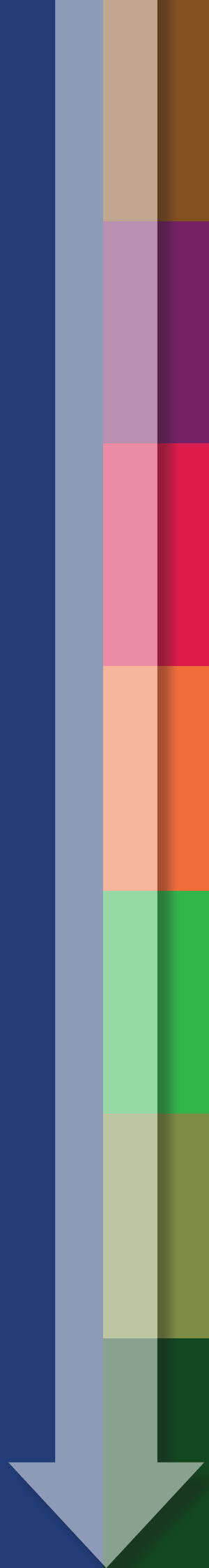


Acting on Ecosystem Service Opportunities

Guidelines for identifying, selecting and planning
economic instruments to conserve ecosystems
and enhance local livelihoods



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Acting on Ecosystem Service Opportunities

Guidelines for identifying, selecting and planning economic instruments to conserve ecosystems and enhance local livelihoods

VERSION 1

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Table of Contents

List of boxes	3
List of tables	3
List of templates	3
List of figures	3
List of abbreviations	4
Preface by the authors	5
Introduction and background	7
Addressing economic challenges to biodiversity and ecosystem services	7
What are economic instruments?	8
How were the guidelines developed?	10
Applying the guidelines	11
Who is the target audience?	11
How to use the guidelines	11
How long the process takes, and what it costs	12
Guiding principles.....	13
Overview of the step-by-step process	16
The step-by-step process	19
Stage 1: Preparation	19
Step 1: Getting organised	21
Task 1A. Specifying the vision, broad aims, and the spatial scope	21
Task 1B. Forming the core team and ensuring relevant expertise	23
Task 1C. Making a work plan	25
Stage 2: Understanding the situation and identifying opportunities	29
Step 2: Scoping the context and stakeholders	31
Task 2A. Stakeholder analysis and stakeholder engagement strategy	31
Task 2B. Scoping the environmental situation	34
Task 2C. Understanding institutions, laws, policies, economic and social conditions	35
Step 3: Weighing up ecosystem services benefits and costs	37
Task 3A. Analysing how ecosystem services relate to management issues	37
Task 3B. Determining providers, beneficiaries and degraders of ecosystem services at stake	41
Task 3C. Assessing gaps in ecosystem service provision and imbalances in costs and benefits	42
Step 4: Identifying opportunities and instruments	45
Task 4A. Identifying ecosystem service opportunities	45
Task 4B. Checking for appropriateness of ES opportunities	47
Task 4C. Coming up with ideas for economic instruments	49
Stage 3: Designing and planning the instrument	59
Step 5: Sketching out the instrument	61
Task 5A. Specifying key actors and their roles, motivations, and constraints	62
Task 5B. Clarifying necessary and supporting conditions	66
Task 5C. Providing supporting analyses	68
Step 6: Designing and agreeing on the instrument	73
Task 6A. Elaborating the basic design and architecture of the instrument	73
Task 6B. Clarifying institutional and administrative modalities	76
Task 6C. Double-checking feasibility, acceptability and buy-in	78
Step 7: Planning for implementation	81
Task 7A. Developing an action plan	81
Task 7B. Drafting an agreement and handing over to implementing partners	86
Task 7C. Reporting on and evaluating the process and the instrument.....	90



References	93
Appendices	101
A. The TEEB (2010) classification of ecosystem services	101
B. Guidance for the first stakeholder workshop (Steps 3 & 4)	103
C. Additional example of applying Steps 3 and 4 to Bu Phram	106
D. Economic instruments illustrated by case studies	108
E. Additional supportive analyses (Step 5)	113

List of boxes

Box 1: Some examples of how economic instruments can be used for conservation and local livelihoods	9
Box 2: ECO-BEST pilot sites: What were the issues and which economic instruments were developed?	14
Box 3: Developing a sustainable financing strategy and action plan for Andaman Marine Protected Areas, Thailand	83
Box 4: Setting targets and indicators for implementing local incentives for conservation in Lower Amu Darya Biosphere Reserve, Uzbekistan	84
Box 5: Monitoring Payment for Forest Environmental Services in Lam Dong Province, Vietnam	85

List of tables

Table 1: Overview of the step-by-step process	16
Table 2: Ecosystem services trade-offs	39
Table 3: Overview of economic instruments according to the four principles	51

List of templates

Template 1: Broad aims / Mission statement (examples from Bu Phram) (Task 1A)	22
Template 2: Contributors to the process (examples from Bu Phram) (Task 1B)	24
Template 3: Example of work plan format (one task from Thadee) (Task 1C)	27
Template 4: Stakeholder Mapping Table (Task 2A)	33
Template 5: Checklist for important local information (Task 2B & C)	36
Template 6: Understanding the status quo by weighing up ecosystem services costs and benefits (Task 3A, B & C)	44
Template 7: Identifying ecosystem service opportunities and suitable economic instruments (Task 4A, B & C)	55
Template 8: Key actors and their role in the economic instrument, the possible livelihood impacts and measures (Task 5A)	65
Template 9: Necessary and supporting conditions (Task 5B)	69
Template 10: Specifying additional supporting analyses (Task 5C)	71
Template 11: Table of contents for the design document (Task 6A)... ..	75
Template 12: Checklist for institutional and administrative modalities (Task 6B)	77
Template 13: Checklist for assessing the feasibility and acceptability of the instrument (Task 6C)	79
Template 14: Checklist of contract components (Task 7B)	89

List of figures

Figure 1: The process can help local authorities and conservation managers identify opportunities to enhance biodiversity and local livelihoods	8
Figure 2: The ecosystem service opportunities framework	40

List of abbreviations

BAAC	Bank of Agriculture and Cooperatives
CBD	Convention on Biological Diversity
CICES	Common International Classification of Ecosystem Services
CSR	Corporate Social Responsibility
DNP	Department of National Parks, Wildlife and Plant Conservation
DPKY	Dong Phrayayen-Khao Yai
ECO-BEST	Enhancing the Economics of Biodiversity and Ecosystem Services in Thailand
ES	Ecosystem service(s)
GIS	Geographic Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Development Agency)
HRDI	Highland Research and Development Institute
MNP	Marine National Parks
MoU	Memorandum of Understanding
MPA	Marine Protected Areas
NGO	Non-Governmental Organisation
NP	National Park
NST	Nakhon Si Thammarat
NTFP	Non-Timber Forest Product
OTOP	One Tambon One Product (Thai local entrepreneurship stimulus programme)
PA	Protected area
PAC	Park Advisory Committee
PES	Payments for Ecosystem Services
REDD	Reducing Emissions from Deforestation and Forest Degradation
TEEB	The Economics of Ecosystems and Biodiversity
ToR	Terms of Reference
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHS	World Heritage Site
WRI	World Resources Institute

Preface by the authors

'Win-win solutions' that can combine conservation and livelihoods benefits may not always be found, but it is definitely worth looking for them.

Our work of applying economics to nature conservation falls between science and practice, and we detect a strong need in the field for practical guidance. International policy has shifted towards promoting economic approaches to conservation and development. This has created a lot of interest and, at times, high hopes – yet practitioners often struggle to identify and tap into those potentials. Academic debate on the issue addresses many relevant points but often uses generalised framings, complex formats and academic language which are unfamiliar to those working on their implementation. We also find practitioners frequently equating the use of economics with economic valuation of ecosystem services. For us, one great advantage of economics is its structured view of the motives and incentives of different actors for conserving – or degrading – ecosystems, along with a set of simple principles to identify gaps and imbalances. These allow us to identify what we call 'ecosystem service opportunities' and to select suitable instruments that can positively change behaviour.

These guidelines were developed during the ECO-BEST project in Thailand in order to structure the implementation of economic instruments in three Thai pilot sites. Due to ECO-BEST objectives and our collaboration with the Thai Department of National Parks, the initial focus of the guidelines was on protected areas and buffer zone management. However, the framework can equally be applied to safeguarding biodiversity and ecosystems in areas without official protection status.

We do not regard economic instruments as a panacea for reversing the loss of biodiversity and ensuring a sustainable future, but together with other measures we believe they can play an important role. 'Win-win solutions' that combine conservation with livelihood benefits may not always be found, but it is definitely worth looking for them. Embarking on this search in collaboration with stakeholders may often lead to surprising and innovative ideas. We hope that these guidelines will inspire and structure this search, not as a fixed set of instructions but more as a compass to guide the user through a specific context and towards opportunities and suitable instruments which will change unsustainable practices.

We consider this a first version. We will be happy to revise the guidelines as and when we receive reports of their application in other parts of the world.

Julian Rode & Heidi Wittmer

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.

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

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.



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

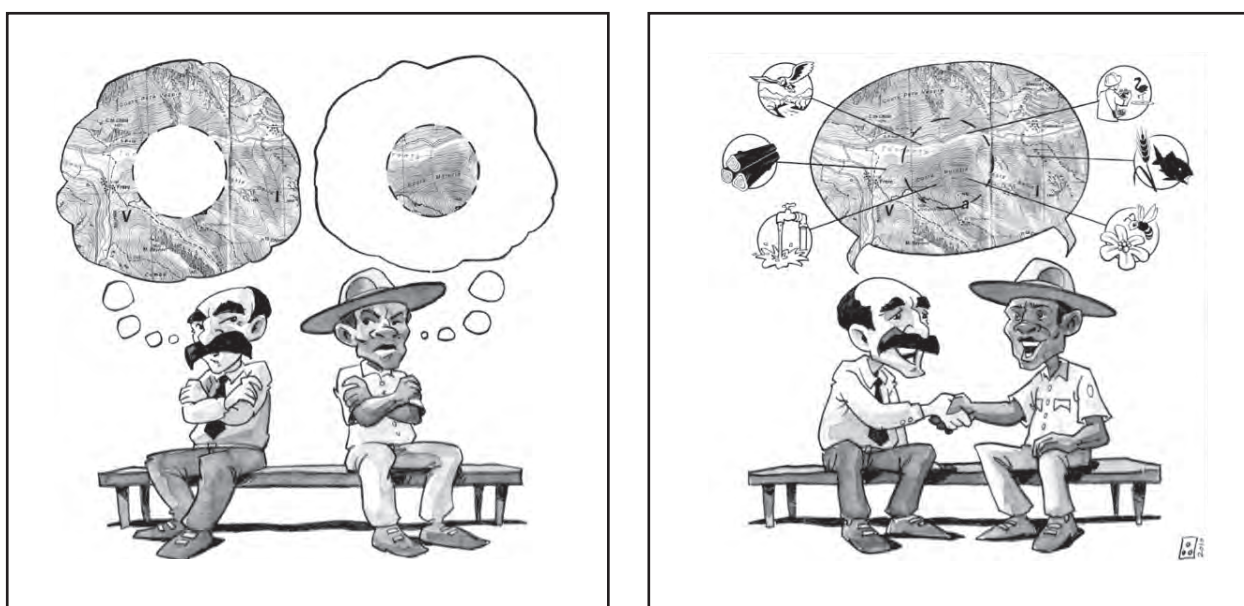


Figure 1: The process can help local authorities and conservation managers identify opportunities to enhance biodiversity and local livelihoods. (Source: TEEB (2012a), Image by Jan Sasse)

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'Énergie 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 World 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.

