iied
International Institute for Environment and Development

OPINION

World Summit on Sustainable Development

2002

FULL TEXT

Ecosystem Conservation - A neglected tool for poverty reduction

By Simon Rietbergen, Joshua Bishop and Sue Mainka[1]

'While one cannot say with any confidence what forms an ecological crunch might take, when it might happen, or how severe it might be, it is easier to predict who will have the worst of it. The poor and powerless cannot shield themselves from ecological problems today, nor will they be able to do it in the future. The wealthy and powerful in the past have normally had the wherewithal to insulate themselves from the effects of pollution, erosion, or fisheries collapse.' (McNeill, 2000)

Introduction

Ten years ago, at the 1992 Rio conference, debates about sustainable development focused on how to ensure the ecological sustainability of the economy. Despite calls from the South for a global commitment to poverty reduction, and lip service from the North regarding its devotion to development, the legacy of the Rio conference remains strongest in the environmental sphere.

This will not be the case at the forthcoming WSSD in 2002. The focus in Johannesburg will be, as it should be, on the need to eliminate world poverty. People may disagree on the best means of achieving this goal, and especially on the potential and limitations of market-based approaches, but no one now disputes the urgency of the challenge.

And yet the question posed at Rio remains equally valid today: how can poverty be eradicated on a sustainable basis? This is not just a concern of environmentalists. All those engaged in the fight against poverty need to be clear about the key role of environmental health and ecological stability in strategies for eliminating poverty. Unfortunately, some important lessons about local environmental management appear to have been forgotten in the heady debates about globalisation and the response to global environmental problems such as climate change. At the same time, an upsurge in regional conflict and international terrorism has diverted policy-makers' attention from how to ensure the long-term sustainability of development.

In the run up to WSSD in Johannesburg, we need to remind ourselves of a few important facts about the links between poverty, natural resources and the environment:

1. Poor people rely more heavily and more directly on local renewable resources for their livelihoods than other socio-economic groups. Studies show that harvesting unmanaged wild resources can account for up to 50 per cent of poor households' cash income. Heavy reliance on natural resources often results from a lack of alternative livelihood options accessible to the poor.
2. Both poor households and poor countries are especially vulnerable to environmental hazards. Poor households and particularly women

KEY CHALLENGES:

- **Mechanisms for greening markets offer many advantages over conventional nature conservation approaches. However, they are not well-established and require considerable care if they are to work effectively.**
- **Understand the link between ecosystems and services: too often, market developers rely on conventional wisdom that certain ecosystems provide particular services. Even when this is the case, it is often insufficiently precise to allow effective mechanisms to be designed.**
- **Ensure that the poor can participate: security of property tenure, the existence of effective co-operative institutions, the identification of products which poor people can sell, and the provision of start-up finance should all be priorities.**
- **Where win-win solutions such as 'green' markets are not feasible, environment/development trade-offs should be made in an open, fair, negotiated process with meaningful involvement of all concerned stakeholders.**

*Published by the **International Institute for Environment and Development (IIED)** in collaboration with the **Regional and International Networking Group (RING).***

*IIED's work in preparation for the World Summit on Sustainable Development (Johannesburg 2002) has been made possible by support from the **Swedish International Development Co-operation Agency (Sida)**.*

and children are exposed to more unsanitary conditions and higher levels of air pollution than those with the means to protect themselves. Similarly, the world's poorest countries are least able to adapt or defend themselves against the impacts of rising sea level, increased climate variability, ozone depletion, invasive species and other aspects of global environmental change.

3. On a more positive note, the fact that many poor people live closely with natural resources and rely heavily on low-input production systems gives them an advantage in the development of new environmentally-friendly products and services. From eco-tourism schemes to organic agriculture, watershed protection contracts and carbon farming, there are a host of new market opportunities where poor rural communities can compete, provided they are not excluded by insecure land tenure, high transaction costs and other barriers to participation in emerging green markets.

These simple facts appear to have been forgotten by many of those who are developing or debating strategies to reduce poverty. Recent calls by world leaders to reduce barriers to international trade and to stimulate private investment in the developing world, as well as cautions from critics of the neo-liberal model, neglect an important lesson supposedly learned at Rio. That is, the critical importance of *local* ecological sustainability as the natural foundation of economic prosperity, and particularly the key role of natural resources in sustaining and enhancing the livelihoods of the poor.

