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The Millennium Development Goals and natural resources management: reconciling sustainable livelihoods and resource conservation or fuelling a divide?

Dilys Roe[1]

I. NATURAL RESOURCES AND SUSTAINABLE LIVELIHOODS

Natural resource management is central to the achievement of most of the Millennium Development Goals. Natural resources provide food and a wide range of other goods (fuel, fodder, timber, medicines, building materials, inputs to industries, etc). Natural resources provide services on which all human activity depends (including watersheds, carbon sequestration and soil fertility). Natural resource exploitation provides the livelihoods for a high proportion of the world's population.[2] This includes not only agriculture in rural areas; 1.6 billion people rely on forest resources for all or part of their livelihoods,[3] while around 150 million people count wildlife as a valuable livelihood asset[4] and 200 million derive part or all their livelihood from

1. With contributions from Michel Pimbert, Krystyna Swiderska and Sonja Vermeulen.
2. Pimental, D, M McNair, L Buck, M Pimental and J Kamil (1997), "The value of forests to world food security", *Human Ecology* 25, pages 91–120.
3. Mayers, J and S Vermeulen (2002), *How Good Forest Governance Can Reduce Poverty*, WSSD Opinion Paper, IIED, London.
4. LWAG (2002), *Wildlife and Poverty Study*, Livestock and Wildlife Advisory Group, Department for International Development, London.

fishing.[5] Natural resources also provide opportunities for income generation through jobs and small enterprises (e.g. in forestry, tourism and wildlife trade).

Moreover, numerous studies have found that it is often the poorest people and households that are most dependent on these resources.[6] "*Millions of rural South Africans depend upon biological resources for day-to-day survival. Access to this "natural capital" provides a crucial contribution to livelihoods, a buffer against poverty and an opportunity for self-employment*".[7] Of the 1.2 billion people estimated to live on less than US$ 1 a day (i.e. those that are the target of MDG1), 70 per cent live in rural areas with a high dependence on natural resources for all or part of their livelihoods.[8] But it is not just the rural poor who are reliant on natural resources – food, medicines and ecosystem services such as clean water supply also serve urban populations, and hundreds of millions of urban dwellers derive part of their income from urban agriculture[9] or from industries or services that depend on agriculture, forestry or fishing.[10]

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This dependency brings with it a theoretically strong incentive to conserve natural resources. But in practice, given the weak access and tenure rights of many poor people, there is a strong potential for local overexploitation. Moreover, it means that the impacts arising from the loss of natural resources and ecosystem services fall most heavily on

5. IUCN (2003), "Sustainable livelihoods", Media Brief for the World Parks Congress, IUCN, Gland.
6. Prescott-Allen, R and C Prescott-Allen (1982), *What's Wildlife Worth? Economic Contribution of Wild Plants and Animals to Developing Countries*, London, IIED–Earthscan; also Scoones, I, M Melnyk and J N Pretty (1992), *The Hidden Harvest, Wild Foods and Agricultural Systems: a Literature Review and Annotated Bibliography*, IIED, London; Arnold, J E M (1995), "Socioeconomic benefits and issues in non-wood forest products use", in FAO (editor), *Report of the International Expert Consultation on Non-wood Forest Products* in Yogyakarta, Indonesia, 17–27 January 1995, FAO, Rome; Neumann, R P and E Hirsch (2000), *Commercialization of Non-timber Forest Products: Review and Analysis of Research*, CIFOR, Bogor; Nasi, R and T Cunningham (2001), *Sustainable Management of Non-timber Forest Resources: a Review with Recommendations for the SBSTTA*, Secretariat to the Convention on Biological Diversity, Montreal; and Rietbergen, S, J Bishop and S Mainka (2002), *Ecosystem Conservation: A Neglected Tool for Poverty Reduction*, WSSD Opinion Paper, IIED, London.
7. Wynberg, R (2002), "A decade of biodiversity conservation and use in South Africa: tracking progress from the Rio Earth Summit to the Johannesburg World Summit on Sustainable Development", *South African Journal of Science* No 98, May/June 2002.
8. LWAG (2002), op. cit.
9. Smit, Jac, Annu Ratta and Joe Nasr (1996), *Urban Agriculture: Food, Jobs and Sustainable Cities*, Publication Series for Habitat II Vol 1, UNDP, New York, 302 pages.
10. Tacoli, Cecilia and David Satterthwaite (2003), *The Urban Part of Rural Development: the Role of Small and Intermediate Urban Centres in Rural and Regional Development and Poverty Reduction*, IIED Working Paper 9 in Rural–Urban Interactions and Livelihood Strategies Series, IIED, London, 63 pages.

