services and;

Mode of provision and basic assurance to safeguard human development benefits for all.

The divergent responses to freeing environmental services under GATS differ slightly across the three studied Asian nations due to level of demand and supply, and historical background towards foreign presence, especially that of the private sector direction investment. The following two major factors explain the above two departures.

Countries that have traditionally been more open to foreign presence, as seen in trade and investment policies, would be more opt to welcoming free environmental services trade, compared to countries that either had bad experience or that were less opened. Openness, however, does not automatically imply that foreign "invasion" is always positively perceived in countries. If environmental services trade would produce dual benefits for human development and the environment it would make liberalization more welcoming.

Countries that have large domestic investment gap see freeing environmental services trade as instrumental to promoting more foreign direct investment and transfer of new and better technologies, which domestic investors and governments cannot deliver.

One approach of assuring more equitable sharing of benefits arising from freer environmental services trade is integrating human development goals into the process of negotiating environmental services under GATS.

However, whether GATS would benefit developing countries in terms of technology transfer is debatable. GATS determines that access to technology shall be on commercial basis, showing no contribution of GATS to facilitating technology transfer since commercial transaction of technologies are already common practices.

China and Pakistan, and to a certain extent Thailand, seem to have a positive outlook to environmental services trade liberalization, although domestic laws and regulatory regimes need to be explored *before* a commitment is made. High growth of China, to be accompanied by dramatic increases in all forms of pollution and wastes, will benefit from the massive inflows of foreign investment some of which will be concentrated on environmental services, which is seen as a subset of environmental industry. Pakistan, facing a large gap in environmental services amidst fiscal strap and low private sector investment, may not lose to trade in environmental service liberalization in the short-run. However, the long-run social welfare needs to be assured of meeting marginal groups' ill-preparedness in coping with new management and new prices to pay for the services. From Thailand's example, full liberalization could free current monopolistic power, and could bring the nation more alternative management systems and better technologies.

In conclusion, given quite common environmental problems, in particular wastewater, solid waste, hazardous waste and air pollution, these countries responded quite positively to freeing environmental services trade. How to integrate human development concerns into national strategies is not clear, however. There are rooms for countries to design win-win strategies.

Negotiating Win-Win Options for Asia

The GATS preamble states, partly, that Members of GATS:

Wishing to establish a multilateral framework of principles and rules for trade in services with a view to the expansion of such trade under conditions of transparency and progressive liberalization and as a means of promoting the economic growth of all trading partners ***and the development*** *of developing countries (emphasis added)*

The above aim of freeing environmental service trade - while implying, implicitly and automatically, that global welfare will be increased to every nation's common benefits - is to support development goals of nations. If freeing environmental services is to serve an overall development goal, an integration of non-GATS goals must be made to strike a balance.

Trade liberalization has certainly brought about benefits and unwanted consequences to trading partners. While drives to liberalize trade in environmental services are strong, negotiators have not paid sufficient attention to assessing what kind of liberalization would bring net positive returns to nations that are ill-prepared to cope with more opened trade regimes. This is a necessary pre-condition for services trade negotiation in particular as environmental services relate closely and strongly with human development goals. The assessment could be conducted within two inter-connected frames: an overall assessment with broad sustainable development objectives; and a sub-sector specific exercise to gain better understanding of vulnerability, potential impacts and strategic optional responses of countries, put in the context of human development. This set of information will be useful for positioning country negotiations.

A strategic approach to negotiating environmental services for Asia is to agree on a broad framework of scheduled commitments, and leaving MFN and national treatment principles to nations to determine specific needs in responding to freeing environmental services. The broad framework of scheduled commitments may contain the human development aspects, which contain, among others:

A broad framework agreement on technology transfer and resources mobilization among Asian countries.

Mode 4 horizontal commitments, with specific Asian MFN for priority sectors, especially the hazardous waste sub-sector.

Countries could also agree upon a set of priority human development goals and table a discussion paper in GATS. The human development criteria suggested above could be used as a guiding "principle" to set these basic goals. The aim of the proposal is to streamline human development goals into shaping the negotiation on scheduled commitments and the final commitments.

Strategic Responses

There is a big assumption behind this theoretical interpretation of free trade. The four decades of GATT/WTO history seems to reconfirm that free trade may guarantee global efficiency, but not necessarily global equity in distribution of increased welfare from expanding trade. The question is: will free environmental trade under GATS bring about more equitable distribution of increased economic welfare, if not, why not and how to assure more equitable gain?

One approach of assuring more equitable sharing of benefits arising from freer environmental services trade is integrating human development goals into the process of negotiating environmental services under GATS, in particular at the early stage of negotiating GATS and thereafter. The three countries responded to the above question through a list of strategic responses, which are:

Clarification of definitions for "environmental services".

Sector-specific assessment of environmental services within the overall framework of GATS.

Establish comprehensive data and information systems for environmental services.

Provide opportunities for research on issues related to liberalization of environmental services on economic, social, developmental and environmental aspects of countries.

Establishing an expert group to assist negotiation, policy reform and to direct research to specific needs of users.

Development of a national overall strategy to negotiation and implementation of final commitments, with a view, among others, to enhance human development goals.

Explore a regional approach to negotiating and implementing environmental services commitments, based for example on existing economic integration/ cooperation such as ASEAN Plus.

Assess domestic institutional capacity and regulatory regimes, with a view to make these mechanisms transparent for services trade liberalization.

Reform current environmental policies to enhance the role of private sector in environmental protection, with a view to enhance competition and to internalize services costs into goods and services (e.g., treatment costs into services of fresh water supply), with a view of integrating human development goals into such policies for investment in environmental services.

Broaden the participation of the non-state entity, including that of the civil society and private sector, into the process of current negotiation, thereby creating and institutionalizing a forum for public consultation on GATS, this include the provision of resources to sustain an interactive communication among stakeholders participating in the dialogue.

Provide opportunities for capacity building that is an integral part of current negotiation mandates and in support of future implementation of commitments.

Specifically, reform present investment policies to sufficiently accommodate human development concerns.

Finally, developing countries of Asia could seriously consider using a regional approach to accommodating environmental services negotiation, as mentioned above. In theory, ASEAN Plus (i.e., ASEAN, China, South Korea and Japan) could be a good place to start, with strategic discussion with two aims: (1) intra-ASEAN environmental services liberalization; and (2) exchange of information on national environmental services. This approach might reduce the transaction costs for negotiating environmental services trade and implementation of commitments, if intra-ASEAN environmental trade eventually materialized.

Sitanon Jesdapipat is a GETI Steering Committee Member and Ph.D. and is currently a consultant under the UNDP Lead Programme. Email: sitanon@chula.com.

Notes

[1] This article synthesises technical support documents, covering China, Pakistan and Thailand, produced under the Asia Trade Initiative of UNDP for environmental services under the General Agreement on Trade in Services (GATS) (for more information on the project see Internet: http://www.asiatradeinitiative.org/ The country studies are aimed at being used for GATS negotiation and for public consultation on sensitive issues that are matters to assuring adequate attention given to human development of countries. These studies narrate sustainable development programs, priority environmental problems and current status of in-country environmental services, and negotiation positions of countries. There were no systematic assessments of potential impacts of freeing environmental services trade on human development as such, but the studies discuss focused areas of linkages between environmental services and human development.

References

Asia Trade Initiative, United Nations Development Programme. 2003. *Trade, Economic Growth, and Human Development: A Primer.* UNDP Document.

Economic and Social Council, United Nations. 2002. *Economic, Social and Cultural Rights: Liberalization of Trade in Services and Human Rights. Report of the High Commissioner.* E/CN.4/Sub.2/2002/9, 25 June 2002.

Economist. 1998. "A Survey of Development and the Environment", March 21st.

Jesdapipat, Sitanon. 2003. *Regional Study on Trade in Environmental Services and Human Development: Perspectives from the Kingdom of Thailand.* A research report submitted to Asia Trade Initiative.

Hills, Peter. 2003. *Regional Study on Trade in Environmental Services and Human Development: Case Study on the People's Republic of China and Hong Kong Special Administrative Region.* A research report submitted to Asia Trade Initiative.

Qutub, Syed Ayub. 2003. *Regional Study on Trade in Environmental services and Human Development: Case Study on Pakistan.* A research report submitted to Asia Trade Initiative.

United Nations Development Programme; United Nations Environment Programme; World Bank and World Resources Institute. 2000. *World Resources 2000-2001: People and Ecosystems, the Fraying Web of Life.* Washington, D.C.: World Resources Institute.

United Nations Environment Programme. 2002. *Global Environment Outlook-3.*

United Nations. 2002. *World Summit on Sustainable Development Plan of Implementation.* Advanced unedited text.

China's challenge for trade and environment as a WTO member

Wanhua Yang

China's economic reform and open door policies in the late 1970s have made remarkable progress and transformed the country from a closed economy, into one of the most powerful and dynamic economies in the world. China's successful experience has demonstrated the benefits that trade and investment liberalization can bring. However, the fast-growing economy has been accompanied by many social and environmental problems, including serious water and air pollution, solid waste accumulation, water scarcity in cities, rural environmental deterioration due to urban expansion and intensive farming practices, deforestation, desertification and biodiversity depletion. China's entry into the World Trade Organization (WTO) marks another milestone for the country's economic development. It will be beneficial to both the country itself and to the rest of the world. The accession to the WTO not only helps China to carry its economic reform forward, but also opens a market of 1.3 billion people to the world. While engaging in reforms of its legal reform and governmental administration to abide by the world trade rules, China needs to address the issues related to trade, environment and sustainable development.

This paper outlines China's challenges for trade and environment, challenges for environmental governance, and challenges for the Doha Round of trade negotiations in the light of the WTO accession. It concludes by identifying some major tasks China should take to address the challenges it will face in the post-WTO accession era.

Challenges for Trade and Environment

China's key strategy to achieve what it has achieved so far is to gradually move away from central planning and to progressively establish a limited market economy (so called "socialist market economy"). The main approach has been to allow "non-state" enterprise development outside the state sector, under a set of rules and conditions that are different from those in a real market economy. China's efforts have been highly successful and turned the country into the world's seventh largest economy and second largest recipient of foreign direct investment. However, after a period of rapid growth, China's economy has shown its weaknesses and barriers to efficient utilisation of resources. Structural problems including the lack of integration among business segments and among regions have progressively worsened during the 1990s, leading to a sharp slowdown in its economic growth. China's development has now reached a stage which is calling for further reform and must be different from what prevailed in the past.

The WTO accession represents a persistent and courageous decision by Chinese leaders to carry the economic reform forward. WTO membership will require China to set out the rules for a market-based economy. It will eliminate unfair treatment currently favouring state-owned firms and discriminating against foreign companies and local entrepreneurs. It will also require China to open protected sectors to domestic and foreign competition. In short, China's WTO accession will ensure its continued restructuring of the economy. Further trade and investment liberalisation will require significant adjustments by some segments of the economy, while stimulating other segments and bringing positive benefits to the economy as a whole. However, realisation of these gains will largely depend on China continuing and strengthening its economic reform.

Environmental challenges

Wider market opening and significant structural changes after WTO accession will have substantial economic, social and environmental consequences. The links between structural changes in the Chinese economy and the environment are incontrovertible. There are some main pressures on the environment in several major sectors after WTO accession.

In the energy sector, China relies heavily on coal as its primary energy source providing about 75 per cent of China's energy needs. Coal-burning is the main source of China's air pollution. China is also the world's second largest emitter of carbon dioxide (CO2), contributing 14 percent of the world's total emissions. Other problems China's energy sector faces include out-of-date technologies, poor management and low energy efficiency.[1] In addition, China's energy deficit sharply increased since the early 1990s. Being aware of the needs to improve its energy efficiency and to acquire external energy sources, China began a radical restructuring and reform of the energy sector in the late 1990s, with the aim to improve energy efficiency and to introduce a more market-oriented approach in the energy sector. Furthermore, due to the lack of technology and financial resources, China has tried to attract foreign direct investment to the power generation sector.

Further trade and investment after WTO accession will widen the gap in China's energy demands and supplies. It will also have direct impacts, both positive and negative, on trade and energy. Many of the environmental problems China is facing can be addressed through technology transfer. Trade and investment liberalisation can facilitate technology transfer and attract more foreign direct investment to fill in the financial shortage. However, there will be a risk of increased output, offsetting the gains achieved per unit of output. Continuing growth will also require diversification of energy sources. China has now become a net oil importer, and could be a major importer in the world. The substitution of high pollution coal by other energy sources will contribute to reducing environmental pressures and "greenhouse gases" emissions.

With regards to the agricultural sector, China has long maintained a national policy of grain self-sufficiency. Although, a household responsibility system (in which farmers lease the land, decide how to operate the land and retain the profits or losses) has been adopted since the early 1980s and market forces have now largely replaced government plan and targets, grain production is still subject to government intervention such as procurement policy. Maintaining such a government policy has led to high production cost, grain surpluses as well as serious adverse environmental impacts. The increased use of fertilisers, has been the main cause for the entrophication in many Chinese lakes and coastal areas. The overuse of pesticides has furthermore caused high pesticide residues in food crops, which then affect human health. To implement the grain self-sufficiency policy, China's trade policy sets up high tariffs for grain imports, and encourages the import of fertilisers and pesticides, which contributes even more to environmental pollution. As grain production costs in China are high, compared to the world market, the wheat price is 30 per cent higher; maize 60 per cent higher; and rice 10 per cent higher.[2]

With the WTO membership, average tariffs for agricultural products will be reduced and a tariff-rate quota system will be applied. The import of grain products, such as wheat, rice and cotton, will greatly increase as domestic products lose competitive advantages. It is expected that the production of labour-intensive products, such as fruit, horticulture, and livestock will increase. Meanwhile, if the Chinese government formulates appropriate incentive policies to attract foreign investment, proper guided use of foreign investment would promote sustainable agriculture and ecological conservation projects. However, the production of livestock can be a significant source of solid and liquid waste.

Wider market opening and significant structural changes after WTO accession will have substantial economic, social and environmental consequences. The links between structural changes in the Chinese economy and the environment are incontrovertible.

Forestry is also one of the sectors that may experience significant environmental impacts following the WTO accession. By nature forests involve many environmental issues such as soil, water, biodiversity, air, climate change, landscape and others. Due to the seriously degraded ecosystem in China, the government has taken tough measures to protect forest resources. It has thus launched some major reforestation

projects and issued a logging-ban in 1998. Since then, China has become a net importer in all categories of major forest products, with nearly half of China's commercial wood products being imported. WTO accession will have both positive and negative environmental impacts. The changes in investment flows, the establishment of new plantations and the restoration of forests, imports of wood and wood products and encouragement of transfer of pollution prevention technologies, will have positive impacts on the environment. The production of wood and fiber, particularly the pulp and paper production, would have negative environmental implications. It should also be noted that changes in other sectors such as agriculture, tourism and energy, will have an environmental impact.

Another environmental issue closely linking with the increased import of agricultural and forest product is alien invasive species (AIS). With increasing international trading activities the increasing amount of introduced AIS could cause serious impacts on the environment and on biodiversity.

In the automobile sector, the WTO accession will have immediate and significant impacts on the economy and the environment. Tariffs for cars will decrease from 80-100 percent to 25 percent, over the five years following WTO entry. Tariffs on auto parts will be cut to an average of 10 percent within six years. Import licenses will be phased out entirely five years after accession. Distribution, retail and after-service will be opened up immediately to foreign investment. Currently, there is only one car for every 100 people in China. However, the demands for personal cars are on the rise and might increase further as tariff reductions will greatly cut the prices for cars. Positive environmental impacts of liberalising the automobile sector include the reduction in unit emission due to market competition in technology, price and services and more efficient fuel consumption. Negative environmental impacts could be the increase in aggregate emission as a result of the increased use of cars, the increase in aggregate use of fuel, increased air pollution and increased health problems, as well as increased pressures on land use.

Further trade and investment liberalisation will require more efforts to improve and upgrade its environmental legislation, to strengthen its environmental standard-setting, to strengthen environmental related trade rules including better control of hazardous chemicals and wastes imports, and to better manage the import of genetically modified products (GMOs) imports.