As we prepare for WSSD, there is an urgent need to remind ourselves of the very real threat that ecosystem functions and species will be lost, and that the negative impact of such losses will fall largely on the poor. We also need to take a new and critical look at the real opportunities afforded by market mechanisms - often criticised for their negative impacts on poor people and the environment - to address poverty alleviation and environmental conservation in more integrated ways. Two areas where market-based approaches appear to offer significant potential are the elimination of environmentally and socially perverse subsidies, and the promotion of pro-poor markets for environmental goods and services.

At the same time, while the existence of such win-win solutions is encouraging, we must not forget that in many cases there are significant trade-offs between environment and development objectives. In such cases there is an urgent need to improve the ways in which human societies address these trade-offs. Market-based mechanisms are part of the answer, but there is likewise a need for political action, to empower disenfranchised stakeholders to contribute to negotiated solutions, to ensure that the role of ecosystems as present and future livelihood support systems is taken into account in key public investment decisions, and to provide increased assistance from rich to poor countries to conserve ecosystems and prevent species extinctions.

Short-term versus sustainable approaches to poverty reduction

The Millennium Development Goals (MDG) have served to refocus the attention of the world community by setting ambitious targets for the elimination of poverty, while reaffirming the importance of environment, alongside social and economic issues, as the third pillar of sustainable development. However, insufficient attention has been paid to the environmental underpinnings of sustainable development, possibly due to the fact that the indicators of the MDG commitment to 'ensure environmental sustainability' capture only a small proportion of the many real ways in which the livelihoods of the rural, and to a lesser extent the urban poor depend on sustainable management of natural resources.[2] Recent advances in understanding the causes of poverty (see for example Narayan, 2000), the sources of economic growth, and the measurement of human well-being, have re-emphasised the role of natural and social capital in human development. Strengthening social networks and ensuring participation in decision-making are increasingly recognised as essential components of strategies for reducing poverty. Equally, it should be understood that people need secure access to productive resources as well as the security of a healthy environment in order to create and sustain wealth. (DFID *et al*., 2002)

No one questions the urgency of alleviating the suffering of people living in poverty. At the same time, there are large risks associated with short-term approaches to eradicating poverty, particularly where these rely on unsustainable use of natural resources and ecosystems. The case of Indonesia offers a cautionary lesson, as recent advances in the fight against poverty were wiped out in one fell swoop as governance problems and natural resource depletion under the Suharto regime came home to roost in the late 1990s. Forest loss in Indonesia accelerated from 0.8 million hectares per annum during the 1950-85 period to 1.7 million hectares per annum during the 1985-97 period. (Global Forest Watch, 2002) Economic growth rates show the opposite pattern. Whereas economic growth during the 1975-90 period was almost 6 per cent per annum, it declined to 3 per cent per annum during 1990-99. (UNDP, 2002) Gross National Income per capita was halved from US$1,110 in 1996 to US$570 in 2000. (World Bank, 2002a) Many Indonesians are back where they were a decade ago in terms of disposable income, and many of the poorest among them no longer have access to the natural resource assets they were once able to fall back on in times of need.

Develop first, conserve later?

Proponents of rapid economic growth often assert that people have to get rich first before they can be bothered to save the environment. This argument is typically supported by pointing to the impressive recovery of some formerly depleted ecosystems in rich countries, such as the spontaneous regeneration of forest cover in the Northeastern USA and the rehabilitation of rivers that were severely polluted in Western Europe. But this is an unhelpful way to think about sustainable development at a global scale. First,

it does not address the fact that some restoration efforts in rich countries have been made possible by the shift in highly polluting manufacturing industries to the South, in effect by 'exporting' the North's environmental problems. (See for example Hartogh and Besselink, 2002) Second, by assuming that environmental conditions must get worse before they can get better, it dismisses as irrelevant the ongoing investments that poor people and communities make in ecosystem management to secure resources critical for their livelihoods. Third, it ignores the fact that many tropical and subtropical ecosystems are less resilient than temperate ones, that species extinction is irreversible, and that restoring damaged ecosystems is often impossible or prohibitively expensive. Finally, the theory that environments improve with rising income fails to hold for certain natural resources, as shown by the continuing rise in greenhouse gas emissions from rapidly growing economies.