the poor,[11] even though the cause of degradation may lie with richer or more powerful groups.

Despite the close interlinkages between resource conservation and poverty reduction, there is still considerable polarization between the conservation and development communities. On the one hand, because the goods and services generated by natural resources are generally unaccounted for in national statistics, development agencies have often undervalued the potential role they can play in poverty reduction – as shown by the decreasing emphasis on environment in the project portfolios of many donors and the limited integration of natural resource and environmental issues into national poverty reduction strategies. On the other hand, conservation organizations have viewed poverty concerns as outside their core business. A recent study on wildlife and poverty linkages noted that: "*Much conservation money is still invested with only limited consideration of poverty and livelihoods concerns, despite a growing consensus that poverty and weak governance are two of the most significant underlying threats to conservation*".[12] Do the MDGs provide an appropriate framework for reconciling this divide?

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II. MDG7: RECONCILING OR FUELLING THE CONSERVATION–DEVELOPMENT DIVIDE?

The danger of a narrow focus

Only one of the Millennium Development Goals deals specifically with the management of natural resources. Goal 7, "Ensure Environmental Sustainability", includes a target to: "Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources." Of the seven indicators for MDG7, two specifically address resource conservation:

- Indicator 25: the proportion of land area covered by forest; and

11. Rietbergen, Bishop and Mainka (2002), op. cit.
12. LWAG (2002), op. cit.

- Indicator 26: the ratio of area protected for maintainence of biological diversity.

This focus only on increasing protected area and forest coverage could be dangerous for sustainable development for a number of reasons: the narrow focus on the ***quantity*** of land area ignores the ***quality*** of the natural resources contained within these areas, their ***management and governance regimes*** (how they are managed, by whom and for what), and the ***land and resource rights of people*** living in and around them.

Further, simple measures of land area or forest cover fail to address a fundamental dimension of sustainability: ***how the costs and benefits of protected areas and forests are spread among society***. Large-scale forest concessions and plantations, for example, tend to benefit the big companies that own them and central governments that collects taxes, while placing enormous costs on local residents who are excluded from using the land. Similarly, the benefits arising from protected areas tend to accrue largely to the international community (in terms of the existence value of rare species) and to national governments and the private sector in the form of revenues from tourism and hunting, while a disproportionate amount of the costs are borne by those living in or around them – or those displaced by them.

"Simple measures of land area or forest cover fail to address a fundamental dimension of sustainability: how the costs and benefits of protected areas and forests are spread among society"

Some natural resources are "more equal" than others

The focus on protected areas and forests assumes that these alone are the key to natural resource conservation. This assumption completely overlooks the value of other productive landscapes including agricultural land, rangelands, coastal strips, wetlands and so on. Not only do these ecosystems contain large amounts of biodiversity but they often have more potential than traditional protected areas and forests for contributing to poverty reduction. Agricultural biodiversity, for example, contributes to productive and environmental sustainability, as well as supporting rural development.[13]

13. Pimbert, M (1999), *Sustaining the Multiple Functions of Agricultural Biodiversity*, Gatekeeper Series No 88, IIED, London.