Further economic restructuring will also affect other industrial sectors. Faced with stronger competition, those industries consuming high energy and raw materials, with low efficiency and producing heavy pollution will be forced to phase out or make major adjustments. The reduction of these sectors will positively influence the environment. At the same time, the growth of other sectors is expected. These include electronic, textile, leather, food processing, and the tertiary industry including banking, insurance, telecommunication, consulting and tourism. Most of these industries are less pollution intensive and with highly efficient management systems. These trends will help to reduce the environment pressures. Yet, some of these industries such as textiles, leather and food processing can be major sources of pollution. This will require the strengthening of environmental regulations and their enforcement.

In addition to the direct impacts, secondary environmental effects can also be expected. WTO accession may lead to more migration from rural areas to urban cities. This will result in an increased demand for housing, local transport and environmental services including wastewater treatment and garbage disposal. Environmental impacts will also vary from region to region. Environmental pressures are likely to increase in central and western regions and decrease gradually in eastern and coastal regions, due to the move of industrial activities from developed eastern regions to central and western China.

Environment-related trade challenges

The demand for "environmentally friendly" products in many international markets is on the rise. Higher environmental standards and management measures in these markets could become potential green barriers to the trade of

developing countries. Compared with many developed countries, there are certain disparities in environmental standards for many Chinese products. It is anticipated that with reduced trade barriers, non-trade barriers including those for the purpose for environmental protection, will increase. China needs to monitor this trend, and develop appropriate strategies to address the issue of market access.

However, stringent environmental measures in international markets may also bring trade development opportunities to China. They can accelerate trade development in new areas, including green products, environmental technology and equipment and environmental services. They can encourage domestic enterprises to strengthen their environment management, to adopt new technologies and processes, to practice cleaner production, and to lower energy and raw material consumption. These developments are not only conducive to overcoming green barriers to trade, but would also support China's sustainable development strategy.

China has adopted some new policies and instruments to promote environmentally friendly investment and products. For example, the revised guiding principles for foreign investment include a principle to ensure China's commitments to meet its international environmental obligations and to give preferential approval to foreign investment supporting environmental protection. Other instruments such as ISO 14000 environmental management standards, ecolabeling and green food labeling have also been adopted and widely encouraged. However, other approaches such as promoting corporate environmental responsibility and disseminating best environmental practices should also be encouraged to promote environmentally friendly products and services.

Challenges for Environmental Governance

Over the past years, China has established a comprehensive set of laws and regulations for environmental protection, ranging from the constitutional provisions concerning the environment, the basic environmental protection law and laws concerning air, water, solid waste pollution control, land, forest, wildlife and marine protection to various administrative regulations, standards and guidelines implementing these laws. These laws and regulations contain a range of command-and-control measures as well as some economic incentives (such as pollution charges and a network for administering, monitoring and enforcing environmental policies). Although additional instruments to promote better compliance and effectiveness of environmental regulation and environmental agencies are needed, these existing measures have contributed to the reduction of environmental stress in China.

Further trade and investment liberalisation will require more efforts to improve and upgrade its environmental legislation, to strengthen its environmental standard-setting, to strengthen environmental related trade rules including better control of hazardous chemicals and wastes imports, and to better manage the import of genetically modified products (GMOs) imports. The WTO rules have provided the basic ground on which China can formulate its environmental policy at a level it deems appropriate.

In improving its environmental policies and formulating environment-related trade policies, China must ensure the consistency of its environmental regulations with WTO rules. Moreover, it also needs to review its existing environmental laws and regulations in line with the abovementioned WTO principles. Currently the Chinese State Environmental Protection Administration has started an overall review of the Chinese environmental policy and regulations. This is a proper step in honouring its commitments to the WTO.

Transparency in rule-making is one of the most important requirements under WTO rules. In its protocol of accession China agreed to publishing its laws and regulations and to provide a reasonable commentary period before new measures are implemented. This includes environmental laws and regulations, trade laws and regulations, environmental standards and other technical standards as well as sanitary and phytosanitary measures. To fulfil its WTO obligation on transparency, China established an official China-WTO

Notification and Information Enquiry Centre under the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) in December 2001 when it became a member of the WTO. The Centre aims to provide information on Chinese laws, regulations and measures concerning trade in good and services, and customs and foreign exchange.

Challenges for Doha Negotiations

As a WTO member, China will participate in the Doha Round negotiations to develop additional trade rules addressing existing and new issues related to globalisation. China is expected to be one of the key players in these negotiations and has the political and economic power, to be an important bridge between developed and developing countries.

The Doha Declaration includes a trade and environment mandate for negotiations. However, developed and developing countries are divided in the debate concerning trade, environment and development. Developing countries largely do not support the inclusion of environmental or labour issues. andInstead they call for the full implementation of the Uruguay Round Agreements, while a growing number of developed countries, in particular Europe, are calling for strong environmental measures and are in support of an environmental review of trade agreements.

China proposes that the objective for the new round of negotiations should be to establish a fair and rational international economic order, balancing the interests of both developed and developing countries. With respect to trade and environment, a coordinating group has been established comprised of officials from the Chinese Ministry of Commerce (formerly the Ministry of Foreign Trade and Economic Cooperation), the State Environmental Protection Administration, and other departments in order to form an integrated negotiating position of the various government stakeholders. However, China also needs to identify its broader interests with regards to the environment and sustainable development.

As a major exporter of manufactured goods, its interests may be different from those of other developing countries. China's export led growth means that only clear rules can prevent unnecessary trade obstacles in promoting its exports. Thus, clear environmental rules may promote efficiency and remove constraints on development. In order to make globalization work better for sustainable development and for developing countries, countries need to have a more effective, open and accountable international system and to make WTO rules and multilateral environmental agreements (MEAs) more coherent.

China can play a significantly important role in the new round of trade negotiations and bridge the differences between developed and developing countries.

Conclusions

As shown above, China's WTO accession will pose environmental challenges as well as provide opportunities to improve current environmental conditions. It may provide the opportunity for China to better use global capital and technology, and to better utilise domestic and international resources through significant structural changes. Stronger competition will force Chinese enterprises to upgrade their technology, improve their management skills and enhance their competitiveness. The structural changes including moving away from industries consuming high energy and raw materials with low efficiency and heavy pollution, to industries with high efficiency and low pollution, will be extremely beneficial. However, all these gains will not be automatically achieved without adequate environmental policy and forceful enforcement. The following are some major tasks for China when addressing trade and environment:

- Strengthening environmental governance: China should seize the opportunity of its WTO accession and the potential "win-win-win" opportunity for trade, environment and development. Efforts should be made to ensure that China's further trade liberalisation is not achieved by sacrificing its environment. It should improve its national and local mechanisms to implement its sustainable development strategy. Potential adverse environmental impacts of further trade liberalisation and increased investment should be closely monitored and assessed, in order to take necessary measures to minimise impacts. There is

a need to improve China's environmental legislation and at the same time to ensure that these are consistent with the WTO principles of non-discrimination and transparency. There is also a need to utilize more market-based instruments to avoid environmental problems that may be amplified due to market failures. Market-based instruments can provide incentives to encourage environmentally friendly activities or disincentives to discourage pollution and inefficient energy use. Efforts should also be made to enhance environmental institution building and enforcement.

- Making economic/trade policy and environmental policy more coherent: To ensure mutual supportiveness of trade, environment and development and to seize the "win-win-win" opportunities, China needs to adjust its industrial policy to optimise its industrial structure; develop its high-tech and tertiary industry; undertake technical renovation in its traditional industries and upgrade them to a new technology level that will use national resources economically and efficiently; and address environmental pollution problems previously created by irrational industrial structure. An integrated policy-making mechanism to address trade, environment and sustainable development issues is needed. Successful policy coordination requires effective institutional coordination. It is therefore, important to establish an effective coordinating body among relevant ministries and commissions, central and local government agencies, in particular among those of foreign trade, environment and quality control. Such coordination will improve the environmental management system and actively use trade measures to promote environmental protection and sustainable development.

- Addressing market access: To meet the increasing dements for environmentally friendly products and services in the international markets, China needs to update its environmental standards, which are in disparity with major importing countries of Chinese goods. There is a need to help domestic industries to strengthen their environmental management, improving their technological renovation and management skills and thus gaining competitive advantage to increase their share in environmentally conscious markets. The Chinese government has encouraged industries to obtain ISO 14000 environmental management certification and eco-labeling, additional instruments may include promoting corporate environmental responsibility and disseminating best environmental practices. Efforts should also be made to promote international cooperation and to develop exchange mechanisms on standard-setting, harmonization and mutual recognition efforts.

- Actively participating and contributing to WTO trade negotiations: China can play a significantly important role in the new round of trade negotiations and bridge the differences between developed and developing countries. However, effective participation in the WTO negotiations needs strong technical support. A great deal of efforts therefore, needs to be made to enhance awareness and understanding of the trade and environmental relationship, the issues to be negotiated and China's interests in sustainable development in the negotiations. It is in China's interest to support an open, fair and equitable international trade regime that promotes free trade and sustainable development.

Wanhua Yang coordinates IISD. Wanhua Yang coordinates IISD's work on the China Council project. She has a background in environmental law and international environmental policy. Before joining IISD, she worked for a provincial environmental research institute and an organization under the National Environmental Protection Agency, now the State Environmental Protection Administration, in China.

Notes

1 80% of soot and particulate, 90% of sulfur dioxide, 85% of carbon dioxide, 82.5 of carbon monoxide and 70% of nitrogen oxides are attributed to coal combustion. See Jin Yunhi and Liu Xue, Clean Coal Technology Transfer: Present Situation, Obstacles, Opportunities and Strategies for China, report submitted by the Working Group on Trade and Environment to the China Council for International Cooperation on Environment and Development in 1999.

2 The average thermal efficiency of China's power plants is only 25 to 29 per cent compared to rates of 35 and 38 percent in industrialized countries. The energy generation of industrial boilers is 52 per cent compared to 72 per cent, and household energy use is only15 per cent compared to 55 per cent. See Krzysztof Michalak, et al, "Environmental Priorities for China's Sustainable Development," pp 581-622, China in the World Economy, OECD, 2002.

3 Hu Tao and Fanqiao Meng, "China's Accession to WTO and Environmental Impacts on Agriculture," pp89-93, Trade and Sustainability: Challenges and Opportunities for China as a WTO Member, International Institute for Sustainable Development 2002.

4 Interview with Minister Xie Zhenhua, "Environmental Impacts and Challenges for China of WTO Accession", China Environmental News, 27 November 2001.

Genetically modified soy in Argentina - challenges ahead

Charles Benbrook and Heike Baumüller

The economic benefits following adoption of the genetically modified Roundup Ready (RR) soybeans in Argentina and the remarkable expansion of soybean acreage and exports is the one unequivocal national success story during a period of general decline throughout Argentina's economy. Enthusiasm for the RR soybean system in the country is near boundless and those working in the Argentinean soybean industry, government officials and agribusiness leaders take great pride in their involvement and contributions to the soybean industry's growth and prosperity. Questions about the sustainability of soybean production, possible environmental impacts of expanded production or changes in the efficacy of technology have been given little attention. Also, as import regulations for genetically modified organisms (GMOs) are continuously being tightened around the world, concerns have been raised on the impacts of these regulations on the competitiveness of Argentinean soy in the international market place.

Questions about the sustainability of soybean production, possible environmental impacts of expanded production or changes in the efficacy of technology have been given little attention.

Importance of RR soy in Argentina

Remarkable growth in soybean production and income has been generated by the adoption of RR soybeans in Argentina. The low-cost and relative ease of the RR soybean system led to a rise in the adoption of the technology from a few percent of the 6 million hectares planted in 1996 to almost 100 percent of the 10.5 million hectares grown in 2002. An estimated US$ 5 billion in economic benefits have flown from the technology, despite a world-market-driven, near 50 percent drop in the price of soybeans and processed soybean products.[1]

Much of the environmental benefits arising from the use of RR soybeans in Argentina stem from the positive synergy between the adoption of no-tillage (direct seeding) planting systems and planting of RR soybean varieties. Prior to the introduction of RR soybeans, serious soil loss in the Pampas region was eroding the productivity of cropland and leading to serious adverse environmental impacts. While some acreage was devoted to no-till systems, weed control in such systems proved difficult and expensive. The emergence of RR soybeans made no-till systems far easier for farmers, requiring much less management attention and skill to profitably use RR soybean technology. In addition, the planting of RR soybeans has led to a shift from higher-risk herbicides to glyphosate, one of the least toxic and environmentally benign herbicide options available to soybean growers.

Some contributing factors

While the use of RR soy in Argentina has led to a 25 percent reduction in per hectare and per bushel costs of production, it is important to note that this reduction is largely attributable to circumstances particular to Argentina and to RR soy. Farmers in Argentina have benefited from a substantial "windfall profit" by virtue of access to RR soybeans at little or no added cost. RR soybean seed available in Argentina is highly price competitive with farmers in the US paying at least 35 percent more to plant RR varieties. This price differential arises from from the fact that Monsanto does not have patent protection for RR soy in Argentina due to mismanagement of the issue (see Trigo et al, 2002) and from lax enforcement of seed laws in Argentina. Because of the terms under which RR technology was introduced into the country, Argentina's farmers

While the use of RR soy in Argentina has led to a 25 percent reduction in per hectare and per bushel costs of production, it is important to note that this reduction is largely attributable to circumstances particular to Argentina and to RR soy.

pay only a modest technology fee and have, in effect, captured the benefits of RR soybean technology without paying the usual share of the technology's development costs. A second major economic factor contributing to the cost reduction was the relatively low and falling price of Roundup (glyphosate) herbicides, which fell by almost half from 1996 to 2001 from about US$ 5.60 per litre in 1996 to about US$ 2.67 in 2001. This drop in price resulted from the expiration of the Roundup patent and the subsequent entry of new producers into the market.

Inadequate attention has been directed toward other potential adverse impacts of such a high level of reliance on no-tillage and RR soybeans in Argentina, such as weed shifts, resistance, emergence of new diseases or soil microbial community changes triggered by the RR soybean system. There is a strong need to increase research focus on these potential negative effects.

Emerging challenges in the field

The shift to RR soybeans in Argentina has led to a doubling of the pounds/kilograms of herbicide applied per acre/hectare, compared to cropland grown using conventional varieties. The number of herbicide applications per hectare has risen from about 2 to 2.3 as a result of planting RR soybeans. This far greater reliance not just on herbicides in general in managing soybean weeds, but on a single herbicide, has markedly increased the odds that a number of problems will emerge. These include shifts toward weed species that are able to survive applications of glyphosate, the emergence of resistance weed phenotypes and changes in soil microbial communities. The two former ecological adaptations will tend to erode the efficacy of RR technology and increase its cost; the latter change could increase plant disease and nutrient cycling and bioavailability problems.

Incrementally more nitrogen, phosphorus and glyphosate have been needed each year to sustain yield levels on many of the fields planted to RR soybeans. The factors driving this slippage in the efficiency of the RR system are not fully understood, although scientists strongly suspect that soil compaction resulting from the shift to no-till production systems is one of the major causes. Compaction retards root development and reduces water infiltration and soil water holding capacity. These changes in soil structure, in turn, exacerbate weather-induced variation in yields and can reduce the efficiency of nutrient storage and uptake. Consequences include greater yield variability, less efficient fertilizer use, and ultimately, the need to break up compacted soil layers. While compaction will occur similarly if conventional or RR soybean varieties are grown using no-till, the introduction of RR soy has greatly simplified and consequently expanded the use of no-till. RR soybeans and no-till systems have been used long enough in Argentina for compaction problems to emerge. Without remedial management strategies, it is likely that the economic impacts of compaction will steadily worsen.

There is little research or grower education underway in Argentina focusing on ways to manage compaction. Similarly, inadequate attention has been directed toward other potential adverse impacts of such a high level of reliance on no-tillage and RR soybeans in Argentina, such as weed shifts, resistance, emergence of new diseases or soil microbial community changes triggered by the RR soybean system. There is a strong need to increase research focus on these potential negative effects, even though it seems unlikely that such research will be undertaken in the foreseeable future, given the dramatic cuts that have been made in publicly funded agricultural research throughout the country.