Poor people's livelihoods depend on ecosystem functions

Approximately 75 per cent of the world's poor people reside in rural space and the rural poor will outnumber their urban counterparts for at least another generation. (Alderman, 2001 cited in World Bank, 2002b) The majority of the rural poor continues to depend heavily on natural ecosystems for their livelihoods.

Rural people use many ecosystems as essential productive assets, whether on a day-to-day basis or seasonally. Farmers who cannot afford to buy fertiliser transfer soil fertility from woodlands to their fields, either directly through shifting cultivation and litter harvesting, or indirectly through using manure from browsing livestock. In African dryland farming systems, where seasonal food shortages are common and sustained drought a frequent occurrence, dry-season flood plain grazing and fisheries, and the collection and sale of non-timber forest products provide a lifeline during times of need. Natural resources are thus a key element of the risk management strategies of the rural poor.

The importance of natural resources in directly supporting human livelihoods is often overlooked, as the goods and services they yield are either for subsistence purposes, or traded informally, so they do not show up in national economic statistics. Work by IUCN, the World Bank and others to develop comprehensive measures of national income reveals that most conventional indicators of economic performance (from project-level cost-benefit analyses to aggregate measures of national income) continue to overstate economic benefits and underestimate costs by failing to account for changes in environmental quality. This phenomenon tends to cast large-scale development projects established at the expense of existing natural resources in an overly favourable light, as the benefits foregone due to the displacement of local livelihoods are underestimated. A whole generation of failed river valley development projects, that promised food security but yielded salinisation and the destruction of sustainable flood plain farming and grazing systems as well as the disruption of estuarine fisheries, illustrate this problem. (Pirot *et al*., 2000)

Goods and services provided by productive ecosystems are the cornerstone of the livelihoods of the rural poor, while also providing urban populations with a number of key services, such as clean water. Ecosystem conservation can also literally be a matter of life and death. A detailed assessment of the impact of Hurricane Mitch, which led to mudflows and flash floods that killed almost 18,000 people and left 2.5 million homeless in Central America in October 1998, revealed the key contributions of forests on steep slopes in preventing landslides. Similarly barrier reefs and mangroves were shown to be instrumental in providing coastal protection during storms and tidal surges. (Girot, 2000)

Ironically, it may well be easier to demonstrate the value to local livelihoods of natural resources once they have been severely degraded. Where this has happened, for instance through ill-advised development schemes, the local people will be aware of what they lost. Also it will be easier to do robust valuation exercises on the basis of real world data, and mobilise both political and local support for their application. A recent valuation of an IUCN floodplain restoration effort established that the value of the restored floodplain could be as much as US$3,000 per km2 - not a large figure in global terms but locally very significant. (see Box 1)

Box 1 Waza Logone: floodplain restoration for poverty alleviation

In Northern Cameroon, a dry area where rainfall is uncertain and livelihoods are extremely insecure, the Waza Logone floodplain, covering some 8,000 km^2, represents a critical area of high productivity and biodiversity. The goods and services provided by the floodplain ecosystem (dry season grazing, fish, natural resource harvesting and surface water supplies) provide basic income and subsistence for more than 85 per cent of the region's rural population, or 125,000 people.
The biodiversity and level of productivity of the floodplain depend to a large extent on the annual inundation of the Logone River. But in 1979, the construction of a small irrigated rice scheme (40 km^2) reduced flooding by almost 1,000 km^2. Thousands of local households have suffered direct economic losses worth more than US$2 million a year in total. The affected population, mainly pastoralists, fisherfolk and dryland farmers, include some of the poorest and most vulnerable groups in the region.
In 1994 and 1997 two pilot flood releases were effected in the floodplain as part of IUCN's Waza Logone project funded by the Netherlands, unblocking watercourses that had been sealed off as a result of the construction of the irrigation scheme. These releases were welcomed by local communities, as they led to demonstrable recoveries in floodplain flora and fauna. Future reinundation measures have the potential to restore up to 90 per cent of the floodplain area, at a capital cost of approximately US$10 million. Adding more than US$2.5 million a year to the regional economy, or US$3,000/km^2 of flooded area, the benefits of reinundation are expected to cover initial investment costs in less than 5 years. (IUCN, 2002)

Access to natural resources, often managed by local communities as common property, is a key livelihood asset for most of the rural poor and will continue to be so in the foreseeable future. Such assets enable the poor to manage risk by spreading production across a diverse portfolio of natural resources. Technological changes aimed at increasing income are unlikely to be adopted unless they are compatible with the risk management strategies of the rural poor.