Similarly, marine resources play a significant role in contributing to food security and sustainable local livelihoods (1 billion Asians rely on fish for their primary source of protein, while the global fishing industry employs some 200 million people.[14] The latest calculation of protected area coverage notes however that only 1.7 million square kilometres (or 0.5 per cent) of ocean area is protected (of which 20 per cent is in one site – the Great Barrier Reef in Australia).[15]

Moreover, there is contradictory evidence as to the efficacy of protected areas in conserving natural resources: the IUCN–UNEP list shows that protected area coverage has increased from 2.4 million square kilometres in 1962 to 18.8 million square kilometres today – and yet, biodiversity and other natural resources are still being lost.

Quantity at the expense of quality?

The assumption underlying the land area indicators for MDG7 is that increasing the amount of forest land or protected area land will address the problem of resource loss. Such has been the focus on the quantity of land that little attention has been paid to the quality of resources within. A huge area of scrubland could be protected and meet the target, while a small patch of resource-rich land remains unprotected next door!

In terms of the forest indicator, a key problem relates to the fact that "forest" can be defined in many ways – and has different meanings for different social groups. The FAO, for example, defines forests as land of more than half a hectare, with the canopies of the trees covering more than 10 per cent of the area, and which is not under mainly agricultural or urban use. This sounds simple, but it excludes agroforestry, often a high-value and high-sustainability land use, and does not distinguish natural forest from less sustainable monoculture plantations.[16] Similarly the term

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14. IUCN (2003), op. cit.
15. Chape, S, S Blythe, L Fish, P Forx and M Spalding (2003), *2003 United Nations List of Protected Areas*, IUCN and UNEP–WCMC, Gland and Cambridge.
16. Wunder, S (2003), *Oil Wealth and the Fate of the Forest: A Comparison of Eight Tropical Countries*, Routledge, London.

"protected area" means, for some, those areas officially gazetted by national governments or international organizations as protected – such as national parks, biosphere reserves, wildlife reserves and so on. This excludes many areas that have been designated for protection by indigenous peoples or local communities, as well as those under private land ownership and which may contain more biodiversity than official protected areas.

Where attention has been paid to the nature of the resources rather than the land area, the emphasis has reflected a Northern priority towards rare or endangered species and habitats rather than species that are valued by local people for food, medicines, cultural significance and so on. "*Local values… remain poorly documented and poorly represented in the global political arena*". [17]

Furthermore, natural resource management and biodiversity conservation are imprecise sciences. Not only do we not know how many species exist – since they have not yet all been identified and counted – we also don't know what all their functions are and how many are enough to maintain ecosystem services and life support systems. More is not necessarily better.[18]

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The rights and wrongs of protected areas

Within the international conservation community, core business has focused on expanding the amount of land area under protection. In 1992, the IUCN World Parks Congress set a target for protected area coverage at 10 per cent of the world's land area – a target endorsed by the World Summit on Sustainable Development in 2002. Recently, IUCN and UNEP published a new directory of the world's protected areas, which revealed that total coverage is actually 12 per cent.[19] This was a finding which, along with announcements of increases in protected area

17. Vermeulen, S and I Koziell (2002), ***Integrating Global and Local Values: A Review of Biodiversity Assessment***, Natural Resource Issues Paper, IIED, London.
18. Vermeulen and Koziell (2002), op. cit.; also Norton-Griffiths, M (2003), "How many wildebeest do you need? Dilemmas, contradictions and compromises in modern day conservation", an Address to the East African Wildlife Society, March 13th 2003.
19. Chape et al. (2003), op. cit.

coverage in specific countries, was greeted almost evangelically by many participants, with clapping and cheering, at this year's World Parks Congress in Durban.

The protected area approach to natural resource management has generated significant social, economic and environmental benefits. It has undoubtedly helped to ensure the survival of populations of many species and habitats. It has also contributed to the generation of foreign exchange earnings in low- and middle-income countries through international tourism. Some protected areas have also helped to sustain natural resources on which neighbouring communities depend and from which (access permitting) they benefit, for example, by protecting water catchments for the benefit of downstream water users, and preventing the destruction of forest resources by outsiders.