Emerging Challenges in the Marketplace

Import regulations for GMOs are increasingly being tightened around the world, raising concern over export losses in key markets such as the EU, Japan and Korea. The still pending finalisation of the EU regulations on labelling and traceability of GMOs and the looming US-EU

trade dispute over the EU's *de facto* moratorium on the approval of new GMOs and its proposed regulations further contribute to market uncertainty. Argentina along with the US, Canada, Australia and others have strongly criticised the EU's proposed labelling and traceability requirements as unworkable, costly and unnecessarily trade-restrictive. Compliance with the regulations, these countries claim, would involve substantive additional costs for segregating genetically modified from non-modified products, monitoring a particular crop throughout the food chain, and testing for the presence of GM materials.

The extent to which these concerns are justified and how the regulations will impact Argentina's agricultural exports remains uncertain. In the case of RR soy, the concern is not whether the EU regulations will block the import, as RR soy was granted market approval (for import and processing into non-viable soya bean fractions only) in the EU in 1996. Instead, the impacts of the EU regulations would stem from a possible loss in competitiveness and market access for Argentinean soy exports.

Given that almost all soy grown in Argentina in 2002 is genetically modified, exporters could simply opt for labelling all exports as GM, thereby avoiding the cost of segregation. This decision will depend on the intended use of RR soy (i.e. meal, oil or seed) and the export destination. Argentinean soybean oil is primarily exported to India, Iran and South Africa[2], all of which do not have labelling requirements for highly processed GMOs (as opposed to the EU which is considering the introduction of labelling for products derived from but no longer containing GMOs, like soy oil). The main destinations for meal are the EU, Egypt, Malaysia and Thailand. While GM feed destined for the European market would need to be labelled under the proposed regulations, meat from animals fed on GM feed would not. Thus, if these regulations are adopted, the impact on soy meal exports might not be significant, since the price of feed may remain the deciding factor for meat producers rather than whether the feed was genetically modified.

It remains to be seen, however, how strongly European consumers will demand the labelling of meat from animals fed GM feed and whether they will be prepared to bear any additional costs. The extra cost of such meat will depend on the availability of competitively priced non-modified feed. In this context, Brazil — as the second largest soy producer after the US — will continue to play a major role in shaping the global market and establishing the terms of trade. If Brazil continues its efforts to preserve GM-free status, exports from Brazil may come to be viewed preferentially by importers seeking out non-modified feedstuffs.

Note: This article is based on research commissioned for the Trade Knowledge Network, a joint project by the International Institute for Sustainable Development (IISD) and ICTSD. For further information, contact David Boyer (dboyer@iisd.ca) or see Internet: http://tradeknowledgenetwork.net

Charles Benbrook is a biotech analyst and consultant based in Sandpoint, Idaho, email: benbrook@hillnet.com. **Heike Baumüller** is working at the International Centre for Trade and Sustainable Development (ICTSD), her work focuses mainly on the interlinkages between international trade and natural resource management.

Notes

1 Trigo, E., Chudnovsky, D., Cap, E. & Lopez, A. (2002) *Los trangénicos en la agricultura argentina - Una historia con final abierto*. Libros del Zorzal.

2 Reca, A. (2001) "Oilseed crushing industry in Argentina: Increasing supplies, better margins & further restructuring", *Industry Note -Food & Agribusiness Research*, Issue 028-2001, Rabobank International.

Globalisation's Hidden Price Tag: The Economic Cost of Invasive Alien Species

Kevin P. Gallagher.

There is widespread consensus that increased trade and investment flows can be beneficial to the world's economies, when such flows are managed properly. Increasingly however, current and proposed trade and investment policies are coming under scrutiny for their failure to prevent some of globalisation's unintended costs. One set of costs receiving growing attention are the unintended damages to ecosystems and economies that occur when non-indigenous species, commonly referred to as "invasive alien species (IAS)," get introduced into ecosystems via the acceleration of global trade.

Although large sums of money are being spent to control them, IAS are triggering the extinction of numerous species and damaging croplands that are essential to development across the globe. As will be shown below, at a minimum the economic costs of IAS to the world economy are over US$100 billion. Many scientists and fair trade advocates fear that the upcoming global trade negotiations are on a collision course with global efforts to eradicate and prevent the spread of IAS. The world trading system should support efforts to make trade more sustainable, not hinder them.

The Costs of Invasives in the United States

According to IUCN, IAS are species that become introduced into a new ecosystem, then spread in a destructive manner. For instance, a plant or weed that is transported into a new ecosystem can multiply out of control and endanger native species, threaten agricultural resources, and cause unwanted health effects. Studies have estimated that close to 400 of the 958 species under the US Endangered Species Act are seen to be at risk because of competition with IAS.

In a January 2000 article in the journal BioScience, noted scientist David Pimentel and his colleagues published a study of the annual environmental and economic costs of IAS in the United States. To estimate these costs, Pimentel and his team calculated the foregone revenues from losses in valuable cropland due to IAS, in addition to the control costs that many U.S. agencies are already spending on an annual basis to eradicate the spread of IAS. Examining thousands of IAS in the U.S., the Pimentel group found that the economic costs of IAS amount to US$ 137 billion on an annual basis. According to Pimentel, roughly 90 percent of IAS enter the U.S. through trade. Therefore, the trade-related economic costs of IAS are approximately US$ 123 billion. Of these costs, the foregone losses amount to US$ 104 billion and the control costs equal US$19 billion.

Figure 1. The Zebramussel - Dreissena polymorpha native to Easter Europe and the Balkans was introduced in the Great Lakes, United States in 1988 and has since then caused sever damage both ecologically and economically.

To weigh on the conservative side, and because they are actual expenditures spent by the U.S. government to prevent IAS from being destructive, this short article will highlight the smaller control costs. The US$ 19 billion in IAS control costs are 9 percent of annual agricultural production in the U.S., and 55 percent of annual agricultural imports. A few examples can illustrate the magnitude of these costs. Many IAS that enter the U.S. come in the form of plants, mammals, and insects. Non-indigenous plants such as aquatic weed species like the hydrilla,

water hyacinth, and water lettuce, are affecting fishing and other water ecosystems, clogging waterways, altering nutrient cycles, and limiting the recreational use of many U.S. rivers and lakes. The United States spends US$ 100 million annually to control aquatic weed species alone. This figure does not include the revenue losses from IAS damage to these weeds. One estimate has shown that the damage from the introduction of hydrilla in just two Florida lakes cost US$ 10 million per year in recreational losses. Regarding insects, it is estimated that 95 percent of the 4500 that have been introduced into the U.S. entered accidentally. One example is the imported red fire ant, which kills poultry chicks, lizards, snakes, and ground-nesting birds. The state of Texas spends an additional US$ 200 million per year in an attempt to control these ants. A comprehensive study of the economic costs of IAS in the world economy does not yet exist. However, conservatively extrapolating from Pimentel's study reveals that the global costs could be well over US$100 billion. If we assume the ratio of IAS control costs in the U.S. to agricultural production in the U.S. as a proxy for the potential damages to world agriculture we can multiply that ratio by world agricultural production to estimate potential world damage costs due to trade and IAS. World agricultural production has averaged US$1.13 trillion annually over the past five years. Economic damages due to IAS in the U.S. amount to 9 percent of U.S. agricultural production. Nine percent of world agricultural production is US$106 billion –a plausible projection for global economic damages due to IAS. If world trade caused the number of IAS to grow globally at a rate of 2 percent annually, these damages would grow by 50 percent in less than twenty years. Such estimates are decidedly conservative. Indeed, if we used Pimentel's estimate of revenue losses due to IAS as a share of U.S. agricultural production as a proxy for a global estimate, the total costs to the world economy would be US$578 billion.

How to regulate invasive species - attempts at the global level

These estimates, while speculative, illustrate the fact that the proliferation of IAS is both an ecological and an economic problem that needs to be addressed immediately. IUCN and others have advocated a two-pronged strategy that focuses on global eradication and prevention. Eradication strategies are fairly well defined and range from mechanical control methods such as removing IAS by hand or with harvesting vehicles (e.g., for water hyacinth), to the use of chemical and biological controls. Many of these strategies are not as expensive as one might imagine. Indeed, according to the U.S. Office of Technology Assessment, the benefit-cost ratio for controlling water hyacinth in the U.S. is 13.6 dollars to one.

Strategies for global prevention are less well defined, especially as the rules for global trade are ever changing. There are currently no provisions in world trade rules to prevent the spread of trade-related IAS, nor is addressing IAS on the agenda for the new round of global trade talks referred to as the Doha Round. The Agreement on Sanitary and Phyto-sanitary Measures (SPS Agreement), the Agreement on Technical Barriers to Trade (TBT Agreeement), and Article 20: General Exceptions, which protects the right of WTO members to take steps that are "necessary to protect human, animal, or plant life or health" have all been cited by advocates as possible avenues through existing rules where IAS could be addressed. To date, very little action has been taken on this front.

There is one international forum that is taking IAS seriously, the Convention on Biological Diversity (CBD). The articles on In-situ conservation in the CBD state that "each Contracting Party shall, as far as possible and as appropriate: (h) prevent the introduction of, control or eradicate those alien species, which threaten ecosystems, habitats or species." These initiatives, and others like them, are of the utmost importance to preventing the spread of IAS. Furthermore the International Maritime Organisation (IMO) is currently working on developing draft regulations for ballast water management to prevent the transfer of alien invasive species through ballast water. The organisation is planning to hold a diplomatic conference on the adoption of new measures in 2004.

This is one of many reasons why IUCN members should pressure the world's governments to

strike a proper balance between Multilateral Environmental Agreements (MEAs) and WTO rules during upcoming WTO negotiations. Many are concerned that MEAs will become subordinated under WTO laws.

Indeed, last April delegates at the sixth Conference of the Parties of the CBD adopted 15 guiding principles for the prevention, introduction and mitigation of the impacts of alien species. However, Australia and the US have since argued that the principle are not valid, based on concerns that the principles might result in conflicts with obligations under trade agreements in particular the SPS agreement. A temporary resolution has been achieved, but this is but one example of the potential ability of trade agreements to trump MEAs.

Such a result would not only be detrimental to efforts to prevent the spread of IAS, but to the effectiveness of numerous treaties such as CITES, the Kyoto Protocol, and many others.

Kevin Gallagher is a GETI Steering Committee member and research associate at the Global Development and Environment Institute at the Fletcher School of Law and Diplomacy and Tufts University. *International Trade and Sustainable Development* (co-edited with Jacob Werksman) is available through Earthscan.

References:
Pimentel, D. et al (2000). "The Economic and Environmental Costs of Nonindigenous Species in the United States." BioScience v50

Trade and unsustainable growth: the myth of aquaculture in Chile

Rodrigo Pizarro

Chile today is the world's second major salmon producer. If current production trends continue it will become the first. In the year 2001, 230 thousand tons of salmon and 68 thousand tons of trout were produced, mainly for export (500 thousand tons of fish harvested). Chile has been so successful and competitive in the world market that it has been investigated for dumping by the USITC and is currently under investigation by the European Union. How did a small country, where salmon is not a native species, become such a major world player?

Fish farming has been presented as the logical step from turning hunter-gathers to farmers of the sea. A way of conserving increasingly threatened marine ecosystems.

The explanation lies in the intensive fish-farm production in the southern regions of Chile where an immense coast line and pristine sweet water lakes exist in conjunction with the availability of low wage employment. The result is an extremely competitive industry that can realistically project a production of over one million tons of farmed fish by the year 2010, as well as generating jobs and income for one of the poorest regions in Chile.

This is particularly surprising since Atlantic salmon is not only non-native to Chile, but is not an endogenous species to the whole of the southern hemisphere. The story behind the success of salmon-farming is used as an example of what free trade, economic liberalization and horizontal incentives can do in an economy. Ultimately we have a concrete and specific example of the benefits of globalisation to a small developing economy.

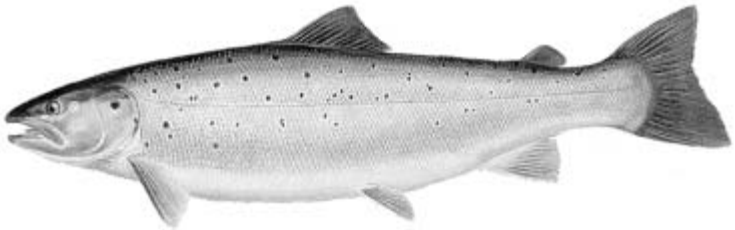


Figure 1. Atlantic Salmon

The environmental consequences of Salmon farming

But, as always, with a deeper look, things aren't what they seem to be. Current production trends are clearly unsustainable since the competitive edge of the Chilean salmon industry plainly lies in not internalising environmental and social costs. Of the total revenue generated by the industry 57 percent go to material inputs, 31 percent to gross profits and just 12 percent to wages. Moreover, most workers earn minimum wage, less than US$150 a month, around 75 cents an hour.

Recently official statistics place the 10th region of Chile, where the main salmon activities take place, as the region with the least unemployment, but with the highest poverty. That is to say generating jobs, at least for this industry, does not necessarily imply getting people out of poverty. Moreover, complaints concerning the compliance of labour legislation, unfair dismissal, and other anti-union practices are common.

However it is perhaps in the environmental impact of the industry where the major questions are being raised. In the case of Chile, despite salmon farming being a major industry, only fragmentary studies exist of the environmental impact of fish farms, a preliminary study by Fundación Terram estimated that only the nutrients generated by farm production (nitrogen and phosphorus) is equivalent to the untreated human waste of over 3 million people, three times more than current population of the regions where production is carried out.[1]

A more detailed study, where samples were taken, probably the first publicly available study of its kind in Chile, finds that in the fish farm areas significant amounts of nitrogen and phosphate are present in the water column, a major fall in biodiversity and the systematic death or killing of sea lions. Particularly worrying is the evidence of copper found in the water column, which with regards to sea farming, can be explained by the paint used in the sea cages, but in lakes it can only be explained by the use of malachite green, a fungicide based on copper. Although malachite green is prohibited in Chile there is wide evidence of its use[2]. Malachite green is used to control fungi by bathing the fish in this water-diluted substance although there are indications that malachite green may be a cancerous and even toxic in large quantities.

This is particularly worrying since salmon is not an endogenous species and is being reproduced with intensive monoculture techniques. The water temperature of southern Chile is a few degrees higher than what the fish are used to in their native waters. So without detailed studies it is really impossible to tell what the environmental impact of this activity will be in the future.

A related issue to the exotic nature of salmon is that when they escape, being a carnivorous and much bigger fish than indigenous species, the impact on local fauna is significant and the delicate balance of biodiverse systems may be in danger. Also unaccustomed to the warmer water caged fish generate a series of new diseases which current veterinary practices have yet to come to terms with. The generalized practice of the Chilean producers is the extensive use of antibiotics is a way of dealing with the problem. The implications this may have on natural bacteria and the effectiveness of antibiotics may be enormous, eventually affecting human health.

Although most fish farms fulfil current legislation in Chile, this is clearly insufficient, particularly alarming is that multiplicative effects of different farms on a common ecosystems, or the chronic effects of permanent environmental damage neither of which are considered. In addition, there is no real capacity for enforcement or control of current standards. And there is clear evidence of agency capture, recently the head of the regulatory agency resigned, among accusations of seeking salmon farm concessions while in office.

Salmon production - An efficient way of using natural resources?

Even if one can disregard the local environmental impacts of an industry with the overused and technically inadequate argument of an environ-

mental Kuznets curve. The process of globalisation and the increase in international trade, the main demand for Chilean salmon production, has generated an evidently illogical production process at a world level. Salmon are carnivorous fish requiring the consumption of three to five kilograms of wild fish to sustain themselves during their lives. This implies that the industry takes approximately four fish, of equivalent protein value, to turn it into just one going mainly to the higher income bracket consumer. The equivalent on the mainland is rearing lions by feeding them four cows! Does this make sense in a world where hunger remains a concern? Where does this put the market economy which generates the incentives to produce an evidently absurd result?