Common property resources are under increasing pressure from encroachment and destructive resource extraction by outsiders. This leads to loss of livelihoods, which in turn undermines social cohesion and stability, leading to increased poverty, social friction and political tension. In extreme cases, these tensions can lead to violent conflict, which diverts vital development resources from meeting urgent humanitarian and peace-keeping needs.

Finally, functioning ecosystems provide options for improving the livelihoods of future generations, whereas ecosystem depletion and species extinction reduce the capacity to adapt to future stresses such as climate change, and to respond to opportunities such as the marketing of ecological services.

Current state of ecosystems and species

The World Resources Institute has completed pilot analyses of the world's ecosystems' conditions and trends. The overall picture emerging from these is one of severe declines in the condition of most of the earth's surface. (Table 1)

While outright loss of forest and wetland ecosystems is relatively simple to ascertain, much of the damage that has been done has been a more insidious loss of quality that is far more difficult to measure. Species loss is sometimes used as a proxy for this loss of ecosystem quality.

The '2000 IUCN Red List of Threatened Species' reports a depressing story: 24 per cent of mammals and 12 per cent of birds are threatened. Preliminary studies on other taxa indicate that 20-30 per cent of reptiles, amphibians and fishes are also threatened. Unfortunately very little is yet known of the level of threat facing invertebrate taxa (which contain very large numbers of species), but early indications are that the great majority of species in freshwater habitats are under extreme threat. The available numbers are viewed as a minimum level of threat to some taxa: in particular long-lived species such as trees, marine turtles and elephants, will take several generations to be accurately evaluated.

The fisheries sector provides a good example of the unsustainability of current exploitation patterns. The proteins derived from fish, crustaceans and molluscs account for between 13.8-16.5 per cent of the animal protein intake of the human population worldwide. (FAO, 2000) The total food fish harvest has been growing at a rate of 3.6 per cent per annum since 1961. Average per capita consumption increased from about 9 kg per annum in the early 1960s to 16 kg in 1997. The per capita availability of fish and fishery products has therefore nearly doubled in 40 years, keeping pace with population growth. Currently, two-thirds of the total food fish supply is obtained from fishing in marine and inland waters; the remaining one-third is

Table 1. Overview of global ecosystems conditions and trends

Ecosystem	Condition	Trend
Coastal[1]	20 per cent of land area 19 per cent of land within 100 km of coastline is altered for agriculture or urban use 39 per cent of world's population lives here	50-80 per cent of original mangrove lost
Forests[2]	25 per cent of land area only 40 per cent undisturbed by human activity 80 per cent of endemic bird areas are in forests	20 per cent decrease since pre-agricultural times since 1980, at least 10 per cent decline in developing countries
Freshwater[3]	Less than 1 per cent of land area but services estimated at US$ trillions; large dams impound 14 per cent of world's runoff	50 per cent of world's wetlands lost during the 20th century
Grasslands[4]	40 per cent of land area almost 50 per cent of Centres of Plant Diversity include grassland habitat 12 per cent of threatened birds are specific to grasslands	Significant loss due to conversion for agriculture nearly 49 per cent lightly to moderately degraded
Agroecosystems[5]	28 per cent of earth's surface 31 per cent is cropland (primarily cereal production) with 69 per cent under pasture	Pasture area increasing at 0.3 per cent annually areas under irrigation increasing ~1.6 per cent annually

[1] Burke *et al*., 2000, [2] Mathews *et al*., 2000, [3] Revenga *et al*., 2000, [4] White *et al*., 2000, [5] Wood *et al*., 2000

derived from aquaculture. (FAO, 2000) However, escalating fishing pressure has depleted fishing stocks globally. Among the major marine fish stocks or groups of stocks for which information is available, 47-50 per cent are fully exploited. Another 15-18 per cent are already overexploited and have no potential for further increase in harvest. (FAO, 2000)

Making markets work for sustainable livelihoods

Market-based approaches to environmental protection and poverty reduction are the new conventional wisdom. Pollution taxes and trade liberalisation, to give just two examples, may seem very different but they are in fact part of a standard menu of market-oriented policies, deeply grounded in neo-classical economics.