However, protected areas have not been without their costs. In some cases, protected areas have failed to sustain the wildlife populations they were designed to protect while, at the same time, having a negative impact on the food security, livelihoods and cultures of local people.[20] Designation of many protected areas has been associated with forced displacement and loss of access to natural resources for the people living in and around them, with no or inadequate compensation. "*As a result, protected areas have often increased poverty amongst the poorest of the poor.*" [21]

Further, many low-income nations have set aside far higher proportions of their land mass for protection than high-income countries (in Tanzania, for example, the figure is almost 25 per cent), and often at significant opportunity costs (particularly to local residents) in terms of the development value that land would have in other uses.[23] Moreover, protected areas are expensive to establish and maintain, and are rarely financially sustainable in the face of competing demands on dwindling government budgets.

"Will the new extension of protected areas be, again, predicated on the forced displacement and impoverishment of their resident and mobile peoples?"[22]

20. Ghimire, K and M Pimbert (1997), *Social Change and Conservation*, Earthscan, London.
21. McShane, T (2003), "Protected areas and poverty", in Community Empowerment for Conservation, special edition of *Policy Matters* No 12, pages 52–53.
22. Cernea, M and K Schmidt-Soltau (2003), "The end of forcible displacements? Making conservation and impoverishment incompatible", in Community Empowerment for Conservation, special edition of *Policy Matters* No 12, pages 42–51.

International conservation flows of revenue from sources such as the GEF, the World Bank and international NGOs only meet a small percentage of the costs of maintaining protected areas in poor countries.[24]

The growing realization of the limitations of state-run protected areas and the need to address local peoples' concerns and aspirations influenced a shift in international conservation policy during the 1980s and 1990s towards community-based natural resource management (CBNRM). However, in recent years, the conservation literature has documented a growing criticism of this approach and advocated a return to more traditional, protectionist approaches[25] – although without addressing the fundamental socioeconomic problems with which they are associated. Ironically, MDG7 could provide legitimacy for this in the name of development!

III. RETHINKING THE INDICATORS

While it is agreed that resource conservation is critical, ***how*** that happens, ***what*** is conserved, and ***for whom*** requires a complex set of trade-offs that land area alone can not achieve. As well as the need to include a wider range of land uses and resource types in the indicator set, as discussed above, this also implies a need to include indicators that reflect local perceptions of the environment as well as global priorities.

The existing indicators could be improved if the crude focus on land area were supported by additional qualifications. For example, the forest indicator is easy to use in that it is easy to measure (e.g. from satellite data) and allows for comparability among countries and over time. However, the simple cover measurement would be much more useful to

23. Roe, D and J Elliott (2003), "Pro-poor conservation: the elusive win–win for conservation and poverty reduction?", Paper presented at the 5th World Parks Congress, Durban.
24. Roe, D, J Hutton, J Elliott, K Chitepo and M Saruchera (2003), *In Pursuit of Pro-poor Conservation: Changing Narratives or More?* in Community Empowerment for Conservation, special edition of *Policy Matters* Vol 12, pages 52–53.
25. See for instance, Spinage, C (1998), "Social change and conservation misrepresentation in Africa", Oryx Vol 32, No 4, pages 265–276; also Terborgh, J (1999), *Requiem for Nature*, Island Press, Washington DC; and Oates, J F (1999), *Myth and Reality in the Rainforest: How Conservation Strategies are Failing West Africa*, University of California Press, Berkeley, CA.

Box 4.1: Protected areas and good governance

"In the 21st Century the size, number and complexity of protected areas systems has increased to impressive proportions. In accordance with good governance principles, consolidating, expanding and improving this global system of protected areas should be done while respecting the rights, interests and concerns of all stakeholders, including their right to participate in decision-making in the establishment and management of protected areas. The sharing of protected area management authority, responsibilities, benefits and costs should be distributed among relevant actors, according to legitimate entitlements. Such entitlements should be defined through a negotiation process that specifically involves disadvantaged groups, and results in stronger engagement of civil society in conservation." Recommendation 5.16 from the IUCN World Parks Congress, 2003.

assessing progress towards sustainability if supported by qualifications, as follows:

- measurements of the actual goods and services coming from forests and other landscapes with tree cover, for example, water quantity (e.g. dry season flows, flood events) and quality (e.g. siltation, purity), or the range of forest products available and utilized;
- consideration of forests' ability to provide these goods and services, compared to other land uses;
- assessment of the distribution of costs and benefits of forest land uses among social groups – leading to practical pathways towards greater equity; and
- measurement of the relative proportions of forest under community, state and commercial management.