But there is more, wild fish stocks are being depleted at alarming levels, threatening, not only an important protein source but also biodiversity. Fish farming has been presented as the logical step from turning hunter-gathers to farmers of the sea. A way of conserving increasingly threatened marine ecosystems. However fish farm demand is the highest growing demand on wild fish stocks, due to the associated production of fishmeal fo which Chile is a major producer. If current salmon production trends continue, all of Chilean fishmeal production will go into the salmon industry. A recent study estimated that the ecological footprint of fish farms is up to 10,000 times the actual area used for production[3], precisely because of the high demand for fishmeal.

Though many environmental issues are unquestionably local, in the case of farmed fish and its impact on the world fisheries, the ultimate consequence of raising environmental standards may be to ensure the exhaustion of world fisheries. Therefore, it is not possible to seek to raise either the environmental or the social standards without a world outlook.

Conclusion

Salmon farming is an important industry in Chile and will remain so in the future only if it truly commits itself to sustainable production processes, fully internalising both environmental and social costs. Otherwise a more socially and environmentally conscious consumer will inevitably make the industry pay the price of unsustainable production practices.

On a world perspective, increasingly transnational companies are becoming involved in the Chilean production. The problem is that as environmental standards are raised in developed countries, the inevitable consequence is that more companies find their way to Chile, where environmental standards are lower and thus expansion is limitless. Though many environmental issues are unquestionably local, in the case of farmed fish and its impact on the world fisheries, the ultimate consequence of raising environmental standards may be to ensure the exhaustion of world fisheries. Therefore, it is not possible to seek to raise either the environmental or the social standards without a world outlook.

No doubt civil society must be concerned with its local environment, but today these issues are so complex, and the world so integrated, that an international outlook is essential when developing a more sustainable economic development model. We all have a responsibility in environmental conservation; the issue is that we must see this responsibility in all its immensity including the impact in all the corners of the world.

Rodrigo Pizarro is the Executive Director at the Fundación Terram in Chile. Fundacion Terram is a non-profit organization founded in 1997 for the purpose of generating a proposal for sustainable development in Chile, email: rpizarro@terram.cl; Internet: www.terram.cl

Notes

[1] Buschmann, Alejandro, Impacto Ambiental de la Salmonicultura: El Estado de la Investigación en Chile y el Mundo. Terram Publicaciones. 2001. www.terram.cl/publicaciones

[2] Buschmann, Alejandro, Impacto Ambiental de la Salmonicultura en la X Región de Los Lagos en el sur de Chile. Terram Publicaciones, Executive report, English version. 2002. www.terram.cl/publicaciones

[3] Folke, C.; Kautsky, N.; Berg, H.; Jansson, Å. & Troell, M., (1998), The ecological footprint concept for sustainable seafood production: a review , Ecological Applications, 8 (suppl), S63-S71.

Working with smallholders towards achieving sustainable development:
Foundation for the participatory and sustainable development of small farmers (PBA Foundation)

Santiago Perry

This article will give a short explanation of the activities of the PBA Foundation in participatory research and development of smallholders in the Atlantic Coast of Colombia. Moreover will it provide some recommendations for further improving the livelihood of smallholders in Colombia, and in other developing countries, through action at the international level.

The PBA Foundation and the sustainable development of smallholders

The Foundation for the Participatory and Sustainable Development of Small Farmers (PBA Foundation) is a non profit entity, with the main objective improve the living standard and to overcome poverty amongst smallholders in Colombia. It aims to achieve this objective through the development and application of sustainable technologies. The foundation consists of the Colombian Ministry of Agriculture and Rural Development as well as the National Planning Department, international research centres such as the International Centre for Tropical Agriculture (CIAT); Colombian research entities including Corporación Colombiana de investigación Agropecuaria (CORPOICA) and the Corporacion Nacional de Investigacion y Fomento Forestal (CONIF); and national and regional universities such as the Universidad Nacional, Universidad de Córdoba and Universidad de Sucre, as well as Local Participatory Groups, made up of smallholders from the Colombian Atlantic Coast.

With resources coming from the cooperation of the Ministry for Development Cooperation of the Netherlands government[1] and with national counterpart funds, the Foundation leads and carries out the Program of Agricultural Biotechnology for small-scale producers. This program, which started more than five years ago, aims at supporting farmers from the seven departments of the Colombian Atlantic Coast region in i) improving living standards and quality of life of smallholders; ii) improving their access to modern technological tools that provide farmers with a more sustainable and competitive productive activity. It is anticipated that the programme will benefit around 50.000 farmer families that live in 155.000 hectares of land.

The smallholders of the Atlantic Coast are the soul of the Foundation as they have an active and vital participation in all phases and aspects of the PBA. In each geographical project zone the smallholders form Local Participatory Groups (LPG). These are responsible for carrying out the research, development and training activities within their own locations. Furthermore, they are responsible for the promotion and creation of smallholder enterprises, producing clean seeds and biological and organic inputs – Technology Based Enterprises (TBEs) – and associative enterprises for crop transformation and commercialisation. It is worth mentioning here that women have an outstanding participation in these enterprises.

So far, more than fifty Local Participatory Groups (LPGs) have been formed and operate throughout the seven departments of the Atlantic Coast.. Within the LPGs the producers elect the representatives for the Regional Committee, which all in all is comprised of fourteen representatives – two from each coastal department as well as project researchers. The Regional Committee coordinates, approve and prioritises the various projects submitted by the LPG's. Furthermore the farmers for the National Steering Committee are elected by the Regional Committee.

The program focuses on participatory research, development and promotion of cleaner and more sustainable production technologies, such as production and planting of clean seeds in plantain, cassava and yam, as well as production and application of biological and organic inputs. The Foundation recently started working on organic production, integrated management of soils and

This program, which started more than five years ago, aims at supporting farmers from the seven departments of the Colombian Atlantic Coast region in i) improving living standards and quality of life of smallholders; ii) improving their access to modern technological tools that provide farmers with a more sustainable and competitive productive activity.

water and the promotion and implementation of agroforestry productive systems. These activities are briefly described in the following paragraphs.

Production of plantain, cassava and yam clean seeds

The Foundation has developed participatory methodologies and protocols required to produce clean and high quality plantain, cassava and yam seeds. These production methods are based on plant tissue culture, multiplication processes under insect-proof nucleus greenhouses with controlled environmental conditions and mass local multiplication for the production of elite and basic seeds. The last stages of the seed improvement project are carried out in Technology Based Enterprises owned by organized smallholders and in local mesh-houses and nurseries of the Local Participatory Groups. The immediate effect of the project is that farmers can get rid of their dependency on infected seeds, plant seeds are free of pests and diseases and substantially reduce – or eliminate – the use of agricultural chemicals. Farmers thus not only obtain higher yielding and better quality crops, but preserve the environment and promote entrepreneurial activity. Furthermore, they produce and sell clean and competitive seeds at the same or lower prices than traditional seeds which often are infected and marked by low productivity. Due to the success of these projects it is envisaged to enlarge the project geographically to cover all smallholders in Colombia and not only those along the Atlantic Coast.

Biological and Organic Input

As part of the integrated crops managment (ICM) project the foundation has also aimed at reducing or eliminating the use of chemical fertilizers and other agricultural chemicals. In the efforts to reach this goal the Foundation has developed and adapted biologic fertilizers production techniques, organic fertilizers and biological pesticides. All these developments have been made in accordance to the characteristics and needs of the different ecosystems and crops. The results obtained have been satisfactory as the new techniques have resulted in increasing yields and decreasing production costs. The Foundation is therefore working on scaling and widening these projects throughout the Caribbean Region, in such a way that they may reach all the current Local Participatory Groups and those that will be created during the Program's coverage expansion phase.

Organic Production

As part of its effort in developing organic agriculture systems, the PBA Foundation has recently developed a first cluster of organic plantain production in one of the LPG's. A training activity will ensure that the organic plantain production can be replicated throughout the Atlantic Coast. This is part of the aim to reproduce projects, infrastructures and organic agriculture methodologies in many locations of the Atlantic Coast, in plantain as well as in other crops.

The impact generated with the new technologies in terms of yield and quality, leads us to foresee an increase in the smallholders' production. To prevent this increase from causing difficulties in terms of market commercialisation the Foundation has assisted farmers in the establishment of strategic alliances of smallholder associations with traders and processors.

Soil and Water Sustainable Management

With regards to the sustainable management of soil and water resources farmers have started to engage in low-tillage plowing, the use of cover crops and the use of organic fertilisers. The first training activities for farmer leaders, researchers and technicians have already started in three LPGs for demonstration purposes.

Development of agroforestry systems.

Agroforestry systems contribute to environmental conservation and to the sustainable use and preservation of agricultural and forest biodiversity. With this in mind the PBA Foundation started research, adaptation and promotion of productive agroforestry systems. Furthermore these systems are aimed at diversifying the production options of smallholder farmers. This component is an essential part of the second phase of the programme as it to a high degree meets the needs and initiatives of smallholders.

Training for producers, researchers and technicians.

Besides the above-mentioned participatory research activities, the Foundation has carried out intensive training programmes with smallholders, researchers and technicians. The training component included training in technical and methodological aspects, entrepreneurial and organisational issues as well as in personal growth (building values, self-confidence and, leadership). The objective is to improve the educational level of farmers in order for them to be able to lead their own development processes. 123 technological training events have been carried out so far, attended by more than four thousand producers of which, one forth were women.

The joint work of technicians, researchers and smallholders has demonstrated that research indeed can be oriented to developing technologies which improve production, and as a consequence, also improve the living standards of the smallholders. The project has also shown that smallholders, instead of being reluctant to changes, are eager to innovate when they know and understand the characteristics and advantages of the technologies with which they have been actively working. Thanks to the participation of farmers, the technologies generated and the technologies obtained, are being adopted rapidly without any particular technology-transfer phase.

Furthermore, the participatory methodology and training have allowed farmers to gain confidence in their capacity to test, experiment and contribute to solving their technological problems. They have learned to develop their own initiatives, initiate tests and trials, and enrich the processes and results of the research. Their experiments, among other progresses, have led to an increase in the local efficiency and scaling capacity in processes of seed development. For example, some LPGs are now capable of multiplying Cassava super elite seeds as well as they have developed methods to produce organic fertilizers using larvae as degraders and transformers of organic material for compost production.

Each year, industrialised countries would contribute financial resources – equivalent to a certain percentage of the total support they grant their farmers – and these resources would be used for direct support to those small farming communities in developing countries contributing to the preservation and/or improvement of plant genetic resources for food and agriculture.

Some challenges for the PBA Foundation

The impact generated with the new technologies in terms of yield and quality, leads us to foresee an increase in the smallholders' production. To prevent this increase from causing difficulties in terms of market commercialisation the Foundation has assisted farmers in the establishment of strategic alliances of smallholder associations with traders and processors. Furthermore farmers have been supported in building an adequate infrastructure for the selection, dehydration and primary processing of their crops, as well as in the diversification of commercialisation channels, which allows them to serve different market segments.

Through the above described activities, the Foundation has shown to have an important impact in the economic, technological and social development of the smallholders of the Colombian Caribbean Coast. This development process, which is participative and sustainable, is now being led by the farmers themselves – through the Local Participative Groups and the Foundations Regional Committee. This is the

only way through which their efforts in improving their own social and economic conditions can be realised. Furthermore the Foundation has come closer to achieving its goals, namely to eradicate poverty, preserve biodiversity and the environment and to promote peace in Colombia.

However, the PBA Foundation, its projects and the smallholders involved in these, still face important difficulties and challenges, which are worthwhile mentioning:

1) The subsidies granted for corn and other crops in the industrialised countries generate a disloyal competition to the farmers growing cassava. These subsidies result in a decrease of cassava prices, as most cassava on the global market is sold as animal feed and is thus competing with the subsidies forage cereals. The elimination of subsidies in developed countries would allow Colombian farmers to improve their living standards and increase their income earnings.

2) Organic product certification programs are designed in such a way that the costs for implementing them are too high for most smallholders in developing countries to afford. The acceptance of *equivalence* in the ecological labeling systems; the establishment of expeditious mechanisms of mutual recognition; the harmonization of technical regulations; the more transparent design of eco-labeling systems; taking into account the characteristics of developing countries and their smallholder producers; the international technical cooperation and the enforcement of the Good Management Code for Manufacturing; the adoption and enforcement of the Agreement on Standards on Technical Obstacles to Trade; the implementation of voluntary labeling schemes; all these initiatives if implemented would lead to an increased market access and export of the organic products produced by the smallholder farmers of the Foundation.

3) The Foundation's smallholders contribute to the conservation and improvement of the genetic base for food and agriculture and they are developing initiatives improving technological processes. Nevertheless, for the work that is international in scope, they do not receive any benefits. The implementation of internationally binding mechanisms offering a s*ui generis* system to protect their knowledge; the establishment of international mechanisms, which acknowledge their contribution to the preservation and improvement of the above-mentioned genetic resources; would contribute to improve their living standards and would encourage them to continue with what they do.

One suggestion to how the playing field could be leveled is to establish a mandatory compensation mechanism. This mechanism would entail that each year, industrialised countries would contribute financial resources – equivalent to a certain percentage of the total support they grant their farmers – and these resources would be used for direct support to those small farming communities in developing countries contributing to the preservation and/or improvement of plant genetic resources for food and agriculture. This share could be established by agreeing to a percentage of each developed country's total support provided under the 'amber', 'blue' and 'green' boxes of the Agreement on Agriculture at the WTO[2].

Santiago Perry is the Executive Director of the Foundation for the Participatory and Sustainable Development of Small Farmers. He is based in Bogota, Colombia. Email: sperry@andinet.com

Notes

[1] Similar programmes, also supported through the Dutch government exist in India, Kenia and Zimbabwe.

[2] See: Perry, Santiago (2002), Integrating agriculture trade and agri-environmental policy: Elements for a sustainable development-oriented agenda in the context of WTO negotiations.

Flavouring exports - the pepper industry in Sarawak

Niels Fold and Marianne Jacobsen

Introduction

Diversification of agricultural exports is crucial for most developing countries. The dependence on a small number of food or fibre products increases the volatility and unpredictability of export revenues both at national and farmer level. In the short term it is not possible to compensate price slumps on dominant export crops and in a long term perspective, structural overproduction of specific crops are difficult to handle as no alternative export crops can be mobilised at sufficient speed. Hence, various mechanisms for incorporating new crops in the export portfolio are usually found in agricultural development strategies.

There are, however, huge variations in different farmers' ability to embark on the cultivation of new crops, and the potential benefits of diversification are not evenly spread among different types of farmers. The outcome for the individual farmer depends very much on his or her control over and access to resources, e.g. finance, technology, land and labour. At the macro level, success or failure of diversification objectives are also linked to the structural composition of farmer types. For instance, if a region or country mainly consists of resource-poor smallholders, a strategy trying to diversify agricultural exports by expanding the production of crops requiring capital-intensive cultivation would have small chances for success. In addition, socio-economic differences exist even among smallholders, and the consequences and potentials of agricultural diversification would differ according to the particular social stratification of the rural setting in question.

This article deals with the socio-economic consequences of diversification initiatives in the agricultural production of indigenous Bidayuh farmers on Sarawak, Malaysia. Sarawak is one of Malaysia's two regional states on Borneo and has an exciting history of 'white Rajah' rule since James Brooke was given the command of the territory by the Sultan of Brunei in 1846. The Brooke family ruled the territory for about a century until the Japanese invasion in World War II. A major element in the Brooke regime was to support and stimulate the indigenous population to transform from subsistence production based on shifting cultivation into more commercialised farmers partly relying on income from cash crops. Despite more than a century of persistent efforts, including institutional and infrastructural development, the indigenous agricultural system was not substantially transformed. Thus, when Sarawak became part of Malaysia, most of the agricultural goods for the international market (primarily sago, rubber, and pepper) were produced by descendants of ethnic Chinese, who already had settled as traders in Sarawak before the Brooke family arrived (Gin 1997; Reece, 1993).