The arguments for and against market-based approaches to sustainable development are not worth repeating here. What is clear is that most people will continue to be motivated at least in part by a desire to maximise benefits and minimise costs. Hence the practical question is how to channel these energies for both private and public welfare, encouraging investment in equitable and ecologically sustainable activities that create wealth without wasting scarce resources.

This is easier said than done. History has repeatedly shown how the wrong policies can frustrate human creativity and undermine the environment on which we all depend. Developing and implementing policies that are efficient, fair and environmentally benign requires technical expertise as well as political sensitivity. It is virtually impossible without a clear view of the opportunities, constraints and motivations of producers and consumers, as well as the true costs of natural and human resources.

The challenge is huge: how can markets be used to foster more sustainable livelihoods, especially for the poor? How can 'perverse' markets that work against sustainability be transformed? and what are the pre-requisites for greater participation by poorer households in emerging market opportunities?

Perverse markets and unsustainable livelihoods

The private sector is the most important potential engine of sustainable development, if only because of its vast financial and technical capacity. Unfortunately, the activities of both private firms and consumers are often environmentally destructive and lead to inequitable outcomes. In short, the market often supports *unsustainable* livelihoods. This applies to both domestic small and medium enterprise as well as the activities of some transnational corporations, which have grown dramatically in recent years.

One reason why private enterprise is often unsustainable is that governments around the world continue to embrace policies that are harmful to the environment, or to the poor, or both. For example, subsidies to water and energy users often lead to wasteful use of scarce resources and typically benefit the rich. WRI (1996) estimated that on average in developing countries, consumers pay 35 per cent of the costs of water provision. In the case of Poland, the World Bank (1992) estimated that the removal of energy subsidies would have reduced emissions of particulates and sulphur oxides by more than 30 per cent between 1989 and 1995. Inappropriate forest policies can lead companies to destroy valuable timber stocks while depriving rural communities of access to essential non-timber resources. In some countries agricultural policies stimulate excessive land clearance by ranchers, while in others taxes on farm exports reduce incomes to the rural poor. Reforming such 'perverse' policies can relieve pressure on government finances, in the case of subsidies, or actually increase public revenue, in the case of new or higher user fees, while at the same time reducing environmental damages. (Myers and Kent, 2001)

Another area where reform is urgently needed is the domestic and trade policies of rich countries that discriminate against the developing world. Top of the list, and long overdue, is the reduction of subsidies for agriculture, fishing and forestry that distort trade and damage the environment. This should be matched by commitments in the developing world to reduce trade barriers that undermine their own economies and environments, such as ill-conceived log export restrictions that depress timber prices and encourage the waste of valuable wood. (Barbier *et al*., 1994) Other areas where the North should take the lead include:

- relaxing intellectual property laws, to allow poor countries easier access to essential drugs and seeds without fear of legal reprisals;
- renouncing the use of 'anti-dumping' penalties that keep poor countries' exports out of developed markets and undermine efforts to develop viable domestic manufacturing industry in the South; and
- liberalising immigration and employment policies to stimulate the flow of labour from the South to the North, thereby enhancing the scope for remittances to the developing world, and helping to develop business and managerial skills among a cadre of expatriates from the South.

Developing pro-poor markets for social and environmental benefits[3]

Alongside efforts to correct market failures, and to reform wasteful and inequitable policies that damage the environment and hurt the poor, action is also required to develop markets for more sustainable goods and services. There is an urgent need for new measures to finance the conservation of critical ecosystems, and more generally to encourage resource users to provide important environmental services. In addition, there is a need for new economic opportunities to sustain and improve livelihoods, especially in hard-pressed rural areas. Market-based mechanisms appear to offer many advantages over conventional approaches to nature conservation, including the possibility of mobilising new funding from consumers of environmental services, a better match of funding to supply and thus more cost-effective provision of environmental services, as well as additional and diversified income for rural development.

Recent years have seen a rapid expansion of socially and environmentally sensitive markets for food, clothing, wood products and even financial services (banking, pensions). Most of this growth has taken place with little or no support from governments, which have found it impossible to agree on common standards, or which claim they are impotent under the terms of multilateral trade agreements. The growing demand from consumers in rich countries for environmentally and socially certified produce provides new opportunities for rural communities in developing countries to engage on favourable terms in lucrative export niche markets, although some targeted assistance may be needed. In particular, it is essential that developing country producers have a seat at the table when new standards are defined and enforcement mechanisms are put in place. Developing countries can only take advantage of the growing consumer demand for ethical and 'green' goods and services if they are full partners in the development of these new markets.