Applying the guidelines

Who is the target audience?

The guidelines are for people in both conservation and development sectors responsible for designing, planning and implementing conservation and development activities in areas with high biodiversity or important ecosystem services. This includes people from **government agencies, non-governmental organisations, community groups and private companies**. The guidelines can assist in:

- protected area or buffer zone management,
- forest or watershed management,
- income generation, poverty alleviation or benefit-sharing arrangements for rural communities, including tourism development,
- integrated land use planning in rural or urban areas,
- infrastructure development (for instance when a dam project, road development, town or industrial estate development, or an irrigation system is proposed),
- identifying options for 'green' production and investment opportunities for the private sector.

Our primary audience is the **technical staff, consultants and researchers** who will actually be involved in working through the steps and tasks on the ground. The guidelines provide a detailed, step-by-step 'how to' guide to steer the team through the whole process. The team leader or someone else in the core team should ideally have some training (e.g. undergraduate education) in economic approaches and methods, be familiar with the concept of ecosystem services, and have a background in rural development or community-based conservation. Without this experience it may be more difficult to apply the guidelines successfully – though not entirely impossible!

In addition, we envisage that at least **two other audiences** may find the guidelines useful:

- Those in charge of commissioning and overseeing the design and planning of an economic instrument may want to familiarise themselves with the introduction and the quick reference section to see why it would be useful to carry out this kind of step-by-step process.
- Those responsible for commissioning and approving technical studies could benefit from reading the introduction, the quick reference section, and Stage I of the process, and then glancing briefly at Stages 2 and 3. This will help in budgeting, designing the terms of reference for contributors to the process, evaluating proposals (or hiring people to do so), keeping an eye on progress, and judging the quality of the final product.

How to use the guidelines

The guidelines contain seven steps to be followed in three stages. Within each step, we recommend carrying out the tasks in a specific order. In each task, the guidelines distinguish between explanations of the content ('What this task is about') and the process ('How to go about this task'). Although the steps and tasks follow a logical, iterative process and often depend on information generated or agreement reached earlier, it is important to be flexible and adapt to the context. It is not always necessary to apply all seven steps. The second and third stages, or even individual steps or tasks, can be useful in isolation. For instance, Stage 2 (Steps 2–4) could be used as a scoping exercise for understanding the extent to which economic instruments could be useful in a particular setting. If opportunities are found, then the results of the scoping could be used to request funding for a more integrative process and to develop an instrument. In other instances, team leaders may already have a specific instrument in mind. In that case the focus will be on the design and planning aspects covered in Stage 3 (Steps 5–7) but it might then be useful to confirm the initial ideas using Steps 2–4 (and to take stakeholders on board).



Stage 2 (Steps 2–4) helps take stakeholders on board!

In Thadee, it was clear from the beginning that the project would try to establish a payment scheme to address water shortage and flooding issues. Nevertheless, as obvious as it seems, many stakeholders further downstream did not see at first how changes in the watershed could affect them. The activities described in Steps 2–4 helped stakeholders along the river basin to understand each other better, and identifying relevant issues within a series of workshops generated some joint ownership of the process.

The procedure outlined here is not meant to be used in isolation: it will form part of a wider project or policy cycle and needs to be integrated into it. Most usefully it precedes detailed investment appraisals, helping to establish new procedures or to identify financing sources for local conservation efforts. A quick version of Stage 2 can also be used to justify a new project on this topic or to put the topic on the political agenda. The guidelines serve to identify opportunities to enhance or maintain ecosystem services through the efforts of local communities. They help to operationalise how these efforts can be rewarded and financed over time.

Templates with tables and checklists are the main tool to help the user apply the guidelines and keep track of what has been found out and achieved. Throughout the guidelines, the template tables contain examples from ECO-BEST sites.

Important tips regarding specific aspects of the process are highlighted in boxes. At the end of each step, the guidelines provide selected references and further guidance for carrying out the tasks.



This icon indicates a **template or checklist**.



This icon indicates an **important tip**.



This icon indicates a **specific lesson or example** from ECO-BEST.

The three ECO-BEST project sites are introduced in Box 2 below. Throughout the guidelines we provide boxes with examples and lessons from specific experiences in these sites. At the end of Stage 2, you will find a section on communication challenges with recommendations based on experiences from ECO-BEST.

The appendices contain further guidance material that can directly support the process.

How long the process takes, and what it costs

It is difficult to give exact time and resource requirements for the process since they will depend on specific circumstances and what already exists in terms of project structures, contacts and networks, and resources. Ideally the guidelines will support ongoing processes and build on available resources and an experienced team. In that case, the process could actually be very quick – let's say 3 to 6 months. Short scoping studies that only use Steps 2–4 could be done in a few weeks. If starting from scratch, however, it could be 3–5 years before actual implementation, as in the ECO-BEST sites in Thadee and Bu Phram. In difficult settings with conflicts or weak structures it could even take 10. In such cases, resource needs will tend to be considerably higher and sufficient funding will need to be secured along the way.

Guiding principles | *Following these principles will enhance the success of the approach.*

Involving stakeholders

Stakeholders should be involved throughout the process, and explicit efforts should be made to recognise and balance their different ideas and interests. This means identifying and engaging key groups and individuals from the outset, and ensuring their continuous participation during the entire identification and planning process. Special effort should be made to ensure that the process is as inclusive, open and transparent as possible, especially for those already socially or economically marginalised, or who lack a 'voice'. Capturing ecosystem opportunities requires groups of people to change their behaviour. Stakeholder involvement makes it possible to understand people's motivations for current (unsustainable) behaviour and resistance to change, reveals existing conflicts and collaborations, and exposes related issues they are struggling with. A good understanding of their positions, interests and constraints is essential for new instruments to be designed successfully. Stakeholders are much more likely to accept the proposed policy if it alleviates or at least addresses their constraints. Similarly, early piloting with particularly motivated stakeholders to find out what 'flies' or not – and for what reasons – can help to fine-tune the instrument and avoid painful learning experiences or failure with a larger group. In addition, involving stakeholders from the outset increases the legitimacy of the process. The guidelines assist successful stakeholder involvement during each step of the process.

Integrating a range of knowledge and expertise

The approach described in these guidelines is transdisciplinary, developing objectives and solutions with stakeholders and integrating a wide range of knowledge and expertise. When choosing the members of the team, both technical and strategic factors should be considered. The team should cover key technical disciplines and almost always include local experts and knowledge-holders. Equally important, however, is a solid understanding of the 'big picture' of both the general approach and the goals. At different stages, the team will most likely need access to additional expert knowledge (e.g. of local bio-physical relations or legal aspects, or for economic valuation). Whatever the specific needs of a particular assignment, the team will probably include people with various natural and social scientific backgrounds (e.g. economics, law, biology, ecology and hydrology) as well as different experiences and interests (e.g. planners, managers, researchers, local government, land and resource users and community representatives). Balancing and integrating these different perspectives requires a strong, well-coordinated approach to leadership and teamwork.

Communicating effectively

Communication deserves special attention. It is vital for ensuring the smooth running of the process, for maintaining collaboration and cooperation within the team, and for fostering the buy-in and ownership of stakeholders. It may even be useful to have a communication expert follow the entire process. For effective communication in a change process, listening carefully and adjusting to stakeholder motivations, needs and constraints is just as essential as clear communication within and beyond the team. In conservation, it is particularly important that people don't feel judged, i.e. that they are thought to be doing wrong and need to be re-educated. Communication challenges need to be addressed – and are likely to vary – at every stage of the process, identifying what needs to be communicated, to whom, and how best to do it. For instance, at the very beginning it is crucial to develop a clear message about the broad aim and vision behind the assessment and to specify how it will be carried out, who will be involved, and what it might entail. Later in the process, a new arrangement or instrument with specific activities will need to be proposed and discussed. The guidelines highlight communication issues at different stages of the process.