The Malaysian Government developed a New Agricultural Policy (NAP) spanning from 1984 to 1992, although the NAP has continued to constitute the basis for agricultural development policies during the 1990s. The NAP focused aggressively on turning the agricultural sector into a modern, dynamic and commercially oriented sector, steering away from subsistence agriculture based on low technology. The goal was to increase productivity and output, and revitalizing the agricultural sector by focusing on the development of agro-industries and new crops through *in-situ* land development schemes, subsidies, export credits and extension services (Joharie, 1994; Sivalingam, 1993; Fold, 2000). State institutions such as the Department of Agriculture, the

There are, however, huge variations in different farmers' ability to embark on the cultivation of new crops, and the potential benefits of diversification are not evenly spread among different types of farmers.

Department of Trade and the Farmers Organisations have been strengthened in order to initiate new policies and development programmes. In the case of pepper, these institutions have been very important for the implementation of various subsidy schemes and incentives for diversification into products with higher value-added and demanded by local agro-industries, i.e green pepper and creamy white pepper.

In the next section of the article we list the different types of pepper cultivated in Sarawak. This includes some of the new niche-market types that have been promoted during the recent decade. Pepper is a traditional export crop and the diversification initiatives have focussed on stimulating production of new pepper products, each of them requiring different forms of processing. On the basis of findings in two villages (Jacobsen and MacDonald, 2001) we then discuss the pepper farming strategies pursued by different socio-economic groups of farmers. The two villages are characterised by specialising in two different speciality pepper products, green pepper in Paon Rimu and creamy white pepper in Daha Kisau, respectively. Finally, we conclude on the socio-economic sustainability of the pepper diversification initiatives in relation to different types of smallholders.

Cultivation practices and pepper products

Black and white pepper, produced by using cultivation practices introduced in 1850, make up the largest share of the pepper produced by smallholders in Sarawak. The farmers cultivate the pepper vine (*piper nigrum*) in gardens varying in size from 100 to 3.000 vines. From planting to the first harvest, which takes place in the dry season between April and August, there is a time span of 2.5 to 3 years. Pepper gardens in Sarawak require heavy use of fertilizer and the plants are vulnerable to pests and diseases, which explains the frequent and abundant use of pesticides. Due to the heavy labour requirements and the low technological equipment two persons, as a rule of thumb, can maintain and harvest a pepper garden with 700-800 vines.

Figure 1. A pepper *piper nigrum* branch with red mature berries and green immature berries.

When producing *black pepper* the farmer harvests the pepper stalks 8-9 months after the first flowering of the plant; frees the pepper berries from the stalks by manual or mechanical threshing; and sun-dries the berries on rattan mats for 3-4 days until they are brownish-black. In order to ensure the uniform drying and colouring of all berries, they are raked over periodically. Finally, the farmer removes dust as well as empty and light berries. A pepper farmer can produce 33-37 kg of black pepper from 100 kg of newly picked green pepper (Purseglove et al., 1981).

White pepper is produced from mature (10 months old) pepper berries. After the berries have been harvested and freed from the stalk they are put into jute bags and soaked in running water for 1-2 weeks. The soaking process initialises a bacterial rotting process whereby the outer pericarp is removed from the core of the fruit,the berries are then washed several times to remove stalks and other unwanted material. Finally the berries are sun-dried on rattan mats for 3-4 days following the same procedure of black pepper. A pepper farmer

can produce 25-28 kg of white pepper from 100 kg of fresh green pepper (ibid.).

As part of the government's efforts to modernise the agricultural sector, a number of subsidy schemes have been introduced to support the production of speciality pepper products. One of these products is green pepper; the other is creamy white pepper.

Green pepper is easier to produce than black and white pepper. The farmers simply pick the immature pepper berries and collect them in jute bags. At a factory, the green pepper berries are cleaned, sorted and preserved in brine. Due to its high moisture content the weight of green pepper is three times more than black pepper and therefore the price per kg is approximately one-third of that for black pepper. However, as the green pepper is a niche product, prices are not as volatile as black pepper prices, thereby providing a price-stable alternative for the pepper farmers.

The *creamy white pepper* production is similar to the production of white pepper but certain criteria apply to the physical characteristics of the berry: it must be more than 4mm in diameter, have a uniform size and shape, and should have a certain white-ivory colour. These specificities imply a need for more labour input in the production: the berries have to be hand-picked, soaked in special tanks with clean running water in order to ensure the right colour of the berries, and have to be sieved again after drying in order to select those of correct size.

vate traders only operate with two grades. The private traders sell the pepper to private Chinese exporters or to the Pepper Marketing Board (a state institution), all of them located in Kuching, the state capital. The exporters, regardless of whether private or state controlled, sell the pepper to a broker in Singapore or directly to an importer in the consuming country. The brokers and importers sell and distribute the pepper to food manufacturers, supermarkets and retailers in the end markets. More than 60% of the pepper from Sarawak is traded directly from the exporter to the importer, implying that Singapore today only handles 30-40% of the Sarawak pepper, compared to 80% in the beginning of the 1980s.

Production of speciality pepper, such as creamy white pepper and green pepper, is increasing in order to satisfy end-users with a special need for non-traditional products. The majority of these end-users come from developed countries and purchase the pepper directly from state institutions, in order to avoid private intermediaries. In Paon Rimu for example, the green pepper is collected and bought at a price set by the nearby, state-owned Instant Quick Freeze factory (IQF), which processes the green pepper further into green pepper in brine and then sells it to a factory in Denmark, supplying the European food industry. The

Production of speciality pepper, such as creamy white pepper and green pepper, is increasing in order to satisfy end-users with a special need for non-traditional products. The majority of these end-users come from developed countries and purchase the pepper directly from state institutions, in order to avoid private intermediaries.

The structure of Sarawak's pepper chain

The smallholders in Sarawak can choose to sell their black and white pepper through state institutions, private traders or kampong cooperatives. The major part of the pepper farmers choose to sell their pepper to the private traders. The state institutions pay a price according to the quality of the pepper as they operate with five quality grades, while the pri-

farmers receive subsidies from the Department of Agriculture and can choose to produce two different grades of green pepper, grade SP or grade D, depending on the maturity of the berry. In Daha Kisau, the creamy white pepper can only be sold to the local division of the Pepper Marketing Board. The Department of Agriculture in cooperation with the Board supports the production of creamy white pepper

by providing a pepper booster subsidy scheme to active farmers and by paying a premium price for the product. If the farmers receive the booster subsidy scheme, they are obliged to produce creamy white pepper from a certain amount of their vines.

Farming strategies in traditional and speciality pepper production

Specialisation in green pepper

Paon Rimu is well connected to Serian, the major town where the IQF factory is located by road. The smallholders of Paon Rimu produce rice for subsistence and pepper for cash income; as well as rubber and cocoa on a minor scale. For several generations the village has been provided with various subsidy schemes promoting the production of cash crops. Since 1996 a specific subsidy scheme for producing green pepper to the IQF factory has been allocated to the farmers. However, the cooperation between the smallholders and the IQF factory has not developed smoothly. Farmers complain that as the purchasing price of green pepper is too low it is not worthwhile to produce green pepper as compared to black pepper – even though they are obliged to supply the factory after having benefited from the subsidy scheme, the farmers sometimes refuse to produce green pepper.

All the smallholders produce three types of pepper (black, white and green), all benefit from subsidy schemes, and all sell their black and white pepper to private Chinese traders. Nevertheless, there are pronounced differences between the socio-economic groups of the village, divided according to the size of their pepper gardens - a good proxy for available resources. Main differences relate to 1) the scope of commercialisation and 2) the constraints they face in the production of various types of pepper.

Smallholders with a small pepper garden, no resources to pay for non-household labour and insufficient contacts to the extension services risk to become marginalised as they fall outside the target group of the Department of Agriculture.

The group of smallholders with the lowest cash-income use the lion's share of their labour time on subsistence production of rice and on other cash crops such as cocoa and rubber. Hence, diversification of cash income opportunities is highly prioritised. The type of pepper produced depends primarily on the purchasing prices, i.e. indirectly on world market prices. When prices are high, white pepper is produced because it yields the highest revenue. All smallholders in this group produce green pepper, mainly because they benefit from the subsidy scheme and because it is considered as a stable price alternative to black and white pepper. Remarkably, this group does not claim to suffer from labour constraints.

The middle income group of smallholders apply significantly different considerations when they decide their farming strategy. Main concern is devoted to obtaining the highest output with the least input, taking into consideration the available household labour and world market prices. This implies that the group only benefits insignificantly from the subsidy schemes as these tie them to produce green pepper - which is not always the most profitable activity. On the other hand, this strategy prevents them from receiving extension services from the responsible state institution.

The high income group is remarkably different from the other groups. These smallholders are closely related to the extension services of the Department of Agriculture. Each of them has specialised in one type of pepper (whether black, white or green) and has the cash availability to hire non-household labour, which is absolutely necessary in order to maintain the large pepper gardens. On the other hand, the large gardens are probably unsustainable in the long run as they are heavily dependent on fertilizers, prone to pests and diseases, which often wipe out a whole production, and require

a very high input of pesticides. Besides, these farmers are dependent on one single cash crop and it will be difficult to adapt the production - and their livelihood - in the case of a severe drop in world market prices for a particular pepper product.

Specialisation in creamy white pepper

Turning to Daha Kisau, this village is located in a remote area with no easy access to road transport. The initial transportation of agricultural products from the village takes place by boat on the Kisau River. Pepper production took off in the early 1980s and the village quickly specialised in producing white pepper. The local specialisation in creamy white pepper started in the mid-1990s when the responsible state institutions identified the village as an ideal place: the pepper cultivars were fairly free from pests and diseases and there was an abundance of clean running water. Since then the village has been provided with subsidy schemes for the production of creamy white pepper, as well as for pepper production in general.

As in Paon Rimu, the smallholders living in Daha Kisau have certain similarities and notable differences in their farming strategies. Black pepper accounts for the majority of the pepper production for all farmers. Moreover the subsistence production of rice is an important factor for most smallholders. On the other hand, the social stratification of the groups implies that not all the groups are equally commercialised and meet different constraints in diversifying their pepper production.

The low-income smallholder households mainly produce low quality black pepper, which is the least time consuming and leaves time for subsistence production of rice. Furthermore, these farmers have bought all necessary farming inputs from the private Bidayuh traders and pay back their loans in the form of their pepper harvest. Producing pepper of a high grade is not a major concern for these smallholders who use traditional production methods although it would yield a higher price. However, these farmers do not find the extra workload worthwhile – and have no access to other trade channels for high quality products.

This case of agricultural export diversification seems to imply a process of economic accumulation with increased socio-economic stratification and gradual erosion of environmental sustainability.

The middle-income group of smallholders also produce rice for subsistence but in addition most of them are engaged in relatively more important cash crop production of pepper and cocoa. The majority of the pepper production is devoted to black pepper, but white and creamy white pepper are also produced. Part of the black & white pepper is of high grade quality and sold to state institutions although a significant part is sold to the local private traders as repayment of loans. Due to rapid expansion of the pepper gardens in recent years, this group of farmers have to hire non-household labour, primarily Indonesian migrants.

The farmers with the largest gardens produce a relatively large quantity of creamy white pepper and qualify for the support under the subsidy scheme. They also produce high quality black and white pepper which is sold to state institutions in order to obtain the high grade prices. This farming strategy requires a rather large labour input, which is filled by hiring non-household (Indonesian) labour for the most demanding activities such as expansion of pepper gardens and the processing of creamy white pepper. These smallholders have access to resources to such an extent that they are able to invest in their production in order to increase output and income.

Conclusions

The two speciality pepper products increase the opportunities for the smallholders without forcing them to involve scarce resources in new and demanding investments. In addition, the cultivation practices are basically unchanged: the same agricultural produce constitutes the

basis for all the pepper products although harvest time and simple primary processing differ from product to product. In principle, the product portfolio of the smallholders is hereby expanded at minimum costs and the dependence on the price- volatile black and white pepper is reduced at farmer level. At the macroeconomic level, agricultural exports are diversified by the addition of new and higher value added products. However, both speciality products are still niche products mainly in demand by the food industry in the industrialised countries and there is a limited demand for it on the world market. It is also worth to remember that prices are mutually related even though the different pepper products to a certain extent dominate their specific markets.

Besides, there are some local socio-economic barriers for the expansion of the speciality products. Even though green pepper requires relatively less labour input than other pepper products over the full production cycle, the harvest period requires more labour: green pepper has to be harvested within a time span of two to three weeks. Production of creamy white pepper is also more demanding in terms of labour input than the traditional types of pepper.

This reduces the possibilities for the poorer smallholders who do not control enough resources to hire labour. Smallholders with a small pepper garden, no resources to pay for non-household labour and insufficient contacts to the extension services risk to become marginalised as they fall outside the target group of the Department of Agriculture.

Furthermore, if the contractual requirements to either the IQF factory or to the PMB are not fulfilled, the smallholder will not be able to participate in new pepper subsidy schemes. This could eventually lead to even deeper marginalisation of some resource-poor smallholders as only participants in the subsidy schemes receive extensions services. However, the smallholders that only produce the traditional black and white pepper tend to diversify their production with other traditional crops such as fruit trees, cocoa, rice, rubber trees etc. which in the long term may be considered as more environmentally sustainable.

On the other hand, those households with either sufficient resources to hire non-household labour or with a sufficient amount of household labour have better opportunities to engage in the production of speciality pepper. On the whole, a cycle linking resource-rich smallholders, subsidy schemes, more extension services, higher income and expansion of pepper gardens is likely to be established. As the study demonstrated, however, large pepper gardens are much more vulnerable to pest and diseases which sometimes wipe out the complete basis for production. In terms of policy implications, this case of agricultural export diversification seems to imply a process of economic accumulation with increased socio-economic stratification and gradual erosion of environmental sustainability.

Niels Fold is Associate Professor at the University of Copenhagen, Department of Geography; email: nf@geogr.ku.dk; Internet: www.geogr.ku.dk. Marianne Jacobsen is IUCN Liaison Officer at the International Centre for Trade and Sustainable Development; email: mjacobsen@ictsd.ch; Internet: www.ictsd.org

References

Gin, O.K. (1997) *Of Free Trade and Native Interests, the Brookes and the Economic Development of Sarawak, 1841-1941*. Malaysia, Kuala Lumpur: Oxford University Press.

Reece, R.H.W. (1993) *The Name of the Brooke, the End of White Rajah Rule in Sarawak*. Malaysia, Kuala Lumpur: Ampang Press Sdn Berhad.

Jacobsen, M. & MacDonald, P (2001) *Globalisation of the Pepper Industry in Sarawak*. Department of Geography, University of Copenhagen, Denmark.

Purseglove et al. (1981) *Spices*. In Tropical Agricultural Series, vol 1, 1981. Longman, London.

Joharie, A.R. (1994) Future Trend and Direction of the Agricultural Sector in Malayisa. A Paradigm Shift. In Bujang H.B. & Hua S. A., Eds. (1994) *Agriculture Commercialisation in Sarawak: in Search of a New Paradigm.* (Pp.20-37). Malaysia, Kuching:Heng Sing Brothers Press, Sarawak.

Sivalingam, G. (1993) *Malaysia's Agricultural Transformation.* Malaysia, Kuala Lumpur: Pelanduk, Petaling Jaya.

Fold, N. (2000) Oiling the Palms: Restructuring of Settlement Schemes in Malaysia and the New International Trade Regulations. *Journal of World Development, 28* (3), Pp. 473-486.

Developing a strategic approach for IUCN's engagement in trade

Martha Chouchena-Rojas

Why engage in trade?

IUCN – The World Conservation Union has been known for its work on biodiversity, including the development of references and standards for the conservation of species, such as the Red List criteria and lists of species, and for the establishment and management of protected areas, including the IUCN categories and the UN lists of protected areas.