Ensuring that the protected area indicator for MDG7 contributes to poverty reduction rather than exacerbating poverty implies a need for ***different approaches to resource conservation*** that provide benefits for poor people and meet social justice objectives. As one of the recommendations arising from the recent IUCN World Parks Congress notes: "*The degree to which protected areas meet conservation objectives, contribute to the well-being of society, and achieve broad social, economic and environmental goals is closely related to the quality of their governance.*" (Box 4.1)

Traditional forms of protected areas have been state-controlled, imposed structures based on nineteenth-century American conservation ideology that suggested that people

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and nature should be kept separate. Yet ***other governance structures*** exist that build on the traditional knowledge, local management practices and traditional institutions of indigenous peoples and local communities,[26] although these are currently not recognized in the official categorization of protected areas. Emphasis is therefore needed within the protected area indicator on increasing coverage through alternatives to the top-down "fences and fines" structures with which the term "protected area" is commonly associated.

One such alternative is community-conserved areas – natural and modified ecosystems with significant biodiversity, ecological services and cultural values that are voluntarily conserved by indigenous peoples and local communities, through customary laws or other effective means. Many community-conserved areas already exist, but they have largely gone unrecognized in national and international conservation systems. This may be due in a large part to the fact that their resource management systems are often based on customary tenure systems, norms and institutions that are not formally or legally recognized in many countries.[27] Other alternative governance structures include ***co-managed protected areas*** (where management is shared among a variety of stakeholders, including government, local people, private landowners etc.[28] and private parks.[29])

Some of the "new" forms of protected area require more thought. For example, the concept of "conservation concessions" has recently been introduced, whereby payments are made to a government or, in some cases, to indigenous/community groups in return for a long-term lease on a tract of land to a conservation organization. The

26. Roe, D, J Mayers, M Grieg-Gran, A Kothari and C Fabricius (2000), *Evaluating Eden: Exploring the Myths and Realities of Community-based Wildlife Management*, IIED, London; also Borrini-Feyerabend, G (2003), "Governance of protected areas: innovations in the air", in *Community Empowerment for Conservation*, special edition of *Policy Matters* No 12, pages 92–101; and Jareith, H and D Smyth (2003), *Innovative Governance: Indigenous Peoples, Local Communities and Protected Areas*, Ane Books, New Delhi.
27. Phillips, A (2003), "Turning ideas on their head: a new paradigm for protected areas", in Jareith, H and D Smyth (editors), *Innovative Governance: Indigenous Peoples, Local Communities and Protected Areas*, Ane Books, New Delhi.
28. Borrini-Feyerabend, G, M Pimbert, T Farvar, A Kothari and Y Renard (forthcoming), *Sharing Power: Learning by Doing in Co-management of Natural Resources throughout the World*, IIED and IUCN, London and Gland.
29. See also Recommendations arising from the 2003 World Parks Congress on indigenous peoples, governance, poverty, community-conserved areas and co-managed protected areas: http://www.iucn.org/themes/wcpa/wpc2003/english/outputs/recommendations.htm

implications of this type of approach for the livelihoods of poor people are not well understood, but a recent review of markets for environmental services suggested the need for caution: *"As markets for biodiversity protection raise the value of biodiversity-rich forest areas, competition for control over these areas can only intensify. Poor communities living in these areas without formal title may be pressured to leave. Far from strengthening forest stewards' natural assets, markets may lead to exclusion."* [30]