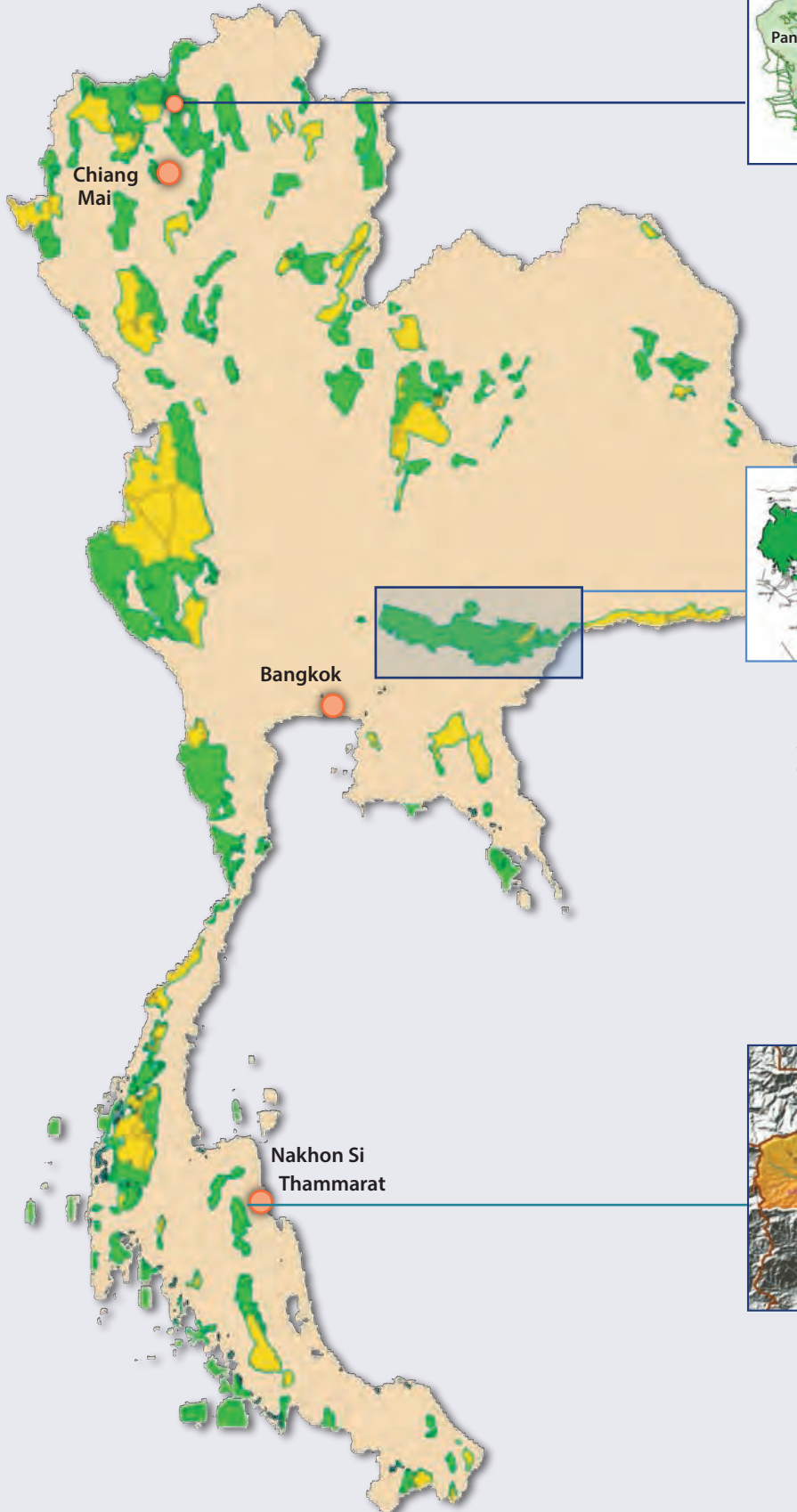
Taking a flexible, adaptive approach

The steps and tasks follow a logical, iterative process and often depend on information generated or agreement reached earlier. However, a process like this can never be entirely linear. Adjustments will often be necessary: for example, combining various tasks, reordering them, repeating them, or going back and forth. It is very important to adapt and respond to the current context and to integrate feedback, new information or changing circumstances in order to move on effectively. Last but not least, these guidelines lay out a road map for change, but success will largely depend on the energy and ingenuity of you and your team.

Box 2: ECO-BEST pilot sites: What were the issues and which economic instruments were developed?

■ National Park ■ Wildlife Sanctuary

0 90 180 km



Pang-Ma-O Village

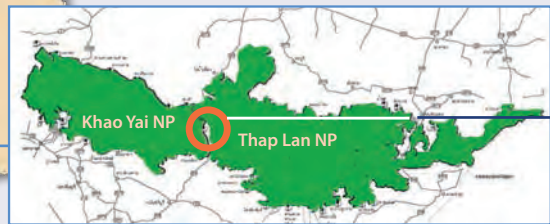
Chiang Dao District, Chiang Mai Province



Pang-Ma-O village has 168 inhabitants (65 households) and is located in the upper sub-watershed area. The area around the village contains healthy forest ecosystems, used for agro-forestry and as community forest. The land in the lower parts of the sub-watershed has largely been converted for more intensive agricultural production.

Bu Phram Subdistrict

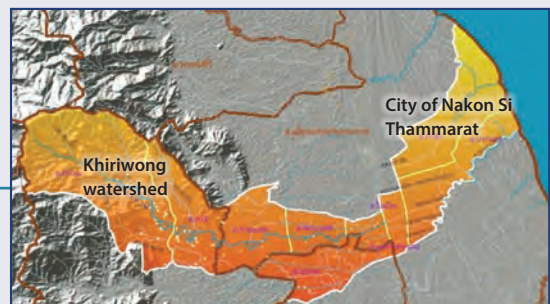
Prachin Buri Province



Bu Phram subdistrict is located along Highway 304 between Khao Yai and Thap Lan National Parks. Both national parks are part of the UNESCO World Heritage Site of Dong Phrayayen-Khao Yai (DPKY) Forest Complex, which covers 615,500 hectares and overall comprises five protected areas.

Klong-Thadee Riverbasin

Nakhon Si Thammarat Province



Klong-Thadee river is 63 km long and originates from Khao Luang National Park. It runs down to Khiriwong village (upper watershed), passing several districts and the city of Nakhon Si Thammarat before reaching the Gulf of Thailand.



Enhancing benefits from agro-forestry in Pang-Ma-O village

In Pang-Ma-O village in the upper Ping watershed (Chang Mai province), intact highland forest ecosystems are threatened by the falling price of tea produced by local traditional agro-forestry, the building of resorts and private mansions, and the difficulties of maintaining community forest management. Investment in poor quality fruit seedlings has put the villagers in debt, which creates

pressure to convert or sell forest land. The project initially pursued the idea of a 'debt-for-nature swap' scheme, through which the Bank of Agriculture and Cooperatives (BAAC) would relieve the debt or otherwise support agro-forestry or conservation measures. Various instruments were identified as promising by which beneficiaries of ecosystem services could support forest conservation measures. By mid-2015,

- BAAC implemented the national 'tree bank' scheme which was part of the official CSR policy. It now gives financial support to the farmers' group for establishing a registered 'Tree Bank Fund'; setting up a nursery, maintaining local trees in agro-forestry, and planting more trees;
- The collective action of Pang-Ma-O Tree Bank Fund opened up wider economic activities for the group. The farmers are now well-known producers of quality Arabica coffee and Assam tea. They also grow seedlings from coffee and tea plants that are rare in the mountain region. Nearby communities in Chiang Mai and from other provinces in the North order the seedlings in large quantities;
- Studies had begun to assess (1) whether certification of agro-forestry and organic tea and coffee can create additional benefits based on ecosystem maintenance; and (2) how ecosystem services beneficiaries (downstream agriculture, the tap water authority, the tourism industry and wealthy owners of newly-built residential houses) could support community forest management.



Improving the wildlife corridor between Thap Lan and Khao Yai National Parks

In Bu Phram subdistrict (Na Dee district, Prachin Buri province) the main objective was to ensure connectivity of the Dong Phrayayen-Khao Yai (DPKY) Forest Complex (UNESCO Natural World Heritage Site). This would be achieved by improving the ecological condition of the land along Highway 304, which separates Khao Yai and Thap Lan National Parks. Due to the unclear land tenure situation and the lack of trust and collaboration between

park management and local communities, the project identified the need for a co-management agreement, within which more specific instruments and benefit-sharing schemes could be developed. These include the promotion of wildlife watching and eco-tourism activities; markets for handicrafts made from native Lan palm leaves; certification schemes for organic agricultural products; financial and other support for farmers who restore grassland and let native tree species grow back; and corporate sponsorship schemes from downstream industries. By mid-2015,

- Thap Lan NP and Bu Phram Sub-district Administration Organization (SAO) agreed to sign a co-management agreement based on the 19th Article of the National Park Act of 1961. Its overall goal is to develop the Bu Phram region as a community-based wildlife tourism destination;
- the Thap Lan NP Park Advisory Committee (PAC) officially endorsed the establishment of the Conservation and Ecosystem Restoration Fund and it will serve temporarily as the Fund's administration body. Funds will be used to compensate for individual commitments to restore currently cultivated land, under individual agreements with the NP. The PAC will monitor the actions;
- income for the Fund was still in negotiation, but expected to come from Thai and international wildlife lovers, Lan palm handicrafts enterprises and other service providers (buses, restaurants, hotels, shops, etc.) who benefit from eco-tourism in Bu Phram. Contributors will receive wildlife conservation stickers and annual certificates showing that they have financially supported wildlife conservation;
- six farmers owning a total of 48 rai (7.68 acres) agreed to stop tapioca cultivation and return the land to nature for a compensation of THB 800-1,200 per rai per year for 5 years.



PES for water regulation in Klong-Thadee river basin (Nakhon Si Thammarat province)

In the Klong-Thadee river basin in Nakhon Si Thammarat (NST) Province, increasing monoculture plantations (e.g. rubber) and forest degradation in the upper watershed means a higher frequency of extreme flooding and drought events. This causes significant negative impacts downstream on river-adjacent communities, farmers, and in particular the city of Nakhon Si Thammarat. The project initiated dialogue between

stakeholders upstream, midstream, and downstream and facilitated discussion of a mechanism by which downstream water users would contribute to more sustainable land use in the upper watershed. By mid-2015,

- the Klong-Thadee sub-river basin committee was formed, comprising 51 representatives of different stakeholder groups, and has initiated discussion on restoration measures. The list of members and their functions, including monitoring the effectiveness of the PES scheme, are waiting for endorsement by the NST governor;
- the Association of Nakhon Si Thammarat Environmental Conservation (ANEC) was officially registered. Its mission is to promote environmental conservation in the province and to develop and administer the Payment for Ecosystem Services Fund;
- NST Municipality agreed to add a voluntary ecological fee to water bills, though this has yet to be approved by NST Municipal Chapter. In 2015-18, the fee is 1 Thai Baht (THB) per 1 cubic meter of tap water per month;
- 45 farmers owning a total of 438 rai (70 hectares) agreed to contribute to ecological restoration on their land. Community-based procedures for defining the amount of payments to individual farmers has been tested and accepted (to be reviewed annually). Payments are currently expected to be between THB 200-1400 per rai per year.

Overview of the step-by-step process

The step-by-step process begins by identifying the need and scope for using economic instruments to address a particular conservation or development issue. It ends with the handover of the finalised instrument for implementation.

Stage 1: Preparation

Step 1 explains the preparation for the process.



Step 1. Getting organised. In order to initiate the assessment process, the team has to get organised. This involves clarifying the objective and scope of the assessment, identifying its technical and logistical requirements, and planning how it will be undertaken.

Stage 2: Understanding the situation and identifying opportunities

Steps 2–4 describe a stakeholder-inclusive assessment process to analyse the context and issues in order to understand the situation, and to identify the opportunities for using economic instruments.