IUCN has also been at the origin of the main conservation conventions, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Biological Diversity (CBD), by drafting early versions of these instruments and supporting their development and implementation. Through its work at the global, regional and national levels, IUCN has provided technical and scientific analyses and advice to country Parties to these and other biodiversity-related agreements, e.g. the World Heritage Convention, Ramsar and the Convention on Migratory Species. It has also provided a platform to bring the voices of governmental and non-governmental actors into formal negotiations and to find solutions to contentious issues such as dams, ivory trade and bushmeat. Further to this, with thousands of projects at national and local levels IUCN has contributed to the implementation of these policy frameworks and to the advancement of conservation all over the world. This has included supporting the development of national biodiversity and conservation strategies in more than 70 countries.

Being a conservation organization, one could ask why IUCN should care about trade. In fact, the role of trade in conservation was recognised by the Union at a very early stage through its involvement in the development and implementation of CITES, the first Multilateral Environmental Agreement (MEA) to successfully include trade measures. Furthermore, IUCN established TRAFFIC with WWF to monitor wild species trade. IUCN was also one of the pioneers in linking conservation to sustainable use and development through landmark documents like "Caring for the Earth" and the "World Conservation Strategy", which highlight the importance of trade in the conservation of biological diversity.

The need to address trade was identified explicitly by IUCN members. In particular, Resolution 2.33 adopted by the World Conservation Congress in Amman in 2000, urges IUCN to "investigate the environment consequences of trade liberalization and to widely disseminate results and recommend actions; elaborate on a model of dispute settlement and compliance for multilateral environmental agreements, which would also address trade and environment conflicts; promote capacity building programs for developing countries so as to enable them to include environmental considerations in trade policies."

A considerable amount of trade-related work has been done by the Union to implement this mandate. Main achievements of IUCN include a three year project funded by BMZ on the Convention on Biological Diversity and the International Trade Regime, which produced important publications and case studies; work on fisheries at global level and in IUCN regional offices in Eastern and Western Africa; national level work in South Africa, Pakistan and Vietnam on issues such as fair trade in tourism and in providing support to national governments on trade policy. Also, IUCN was at the origin of the establishment of the International Centre for Trade and Sustainable Development (ICTSD).

However, most of these efforts, with the exception of the work on species trade, although very successful, were developed as isolated initiatives that could not be mainstreamed into the IUCN

programme to ensure continuity, capitalise on these efforts and effectively use the IUCN network of global programmes, regional and country offices and Commissions.

The need to develop a more strategic and longer term approach to engage in trade has become more important in the last few years, given that the main issues in IUCN's conservation agenda are being dealt with, and decided upon, outside the fora in which the organisation has traditionally operated. Access and Benefit Sharing (ABS) is an example of this trend. Although the concept originated within the framework of the CBD as its third objective – together with conservation and sustainable use – the negotiations for its implementation and operationalisation have moved outside of the CBD to be addressed at World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO), especially in the context of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) discussions. If IUCN wants progress on this issue, it cannot concentrate its work only in the familiar territory of the CBD.

Trade matters are also becoming more and more common ingredients of negotiations on conservation issues such as invasive species by, among other, the possible trade implications of the application of the precautionary principle and risk management measures. This has resulted in a slowing down of progress in the context of the CBD (independently of the procedural problems encountered in the decision on this issue at the 6th meeting of the Conference of the Parties) and even in pre-Rio conservation-oriented conventions such as Ramsar. Again, IUCN cannot address invasives, the second largest threat to biodiversity, if it does not address trade-related concerns.

Further, trade can have considerable impacts on biodiversity conservation, as illustrated for example in the impact of subsidies on agriculture or on fisheries on the conservation of biological diversity and on livelihoods.

The close relationship between trade and environment was clearly illustrated in the World Summit for Sustainable Development (WSSD) process. Trade was one of the most controversial and difficult themes in the negotiations but its presence in the debates was an indication of its importance to achieve sustainable development. This is further reflected in the fact that trade is included as one of the "Means of Implementation" in the WSSD Plan of Implementation. This process has confirmed the need for IUCN to engage more actively in trade issues if it is to achieve its conservation agenda.

Being a conservation organization, one could ask why IUCN should care about trade.

Matching needs and opportunities

While the need to address trade has become more evident in conservation fora, new opportunities and challenges for biodiversity conservation and sustainable development have emerged in the trade world and, in particular, at the Fourth Ministerial Conference of the World Trade Organization (WTO) in Doha, Qatar, in November 2001. The meeting's outcome, which came in the form of a Ministerial Declaration, a Decision on Implementation-related Issues and Concerns and a Declaration on the TRIPS Agreement and Public Health, defined areas for collective study and negotiation. Sustainable development and environment were for the first time given prominence in the work of the WTO system. This included a reaffirmation, in the Declaration's preamble, of the commitment of the WTO to sustainable development, as well as the need for mutual supportiveness between the aims of upholding and safeguarding an open and non-discriminatory multilateral trading system and acting for the protection of the environment and the promotion of sustainable development. Furthermore, the Ministerial Declaration encouraged efforts to promote cooperation between the WTO and "relevant international environmental and developmental organizations", such as IUCN.

Importantly, WTO members agreed to launch negotiations on trade and environment, including the relationship between WTO rules and trade obligations set out in multilateral environmental agreements (MEAs), procedures for regular information exchange between MEA secretariats and relevant WTO committees, criteria for observer status and the clarification and improvement of WTO disciplines on fisheries subsidies. They also

instructed the Council for Trade-related Aspects of Intellectual Property Rights (TRIPs) to examine, *inter alia*, the relationship between the TRIPS Agreement and the Convention on Biological Diversity (CBD) and the protection of traditional knowledge and folklore. In addition, the Committees on Trade and Development and Trade and Environment were mandated to help achieve the objective of having sustainable development appropriately reflected in the outcomes of the negotiations. For the first time environment was placed on both the operational and the negotiating agenda of the WTO. This creates great opportunities but also an important challenge to ensure that the outcomes of these negotiations are supportive of biodiversity conservation and sustainable development.

Developing a strategic approach for IUCN's work on trade

A decision was taken in the IUCN Secretariat in early 2002 to approach trade in a more strategic and integrated manner. Institutionally, this took the form of the establishment of the Policy, Biodiversity and International Agreements (PBIA) unit in IUCN headquarters in Gland. Its mandate is to address cross-sectoral agreements and processes such as the CBD and the World Summit on Sustainable Development (WSSD) and processes in other sectors such as climate change and trade, as well as enhance IUCN policy making procedures and systems.

In order to develop the strategic approach in substantive terms, PBIA convened a planning meeting in April 2002 with key components of IUCN involved or relevant to trade discussions and key partners such as CEESP, ICTSD and TRAFFIC. This work departed from the following principles:

> IUCN does not intend to become a trade organization, but rather will focus on bringing conservation into the trade world, drawing on its core competencies and seeking to complement them by addressing relevant issues in the intersection between biodiversity and trade.

The trade programme of work needs to be built on previous and ongoing work in IUCN.

IUCN needs to work in partnership with actors within and outside the IUCN family already established in the trade world, starting with CEESP, ICTSD and TRAFFIC, to seek added value and avoid duplication thus requiring a careful identification of its appropriate niche in a competing world.

Trade matters are becoming common ingredients of negotiations on conservation issues such as the application of the precautionary principle and risk management measures.

Trade work needs to be mainstreamed into the IUCN programme at global, regional and national levels to ensure long term sustainability and the establishment of policy-practice and global to local linkages, which are a key competitive advantage of IUCN.

The group defined a goal for the biodiversity and trade strategic programme: "trade and investment modified to promote biodiversity conservation and sustainable livelihoods," and a purpose: "trade and investment policies and institutions at global, regional and national levels informed, influenced and used to promote biodiversity conservation and sustainable livelihoods."

It further identified IUCN previous, ongoing and planned work on trade from global thematic programmes, Regional and Country Offices and Commissions. Some preliminary areas of work were identified for which goals and objectives were defined.

These areas have been further refined and priorities emerging for IUCN's work include:

> Trade measures to control alien invasive species.
>
> Intellectual property rights, access and benefit sharing and conservation of biodiversity.
>
> Mutual supportiveness between WTO rules and MEAs.
>
> Positive linkages between global and regional trade and biodiversity rules.
>
> Market mechanisms, including subsidies.
>
> Transparency in international trade policy making relevant to biodiversity.

With its broad membership of 79 states, 112 government agencies, 760 NGOs and 37 affiliates, its voluntary networks of some 10,000 scientists and experts from 181 countries, and its presence

in 42 countries, IUCN is well placed to provide a bridge between the conservation and trade constituencies by:

making available relevant information and building capacity of its conservation community;

bringing its expertise in species and ecosystem conservation and sustainable livelihoods into trade policy work through policy-practice linkages;

developing and advocating policy in the trade negotiations on key issues in the conservation agenda and in MEA's negotiations on trade-related matters;

developing linkages and synergies between policies adopted at national, regional and global levels;

using its convening power to provide a platform to conservation and trade actors; and;

supporting the effective implementation of international policy at national level through technical assistance, capacity building and the development of local, national and regional networks and partnerships.

With the support of an IUCN innovation fund, PBIA has established a collaborative effort with the IUCN Regional Offices of South America and Asia and with the CEESP Working Group on Trade and Investment - GETI, to continue the development of IUCN's programme of work, while starting some strategic interventions. Ongoing and planned activities include:

Further development of the trade programme of work at global level and in two regions (South America and Asia), focusing on priority areas identified and linking this effort to the development process for the IUCN intersessional programme to be submitted for approval to the next World Conservation Congress in 2004. Fund raising proposals are being developed in this context.

Development of communication efforts to raise capacity and awareness in IUCN's constituency, especially through the partnership established with CEESP-GETI and ICTSD in the production of the *BRIDGES Trade BioRes.*

Targeted policy interventions to test IUCN's engagement with the trade constituency. This included the organization with CEESP-ICTSD of the Globalization and Equity day in the IUCN Environment Centre at WSSD, with its workshops on equity, ethics, access and benefit sharing and alien invasive species. Furthermore IUCN-PBIA, together with CEESP-GETI, ICTSD and the GBF Secretariat, is organising the Global Biodiversity Forum-18, prior to the WTO 5th Ministerial Conference to be held in Cancun, Mexico on 10 - 14 September 2003. The overall objective of holding the Global Biodiversity Forum from the 5-7 September in Cancun is to provide a platform for the trade and biodiversity communities, to consider how the pursuit of their respective goals and objectives might complement or hinder each other. Specifically, the meetings aim to: support the biodiversity community in formulating the trade-related aspects of their respective areas of work; facilitate the identification of openings for the biodiversity community to effectively participate and thereby integrate their concerns in the international trade policy-making process; build new and strengthen existing networks among the trade biodiversity communities; and develop concrete recommendations targeted at negotiators in Cancun and identify follow-up activities.

Trade work needs to be mainstreamed into the IUCN programme at global, regional and national levels to ensure long term sustainability and the establishment of policy-practice and global to local linkages, which are a key competitive advantage of IUCN.

These first steps in IUCN's process have shown the potential the organization has to engage in trade in a more effective manner, but have also shown the existing challenges to develop the necessary capacity to position the Union in this competing world. The partnership between the Secretariat and Commissions, and in particular with CEESP-GETI, is essential to achieve this goal and we thus look forward to continuing our collaboration in order to respond to our members' requests, and more generally, to achieve our mission and conservation goals.

Martha Chouchena Rojas is the Head of the Policy, Biodiversity and International Agreements Unit based at IUCN Headquarters in Gland and is responsible for leading cross-sectoral international agreements and processes and further developing the IUCN policy system. Email: mtr@iucn.hq.org.

LETTERS TO THE EDITOR

To the Editors,

Policy Matters 10– Article entitled "Water, power, and the crisis in the Levant" by Eric Garrett

I write as a former staff member of IUCN (from 1983-97) and as a Vice-Chair of CEESP to express my dismay at the article cited above. I believe this article, and others of its ilk, have no place in an IUCN publication and I deplore your poor judgement in including it in what is otherwise a very fine issue of our magazine. My problems relate both to the content and to the context.

On the former, the article is a one-sided rant, first against Israel and then against the United States. We learn, first, that Israel has stolen most of the water and land from the Palestinians, and attempted unsuccessfully to seize more in Southern Lebanon. They have, further, destroyed most of what they couldn't grab outright. We then learn that this is in large part due to the combined cynical support of an illegitimate US government (George Bush is a spokesman for "an illegitimate government"), its tame press, and the deliberately ignorant American public ("Americans … prefer a certain kind of ignorance").

I read the article carefully to see whether there was a paragraph, a sentence, a word, nay even a hint that the situation in the Levant was a tad more complex than the angelic Palestinians against the Luciferian Israelis, backed by the Great Satan itself. There was not one. Truly blessed is he who can see life in such simple terms.

The article is rubbish, but so what? I would dismiss it as the ramblings of yet another American wrapped up in a guilt trip if it had not appeared in an IUCN publication. And especially in an IUCN publication published in Iran. This is not only very unfortunate judgment on your part, it casts suspicion on the excellent work done by our Commission throughout both the developed and developing world.

As a Vice-Chair of this same Commission, I am embarrassed by this article, at its Manichaean world view and at the highly partisan political opinion that it reflects. I hope that this will prove to have been a once-off error.

Best wishes, Mark Halle (mhalle@iisd.ca), Vice Chair, CEESP (Working Group on Environment and Security)

To the Editors,

This letter responds to criticisms of an article penned by me and published in Policy Matters No.10. The article is titled: "Water, Power and the Crisis in the Levant".

I have been accused of writing rubbish, of being naïve, and of feeling in some way guilty that I am an American. I am also accused of pretending *to be* an American: the suggestion [set in a footnote and contained in a prior version of the letter to the Editors sent in by Mark Halle] was that I was probably from Iran. These insights might indicate an important point that is a labour to pin down: that even in elite, sophisticated circles where intellectual work is prized, a significant part of the truth is a personal matter.

However, the main thrusts of the article I wrote are well accepted in some quarters. The establishment of the state of Israel was a politically anachronistic, forceful imposition of one cultural regime upon another.

It began with a struggle to establish itself, largely against the interests and in defiance of a pre-existing people, and now it is trying to survive the occupation. Some Zionist planners anticipated the expansion of the state to deal with the predictable consequences of continuing conflict and environmental stress, and the record reflects this.

And once an established state, it simply seems to me either naïve or deceptive to dissociate Israel's dependence on the strategic water resources around its recognized boundaries and the state's decisions to gain control of these resources. I maintain that in looking beneath and alongside the many years of human conflict over establishing a Jewish state, one finds key drivers for the continuation of conflict. Most of these are demographic and resource-based drivers, with water being *the* critical issue that persists to haunt Israel's viability as a state. Whatever our sympathies are, we should address this issue straightforwardly or Israel will not negotiate in good faith.

The role of the United States in providing decisive support or accommodation of Israel's expansion, at the expense of local Arab populations, is also unequivocal. The rest of the narrative requires interpretation, context and many questions about perspectives and values.

The article I wrote is not of an elegant nature, possessing flaws and indications of haste. There is certainly some measure of overreaching in style by the way I draw lines between things, which underlines an impatience with the need for airy diplomacy in the face of a growing crisis; in relation, I do emphasize the broad ignorance of and distortions to the TV-soaked US public, conditions that many influential groups and causes knowingly depend on.

I made the mistake of placing David Ben-Gurion in the historical place of Chaim Wiezmann. I call Israel a theocratic state, which is too coarse to say but can be discussed if one allows for certain forceful implications of its very establishment, historically considered, as well as examining aspects of the regime and perhaps pondering the nature and ground of identity itself. I also called Israel's military the fourth *largest* military force, when I should have substituted *power* for size, the latter being tagged to the number of soldiers and conventional arms.

Let us agree then that the article has flaws. But if the critics want to wave away the substance of the article and the major characterizations of power, motive, and consequence, then I have nothing to withdraw.

Since the WSSD, the situations that alarm us have gotten worse. I feel an even greater need to draw lines between things in a way that jolts any complacency. And the critics are no wiser for their insistence on good form.

