Introduction and background

Addressing economic challenges to biodiversity and ecosystem services

These guidelines will assist in land and resource planning. The general aims are:

1. to incorporate economic and development concerns into conservation planning and management
2. to integrate biodiversity and ecosystem service opportunities into development planning.

We propose a step-by-step approach to identifying and planning economic instruments for conservation and for sustainable development. As well as uniting both concerns, this approach factors in the need for key stakeholders to participate actively at each stage. The focus is on involving and benefiting communities in areas with high biodiversity or important ecosystems.

The reason for this focus is that many conservation projects and sustainable development plans disregard what makes good economic sense at local level. People degrade, convert or over-exploit the natural environment because it is profitable (or less costly) for them to do so. Local communities often lack access to alternative products, technologies, markets and practices that could provide more sustainable income and employment alternatives. Moreover, the costs and benefits of conservation are often spread unevenly. The people who actually manage the land and its resources incur most of the cost, through restrictions on their economic activities and opportunities. At the same time, they often receive a disproportionately low share of the benefits. In such cases there is very little local-level motivation to manage land and resources in a way which will conserve biodiversity and ecosystem services.

An example of uneven distribution of the costs and benefits of ecosystem conservation

In the ECO-BEST pilot site in Pang-Ma-O, for instance, villagers face great financial debt and economic pressures after investing in a crop which failed to produce sufficient yield in the highland climate. Hence it is difficult for them to put time and effort into community forest management. There is a temptation either to switch from traditional tea production to more profitable mono-cropping, or else to sell the forest land to outside investors. On the other hand, downstream communities and businesses (tea plantation owners, agriculturists, and the food and tourism industry) benefit from the forest ecosystem via stable water flow, micro-climate, clean air and medicinal plants; but currently they do not contribute to its upkeep.

Nationally and internationally there is a clear demand for the development of economic instruments, most notably from the UN's Convention for Biological Diversity (CBD), as stated in its Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets within it. Aichi target 2 asks for biodiversity concerns to be incorporated in development plans. Aichi target 3 proposes to phase out incentives which damage biodiversity and to develop and apply incentives for its conservation and sustainable use. Aichi target 11 outlines how greater benefits to local communities can improve the effectiveness and efficiency of protected area management. Local and regional level projects are asked to identify and put into practice activities that contribute to implementing national biodiversity strategies and to achieving the Aichi targets. Moreover, movement towards a green economy, along with strategies for climate change mitigation and (ecosystem-based) adaptation, requires the potential of ecosystem services and economic instruments to be realised.

And yet, at practical policy and management level, the call for more economic instruments for ecosystems and biodiversity has resulted in some confusion. Conservation and development planners and decision-makers often struggle to understand whether and how such instruments can be used to tackle environmental degradation and to improve the effectiveness, equity and sustainability of conservation efforts. Practitioners are unsure how to

identify and use the potential of economic instruments while keeping in mind the concerns and limitations voiced in academic debate. The situation is made even more complex by individual cultural, legal and political contexts. These guidelines aim to address the need for practical guidance.

Many conservation practitioners hope that economic valuation studies will help them make the case for nature conservation and initiate positive change. But in most circumstances, the benefits and costs of changes accrue to different parties in very different ways, so that the revelation of ecosystem service values does not in itself change the behaviour of individuals, corporations or communities. Rather than calculating ecosystem service values, the approach in these guidelines is to identify 'ecosystem service opportunities' by which motivations and incentive structures can be modified. These opportunities are the entry points for choosing suitable economic instruments. Figure 1 shows how discussion of the services provided by ecosystems in and around a protected area can help a park manager and a community leader to see the mutual benefits and opportunities of conservation. In the same spirit, the guidelines