Step 2. Scoping the context and stakeholders. Once the team is ready to start, a solid understanding of the assessment context is required. This involves characterising the stakeholders, the socioeconomic and biophysical situation, and the current threats to ecosystems.



Step 3. Weighing up ecosystem service benefits and costs. Next, the economic analysis of the situation commences. This involves understanding who influences the supply of ecosystem services and who benefits from them, and how the costs and benefits of ecosystem conservation are distributed.



Step 4. Identifying opportunities and instruments. Based on gaps and imbalances in the provision and distribution of ecosystem services, the team needs to identify opportunities and select suitable economic instruments to enhance or redistribute the benefits of ecosystem services.

Stage 3: Designing and planning the instrument

Steps 5–7 deal with the participative design and planning process of the economic instrument. They clarify what exactly is to be implemented, how, and by whom.



Step 5. Sketching out the instrument. Having chosen a suitable economic instrument, the team now specifies its structure and main components. This involves determining the key actors, their roles and motivations, and clarifying the broader requirements and supporting conditions and analyses.



Step 6. Agreeing on the instrument. This involves presenting a convincing model of how the instrument would work, clarifying institutional and administrative modalities and confirming feasibility and acceptance of the design.



Step 7. Planning for implementation. Finally, the pathway towards actual implementation can be laid out. This involves formulating an action plan and a monitoring scheme, preparing and signing necessary formal agreements, and handing over to the implementing partners.



Stakeholder integration and communication objectives

- Tasks.** 1A. Specifying the vision, broad aims, and the spatial scope.
 1B. Forming the core assessment team and ensuring relevant expertise.
 1C. Making a work plan.

Communicating broad aims and visions

- Tasks.** 2A. Stakeholder analysis and developing stakeholder engagement strategy.
 2B. Scoping the environmental situation.
 2C. Understanding institutions, laws, policies, economic and social conditions.

Getting stakeholders to know and trust the project, accept its aims, and feel some ownership ('buy-in')

- Tasks.** 3A. Analysing how ecosystem services relate to management issues.
 3B. Determining providers, beneficiaries and degraders of ecosystem services.
 3C. Assessing imbalances in the provision and use of ecosystem services.

Sharing a vision, agreeing on key objectives

Finding common terminology and way of thinking

- Tasks.** 4A. Identifying ecosystem service opportunities.
 4B. Checking for appropriateness of ES opportunities.
 4C. Coming up with ideas for economic instruments.

Jointly identifying opportunities and how economic instruments can help

- Tasks.** 5A. Specifying key actors and their roles, motivations, and constraints.
 5B. Clarifying necessary and supporting conditions.
 5C. Providing supporting analyses.

Communicating results and conclusions of supporting studies

- Tasks.** 6A. Elaborating the basic design and architecture of the instrument.
 6B. Clarifying institutional and administrative modalities.
 6C. Double-checking feasibility, acceptability, and buy-in.

Testing acceptance and feasibility of the instrument

Achieving buy-in and agreement for the instrument

- Tasks.** 7A. Developing an action plan.
 7B. Drafting an agreement and handing over to implementing partners.
 7C. Reporting and evaluating the process and the instrument.

Handing over the instrument for implementation

Table 1: Overview of the step-by-step process

The step-by-step process

Stage 1 Preparation

The first stage contains a single step and explains the preparation for the process.

Step 1: Getting organised



First of all, in order to initiate the step-by-step process, the team needs to get organised. This step involves clarifying the objective and scope, identifying technical and logistical requirements, and laying out a work plan. Its expected outputs are:

- A clear formulation of the broad aims and vision
- The core team is identified and access to relevant knowledge and expertise ensured
- A work plan, budget and funding plan.

Task 1 A. Specifying the vision, broad aims, and the spatial scope

At the end of Task 1A you will have clarified the broad aims and the scope of the initiative to which you apply the process. You will have filled in the aims and a mission statement in Template 1.

What this task is about

The **broad aims and visions** should be clear from the beginning. A particular management issue, conservation or development challenge will drive the step-by-step process to identify economic instruments. The aims behind selecting and planning an economic instrument will usually be refined during the process, for instance when deeper understanding of the situation and of local needs produces a more specific focus. For example, in biodiversity conservation the aims at the outset may be very broadly 'to protect or enhance biodiversity', but they could then become more specific: e.g. to counteract threats to certain ecosystems or species, to reduce certain pressures on a protected area, to improve crop diversity, etc. Similarly, livelihood objectives may focus specifically on resolving existing conflicts, or providing resource access for specific disadvantaged groups.

As obvious as it seems, it is important to keep reminding yourself that the development of **an economic instrument is never an end in itself**, but a means to an end: in this case, strengthened biodiversity conservation and improved local livelihoods.



In addition, the **spatial scope** or focal area should be made clear. Is it (part of) a protected area, a buffer zone, the territory of a particular community, or even a whole watershed? Bear in mind the need to be flexible: the focal area may change during the process. The instruments you eventually identify may only be relevant to part of the planned area, or cover a much wider one.



Finding the right scale is important!

In Bu Phram, the project started by looking at the whole DPKY World Heritage Site (WHS) as a potential project area but it became clear that it needed to downscale. A stakeholder workshop was held to identify important issues in different areas of the WHS. Based on this workshop, Bu Phram was chosen as the project site. The main reasons for that were: 1) the wildlife corridor was important to UNESCO; 2) the challenges (conflicts) seemed possible to solve within existing law and regulations; 3) there seemed to be potential for scaling up a solution to other parts of the WHS, possibly even to other Thai protected areas. Last but not least, the site was relatively easy to reach from Bangkok, saving logistical effort and costs.

How to go about Task 1 A

Your team should discuss and clearly formulate its aims and visions as well as the conservation and development issues to be addressed by an economic instrument. Template 1 helps to specify the issues and aims. It distinguishes between short-term (1–5 years) and long-term perspectives (more than five years). Clear formulations will help you communicate to stakeholders what you are trying to achieve by using economic instruments, and to prepare inputs and suggestions for discussion at the first stakeholder workshop(s) (see Step 3). In order to make stakeholders feel comfortable with the whole process, it is important that they endorse the broad aims and visions and understand that the objectives will take account of their needs and perceptions. You should update the formulations in Template 1 whenever more specific objectives are agreed.



A good map of the area of interest can be an important tool. It can support discussions and mutual understanding in the team about the scope and objectives, and can be very useful in communicating them to stakeholders. A map can also be useful for discussing the origin of ecosystem services as well as where their benefits accrue, or help to define explicitly where changes or activities need to take place.

Template 1: Broad aims / Mission statement (examples from Bu Phram)



<p>We want to address the management issue / threat of ..., in... (relevant area) that is arising because of...</p>	<p>so as to lead to the short-term outcome of ... (how we want to reduce the issue/threat by using economic instruments)</p>	<p>and to reach the long-term goals of ... (what kinds of biodiversity, ecosystem service and/or development outcomes we want to set in place)</p>
<p><i>The current development, with monocrop agriculture and investments in hotel and shopping complexes, works against an ecological vision for the area between Khao Yai and Thap Lan National Parks. It threatens the ecological connectivity of the DPKY forest complex and thereby its UNESCO status as a natural heritage site.</i></p>	<p><i>We want to improve the relationship between park authorities and local communities and make conservation more attractive to people by developing local livelihood options through ecological land use and in relation to wildlife and conservation.</i></p>	<p><i>We want to improve the ecological conditions of the wildlife corridor and reach a sustainable development trajectory where local communities and the richness of their natural environment (with endemic and rare plant and animal species) thrive together.</i></p>

Task 1 B. Forming the core team and ensuring relevant expertise

At the end of Task 1B you will have specified the contributors to the process, either as part of the core team or for relevant roles as in Template 2.

What this task is about

Someone is of course the **initiator** of the process. This might be government staff in a department that aims to integrate conservation and development goals. It might be the project manager of a local NGO, an international conservation organisation, or even a developer from a company who wants to conduct business in a green way.

Although the exact team composition will vary depending on the aims and context of the process (as well as its budget!), key knowledge and skills will often include the following:

- Knowledge of the local conditions (incl. the organisational structure of communities),
- Ability to contact local people,
- Knowledge of local ecology (e.g. forestry, wetlands, hydrology, etc.),
- Understanding of socio-economic conditions and legal issues,
- Skills in participatory planning and management,
- Knowledge and understanding of how to apply economic instruments successfully,
- Skills in local enterprise development and small business planning,
- Skills for stakeholder engagement and workshop facilitation,
- Skills in designing and carrying out rapid field surveys.

It is not necessary for the **core team** to possess all these areas of expertise, but it will help if members have a firm grasp of many of them. For instance, if the process is initiated by a well-connected national park manager or NGO who already works in the area, then a key area of focus might be to engage expertise on more technical aspects of the ecological and socio-economic knowledge base. If external research institutions or organisations are the initiators, a first step may be to ensure the participation and buy-in of stakeholders with local knowledge and networks, e.g. site-level conservation authorities or community leaders. Valuable support can come from people who may not be obvious at first: for example, school teachers, the local radio station, student organisations, clubs, or religious groups. These can prove vital, not only as a source of information but in giving positive energy and momentum to the project.

It might be useful to distinguish between different divisions of responsibilities. For instance you could nominate a steering team and a technical support team, or distinguish between a strategic lead in charge of the overall process and an operating team coordinating day-by-day local operations.

Of course, **experts** for specific studies or analyses can be brought on board later in the process, especially when specific needs become clearer (e.g. moderators for the stakeholder workshop; ecologists for the detailed analysis of ecological functions). It can be helpful, however, to have experts in the loop from early on and ensure that they understand the purpose of the undertaking and are willing to contribute. An expert should be considered trustworthy and credible by everyone involved, including the relevant stakeholders. It is also a good idea to involve an expert in communication right from the beginning.

Political contacts and networking matter!

In ECO-BEST, in particular in Thadee, the project staff were native to the area and already knew local officials and political networks. This was extremely helpful in identifying where to get support, from whom, and how to reach them. For instance, the local coordinator happened to have been a classmate of the vice-mayor of NST municipality and of the secretary to the Governor. Building personal relationships during the process played an important role and often had surprising effects. For instance, a joint dinner and karaoke event attended by the provincial governor's assistant led to the governor attending a project workshop, which gave credibility to the process and impressed the stakeholders.