Traditional, state-run protected areas do have the potential to contribute to the achievement of the MDGs, but only if certain conditions are fulfilled:

- their establishment must be based on the prior informed consent of indigenous peoples and local communities;
- thorough impact assessments must be undertaken with the full participation of indigenous people and local communities to identify potential negative impacts, and provision made for full and fair compensation or mitigation where appropriate;
- marginalized groups – e.g. nomadic pastoralists, indigenous people – must be given recognition as well as those who are more powerful;
- mechanisms for including local values (based on utility) as well as global values (based on intrinsic worth) must be introduced in determining conservation priorities; and
- equitable sharing of rights, responsibilities, costs and benefits is required between all relevant actors – this implies mechanisms for enhancing North–South financial flows, balancing customary and formal norms and institutions, and recognizing historic tenure rights.

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IV. BEYOND MDG7

The relegation of environment into one of eight development goals is one of the weaknesses of the MDGs as a framework for poverty reduction and sustainable

30. Landell Mills, N, J Bishop and I Porras (2002), *Silver Bullet or Fools Gold? A Global Review of Markets for Environmental Services and their Impacts on the Poor*, IIED, London.

development. The very nature of sustainable development emphasizes the integration of its three pillars – economics, society and environment – and this implies a need not just to focus on one goal in order to achieve environmental sustainability but to examine how environment – and natural resource management – can be ***integrated across the set of goals*** (and equally to consider how progress towards the other goals might impact on environmental sustainability). Natural resources management is not just the business of MDG7, rather, it underpins the achievement of the majority of the other seven goals, as this section will describe.

- **Income poverty (MDG1)**: The role of natural resources in underpinning or contributing to the livelihoods of much of the world's poorest households was noted earlier. Many poor countries have a comparative advantage in their natural resource base, and natural resources can provide opportunities for jobs, small and microenterprise, and payments for environmental services offering potential for pro-poor growth, especially in marginal areas where there are few other alternatives. In Guyana, for example, forestry employs 19,000 people, and is the main income source for the rural poor. Agriculture is the foundation on which the majority of rural livelihoods are based and on which many urban economies depend.[31] "Ecoagriculture" is an approach which attempts to integrate food production with biodiversity conservation, as well as generating increased incomes for poor farmers.[32]

  In Africa, tourism (within which nature-based tourism is an important and rapidly growing niche) is a likely source of a significant volume of investment and employment over the coming decade. While some are sceptical of the fit between international tourism and poverty reduction, others are promoting "pro-poor tourism", arguing that tourism is a great source of local economic development opportunity given that it offers local employment and

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31. Mayers and Vermeulen (2002), op. cit.
32. McNeely, J and S Scherr (2002), *Ecoagriculture: Strategies to Feed the World and Save Wild Biodiversity*, Island Press, Washington DC.

Box 4.2: Income from wild resources in poor countries

Brazil: The sale of Babassu Palm Orbignya martiana fruit kernels supports over 2 million people. A 1985 study showed that income from collecting and processing these kernels in northeast Brazil accounted for 39 per cent of cash income and 34 per cent of the total household income during the seasonal slack period for agriculture.
Cameroon: Cola nuts account for 5–37 per cent of households' cash income.
China: One kilogram of matsutake mushrooms can earn a harvester more money than the average annual wage in Yunnan Province.
Ghana: The collection and sale of wild meat realizes an income similar to that received by government employees.
Guyana: Forest products account for 32 per cent of the economy of Assakata village.
India: 90 per cent of the population of the state of Manipur depend on forest products as a major source of income.
Kenya: In the Arabuko-Sokoke Forest, hunters can earn US$ 275 per year by selling meat, compared to an average per capita income in this area of US$ 38.
Philippines: Rattan sales are particularly important in the household economies of the poor.
South Africa: Trade in medicinal plants in KwaZuluNatal is estimated to be worth R 60 million per year, with the overall value of the trade in South Africa worth around R 270 million (US$ 60 million) per year.
Zimbabwe: On average, wild resources account for 35 per cent of total household incomes.