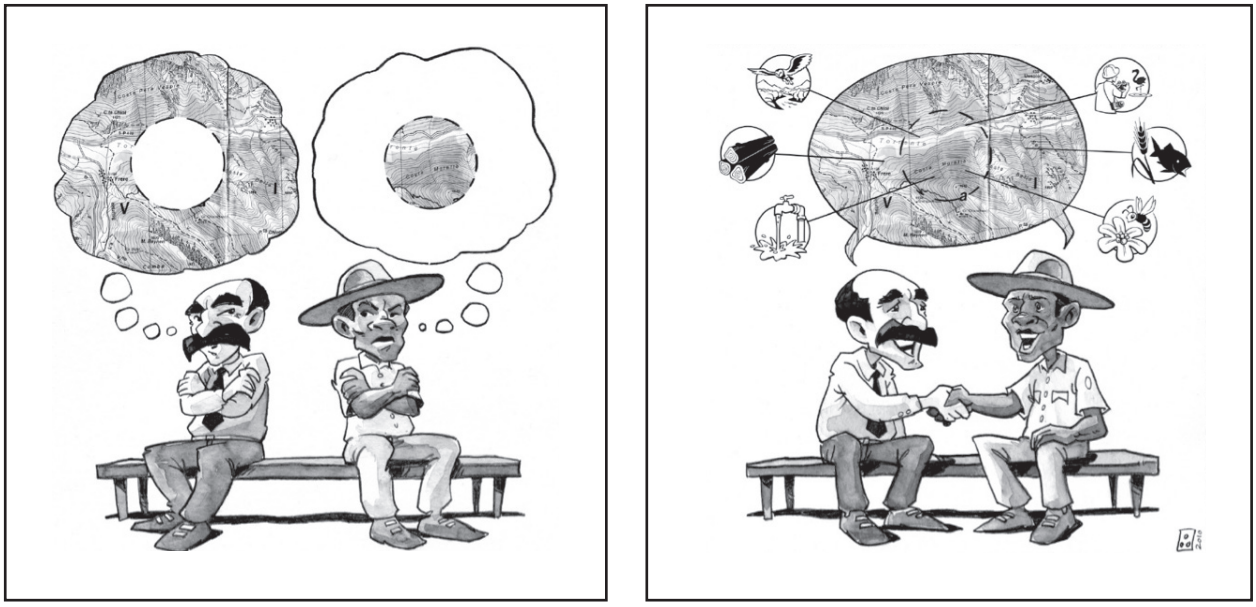

Figure 1: The process can help local authorities and conservation managers identify opportunities to enhance biodiversity and local livelihoods. (Source: TEEB (2012a), Image by Jan Sasse)

provide a road map for bringing together different people's interests and viewpoints by jointly identifying 'ecosystem service opportunities'. In this way, economic instruments can be used both to strengthen conservation approaches and to benefit communities, while distributing costs and benefits more fairly and more sustainably.

What are economic instruments?

Economic instruments for conservation and local livelihoods motivate people to change their behaviour in favour of more sustainable outcomes. They make environmentally positive outcomes more profitable than harmful ones. This is the economic logic behind (for example) making stewardship payments to upstream farmers who care for a watershed, thereby ensuring good water quality downstream, or granting tax breaks to companies that invest in conservation and maintenance of ecosystem services. Conversely, economic instruments may also provide sanctions in order to reduce negative impacts: for instance, by making companies or individuals liable for any environmental damage they cause. In Steps 3 and 4, the guidelines demonstrate how to identify opportunities to use economic instruments by considering four key economic principles: 'Steward Earns', 'Beneficiary Pays', 'Polluter Pays', and 'Innovation'. Box 1 presents an overview of economic instruments to benefit conservation and local livelihoods and also gives examples of their use. Appendix D presents an even richer set of examples. Box 2 describes how economic instruments were applied in the three ECO-BEST pilot studies.

Box 1: Some examples of how economic instruments can benefit conservation and local livelihoods

User fees & surcharges
Indonesia: In 2001 an entrance fee and revenue retention system was introduced in Bunaken Marine National Park. The proceeds are used for management and conservation activities, such as using just under a third of all revenue to fund a small grants programme for each of the villages in the park.
(Erdmann et al. 2003)

Direct payment (e.g. conservation concessions & contracts, easements, compensation etc.)
Tanzania: Terrat Village has a voluntary agreement with Tarangire National Park tourism companies, whereby villagers forgo tree-felling and conversion to agriculture and settlement, but instead maintain grassland as pasture. In return, they receive funding for community development activities.
(Nelson 2008)

Payments for Ecosystem Services (PES)
Gabon: Upstream communities and Monts de Cristal National Park receive payments from Société d'Energie et d'Eau du Gabon in recognition of the ecosystem services they provide to downstream hydropower and urban water supplies.
(Emerton and Nlom 2011)

Fines, penalties & legal liabilities
USA: Hawaii imposed a fine for large-scale reef damage, using economic valuation to set the level of penalties.
(TEEBcase by van Beukering and Cesar 2010)

Taxes
USA: In California's Napa Valley, the local sales tax was increased to finance renaturalisation of the river and other flood protection measures.
(TEEBcase by Kaitlin Almack 2010)

Biodiversity offsets & habitat/ mitigation banking
Australia: A biodiversity banking scheme encourages companies to voluntarily mitigate their environmental impact by supporting conservation projects elsewhere, by buying so-called credits from them.
(TEEBcase by Rodricks 2010)

Voluntary donations & corporate sponsorship
Latin America: The Nature Conservancy partners in Guatemala, Panama, Costa Rica and other Latin American countries have raised money for biodiversity conservation by selling 'deeds' to parts of Protected Areas. For about US$ 35-120, the donor receives a certificate acknowledging the 'adoption' of this land, its wildlife and – sometimes – activities involving the local community. These certificates have proved popular gifts, and school children have engaged in fund-raising events to buy them.
(UNEP 2001)