How to go about Task 1 B

Discuss among you what expertise is needed for the process. The above bullet points showing the different types of expertise and knowledge will help you. Then, reflect on what expertise you already have and who could provide what's missing. Template 2 below should be filled out to document the necessary expertise and providers. Make sure you have a joint understanding of who is leading which aspects and how to take decisions as a team. How you work together and share responsibilities will also feed into the work plan to be made in [Task 1C](#).

Template 2: Contributors to the process (examples from Bu Phram)



Contributor or knowledge holder	Expertise	Role, e.g. Core team, Advisor, Contributor to specific parts, Provides information on specific aspects	Status and prospects of engagement
Mrs. P. GIZ Bangkok	Project coordination and oversight; network with DNP; knowledge of national conservation policy, ecological knowledge	Core team: Project manager (based in Bangkok)	Confirmed
Ms. N. GIZ Bangkok	Networking, communication with stakeholders	Core team: Local project coordinator (based near project area)	Confirmed
Dr. J. Helmholtz Centre for Environmental Research – UFZ	Environmental economics, economic instruments for conservation	Core team: International academic expert for conceptual backstopping	Confirmed for site visits, workshop, process revision
Thap Lan NP management Director and assistant	Legal authorisation; Knowledge of local political situation and ecology	Potentially core team	Confirmed to support local coordinator
Dr. K. Kasetsart University	Environmental economics, economic valuation	National academic expert for targeted studies and workshop presentations	Confirmed for targeted studies
Dr. S. Director of Protected Areas Innovation Institute and the World Heritage Office within DNP	Ecological knowledge, contact to national UNE-SCO WH Committee	Support with network and advice	Confirmed as supporter
Bu Pram Sub-district Administration Organization (SAO)	Local political support; local network and knowledge	Contributor on communication to village leaders and members	Confirmed interest, but need more information and exchange

Task 1 C. Making a work plan

At the end of Task 1C you will have laid out a work plan for the process, as exemplified in Template 3.

What this task is about

Once the objectives and spatial scope have been specified and the core team formed, it is necessary to plan how the process will be carried out in practical terms. Preparing a work plan involves thinking through and organising four main aspects:

- The tasks to be carried out and outputs to be generated
- The inputs and budget required to carry out these tasks and deliver these outputs
- The schedule and responsibilities for delivering different components of the assignment
- How it will be funded and resourced.

For each task and output, this basic work plan will usually specify the start and end date, location, person(s) responsible for delivery and resources required.

Each identified **task and output** needs to be costed in terms of **input requirements**. Inputs are the intellectual, material, financial and other resources needed. Without sufficient resources, the process cannot be carried out. At a minimum, these should cover staffing and technical inputs, equipment, consumables and other materials, purchase of data, travel and transport expenses, meetings and workshop costs. Estimates should also be made of how long each task or output will take to complete. You need to consider both cash costs (i.e. those which involve purchases such as fuel or notebooks) and in-kind contributions (i.e. those which are free or already paid for, such as staff time, a meeting room, or use of a computer).

You need to make sure that you can cover these costs. Without sufficient and timely funding and resourcing, the assessment cannot go ahead. Although an adequate **budget** is sometimes already available, in many cases it will be necessary to go out and search for funding, contributions, staff time and other inputs (or even to justify the use of already existing funds). Your budget and work plan provide the basic information for putting together a funding request or project proposal. Any contributions from partner communities, team members or their institutions (e.g. of time, materials or other resources) should also be confirmed at this point.

How to go about Task 1 C

Coming up with the input for the work plan obviously requires in-depth discussion and planning by the study team, but also offers a valuable opportunity for the whole team to discuss jointly and agree on why and to what ends the process is being carried out, what it needs to address, and which role each person will play in taking it forward. Carefully reading the overview of the steps and the guidelines in advance will help you understand what lies ahead. A training session using the guidelines could be an option at this point to ensure that the whole team fully understands the overall procedure. Then, a day's meeting should be sufficient to brainstorm, discuss and agree on the assignment tasks, outputs, resource requirements, schedule and responsibilities. This involves asking 'What do I need to do, use or spend in order to deliver on each task and output?' The team leader is usually expected to take responsibility for compiling the work plan and subsequently for ensuring that it is followed in an effective and timely manner. Detailed stakeholder consultation is not usually necessary in work plan development, but it may be useful to cross-check certain aspects with key partners and contacts on the ground – e.g. the timing of fieldwork, the format and location of community consultations, and availability of local partners and field teams.

A simple Gantt-type chart is a very clear method of depicting, tracking and communicating work schedules. Template 3 presents a sample work plan, structured according to the seven steps of the process. All team members



should be aware of their responsibilities and committed to fulfilling them in a timely and cooperative manner (under the guidance and oversight of the Team Leader). A simple budget should be put together which clearly shows what inputs the assessment requires and how much it will cost to provide them.

Once developed, the work plan should be flexible enough to adapt, so you should take time for regular review, revision and updating. Bear in mind that it is very common to be over-ambitious (or even unrealistic) when first designing your project. Once the resource requirements are known, it may be necessary to review your tasks and outputs – budgets frequently need to be revised downwards in the light of actual time, funding and staff availability!

Selected references and further guidance for Step 1

The FAO handbook on Participatory Rural Communication Appraisal (PRCA) (Anyaegebunam et al. 2004) describes the procedures and tools for preparing cost-effective and appropriate communication programmes, strategies and materials for development projects. This could be helpful for Task 1 A.



Template 3: Example of work plan format (one task from Thadee)

Task/output	Week												Item	Unit	Cost/unit	No. units	Total cost
	1	2	3	4	5	6	7	8	9	10	11	12					
Output Step 2													Total	Cash US\$ 200	Staff time 10 days	-	
Scoping report													ECO-BEST Project Leader	Days	In-kind	4	-
													ECO-BEST Other staff (2)	Days	In-kind	6	-
													Printing	Pages	0,3	600	180
													Postage	Reports	1	20	20
Task 2A: Stakeholder analysis and developing stakeholder engagement strategy.													Total	Cash US\$ 5,510	Staff time 60 days	-	
Literature review													ECO-BEST Project staff (2)	Days	In-kind	5	-
													ECO-BEST Project staff (5)	Days	In-kind	3	-
													DNP RPAO 5 (NST)	Days	In-kind	5	-
													International experts (1)	Days	500	1	500
													Transport van rental	Days	110	1	110
													Per diems with accommodation	Nights	80	5	400
													Meeting package (Lunch & snacks) for 30 pax	Days	450	1	450
													Printing	Lumpsum	0,3	300	90
													ECO-BEST Project staff (3)	Days	In-kind	3	-
													DNP RPAO 5 (6)	Days	In-kind	6	-
													Transport van rental	Days	110	2	220
													Per diems with accommodation	Nights	80	2	160
													Meeting package (Lunch & snacks) for 60 pax	Days	900	1	900
													Printing	Lumpsum	0,3	100	30
													ECO-BEST Project staff (2)	Days	In-kind	5	-
													DNP RPAO 5 (2)	Days	In-kind	10	-
													International experts (1)	Days	500	1	500
													Transport van rental	Days	110	5	550
													Per diems with accommodation	Nights	80	5	400
													Drink & snacks for 10 pax	Days	20	5	100
													ECO-BEST Project staff (2)	Days	In-kind	10	-
													DNP RPAO 5 (2)	Days	In-kind	10	-
													International experts (1)	Days	500	1	500
													Transport van rental	Days	110	10	1100
													Per diems with accommodation	Nights	80	10	800
													Drink & snacks for 10 pax	Days	20	10	200
Meeting with individual local authorities (sub-district level) and community meetings													7 subdistricts and 3 municipalities in KTD basin	Days	500	1	500
													ECO-BEST NST Coordinator and RPAO 5	Days	110	10	1100
													Transport van rental	Days	110	10	1100
													Per diems with accommodation	Nights	80	10	800
													Drink & snacks for 10 pax	Days	20	10	200

Stage 2

Understanding the situation and identifying opportunities

Stage 2 (Steps 2–4) describes a stakeholder-inclusive assessment process to analyse the context and issues in order to I) understand the situation, II) identify the opportunities for using economic instruments based on ecosystem services, and III) select suitable economic instruments. This part provides very detailed guidance, including a plan for a stakeholder workshop in Appendix B.

Stage 2 can also be used as a scoping exercise for understanding the extent to which economic instruments might be useful in a particular setting. If the opportunities seem worth pursuing, the results of the scoping could be used for a funding proposal to conduct a more integrative process and to develop an instrument.

Step 2: Scoping the context and stakeholders



Once the team is ready to begin the work, a solid understanding of the context is required. This step involves characterising the stakeholders, the socioeconomic and biophysical situation, current threats to ecosystems, and issues to be addressed. Its expected outputs are:

- A stakeholder analysis and a stakeholder engagement strategy
- Initial contact with stakeholders
- A comprehensive understanding of the local context.

Task 2 A. Stakeholder analysis and stakeholder engagement strategy

At the end of Task 2A you will have identified the key stakeholders and established some initial contacts. You will have filled out the stakeholder mapping table in Template 4.

What this task is about

Once you are organised, one of the first tasks is to identify who the **key stakeholders** are in relation to the issue or challenge being addressed. You will then need to contact them and plan how to engage them in subsequent steps of the process. Relevant stakeholders typically include individuals, groups and organisations within the territory who make decisions about it or influence its status, and/or who are impacted by (or indeed impact upon) the challenge or issue being addressed. Examples are:

- Conservation authorities (e.g. national park department, watershed management);
- Local government authorities (e.g. at district level) and local or regional representatives of national authorities (e.g. the environment ministry);
- Representatives of villages or communities, including indigenous groups;
- Representatives of important economic sectors with an interest in or an influence on the territory (agriculture, tourism, industry, etc.);
- Locally active NGOs or conservation groups;
- Local universities or research centres;
- Other important interest groups with a relation to the territory or issues at stake.

It is crucial to understand the stakeholders' current **attitude to conservation**, so it will be necessary to consider their interests, issues and concerns, including local culture. It is also useful to understand relationships between the different stakeholders. Understanding **conflicts** is particularly important. Reducing conflicts can be an objective in itself, but existing conflicts need to be taken into account during the engagement process. For instance, be careful if you invite conflicting parties to a joint workshop, since it may hinder constructive discussion and progress. On the other hand, you should also be aware of **existing cooperation and collaboration**, where peo-

21	31	37	45	61	73	81
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Getting organised	Scoping the context & stakeholders	Weighing up ecosystem service benefits & costs	Identifying opportunities & instruments	Sketching out the instrument	Designing & agreeing on the instrument	Planning for implementation



Be aware of – and avoid – conflicts!