Eric Garrett (garrette400@yahoo.com), Evansville, IN, USA

A woman saves some oranges from a plantation destroyed by Israeli troops in Beit Hanoun in northern Gaza City, Tuesday 20 May 2003. Using bulldozers the Israeli troops uprooted thousands of orange trees and other crops before they pulled back to the edges of the town after a five day seizure in which at least eight Palestinians were killed and fifteen houses destroyed.

Dear Mark,

Thanks for your note. Your letter addresses two points: the "factual content" of the piece on the Levant and the wisdom of publishing the article itself.

On the factual content of the paper, a person who did a Ph.D. thesis on water issues in the Middle East read the paper and had nothing to object. She actually added corroborating data. It is after checking with her that we decided to publish the paper. On the political interpretation we see a concurrence with editorials of progressive journals all over the world.

On the wisdom to publish, we can only say that the piece on the Levant is a piece on an environmental subject of crucial relevance for that region. As the subject relates to broader environmental and peace issues, it is also a piece on a subject of crucial relevance for the world we live in. IUCN ought to be concerned, despite the legitimate desire of not wishing to upset powerful members and/or donors.

The IUCN Commission members have a tradition of free thinking and free speech and we hope you are not calling for some form of voluntary censorship, especially in a climate in which censorship is becoming every day more fashionable. What appears to you a Manichean view of the world is a legitimate view of the world, shared by many. Regrettably, after the Iraq war this view seems only to be painfully confirmed. We fully respect your desire for balance of opinions, however. As we mentioned to you right on the eve of your protest letter, you are warmly invited to publish in *Policy Matters*—which is your journal as much as the journal of all other CEESP members—a paper presenting facts that contradict or put in perspective the Palestinian dispossession of natural resource rights described in the piece on the Levant and/or its political interpretation. Our readers will surely appreciate your efforts.

Warmly,

Grazia Borrini-Feyerabend (gbf@cenesta.org), Vice-Chair, CEESP (Collaborative Management Working Group) and Taghi Farvar (taghi@cenesta.org), Chair, CEESP

Note to the readers: The article "Water, power, and the crisis in the Levant" by Eric Garrett is available online in *Policy Matters* No. 10, at http://www.iucn.org/themes/ceesp/publications.htm#policy.

Correction on Prajateerpu (Citizen's Jury), *Policy Matters* No. 10

Mr. Nigel Cross, the former Executive Director of IIED has pointed out an error of omission in a note to the Editors of *Policy Matters* No. 10.

We wish to point out to our Readers that a typographic error left out part of the sentence in line 6 of your editorial note on p 25 (PM 10). The sentence should have read:

"...over 70% of the funding for IDS and 20% for IIED (with some key IIED programmes receiving up to 60% of their funds from DFID)."

We apologize for this omission. We further re-affirm that this does not alter our analysis and substantive conclusions in any way.

For those readers interested in further information and analysis of the Prajateerpu saga and the donor pressures that took place, please refer to two peer reviewed articles in the international journal of Action Research:

1. Pimbert, M.P. and T. Wakeford, 2003. Prajateerpu, power and knowledge: The politics of participatory action research in development. Part I: Context, process and safeguards. *Action Research*, Volume 1, No. 2: pages185-207.
2. Wakeford, T. and Pimbert, M.P. Prajateerpu, power and knowledge: The politics of participatory action research in development. Part 2: Analysis, reflections and implications. *Action Research* (in press).

Editors, Policy Matters No. 10

Network News

The working groups and members of the CEESP network have been busy since the last issue of *Policy Matters* (and Network News) which came out during the World Summit for Sustainable Development. In keeping with the new CEESP tradition of producing special issues of *Policy Matters* dedicated to important global policy fora, we bring you two special issues of *Policy Matters* back-to-back. This issue focuses on the WTO Ministerial in Cancun, Mexico, while *Policy Matters* 12, is a special issue for the World Parks Congress in Durban, South Africa. In order to cover as much of our activities over the last year as possible we have split "Network News" between these two issues. In this issue you will find the latest on the work of two of our Themes/Working Groups; those on **Environment and Security**, and on **Environment, Trade and Investment**. Policy Matters 12 will bring you news of the work of the Themes/Working Groups on **Collaborative Management**, **Sustainable Livelihoods**, and the joint CEESP-WCPA **Theme on Indigenous and Local Communities, Equity, and Protected Areas**.

CEESP at WSSD

CEESP events featured prominently during the busy and resoundingly successful programme of the IUCN Environment Centre in Johannesburg during the World Summit on Sustainable Development.

The five Themes/Working Groups of the IUCN Commission on Environmental, Economic and Social Policy joined forces with the greater IUCN community—and beyond—to realise a wealth of events. These ranged from theme days, such as "Globalisation with Equity" and "Human Security and Environment", which included a multitude of events to internal planning meetings for such projects as the World Parks Congress 2003, the updating of the 1972 classic publication, *The Careless Technology: Ecology and International Development*, and discussion around a project to create a "red list" of endangered cultures that possessbio-diversity conservation heritage, as well as launching the publication/re-publication of a number of books.

The mission of CEESP is rooted in the middle ground linking practice and policy, and between local communities and global politics and its concerns were reflected in the programme of events: a dialogue with local communities—Local Voices, Global Choices (with the UNDP Equator Initiative); focus on the issue of community conserved areas and co-management of natural resources for the World Parks Congress in 2003; a workshop on trade and intellectual property rights; and the launch of a major new publication, Conserving the Peace: Resources, Livelihoods and Security, which makes the case to policy makers that investment in environmental conservation could help attack the roots of conflict and violence.

In addition to these initiatives, the Commission helped the IUCN team keep their finger on the pulse of the daily negotiations at WSSD, particularly on trade-related issues, through daily coverage bulletins.

Working Group on Environment and Security (WGES)

WGES at WSSD

In partnership with the IUCN Secretariat, we hosted a day-long session on E&S in Johannesburg on September 3, 2002, which retrospectively has succeeded in promoting our work, and forging new partnerships with likeminded groups. Based on two years of research and consultations that culminated in the publication of 'Conserving the Peace: Resources, Livelihoods and Security', our first book on the subject, which is becoming a standard reference in the field, being used in university courses at the University of Toronto, the University of Ottawa and the University of California-Irvine, among others.

Activities

Climate Change Adaptation: An international task force of leading experts is working with support of the Swiss government to identify natural resource management tools that could reduce vulnerability to natural disasters through protection of natural 'buffer' systems.

Peace & Conflict Impact Assessment – Niger: We were invited by the Swiss government to take part in the assessment of a field project in the Sahel that addresses the latent conflict between pastoralists and

farmers through a number of different mechanisms.

An Agenda for Environmental Cooperation and Security in SE Europe and Central Asia (UNEP, UNDP & OSCE): The 'Environment for Europe' Ministerial meeting was launched in Kiev and Prague on May 21, 2003, where a multi-agency environment and security initiative was launched by UNEP, UNDP and the Organisation for Security and Cooperation in Europe to address these concerns in the former Yugoslavia and the Central Asian states. IISD/WGES will act as secretariat/key advisor for environment and security issues. Keynote presentations by Klaus Töpfer, Mark Malloch Brown, and ministers from the Netherlands, Tajikistan and Serbia & Montenegro, as well as a video by TVE.

Various advisory activities: WGES has also been active in various advisory capacities including: acting as an advisor to the UNEP Post Conflict Assessment Unit's missions to Afghanistan, Iraq and the Occupied Territories of Palestine; participating in the agenda-setting for the OECD DAC (Development Assistance Committee) working group on Environment & Conflict, which will develop several activities in coming months; and participating in the steering group for the proposed Institute for Environmental Security (Netherlands).

Impact assessment tools: 'Conflict Impact Assessment tool for protected areas design' development underway for launch at World Parks Congress, September 2003; and, launching an effort to integrate conflict sensitivity into environmental and social impact assessment in the extractives sector; this project launched with a meeting of senior practitioners from Shell, BP, Newmont, ERM in London at the Princess of Wales Trust on May 21.

Making the Business Case for Conflict Prevention: On behalf of the Mining, Minerals and Sustainable Development project (MMSD), we surveyed the business and conflict literature and staked out a 'natural resources/livelihoods' niche related to the extractive industries sector. Aware that business has played a key role in exacerbating conflicts in West Africa and Indonesia, we are now building on alliances made during the Global Compact's conflict dialogue to launch new projects aimed at practical tools for business.

Publications

- UN Global Compact 'Conflict Guidelines for companies' published and launched in Johannesburg December 2002.

- *Trade, Aid and Security: Elements of a Positive Paradigm.* An overview of the links between trade in natural resources, aid and conflict. Unstable aid flows, illicit trade in natural resources in exchange for arms, and unacknowledged costs of adapting to the international trade regime are together fuelling instability and insecurity. Achieving sustainable development requires refocusing these regimes to support human security.

- *Conflict Risk and Impact Assessment* (Project Briefing)

- *Integrating Resources-Livelihoods Perspective in Development and Conservation Practice*

- *Environment & Security: Transforming Risks into Cooperation* (Focus: Central Asia and South Eastern Europe): This report of the first phase of ENVSEC activities provides an overview of environmental concerns with security implications in Central Asia and South Eastern Europe, revealing many hot spots and areas of common interest.

- *Addressing Environmental Risks in Central Asia: Risks, Conditions, Policies, Capacities.* This report assesses major environmental risks related to security and describes the socio-economic context and the institutional and policy framework available to address these in the five Central Asian countries.

- *Background Paper - Environment & Security in Central Asia*

- *A brief introduction to the links between environment and security, and a discussion of the issues of greatest relevance in Central Asia*. Saule Ospanova, Alexander Carius, and Jason Switzer

- *Addressing Environmental Risks and Promoting Peace and Stability: The post Kiev process.* This paper describes the structure and aspirations of the ENVSEC initiative following the Kiev 'Environment for Europe' Ministerial in May 2003. The Initiative will focus on three activity areas: (1) vulnerability assessment and monitoring of environment and security linkages, (2) policy development and implementation, and (3) institutional development, capacity building and advocacy.

Trade,Environment and Investment

The year 2002 was a great move forward for GETI; by further developing our relationship with the IUCN Secretariat, further developing the scope and readership of *BRIDGES Trade BioRes*, as well as by engaging actively in the World Summit on Sustainable Development (WSSD), Johannesburg, 2002; GETI has moved forward and come closer to its goal and its mission. In 2003 GETI has built on these strengths to organise events in relation to the Fifth WTO Ministerial meeting in Cancun, and to further develop its relationship with various other components of IUCN. The GETI Steering Committee was established and held its first meeting in Johannesburg during the WSSD. This meeting was important because it led to the identification of GETI areas of work and development of the membership structure. Subsequently GETI has worked on developing its by-laws and project guidelines. GETI has developed its website over the past months and maintains two websites: basic information is available at http://www.iucn.org/themes/ceesp while more updated information is available on the website of ICTSD, the host of GETI: http://www.ictsd.org/geti/welcome.htm.

IUCN partner activities

- Participation in the **IUCN Advisory Group** (IAG) for the WSSD

- Participation and assisting IUCN in developing a **strategic work programme on trade** (included participation in preparing documents, research and analysis, prior to the IUCN Biodiversity and Trade Strategic Workshop). In 2003 GETI continues to assist IUCN in setting up a Biodiversity and Trade Strategic Programme

- Provided input on **IUCN project proposals** on trade related issues, in particular on the project proposals on Alien Invasive Species, and Access and Benefit Sharing

- Developing project proposals in collaboration with IUCN Secretariat based on priority areas that were defined at their Steering Committee meeting during WSSD; two noteworthy initiatives are projects on Access and benefit sharing and Intellectual Property Rights (IPRs); and, Alien Invasive Species and international trade.

Global Biodiversity Forum 2003

CEESP-GETI, along with the IUCN Secretariat, ICTSD, and the Ministry of Environment and Natural Resources of Mexico (SEMARNAT) are holding the 18th Session of the Global Biodiversity Forum from 5-7 September 2003 in Cancun, Mexico, prior to the 5th WTO Ministerial Conference, on 10-14 September 2003, also in Cancun. This is the first time that a GBF is being held prior to a WTO Ministerial meeting.

As of the time of this writing the proposed topics for the workshop are:

- TRIPs-CBD relationship
- Biosafety and Precautionary Principle (incl. Alien Invasive Species)
- Sustainable Livelihoods

For more information please see http://www.gbf.ch/present_session.asp?no=31&lg=EN.

The overall objective of holding the Global Biodiversity Forum in conjunction with the Fifth WTO Ministerial Conference is to provide a platform for trade and biodiversity communities to consider how the pursuit of their respective goals and objectives might complement or hinder each other. Specifically, the meetings aim to:

- Support the biodiversity community in formulating the trade-related aspects of their respective areas of work

- Facilitate the identification of openings for the biodiversity community to effectively participate and thereby integrate their concerns in the international trade policy-making process

- Build new and strengthen existing networks among the trade biodiversity communities

- Develop concrete recommendations targeted at negotiators in Cancun and identify follow-up activities

The timing of the GBF enables its discussions and outcomes to be directly linked to the current trade round as negotiations will enter a crucial stage after the stock-taking in Cancun. Hence this event will help leverage and focus biodiversity-related inputs into the WTO process. But it will also enhance the knowledge of trade linkages in the biodiversity community, allowing participants to heighten their awareness of these linkages in relevant international biodiversity processes as well as broader-based processes, such as the World Parks Congress in Durban, South Africa, which will be held concurrently with the WTO Ministerial meeting.

Publications

GETI continues to publish *BRIDGES Trade BioRes—Trade and Biological Resources News Digest* on a biweekly basis. Between January and August 2002, the *BRIDGES Trade BioRes* has essentially centred on continuing to refine the editorial focus, including coverage and target audience. In addition to the regular issues, special issues were produced for the Sixth Conference of Parties of CBD (COP-6), the third meeting of the Intergovernmental Committee on the Cartagena Protocol on Biosafety (ICCP-3), the WSSD Prep Com in Bali, and the World Summit on Sustainable Development (WSSD). By the end of 2002, approximately 700 readers had subscribed to *BRIDGES Trade BioRes*. GETI will continue to develop and distribute the digest throughout 2003 and will provide special coverage of the WTO Ministerial meeting in Cancun . In order to receive this publication on a regular basis, please send a blank email to subscribe_biores@ictsd.ch.

The International Centre for Trade and Sustainable Development (ICTSD), the International Institute for Sustainable Development (IISD) and the Regional International Networking Group (RING) which includes CEESP—are pleased to announce the launch of a second phase of our project on a "Southern Agenda on Trade and Environment".

The first phase of the project sought to gather and present Southern perspectives on the trade and environment link, building on consultations with developing country trade policy representatives in Geneva. The results of the Phase I were presented in May 2002 at the WTO Symposium on 'The Doha Development Agenda and Beyond'.

A Southern Agenda on Trade and Environment - Phase II

Phase II, which builds upon the results of Phase I, aims to respond to the opportunity offered by the Doha mandate, to strengthen the capacity of trade negotiators, key national policymakers and regional actors in developing countries to determine priorities for promoting and negotiating proactive positions which reflect their own 'Southern Agenda' on environment and trade in the multilateral trading system.

The project will be carried out over a two-year period, and is based on six regional dialogues that aim to bring forward regional priorities in trade and environment. The dialogues will both feed into and run parallel to a Geneva-based consultation process involving WTO negotiators, in order to ensure equitable and sustainable trade policies and agreements that truly reflect regional priorities for environment. The first regional dialogue will be held in Dakar, Senegal from 22-23 July in cooperation with ENDA Tiers Monde. In the course of the project we will be preparing policy papers on key trade and environment issues from a Southern perspective, as well as regional think-pieces from Africa, Asia and Latin America. As a principal output of the project, we shall be preparing a Resource Book on Trade and Environment aimed at Southern negotiators at the WTO and in other regional processes.

We are currently setting up a high-level Advisory Committee for the project, composed of key WTO delegates from developing countries.