Green products & markets (alternative income & employment sources)
Syria: Rural communities are developing a market for caper bushes, a wild plant species which grows abundantly in dry and rocky areas. The caper buds are collected and sold, particularly by resource-poor nomadic families living in the desert. Such wild biological resources provide a much-needed and easily accessible source of income.
(Giuliani et al. 2006)

Benefit/revenue-sharing
Cook Islands: Takitumu Conservation Area, a community-owned ecotourism enterprise, has been established under the auspices of the South Pacific Regional Environment Programme. Only local people own the land and resources, and ecotourism has now become the area's main economic activity. Profits are shared between the Conservation Area Coordinating Committee (for reinvestment in conservation activities) and landowning families (as dividends). As well as contributing to local income and employment, part of the revenue earned from ecotourism activities is paid to locals in compensation for reducing the local harvest of prawns and eels and the hunting of the Pacific fruit bat and Pacific pigeon.
(Tiraa and WIlmott 2001)

Certification & eco-labelling
Latvia: An eco-labelling initiative named the 'Green Certificate' is being implemented by the Latvian Country Tourism Association and the Latvian Environment Protection Fund. It aims to promote environmentally-friendly tourism in rural areas and also to improve the quality of life of local communities. The 'Green Certificate' is an eco-label assigned to enterprises which conserve biodiversity, minimise resource use, offer environment-friendly tourist activities, serve locally produced food, and provide extensive information on local natural, cultural and historical attractions.
(Latvian Country Tourism Association 2005)

Tax reliefs & subsidies
Japan: Farmers who convert to producing rice without pesticides or chemical fertilisers in winter-flooded paddies are compensated with subsidies.
(TEEBcase by Nishimiya 2010)

Credit & loans
Sudan: In Gedaref and Kassala landscapes, the establishment of a revolving micro-credit fund for biodiversity enterprise development has enabled villagers to develop new enterprises trading in Gum Arabic and other non-timber forest products.
(Emerton 2012)

Communities can benefit in different ways from economic instruments. For instance, they can be paid extra for efforts to maintain or enhance biodiversity and ecosystem services; they can receive technical or financial support for engaging in more sustainable livelihood opportunities such as ecotourism or nature-based products; or they can benefit from reducing damage to the natural resources on which they depend.

Of course, economic instruments are only part of the picture. Whether they work effectively depends on many different conditions such as environmental awareness; clear allocation of rights to use the land and its resources; and trust and collaboration between stakeholders. The guidelines deal with these conditions in so far as mentioning where they should be considered, and they provide references to documents where further guidance can be found.

How were the guidelines developed?

ECO-BEST was a four-year project (2011-2015) to reduce terrestrial biodiversity loss in South-East Asia through economic and financial instruments for the benefit of local communities. The project was financed by the European Union and the Thai and German governments. These guidelines were developed to guide the identification and planning of economic instruments in three pilot sites in Thailand: Thadee Sub-River Basin (Nakhon Si Thammarat province), Pang-Ma-O community in the upper Ping Watershed (Chiang Mai province), and Bu Phram sub-district (Prachin Buri province) located within Dong-Phayayen-Khao-Yai (DPKY) Forest Complex World Heritage Site. These guidelines include lessons learned from the different tasks of the process and their challenges and successes. Although the guidelines were developed in Thailand and incorporate lessons and experiences from the ECO-BEST pilot sites, they are applicable worldwide in safeguarding conservation areas either with or without official protection status.

Using state-of-the-art academic concepts, methodologies and approaches relating to ecosystem service assessments, policy instruments for biodiversity conservation and participatory processes, we have aimed to translate and incorporate them into a practical, field-based manual for conservation and development planners and managers. We also draw on, synthesise and adapt the insights and methodologies developed under various other practice-oriented guidelines:

- The 6-step approach developed within 'TEEB in Local and Regional Policy and Management' (TEEB 2012a) analyses how local issues relate to the provision of ecosystem services. It then outlines how integrating ecosystem values into decision making and policy responses can improve the situation.
- With their 6-step approach to 'Integrating Ecosystem Services into Development Planning – IES' (Kosmus et al. 2012), the German Development Agency operationalises the TEEB steps to assist GIZ project staff and other development planners to incorporate ecosystem service-related opportunities and risks into development strategies.
- The Word Resources Institute (WRI) has developed two sets of guidelines with step-by-step approaches that help decision-makers identify risks and opportunities based on ecosystem services. 'Ecosystem Services – A guide for decision makers' (WRI 2008a) is targeted at decision-makers at all levels and sectors, and the 'Corporate Ecosystem Services Review' (WRI 2008b) at companies interested in links between ecosystem services and business goals.

Throughout the document we provide references to further practice-oriented resources for users who want guidance on particular topics.

The most innovative part of the guidelines is the notion of 'ecosystem service opportunities' and the process described in Steps 3 and 4 for identifying those opportunities and seeing them as entry points for choosing suitable economic instruments.