Another area of recent innovation has focused on the use of markets to conserve environmental services such as biological diversity, carbon sequestration, watershed protection, and landscape amenity. The Clean Development Mechanism resulting from the Kyoto Protocol on climate change is one of several recent initiatives that aim to bring environmental services into the market place, while at the same time contributing - it is hoped - to sustainable development in poor countries. Other examples include debt-for-nature swaps, biochemical prospecting contracts, eco-tourism enterprise, eco-labelling and 'sustainable' trade schemes. While most initiatives are motivated mainly by environmental concerns, there is increasing attention to their development impacts. This reflects both moral and practical concerns, as markets that efficiently resolve environmental problems at the expense of the poor are neither feasible nor desirable. Hence the growing interest of policy-makers, investors and NGOs in how to design and manage markets that reduce poverty as well as protecting the environment.

Experience with mechanisms for greening markets is still young, and much remains to be learned. There is a significant danger of over-enthusiasm. Interest in market-based mechanisms in recent years has led to a proliferation of sometimes poorly-designed schemes. There is a great potential for disillusionment. Avoiding this danger and successfully implementing market-based mechanisms requires considerable care. Although the principles are simple, putting them into practice is not. Recent experience around the world suggests some initial lessons:

- **One size does not fit all**
  No single market mechanism is appropriate for all situations. Even when mechanisms are similar, the details of their application are likely to differ according to local technical, economic, and institutional conditions.
- **Identify the benefits being provided clearly**
  In order to sustain the interest of consumers, suppliers will need to move beyond generic 'ethical', 'fair trade' or 'eco' labels. The challenge is to define and distinguish the particular environmental and social benefits on offer, and to identify who might want to buy them, so as to gain maximum market share and avoid falling into the commodity trap of low prices for indistinguishable goods and services. This applies with equal force to new markets for 'ecosystem services' such as carbon sequestration. Without a clear understanding of which specific services a given ecosystem is providing, and to whom, developing market-based solutions will be difficult.
- **Understand the links between ecosystems and services**
  In the specific case of markets for ecosystem services, it is important to be very sure how these services are generated. Too often, market developers rely on conventional wisdom that certain ecosystems provide particular services, such as the largely erroneous notion that forests help to maintain fresh water supplies (Calder, 1999). Even when the conventional wisdom is correct, it is often not precise enough to allow effective mechanisms to be designed. What kind of ecosystem management is most effective in improving water supplies, for example, and where should it be located? What are the trade-offs between water supply and other environmental benefits? Without answers to questions such as these, market-based mechanisms are unlikely to be sustainable.
- **Begin from the demand side, not the supply side**
  By focusing first on the demand for social and environmental benefits, and asking how best to meet it, it is more likely that a viable business will develop. Without demand, there can be no market. Beginning from the supply side risks developing enterprises that supply the wrong goods and services, in the wrong places, or at prices that buyers are unwilling to pay. In general, supply-driven initiatives will have a higher mortality rate than demand-driven ones.
- **Monitor effectiveness**
  Rigorous and transparent monitoring is essential to enable buyers to be sure they are getting what they want, and to inform suppliers of problems before they become insurmountable. At the same time, excessive monitoring requirements can discourage potential suppliers without necessarily providing more reassurance to buyers. Finding the right balance of information and compliance costs is an on-going concern, as seen in markets for certified timber and organic foods.
- **Design flexible business models**
  Markets for social and environmental benefits must be sufficiently flexible to respond to changing demand and supply conditions, new technologies and increasing competition. They should reward efforts to expand and improve service delivery and to reduce costs, while minimising the incentives for destructive rent-seeking or free-riding.
- **Ensure that the poor can participate**
  Markets for green and ethical goods and services have great potential to provide additional sources of income to rural land users, as well as reduced risk through diversification and other indirect benefits. However, realising this potential often requires that particular efforts be made to ensure that the poor are not excluded.