SOURCE: Box adapted from: Roe, D, T Mulliken, S Milledge, S Mosha, J Mremi and M Grieg-Gran (2002), *Making a Living or Making a Killing? Wildlife Trade, Trade Controls and Rural Livelihoods*, IIED and TRAFFIC, London and Cambridge.

spin-off business opportunities in poor and often remote areas, and that it can attract investment in infrastructure and local markets.[33] Wild products can also be a significant source of cash income and employment for poor people, particularly in marginal agricultural areas (Box 4.2). Estimates of the number of people dependent on such products for at least part of their income range from 200 million worldwide to 1 billion just in Asia and the Pacific.[34]

- **Hunger (MDG1):** The close causal linkages between reducing hunger and the sustainable management of natural resources and ecosystems have been emphasised by the Food and Agriculture Organization.[35] The challenge is not simply to produce enough food to feed a growing population while preserving the natural resource base upon which the well-being of present and future generations depends but also to ensure the equitable distribution of productive assets backed up

33. Ashley, C, D Roe and H Goodwin (2000), *Pro-poor Tourism Strategies: Making Tourism Work for the Poor*, IIED, ODI and ICRT, London.
34. van Rijsoort, J, (2000), *Non-timber Forest Products (NTFPs): their Role in Sustainable Forest Management in the Tropics*, Theme Studies Series, Wageningen, National Reference Centre for Nature Management.
35. FAO (undated), http://www.fao.org/es/ESS/mdg_kit/contrib.asp

"Natural resources underpin food security – both through direct consumption and the generation of income for food purchases"

with secure resource rights. Natural resources underpin food security – both through direct consumption and the generation of income for food purchases. Natural resource management also contributes to sustained productivity of food stocks, such as fisheries, and agricultural systems (e.g. through pest and disease management, genetic diversity, soil fertility, provision of water and fodder for livestock and so on). Numerous studies have noted the importance of wild food products, which are of particular importance to women, children and the poor – for whom securing access to such resources is important for sustaining their livelihoods.[36] Some species are used on a daily basis, while others are considered "famine foods" and are used only occasionally. Wild foods often fill a seasonal gap, and are used when little else is available.[37]

- **Health (MDGs 4, 5 and 6)**: Natural resources are the basis of most medicines. In many cases, there is a direct reliance on wild resources as traditional medicines; the World Health Organization estimates that up to 80 per cent of the world population is dependent on these medicines.[38] This is particularly true of the poorest people, who often cannot afford modern drugs and/or don't have access to clinics and doctors. At a workshop of the Equator Initiative in July 2003, a group from Lesotho described how they were working with traditional healers to identify plants to treat HIV. Some plants have been found to significantly boost the immune system without the side effects of expensive anti-viral drugs. In addition, the majority of the world's modern drugs have their origin in natural products.[39]

36. Scoones, Melnyk and Pretty (1992), op. cit.; also Warner, K (1994), "Marketing, valuation and pricing of NWFPs", Beyond Timber: Social, Economic and Cultural Dimensions of Non-wood Forest Products in Asia and the Pacific, Regional Expert Consultation, 28 November–2 December 1994, Bangkok; FAO (1995), *Non-wood Forest Products for Rural Income and Sustainable Forestry*, Non-wood Forest Products Series, FAO, Rome; Cavendish, M (1997), *The Economics of Natural Resource Utilization by Communal Area Farmers of Zimbabwe*, University of Oxford, UK; and Barnett, R (editor) (2000), *Food for Thought: The Utilization of Wild Meat in Eastern and Southern Africa*, TRAFFIC-ESA, Nairobi.
37. Scoones, Melnyk and Pretty (1991), op. cit.
38. WHO, IUCN and WWF (1993), *Guidelines on the Conservation of Medicinal Plants*, IUCN, Gland.
39. Koziell, I and C McNeill (2002), "Building on hidden opportunities to achieve the Millennium Development Goals: poverty reduction through conservation and sustainable use of biodiversity", WSSD Opinion Paper, IIED, London.