Pre-existing conflicts play a subtle but important role in Thailand that is difficult for outsiders to comprehend. For instance, there is a traditional political divide between 'red shirt' and 'yellow shirt' parties. If an important supporter of the project is known to be on one side, stakeholders on the other may keep their distance. ECO-BEST's strategy is to focus all debates strictly on improving the common good and on specific ecological issues, and to avoid any political debate.

ple are already organised or working together. Such collaboration can be crucial to a successful process and to the design and implementation of economic instruments.

A stakeholder-inclusive process has many merits (see the 'Guiding principles' in the introductory section) but you need to take into account the local situation, conflictive relationships and also limits to resources, etc. Therefore, it is crucial to consider whether to involve a particular stakeholder or not – and if so, why and when.

How to go about Task 2 A

With your team, particularly its members with local knowledge, first make a list of all relevant stakeholders. Then summarise and document the most important aspects of the stakeholder analysis and fill in the remaining columns of the Stakeholder Mapping Table in Template 4. Feel free to add columns to the table if you can think of important additional aspects. It can be time-consuming to complete the identification of stakeholders and their engagement. You may not be able to identify all of them at once but only through an iterative process, where you keep redefining those who are important. Your mapping table can be continuously updated.

As described above, consider carefully how to contact the stakeholders appropriately. It may not be a good idea simply to invite them all to the first workshop and expect high attendance and general interest. Rather, stakeholders should be targeted individually, using existing local networks and taking account of local customs. For local decision makers and opinion leaders in particular (e.g. village heads) it might make sense to introduce the study and generate their interest and support before such a workshop. Personal meetings or small group meetings could be used to distribute concise information in the local language. This could help stakeholders to understand the study, which they could then disseminate to their local networks. You could also present the information during workshops organised by others. Reflection and discussion within the team will help to find the best approach.

Template 4: Stakeholder Mapping Table

Stakeholder	Attitude to the relevant conservation goal: Conflic- tive / harmful, Collaborative / supportive, Other (give details)	Conflicts with other stake- holders (explain: with whom, in what sense?)	Collaboration with other stakeholders (explain: with whom, in what way(s)?)	Desirable level of engagement: Must have / Nice to have / Involve later	How to get in touch? Current sta- tus of en- gagement	Contact person(s)
Thap Lan National Park management	By mandate interested in stopping encroachment and improving eco- logical corridor	Conflicts with illegal construction, illegal hunting, rose-wood cutting, and park encroachers.	With agricultural district officer, wildlife conservation NGOs (e.g. Freeland), and National World Heritage Committee.	Must have	Strongly engaged	Mr. V. (NP Su- perintendent)
Thap Lan National Park Advisory Com- mittee (PAC)	Collaboration with park administra- tion, interest in conflict resolution, members from key interest groups	Individual PAC members have con- flicts with villagers (e.g. Mr M – see below)	Highway expansion is in favoured by most PAC mem- bers, as it expects to help reduce road accidents and traffic jams in the holiday season.	Must have	Engaged by invitation of NP management.	Mr. M. (PAC chairperson)
Political leaders of Sub-district Administration Organisation (SAO) (10 villages)	Tension around land use within official park boundaries.	Concerns due to unclear land tenure; limitation from park authority in constructing of infrastructures (e.g. solid waste landfill, paved road, etc.)	Collaboration with Royal Irrigation Office (to provide investment fund for dredging the Thap Lan reservoir) and with provincial development authority (budget to install restrooms and other facilities).	Must have	Partly engaged –still ‘wait and see’ attitude but willing to collab- orate	Mr T. (Head of SAO Charter)
Mr. M. (owner of shop- ping, hotel, and cattle farm complex, just opposite the NP headquarters)	General interest in conservation (PAC chairman), but uses land intensively and unsustainably. His estate has secure tenure (no official overlap with NP land); would benefit from tourism activity and conflict resolution.	Imported cows and horses in the farm increase risk in vector disease transmission to native wildlife pop- ulation. Conflict potential with local farmers and villagers on water quantity and quality due to the untreated waste water from the farm.	Good collaboration with Thap Lan NP as PAC chair- person. Provides jobs opportunities for villagers. Land prices increased after his investment – this was first seen as a positive effect, but it incentivises farmers and land occupiers to illegally sell their usage rights.	Must have	Contact with Lan leave collectors. Need more direct visits to the pro- ducers.	Mr Sand Mrs M. (producers that have been awarded OTOP sup- port).
Lan Handicraft Enterprises	Interest in restoration of Lan palm to use leaves as raw materials for handicraft product (domestic and international clients asked for trace- able system to document sustainable harvesting.	Harvesting the Lan Leaves inside Tap Lan and Khao Yai NPs was legally prohibited. In practice in more than 20 years (but no written form) only registered villagers were given a per- mission to cut and sell the Lan leaves for in-village handicrafts.	Product development supported by expanding to domestic and international fairs (by Department of Export Promotion and Department of Industrial Pro- motion); some producers receive support from OTOP entrepreneur scheme.	Must have.	Contact with Lan leave collec- tors. Need more direct visits to the producers.	Mr S and Mrs M. (produc- ers that have been award- ed OTOP support).
Thap Lan Buddhism Temple at Village 1	Species protection is generally in line with Buddhism. In 2013-14, the temple helped save deer in Village No. 1. Prem- ises of the temple located at key site next to the elevated part of Highway 304.	None – promising as a neutral supporting body.	Very good relationships with villagers; support- ed by community.	Nice to have / Involve at later stage.	Direct visit to the Monks and official invita- tion from TL-NP. Not yet en- gaged.	Need to identify.



Task 2 B. Scoping the environmental situation

At the end of Task 2B you will have reached a sufficient level of understanding of the environmental or biophysical situation. You will have prepared an overview document from the questions presented in the first part of the Template 5 checklist.

What this task is about

A solid understanding of the local context is crucial for making appropriate analyses and choices. The broad goal of environmental scoping is to describe the current status of the natural environment in the study site, to provide a general background to where the work is taking place. Scoping also serves to investigate or flag particular topics, conditions or concerns which relate specifically to the objectives and issues being addressed. You need to give careful thought to align the focus and boundaries of the environmental scoping with the specific management issues. While it is useful to paint a broad picture in order to set the scene, scoping exercises sometimes try to cover too much detail. To include every aspect of the land, resources, biodiversity and biophysical conditions is rarely necessary or useful. Of primary interest are the environmental endowments and conditions which affect peoples' livelihoods and economic opportunities, and which are affected by them. In addition, already existing plans, measures and policies for conservation should be understood.

Use the momentum of existing policies and windows of opportunity!

In Bu Phram, the goal was to improve ecological conditions by means of an economic instrument, in order to maintain the UNESCO WHS status of 'outstanding universal value'. National plans and high-level political support for improving the wildlife corridor helped to generate momentum for the ECO-BEST project.

How to go about Task 2 B

It is sensible for the team to compile a checklist of exactly what information to collect in the environmental scoping, and decide who will gather it and how. Environmental or biophysical experts on the team will be mainly responsible for undertaking the environmental scoping, but they should seek input from other members. There are various ways to collect data. Where time, money and staff capacity are limited, it may be done as a desk review or based only on secondary sources (for example through literature review, compilation of existing GIS data and/or expert consultation). In most cases, however, it should also be possible to conduct a brief field study. Unless the area is very large, or the issues being addressed are highly complex, two to three days would usually be sufficient for this. As well as observation, rapid surveys and mapping, collation of statistics and other methods of data collection, dialogue should be initiated with key stakeholders and experts on site. Face-to-face meetings not only provide data on the topics listed above but are an effective way to inform stakeholders about the scoping exercise, and to encourage their buy-in to the process and their input.

It is also important to coordinate the environmental scoping closely with the socio-economic scoping described below in [Task 2C](#). Ideally, perform them simultaneously.

Task 2 C. Understanding institutions, laws, policies, economic and social conditions

At the end of Task 2C you will have reached an understanding of the socio-economic and institutional context to complement knowledge of the environmental situation. You will have structured the overview document by using the remaining parts of the Template 5 checklist.

What this task is about

It is important to gather information on the social, economic, political, legal and cultural conditions of the area early on – but don't spend too much time collecting all possible data and making over-complex analyses. The key challenge is to filter and target the information in response to specific needs. The checklist in Template 5 raises questions to address. Much of the information will be readily available, for instance from previous projects or initiatives in the area.

It is important to understand that policies made at national and provincial level affect conservation and livelihood outcomes at local level. Your project or initiative may impact on these policies but in most cases you cannot count on changing them. Higher level policies are an important part of the regulatory framework within which you have to operate.

It is also very important to consider competition with current or future income-generating interventions that require local people's attention, time and effort.

Understand competing programmes!

In Pang-Ma-O, HRDI has allocated several million Baht for both research and development of agriculture activities that directly benefit farming families. Income from ecosystem services opportunities is seen as a minor additional benefit within a heavily subsidised policy on agriculture extension and conventional environment activities.



How to go about Task 2 C

The process here is similar to Task 2B, and information for both steps can be gathered in parallel. The three last parts of Template 5 present checklists with questions to be addressed for compiling and structuring an important local information sheet. Of course, this database is flexible and can be updated when new or more specific information arises: for instance, during stakeholder workshops or expert consultations. Note that the sub-questions and bullet points in the different sections are meant to provide guidance, but not all need to be answered separately. If it seems useful to contract external consultants to analyse the local context, then the checklist can serve as guidance in formulating terms of reference (ToRs).

The document on local information can also be useful in sharing relevant information with others, such as new team members or experts, and is a quick and efficient way of helping them to gain a comprehensive understanding of the context.



Selected references and further guidance for Step 2

Guidance on stakeholder analysis, integration, and communication

The Community Tool Box (2014) provides comprehensive information for identifying and analysing stakeholders and their interests (Task 2A). Chapter 2 of the 'Handbook on Planning, Monitoring and Evaluating for Development' (UNDP, 2009) helps to plan effective and active stakeholder engagement and provides useful methods (Task 2A).

The guideline 'Stakeholder collaboration – Building bridges for conservation' by WWF (2000) explains the principles of stakeholder collaboration for conservation, introduces a range of tools, and reports on case studies (Task 2A).

The handbook on 'Participatory Rural Appraisal for Community Forest Management. Tools and Techniques' by the Asia Forest Network (2002) offers an overview of methods and tools to engage stakeholders and develop a joint understanding of the relevant issues around natural resources use (Task 2B & 2C).