Experience from recent initiatives in the developing world offers some lessons about the factors which affect the impact of markets on the poor, and how to maximise their positive impact:

1. **Secure property rights**
   Poorer households often have insecure property rights over land and other assets, which prevents them from taking part in certain markets, such as for carbon sequestration. Special efforts may be needed to clarify property rights and to allocate them appropriately, to ensure that relatively deprived groups are not excluded. A related priority is to consider the potential impact of market-based mechanisms on the landless poor, including tenant farmers and agricultural labour.
2. **Support co-operative institutions**
   Because poorer households tend to hold smaller parcels of land (if any), to be less well educated, and to have fewer contacts with potential buyers, they face significant obstacles in accessing markets. Co-operative institutions can help the poor to pool their limited resources and get better deals through collective bargaining. Local organisations can also provide a valuable conduit for external support, for example through training and marketing assistance.
3. **Identify products that the poor can sell**
   When developing markets for 'green' or 'ethical' goods and services, extra care should be taken to ensure that new production processes fit the lifestyles of poorer households. Quality standards need not be diluted, but production schedules and targets may need to be more flexible - for example, to accommodate the fluctuating demands of child care, food preparation or seasonal migration. Accounting systems should be simple and easily explained to illiterate participants.
4. **Provide access to start-up finance**
   New markets often require an up-front investment from new participants. This can be a major barrier for poorer households. Financial support, through direct subsidies or technical assistance, may be necessary to allow them to participate.

Conclusion: managing the trade-offs between livelihoods and ecosystems

Those who seek a workable marriage between development and conservation must begin by articulating clearly what poverty alleviation means within environmental policy, and vice versa. Decision-makers need to develop policies and practices that distinguish between situations where conservation and development goals are compatible and situations where there may be conflicts. As the UK Sustainable Development Commission (2001) put it: 'While there is no doubt that environmental protection can often be supportive of economic growth, there will be occasions when environmental protection demands that society foregoes certain types of economic development.' This implies a need for practical approaches to manage environment and development trade-offs.

Such trade-offs should be made in an open, fair, negotiated process at the appropriate level (local, national, global) with meaningful involvement of all concerned stakeholder groups. For such negotiations to be fruitful, however, certain preconditions must be fulfilled. First, improvements in governance are needed to enable disenfranchised stakeholder groups such as the rural poor to participate in an equitable manner. Second, information about the role of key ecosystems in supporting people's livelihoods and safeguarding future development options needs to receive a serious hearing from decision-makers. And third, the rich countries need to accept more responsibility in assisting poor countries to conserve globally important ecosystems and prevent species extinctions.

The strong links between poverty and natural resources underscore the urgent need for improved environmental management, especially in the developing world. More sustainable environments can play a key role in reducing the vulnerability of both poor households and poor countries, enhancing their security while increasing productivity and incomes.

As we prepare for WSSD in Johannesburg, it is important to remember that poverty reduction will require both global and local efforts. We must not forget the environmental dimension of sustainable development, which is arguably more important to the poor than to any other group. World leaders must give new impetus and renewed support for the sustainable management of local as well as global resources, as a key element in strategies for eliminating global poverty. ●

References

Barbier, E.B., J.C. Burgess, J. Bishop and B. Aylward. 1994. *The Economics of the Tropical Timber Trade*. Earthscan, London.

Burke, L., Y. Kura, K. Kassem, C. Revenga, M. Spalding, and D. McAllister. 2000. 'Pilot analysis of global ecosystems: Coastal ecosystems'. World Resources Institute, Washington, DC.

Calder, I. 1999. *The Blue Revolution: Land Use and Integrated Water Resource Management*. Earthscan, London.

DFID, European Commission, UNDP and World Bank. 2002. 'Linking poverty reduction and environmental management: policy challenges and opportunities. A contribution to the World Summit on Sustainable Development Process'. Consultation draft January.

FAO. 2000. 'State of the World's Fisheries'. http://www.fao.org/DOCREP/003/X8002E/x8002e04.htm#P1_6

Girot, Pascal. 2000. 'Lessons from Hurricane Mitch: natural hazards, vulnerability and risk abatement in Central America'. Paper presented to forests workshop at IUCN World Conservation Congress in Amman.

Global Forest Watch. 2002. 'The state of the forest: Indonesia'. http://www.globalforestwatch.org/common/indonesia/sof.indonesia.english.low.pdf

Hartogh, Henk and Cas Besselink. 2002. 'The Netherlands and the World Ecology'. Netherlands Committee for IUCN, Amsterdam.

Hilton-Taylor, C. (compiler). 2000. '2000 IUCN Red List of Threatened Species'. IUCN, Gland, Switzerland and Cambridge, UK.