For more information on the project please see http://www.ictsd.org/issarea/environment/products/index

EVENTS AT CANCUN AND BEYOND

Events at Cancun

5-7 September, Cancun, Mexico: 18th Session of the GLOBAL BIODIVERSITY FORUM on Biodiversity, Trade, and Sustainable Development, in conjunction with the 5th Ministerial Conference of the WTO. The GBF will focus on: The relationship between the CBD and the TRIPS Agreement; Sustainable Livelihoods and Trade; as well as Risk, Precaution, and Bio-security. The GBF is convened by a range of institutions including IUCN, ICTSD, the Mexican Centre for Environmental Law (CEMDA), the Ministry of Environment and Natural Resources, Mexico (SEMARNAT) SEMARNAT, as well as the **IUCN Commission on Environmental, Economic and Social Policy (CEESP)**. The recommendations from the GBF will be fed into the WTO Ministerial Meeting. For more information please see the GBF website: http:www.gbf.ch

5-7 September, Cancun, Mexico: Workshop on SUSTAINABLE LIVELIHOODS AND TRADE. **CEESP-GETI** will be organising two workshop streams as part of the Global Biodiversity Forum-18. Although it is commonly accepted that sustainable trade can contribute to poverty alleviation and biodiversity conservation, many underlying issues remain to be resolved. The notion of sustainable trade and the role of trade-related economic incentives aimed at supporting sustainable livelihoods and sustainably using biological resources are areas where intensive, sector-based examinations are needed to draw lessons for trade rules and sustainable development policy-making processes. The sessions organised by **CEESP-GETI** will seek to clarify the concept of sustainable commodity chains and how this can be used as a tool to analyse sustainable trade initiatives and related livelihoods. The second session will focus on engaging participants in a discussion on trade tools and how they can support or hinder sustainable development efforts. For more information please see the GBF website:
http://www.gbf.ch/desc_workshop.asp?no=31&app=&lg=EN&now=3

8-9 September, Cancun, Mexico: INTERNATIONAL FORUM: WOMEN'S RIGHTS IN TRADE AGREEMENTS. The International Forum, organised by Women on the Road to Cancun is a platform for women to share their views and join forces in addressing trade issues. Participants in the International Forum include, amongst others, the National Network on Gender and Economy and the Latin American Network Women Transforming the Economy (REDGE-REMTE).The forum will host panels and debates. For more information, contact: Mujeres Hacia Cancun, mujereshaciacancun@yahoo.com.mx, Mujer Dialogo, mujer-dialogo@prodigy.net.mx.

8-9 September, Cancun, Mexico: INTERNATIONAL PEASANT FORUM: FOOD SOVEREIGNTY AND FREE TRADE. Via Campesina and UNORCA are organising an International Peasant Forum focusing on the WTO Agreement on Agriculture and its impact on food sovereignty. The aim of the forum and the farmer's movement is to stop the advancement of negotiations at the Ministerial, defend the rights of small farmers and food sovereignty, remove the WTO from agriculture, stop the privatization of public services and stop patents on life. For further information, contact Via Campesina, viacam@gbm.hn, UNORCA, unorcared@laneta.apc.org; Internet: http://www.viacampesina.org/

8-17 September, Durban, South Africa: Vth IUCN WORLD PARKS CONGRESS. The ,Parks Congress is a 10 yearly event which provides the major global forum for setting the agenda for protected areas. This fifth meeting will concentrate on issues under the theme "Benefits Beyond Boundaries". For more information, please see Internet: http://www.iucn.org/wpc2003/

9 September, Cancun, Mexico: FAO Symposium on AGRICULTURE, TRADE REFORMS AND WORLD FOOD SECURITY. The FAO is organising a symposium on the theme of agriculture trade reforms. The symposium will centre on the experience and lessons learned by developed and developing countries in relation to agriculture trade reforms. Moreover, the discussions will also focus on food security and rural development, mechanisms of financing imports of basic foodstuffs, and the impact of the SPS/TBT Agreements on developing countries. The symposium will be held on the 9th September at the Sierra Hotel. For further information please see Internet: http://www.ictsd.org/ministerial/cancun/docs/fao.htm

10 September, Cancun, Mexico: Boell Forum: WTO AND THE ENVIRONMENT & GATS AND GENDER

and many more. The Heinrich Boell Foundation is organising several forums and dialogues on the above mentioned themes. For more information please see Internet: http://www.cancun2003.org/

10 September, Cancun, Mexico: NGO FOREST FORUM. North American and Mexican NGOs (Pacific Environment, Organizacion de Ejidos Productores Forestables de La Zona Maya, OEPFZM, UNORCA, Red México al Frente del Libre Comerico (RMALC), International Forum on Globalization (IFG), International Indian Treaty Council, and American Lands) are organizing an NGO Forest Forum to discuss trade, sustainable forest management and the rights of the forest communities. For further information, contact: Cynthia Josayma, Pacific Environment, cjosayma@pacificenvironment.org.

10-14 September, Cancun, Mexico: The Fifth World Trade Organisation (WTO) MINISTERIAL CONFERENCE. For more information see Internet: http://www.wto.org

11-12 September, Cancun, Mexico: PUTTING DEVELOPMENT BACK IN - THE CANCUN TRADE AND DEVELOPMENT SYMPOSIUM. Convened jointly by ICTSD and El Colegio de Mexico, the main objective of the CTDS is to encourage innovative thinking on issues related to trade and development to be translated into inputs for negotiations. The main topics will be drawn from development-related issues in the trade policy and trade rules arena. Particular attention will be paid to how trade policies can help to meet the needs of sustainable human development, the Millennium Development Goals and Targets, and other public policy objectives and needs. For more information please see Internet: http://www.ictsd.org/ministerial/cancun/tds/index.htm

Other Forthcoming Events

13-17 October, Lisbon, Portugal: CONSUMERS INTERNATIONAL WORLD CONGRESS 2003. This event, organised every three years by Consumers International, will focus on the theme of 'The future of consumer protection: representation, regulation and empowerment in a world economy'. For more information please see Internet: http://www.consumersinternational.org/News_Events/world.asp?cat=24®ionid=135.

20-21 November, Miami, Florida: FREE TRADE AREA OF THE AMERICAS (FTAA) MINISTERIAL MEETING. This meeting is an important marker in the negotiations among the 34 FTAA members to remove tariffs, trade barriers, and promote regional economic development and integration in the Western Hemisphere. For more information, please see Internet: http://www.ustr.gov/releases/2003/01/03-06.htm

1 - 12 December, Milan, Italy. UNFCCC COP-9. The ninth Conference of the Parties to the UN Framework Convention on Climate Change will continue deliberations from SB-18. For more information contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; Internet: http://www.unfccc.int/

13-18 June 2004, Sao Paulo, Brazil: 11TH UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. UNCTAD holds its ministerial-level conference every four years to set the organisation's priorities and guidelines for action. The conference is UNCTAD's highest governing body and also includes a high-level debate on current issues involving economics and development. The theme of the 2004 UCTAD XI conference will be "Enhancing coherence between national development strategies and global economic processes towards economic growth and development, particularly of developing countries". For more information please see Internet: http://www.unctad.org.

November 2004, Bangkok, Thailand: THIRD IUCN WORLD CONSERVATION CONGRESS at the Queen Sirikit National Convention Centre. At the World Conservation Congress - the world's largest democracy for conservation - IUCN's members gather to set the work priorities of the Union and elect its Council for the inter-sessional period. World Conservation Congresses are held at intervals of 3 to 4 years. The previous WCC was held in Amman, Jordan in 2000. For more information please see Internet: http://www.iucn.org/about/resolutions.htm

CEESP Steering Committee and Contacts		
Name & affiliation	***Role/area of responsibility***	***Nationality/ residence***
Themes and Working Groups & Focal Points for the Regions		
Farvar, M. Taghi (taghi@cenesta.org) Centre for Sustainable Development (CENESTA), Iran	Chair of CEESP, and of the Theme on Sustainable Livelihoods (**WGSL**)	Iran
Mayr Maldonado, Juan (juanmayr@hotmail.com) Group of Eminent Persons, Advisors to the Secretary General, UN	Deputy Chair of CEESP, Focal Point for Governance Issues, International Processes and Bio-cultural Diversity & for Latin America	Colombia
Borrini-Feyerabend, Grazia (gbf@cenesta.org) Ittifaq Keyke Mate (IKM), Switzerland	Vice-Chair for Theme on Co-management of Natural Resources (**CMWG**) & Co-chair of joint CEESP/ WCPA Theme on Indigenous and Local Communities, Equity and Protected Areas (**TILCEPA**)	Italy/ Switzerland
Halle, Mark (mark.halle@iprolink.ch) International Institute for Sustainable Development (IISD), Winnipeg & Geneva	Vice-Chair for Theme on Environment & Security (**WGES**)	Italy/ USA/ Switzerland
Kothari, Ashish (ashish@nda.vsnl.net.in) Kalpavriksh, India Coordinator of the Technical and Policy Core Group of India's National Biodiversity Strategy and Action Plan	Vice-Chair & Co-chair of joint CEESP/ WCPA Theme on Indigenous and Local Communities, Equity & Protected Areas (**TILCEPA**)	India
Melendez, Ricardo (rmelendez@ictsd.ch) International Centre for Trade and Sustainable Development (ICTSD), Geneva	Vice-Chair for Theme on Environment, Trade & Investment (**GETI**)	Colombia/ Switzerland
Other Themes & Regional Focal Points		
Al-Eryani, Abdul Rahman (scdp@y.net.ye) Yemen Islands Promotion and Development Authority Green Yemen	Vice-Chair for Island Ecosystems & for the Arab Regions	Yemen
Argumedo, Alejandro (ipbn@web.net) Asociación Quechua-Aymara (ANDES) and Indigenous Peoples Biodiversity Network	Vice-Chair for Indigenous Peoples & Biodiversity & for Latin America	Peru
Gritzner, Jeff (jag@selway.umt.edu) University of Montana, USA	Vice-Chair for Environmental History & for North America	USA
Jibrell, Fatima (hornorg@hotmail.com) Horn Relief Organisation	Vice-Chair for Community Environmental Care & for North-eastern Africa	Somalia
Mate, Kwabena (kwabenamate@aol.com)	Vice-Chair for mining, environment and local communi-ties & from Africa	Ghana
Monro, Rob (r.monro@virgin.net) Africa Resources Trust (ART), and Zimbabwe Trust, Zimbabwe	Vice-Chair for Sustainable Use of Natural Resources and CBD issues & for Southern Africa	Zimbabwe/ United Kingdom
Mumtaz, Khawar (khawarm@lhr.comsats.net.pk) Shirkat-Gah, Pakistan	Vice-Chair for Gender Issues & for South Asia	Pakistan
Nadal, Alejandro (anadal@colmex.mx) El Colegio de México, Mexico	Vice-Chair for Economic Theory and Globalisation Issues & for Latin America	Mexico
Primavera, Jurgenne (jhprima@aqd.seafdec.org.ph) SEAFDEC Aquaculture Department	Vice-Chair for Marine & Coastal Issues & for Southeast AsiaVice-Chair for Marine & Coastal Issues & for Southeast Asia	Philippines
Williams, Afriyie Allan N. (landnetcaribbean@tstt.net.tt)	Vice-Chair for Land Tenure and Sustainable Livelihoods Issues & for the Caribbean	Guyana/ Trinidad & Tobago

Staff contact persons		
Maryam Rahmanian (maryam@cenesta.org) +98 21 295 4217 & +98 21 293 4958	CEESP Executive Officer	Iran
Marianne Jacobsen (mjacobsen@ictsd.ch) +41 22 917 8492	Environment, Trade & Investment (GETI)	Denmark/ Switzerland
Manisha Sheth Gutman (shethgutman@satyam.net.in) + 91 20 567 5450	Indigenous & Local Communities, Equity & Protected Areas (TILCEPA)	India
Jason Switzer (jswitzer@iisd.ca) +41 22 979 9353	Environment & Security (WGES)	Canada/ Switzerland
Aghaghia Rahimzadeh (aghaghia@cenesta.org) +98 21 295 4217 & +98 21 293 4958	Sustainable Livelihoods (WGSL)	Iran
Nahid Naqizadeh (nahid@cenesta.org) & Maryam Rahmanian (maryam@cenesta.org) +98 21 295 4217 & +98 21 293 4958	Collaborative Management (CMWG)	Iran

CEESP main office:
c/o: CENESTA, 5 Lakpour Lane, Suite 24
Langary Street
IR-16936 Tehran, Iran
Telephone +98 21 295 4217 & +98 21 293 4958
Local Fax: +98 21 295 4217
International fax: +1 253 322 8599
E-mail: ceesp@iucn.org
CEESP web site: http://www.iucn.org/themes/ceesp
IUCN Secretariat Focal Points:
Gonzalo Oviedo, Senior Advisor, Social Policy (gonzalo.oviedo@iucn.org); telephone: +41 22 999 0287
Joshua Bishop, Senior Advisor, Environmental Economics (joshua.bishop@iucn.org); telephone: +41 22 999 0266

Policy Matters is the newsletter of the IUCN Commission on Environmental, Economic and Social Policy (CEESP). It is published at least twice a year and distributed to CEESP's 600 members, as well as the IUCN Secretariat and at conferences and meetings throughout the world. When possible, it is published concurrently with major global events as a thematic contribution to them and to the civil society meeting around them.

IUCN, The World Conservation Union, is a unique Union of members from some 140 countries include over 70 States, 100 government agencies, and 800 NGOs. Over 10,000 internationally-recognised scientists and experts from more than 180 countries volunteer their services to its six global commissions. The vision of IUCN is *"A just world that values and conserves nature".*

IUCN's six Commissions are principal sources of guidance on conservation knowledge, policy and technical advice and are co-implementers of the IUCN programme. The Commissions are autonomous networks of expert volunteers entrusted by the World Conservation Congress to develop and advance the institutional knowledge and experience and objectives of
IUCN.

CEESP, the IUCN Commission on Environmental, Economic and Social Policy, is an inter-disciplinary network of professionals whose mission is to act as a source of advice on the environmental, economic, social and cultural factors that affect natural resources and biological diversity and to provide guidance and support towards effective policies and practices in environmental conservation and sustainable development.

Following the mandate approved by the Second **World Conservation Congress** in Amman, October 2000, CEESP contributes to the IUCN Programme and Mission with particular reference to five thematic areas:

- Collaborative Management of Natural Resources (**CMWG**)
- Sustainable Livelihoods (**WGSL**, including poverty elimination and biodiversity conservation)
- Environment and Security (**WGES**)
- Environment, Trade and Investment (**GETI**)
- Theme on Indigenous Peoples & Local Communities, Equity, and Protected Areas (**TILCEPA**, joint between CEESP and WCPA)

Each issue of ***Policy Matters*** focuses on a theme of particular importance to our members and is edited by one or more of our working groups focusing on the five thematic areas. Past issues have focused on themes such as "Collaborative Management and Sustainable Livelihoods", "Environment and Security" and the Caspian Sturgeon, including issues of trade, conflict, co-management, and sustainable livelihoods for communities of the Caspian Sea ("The Sturgeon" issue). For more information about CEESP and to view past issues of ***Policy Matters***, please visit our website: http://www.iucn.org/themes/ceesp.

CEESP is hosted by the Iranian Centre for Sustainable Development and Environment (**CENESTA**). For more information about CENESTA please visit http://www.cenesta.org.

Please send comments or queries to ceesp@iucn.org. We look forward to hearing from you!

Cover picture credit: front cover, Patrick Krohn

Design and layout artist: Jeyran Farvar (Jeyran@cenesta.org).
Lithography: Hoonam, Tehran.

For her, preparing for the market starts with biodiversity...

Does she know the inter-linkages between trade, investment, poverty and biodiversity?

Does she understand the mysteries of globalisation?

Does she know how international instruments such as WTO, CBD, and CITES can affect her life?

Someone has to understand this gobbledegook,
and its relevance to conservation and sustainable use of biodiversity...
...enough to lay out effective and innovative policy responses
...before it is too late for a few billion people like her...

GETI.

The IUCN Commission on Environmental, Economic and Social Policy—CEESP

(www.iucn.org/themes/ceesp/wkg_grp/geti/geti.htm)