Template 5: Checklist for important local information



Environmental context
<ul style="list-style-type: none"> • What are the general environmental conditions of the area of interest? e.g. <ul style="list-style-type: none"> • Land use, land cover and habitat types • Other natural features (hydrological, geological, etc.) • Habitats and species with special conservation significance • Current and historical trends in land use/cover • Current and historical trends in land, air and water quality • Location of environmental hotspots, sensitive or threatened areas • What are the main pressures on and threats to ecosystem conservation? What are their apparent causes (e.g. impacts of environmental change on particular economic activities)? To what extent are the causalities (scientifically) verified (e.g. contamination through pesticides)? • What conservation activities are already in place? • What are the main objectives and measures of already existing conservation plans? Are the objectives appropriate and are the measures being implemented? If not, what are the barriers?
Political, legal, and institutional context
<ul style="list-style-type: none"> • Who is in charge at local level, in particular of environmental management? What influential political institutions are there and who leads them (formally and informally)? • Are there important national or international policies that influence local development and conservation objectives? • What are the important local, regional or sectoral development plans and policy goals for conservation? • What is the local system of land tenure, ownership (property rights, resource use rights) - both formal and customary/ de facto? • Which laws and organisational structures govern environmental protection and ecosystem conservation? Are there currently any conflicts over policies or laws? • What local political support is there for biodiversity conservation? Which international, national and local actors are involved in conservation? • Which aspects of environmental and conservation efforts attract public awareness and concern? Which ones are contested and by whom? • Do economic instruments for ecosystem conservation already exist? (e.g. PES, tax reductions, etc.)
Economic context
<ul style="list-style-type: none"> • Level of development and infrastructure • Current land use (including potential environmental impacts) • Sources of income (economic sectors, main activities) • Economic development potential in the area • Important public and private investments • Distribution of wealth and income across the population (including the poverty line) • Distribution of economic activity and employment across sectors • Existing policies for regional economic development (including 'perverse' policies with negative effects on biodiversity conservation)
Social and cultural context
<ul style="list-style-type: none"> • Cultural characteristics of the local population (demography, language, class structure, ethnicity, religion, relevant traditions) • Education (literacy level, school system) • Status of community involvement - Is it participatory? Are women, minorities, poor people, et al. represented? • Are there networks to assist communication and stakeholder coordination? • How do people perceive their environment, especially biodiversity and ecosystem services? What is their attitude towards conservation measures? • Is there important traditional knowledge of natural resource use? Who has the rights of access to traditional knowledge and its application?

Step 3: Weighing up ecosystem services benefits and costs



Now the economic analysis of the situation commences. This step involves understanding how ecosystem service values are provided and how the costs and benefits of ecosystems are distributed in relation to the issue at stake. Its expected outputs are:

- Analysis of how ecosystem services relate to local issues
- An understanding of who are the providers, the beneficiaries, and the degraders of relevant ecosystem services
- An assessment of the gaps and imbalances in the distribution of costs and benefits of conservation.

Steps 3 and 4 of the process identify opportunities to enhance conservation and development goals from an ecosystem services perspective. These opportunities are the entry points for economic instruments. It is useful to understand first the logic behind the entire framework. Figure 2 illustrates the six tasks of Steps 3 and 4. The Appendix C provides an additional example with the results of the analysis from the ECO-BEST pilot site Bu Phram, essentially a synthesis of Templates 6 and 7.

Task 3 A. Analysing how ecosystem services relate to the management issues

At the end of Task 3A you will have reached a comprehensive understanding of the relation between relevant issues and ecosystem services. You will have filled out the first two columns of Template 6.

What this task is about

The task here is to clarify which issues or questions are of primary concern to stakeholders and to understand how they are linked to ecosystem services. Stakeholders could be interested in objectives such as:

- Mitigating current problems with water regulation and provision (floods or droughts)
- Decreasing or halting over-exploitation of resources (fish, timber, NTFP, etc.) or supporting existing efforts towards sustainability
- Decreasing habitat loss or support existing efforts to improve habitats or habitat connectivity (e.g. wildlife corridors)
- Helping to solve human-wildlife conflicts
- Reducing pollution of ecosystems (e.g. of rivers) and its health impacts
- Supporting sustainable land use, in particular sustainable agricultural practices
- Improving soil quality by reducing erosion or soil degradation
- Supporting agricultural extension to improve productivity in a sustainable manner
- Reducing poverty or indebtedness.





The first stakeholder workshop is vital to help people understand what the whole process is, why you are doing it, and why it should matter to them. If they do not see that the process is designed to tackle their concerns and problems, they probably won't get properly involved and might ignore or even oppose it. In addition, collaborating with stakeholders in defining relevant issues and the role of ecosystem services can be important in its own right. It provides a forum or platform for stakeholders to learn about and discuss the socio-economic and biophysical conditions within which they operate, and which they seek to change.

At the same time, **important ecosystem services** provided by nature in the area should be assessed and related to the issues at stake. There are various types of ecosystem services. The Millennium Ecosystem Assessment (MA 2005) is a well-known resource as is, more recently, the Common International Classification of Ecosystem Services (CICES). The Appendix A provides a detailed list of the single ecosystem services based on TEEB (2010). All of them include the following:

- **Provisioning services** are the materials that ecosystems provide, such as food, water and raw materials. For instance, an ecosystem may provide the conditions for agricultural production or fisheries; a forest provides wild goods, plants and wood. Natural ecosystems are also important for water regulation and purification.
- **Regulating services** are services that ecosystems provide by maintaining the quality of air and soil, stabilising the climate, providing flood and disease control, or pollinating crops. For instance, many ecosystems remove greenhouse gases from the atmosphere and help to stabilise the climate. Dense vegetation can prevent overheating and help to regulate humidity. Additionally, it stabilises the soil and prevents erosion. Wetlands can absorb and store water during floods events, and can filter out harmful substances. Insects and birds are essential for maintaining natural pollination.
- **Habitat or supporting services** underpin almost all other services. Ecosystems provide living spaces for plants and animals and maintain their diversity. For instance, well-developed natural ecosystems provide different habitats for different kinds of species. A high diversity of species guarantees a greater gene pool and thus the maintenance of genetic diversity.
- **Cultural services** are the non-material benefits of ecosystems – from recreation to spiritual inspiration and mental health. For instance, some cultures have a deeply religious relationship with nature. Other natural ecosystems may have high tourism potential.

To understand the relevance of different ecosystem services in the local context, it is also important to understand **trade-offs** in the provision of different services, as well as synergies. A typical trade-off occurs when an increase in food provision through intensive agriculture means a decrease in biodiversity and the provision of other services (e.g. carbon sequestration or water regulation provided by a natural forest). Table 2 presents examples of trade-offs involved in selected policy decisions.

How to go about Task 3 A

Start by identifying the important conservation and development issues to be addressed and link them to ecosystem services. Don't worry if there seem to be more issues than you can tackle: relationships between issues may become clearer during the process, so you don't want to forget anything. Nevertheless, you need to agree which issues are the most relevant and which are only to be kept in mind. At this stage, a first stakeholder workshop can play a central role. It can serve to jointly identify the relationships between relevant issues and ecosystem services as required for **Task 3A**, but also addresses **Tasks 3B** and **3C**. Detailed guidance for planning and organising the workshop can be found in the Appendix B. In some cases several small workshops with sub-groups of stakeholders might make sense, or bilateral consultations - for instance, where there is potential conflict between different groups. You can also confirm and complement the workshop results by consulting experts. By the end, you should be able to fill in the first two columns of Template 6.

Table 2: Ecosystem services trade-offs (adapted from WRI 2008a)

Action to be taken	Goal	Who might gain	Ecosystem services decreased	Who might lose out
Increasing one service at the expense of other services				
Draining wetlands for farming	Increase in crops, livestock	Farmers, consumers	Natural hazard regulation, water filtration and treatment	Local communities including farmers and some downstream users of fresh water
Increasing fertiliser application	Increase in crops	Farmers, consumers	Fisheries, tourism (as a result of dead zones created by excessive nutrients)	Fisheries, industry, coastal communities, tourism companies
Converting forest to agriculture	Increase in timber (temporary), crops, livestock, and biofuels	Logging companies, farmers, consumers	Climate and water regulation, erosion control, timber, cultural services	Local communities, global community (from climate change, biodiversity loss), local cultures
Converting ecosystems and their services into built assets				
Coastal development	Increase in capital assets, creating jobs	Local economy, government, developers	Natural hazard regulation, fisheries (as a result of removal of mangrove forests or wetlands)	Coastal communities, fisheries, industry (local and foreign), increased risks to coastal businesses
Residential development replacing forests, agriculture or wetlands	Increase in capital assets, create jobs	Local economy, government, developers, home buyers	Ecosystem services associated with removed ecosystems	Local communities, original property owners and downstream communities
Competition among different users for limited services				
Increased production of biofuel	Reduced dependency on foreign energy	Energy consumers, farmers, government	Use of crops for biofuels instead of food	Consumers (rising food prices), livestock industry
Increased water use in upstream communities	Developing upstream areas	Upstream communities, industries	Water downstream	Downstream communities, industries