IUCN. 2002 *in press*. 'Economic value of reinundation of the Waza Logone Floodplain', Gland.

Johnstone N. 1997. 'Economic Inequality and the Urban Environment'. EEP Discussion Paper 97-03. International Institute for Environment and Development, London.

Mathews, E., R. Payne, M. Rohweder, and S. Murray. 2000. 'Pilot analysis of global ecosystems: Forest Ecosystems'. World Resources Institute, Washington, DC

McNeill, J.R. 2001. *Something New under the Sun: an environmental history of the twentieth century*. W.W. Norton, New York and London.

Myers, Norman and Jennifer Kent. 2001. *Perverse Subsidies: how tax dollars can undercut the environment and the economy*. Island Press, Washington, Covelo and London.

Narayan, Deepa. 2000. 'Voices of the Poor'. The World Bank, Washington, D.C.

Pagiola, S., Bishop, J. and N. Landell-Mills eds. 2002. *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development*. Earthscan, London.

Panayotou, T. 1994. 'Financing Mechanisms for Agenda 21 (or How to Pay for Sustainable Development)'. Harvard Institute for International Development.

Pirot, Jean-Yves, Peter John Meynell and Danny Elder eds. 2000. 'Ecosystem management: lessons from around the world. A guide for development and conservation practitioners'. IUCN, Gland.

Revenga, C., J. Brunner, N. Henninger, K. Kassem, and R. Payne. 2000. 'Pilot analysis of global ecosystems: Freshwater systems'. World Resources Institute, Washington, DC.

UK Sustainable Development Commission. 2001. 'Unpacking sustainable development, a discussion document prepared by the Secretariat to the Sustainable Development Commission'. http://www.sd-commission.gov.uk

UNDP. 2000. 'Millennium Development Goals'. http://www.undp.org/mdg/goalsandindicators.html

UNDP. 2001. *Human Development Report*. Oxford University Press, New York. http://www.undp.org/hdr2001

White, R.P., S. Murray, and M. Rohweder. 2000. 'Pilot analysis of global ecosystems: Grassland Ecosystems'. World Resources Institute, Washington, DC.

Wood, S., K. Sebastian, and S.J. Scherr. 2000. 'Pilot analysis of global ecosystems: Agroecosystems'. World Resources Institute, Washington, DC.

World Bank. 1992. *World Development Report 1992 Development and the Environment*, Oxford University Press.

World Bank. 2002a. 'Development data: Indonesia'. http://devdata.worldbank.org/external/CPProfile.asp?CCODE=IDN&PTYPE=CP

World Bank. 2002b. 'Rural Development Strategy' (draft for Board discussion). http://wbln0018.worldbank.org/ESSD/rdv/vta.nsf/Gweb/Strategy

WRI. 1996. World Resources 1996-1997. World Resources Institute Oxford University Press.

1 Simon Rietbergen is with the IUCN Forest Conservation Programme; Joshua Bishop is Director of IIED's Environmental Economics Programme and will join IUCN shortly as Economics Advisor; Sue Mainka is Head of IUCN's Species Programme. The opinions expressed in this paper do not necessarily reflect the official positions of IUCN and IIED with regards to the World Summit.

2 The target (9) for this goal is to 'integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources'. The indicators are: '(i) proportion of land area covered by forest; (ii) land area protected to maintain biological diversity; (iii) GDP per unit of energy use (as proxy for energy efficiency); and (iv) carbon dioxide emissions per capita (plus two figures of global atmospheric pollution: ozone depletion and the accumulation of global warming gases)'. (UNDP, 2000) These indicators appear not to cover the extent and quality of wetlands, grasslands, coastal and marine resources, and the quality of forest resources, all of them key ingredients of the livelihoods of many poor people in rural areas.

3 Adapted from Pagiola *et al*., 2002.

The **International Institute for Environment and Development** (IIED) is an independent, non-profit research institute working in the field of sustainable development. IIED aims to provide expertise and leadership in researching and achieving sustainable development at local, national, regional and global levels. In alliance with others we seek to help shape a future that ends global poverty and delivers and sustains efficient and equitable management of the world's natural resources.

Contact: Tom Bigg, WSSD Coordinator, IIED
3 Endsleigh Street, London WC1H 0DD
Tel: 44 20 7388 2117 Fax: 44 20 7388 2826
Website: www.iied.org
Email: wssd@iied.org or info@iied.org