- **Water and sanitation (MDG7):** Good water resource management (including the management of water catchments and floodplains) is important for meeting the MDGs for improving water and sanitation, both for rural and for urban populations – although as Chapter 3 notes, good water resource management of itself does not guarantee improved provision for low-income groups. Integrated water resource management is also important for flood prevention and protection for tens of millions of urban dwellers.

More broadly, meeting the basic needs of poor people as described above then allows them to further expand their options, investing in education, health care and so on. Natural resource conservation also provides options for improving the livelihoods of future generations – whereas ecosystem depletion and species extinction reduce the capacity to respond to future stresses such as climate change.[40]

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V. CONCLUSIONS

The Millennium Development Goals espouse the two key goals of sustainable development, that is, meeting the needs of the present without compromising the ability of future generations to meet their needs.[41] But "environmental sustainability" is still seen as separate from "development", despite a recognition over 30 years ago of the need to integrate the two. Furthermore, the targets-driven approach of the goals pays no attention to the ***process*** by which those targets are achieved.

The strength of the MDGs lies in the overall framework they establish, and not necessarily in the individual goals, targets or indicators. Indeed, focusing on particular individual goals or targets has the potential to seriously undermine the achievement of other goals. In the field of natural resources management, some conservation organizations have

40. Rietbergen, Bishop and Mainka (2002), op. cit.
41. World Commission on Environment and Development (1987), *Our Common Future*, Oxford University Press, Oxford and New York, 383 pages.

adopted the rhetoric of poverty reduction and sustainable livelihoods without necessarily changing practices that actually exacerbate poverty on the ground and undermine local livelihoods. The narrow focus of the indicators for MDG7 could lend legitimacy to this – allowing some organizations to continue with business as usual, while claiming to be contributing to the goals.

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Realizing the contribution of natural resource management to the achievement of the goals therefore requires attention to the following.

Ensuring that poverty reduction issues are integrated into MDG7's focus on environmental sustainability:

- the target for reversing the loss of environmental resources to be balanced with a requirement to do no harm to local peoples' livelihoods;
- the assessment of quality of resources to integrate both local priorities – based on utilitarian values as well as spiritual and cultural factors – and global priorities – based on rarity and endangeredness – and to recognize trade-offs between the two value sets; and
- recognition that the governance of natural resources – particularly the rights, roles and responsibilities of different actors – is critical to delivering on poverty reduction and social justice objectives.

Ensuring environmental issues are integrated into the other MDGs:

- recognition of the role that natural resources can play in achieving the MDGs, and hence the requirement that other activities geared towards achieving individual goals do not undermine resource conservation;
- recognition that natural resource management cannot be compartmentalized into one goal, but contributes to many of the goals; and

- analysis of the potential impact that the targets and indicators for the other MDGs could have on natural resource management, and identification of strategies for meeting these goals without undermining the natural resource base on which the poor depend.

Expanding the indicators for reversing environmental resource loss:

- recognition of the value of other types of land uses in conserving environmental resources, and the importance of marine and other water-based resources as well as those that are land based;
- recognition of the limitations of the traditional protected area approach to conservation, and its negative impacts on poverty, and the subsequent need to focus on alternative forms of protected areas (including those based on lived-in, productive landscapes) and alternative governance structures that build on local knowledge, processes and institutions but which are currently unrecognized in official conservation systems;
- recognition of the need to incorporate some assessment of "bio-quality" (reflecting local as well as global perceptions of resource quality and conservation priorities) into area-based indicators; and
- extension of the concepts of "forests" and "protected areas" to include areas that integrate production with conservation – e.g. agroforestry, ecoagriculture and areas that are designated by indigenous peoples and local communities as having cultural and spiritual significance, such as sacred groves.

Poverty reduction and sustainable development are global imperatives. Achieving these objectives requires integrated and concerted action by both conservation and development communities. It would be a tragedy if the internationally agreed framework for achieving these laudable objectives succeeded only in being the obstacle to its own success.

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