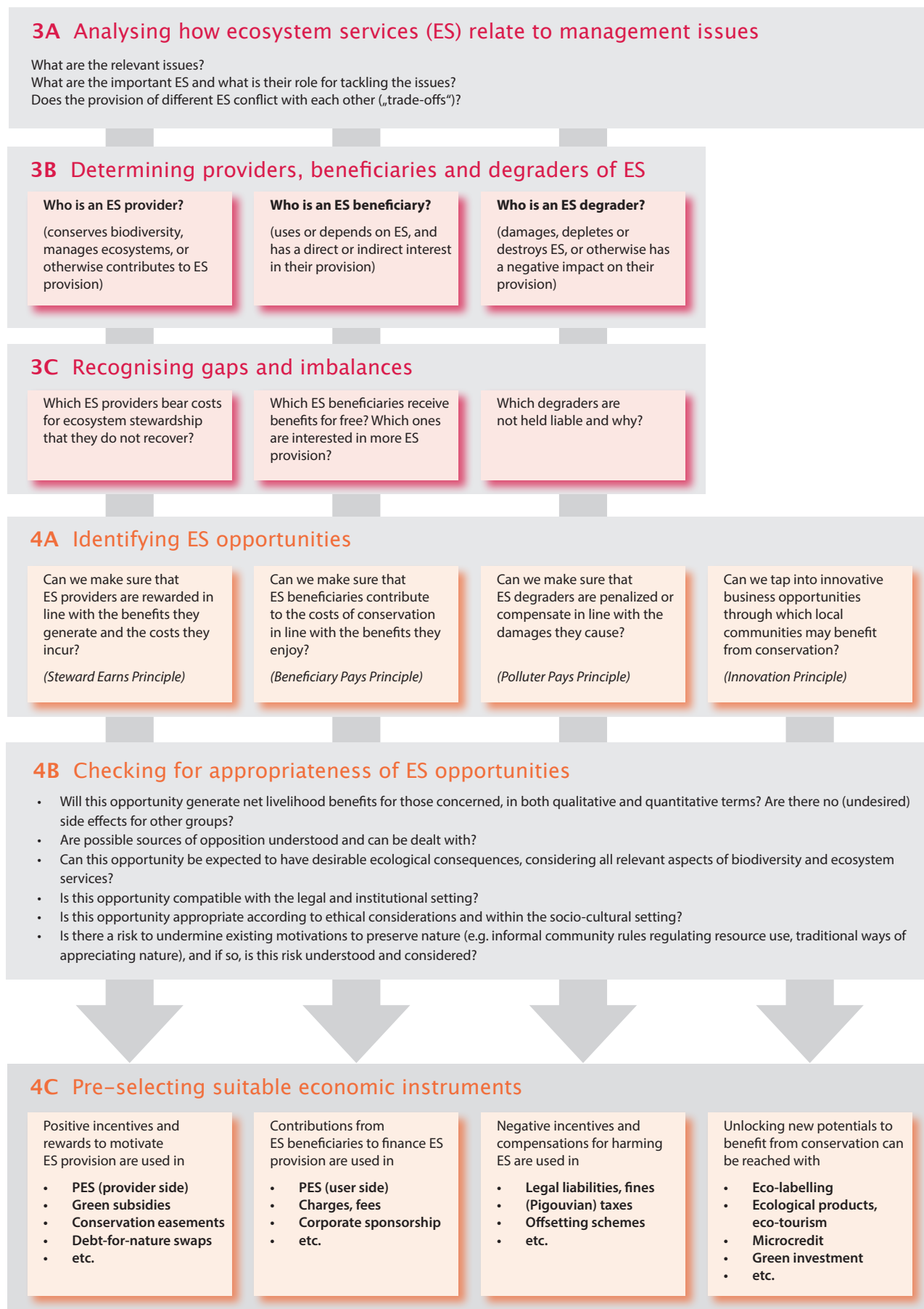


Figure 2: The ecosystem service opportunities framework

Task 3 B. Determining providers, beneficiaries and degraders of ecosystem services at stake

At the end of Task 3B you will have assessed who conserves biodiversity or manages ecosystems (ES providers), who uses or depends in some way on ecosystem services (ES beneficiaries), and who engages in activities which damage ecosystem services or otherwise negatively impact on their provision (ES degraders). You will have filled out the third column of Template 6.

What this task is about

In this task you systematically assess how stakeholders relate to or interact with the relevant ecosystem services, according to three types of role:

ES providers are actors who manage ecosystems or otherwise contribute to ES provision, e.g. farmers, forest or wetland managers. Clearly, nature is the primary provider of ecosystem services, but people and their activities often play an important part. The ability of an ecosystem to generate important services without losing quality depends to a large extent on how that ecosystem is managed, and whether it is actively protected from degradation. In some cases, it is not only important to identify current ES providers; to achieve positive change you also need to consider possible future providers. Don't forget those who have been providers in the past: could they take that role again?

ES beneficiaries are those who benefit from ecosystem services in some way and so have a direct or indirect interest in their provision, or even crucially depend on them for their livelihoods. Benefits can occur locally, for instance when the local population benefits from clean water, NTFPs, erosion prevention, or the view of a beautiful landscape. They can also occur further away (e.g. a downstream municipality benefiting from flood prevention, or a company benefiting from clean and stable water flow) and may even be felt on a national or global scale (e.g. natural heritage, carbon sequestration).

ES degraders damage ecosystem services or otherwise have a negative impact on their provision. ES degradation can be caused by chemical pollution or extractive activities such as mining, but also by overuse of resources such as fish or timber. It is important not to judge such damage out of hand as immoral. Converting land for agricultural use, for instance, always involves some harm to the services provided by natural ecosystems (e.g. forest or bush land) in order to enhance production of food or raw materials.

ES providers, beneficiaries and degraders are not always different people. One may simultaneously be a provider and a beneficiary or even a degrader of ecosystem services. For example, consider a farmer in a watershed area who depends on insect pollination and pest control services (and so is a beneficiary), conserves the natural forest on part of his land and grows crops (and so is a provider) while clearing primary forest on another piece of land and allowing agrochemical runoff to drain untreated into a nearby river (and so is a degrader). Similarly, the same management practice might be seen as degrading in one context and providing in another. For example, rewetting drained peat land could be seen positively as preventing carbon release or negatively as reducing soil fertility.

How to go about Task 3 B

At this point you are trying to understand, map, and describe the relationships between people and ecosystem services as comprehensively as possible. At later stage, you can decide the most relevant aspects to focus on. The second exercise in the plan for a stakeholder workshop (see Appendix B) has exactly this objective and the results of this exercise should provide valuable input. Internal discussions among the team and expert consultations can complement the outcomes of the workshop. By the end, you should have filled in the third column of Template 6.



Task 3 C. Assessing gaps in ecosystem service provision and imbalances in costs and benefits

At the end of task 3C you will have identified gaps in ecosystem service provision and imbalances in costs and benefits of ecosystem service provision. You will have filled out the fourth column of Template 6.

What this step is about

By a **gap** in ecosystem services we mean that demand for an ecosystem service exceeds its current supply, i.e. at least one beneficiary is interested in greater provision than at present (see the section on beneficiaries below for examples). In addition, **imbalances** between who pays for the ecosystem services and who benefits from them often threaten their very existence. An imbalance can also occur when an actor degrades the ecosystem and others suffer as a result. Gaps and imbalances provide opportunities to improve the situation. You can uncover these gaps and imbalances by identifying who plays each of the three roles described in [Task 3B](#).

Which ES providers bear the costs of ecosystem stewardship?

ES providers often expend money or effort without recompense. An obvious example is the financial cost of managing conservation areas such as national parks, but costs also occur outside formally protected areas. Local communities or individuals may pay for ecosystem management or maintenance (e.g. fire prevention measures for community forests, monitoring of sustainable fisheries, etc.). In addition, ecosystem conservation frequently requires people not to use a piece of land for profit (in economic terms, the foregone benefits are called 'opportunity costs'). Examples of profitable activities include timber felling, cattle grazing, mono-crop farming or resource extraction such as mining. In order to protect biodiversity and maintain ecosystem service provision, local landholders need to refrain from these or at least restrict them, for instance by having fewer livestock, using sustainable farming practices instead of mono-cropping, or taking measures to conserve soil and water that maintain the integrity of ecosystems. Such opportunity costs are equivalent to real costs for the local land user, because they mean the loss of potential income. Although the ecological effects may greatly benefit others, ecosystem conservation represents a less profitable, and therefore less attractive, option for farmers unwilling or unable to bear such costs, and in the absence of external help they might convert their land to less biodiversity-friendly uses.

Which ES beneficiaries receive benefits for free?

Consider these examples:

A large and profitable brewery relies on a stable flow of clean water from a watershed, which in turn depends on sound farming practices or other aspects of good watershed management. Yet the company as beneficiary does not contribute to the cost of provision – it obtains clean water for free.

A famous hotel reaps large profits as a high-end tourist destination partly due to the scenic beauty of a national park area, but does not contribute to the costs of park management.

A pharmaceutical company engages in profitable bio-prospecting activities in a large tropical forest area (i.e. the discovery and commercialisation of new products based in biological resources), but does not participate in conservation efforts.

Or, consider divers and snorkelers who enjoy the coral reefs of a coastal protected area, but do not pay for their management. In all these cases, there is an imbalance in that beneficiaries receive benefits for free. These services are important or essential to them, and they may be willing to support efforts to maintain or increase their provision.

Which beneficiaries are interested in more ES provision?

For instance, hydropower companies may wish to reduce the sedimentation rate in the river, or farmers or residents near a river may wish to stabilise the water flow to reduce the risk of flood and drought. In these cases there

is a gap in the current provision of ecosystem services, and the potential beneficiaries may be interested in supporting efforts to increase their provision.

Which ES degraders are not held liable for the harm they are causing and why?

In economic terms the harm to others caused by ES degradation is called ‘negative externality’. Some impact on ecosystem services may already be regulated, such as the effect on water quality of pollution or pesticide use. Yet the degradation of many ecosystem services is still disregarded in law or in economic policies such as concessions or agricultural subsidies. Negative externalities which are ignored may include coastal erosion (e.g. by cutting down mangrove forests); river bank erosion; downstream sedimentation; changes in water regulation or the micro-climate (e.g. when replacing agroforestry systems with monocultures); or a decrease in carbon sequestration (typically by deforestation). But the harm to aesthetic or spiritual values (i.e. cultural ecosystem services) is equally often neglected. You should seek to understand and outline which negative impacts on ecosystem services are currently not formally or informally regulated. You will then be able to decide whether it is appropriate and feasible to hold ES degraders liable for the harm they are causing (see [Step 4](#)).

How to go about Task 3 C

As in the previous tasks of [Step 3](#), the stakeholder workshop can be used to identify gaps and imbalances. Although our proposal for a workshop plan in the Appendix B does not contain specific questions on this issue, you may think about adding such questions; but in any case you should be able to derive relevant information from workshop discussions. This can then be complemented by information from other sources via consultations, key informant interviews, local experts, etc. By the end, you should have filled in the fourth column of Template 6.

Selected references and further guidance for Step 3

Guidance on identifying and prioritising ecosystem services and their benefits

The Assessment Guide ‘Social and Economic Benefits of Protected Areas’ (Kettunen and ten Brink 2013), especially Part 2, Step 1, offers a comprehensive introduction to the socio-economic benefits of PAs and PA networks and provides step-by-step practical guidance on identifying, assessing and valuing the various ecosystem services and related benefits provided by Protected Areas ([Task 3A](#)).

Steps 2 and 3 of the six-step approach within the manual ‘Integrating Ecosystem Services into Development planning’ (Kosmus et al. 2012) developed by GIZ provides guidance for identifying key ecosystem services, their current conditions, trends in supply and demand, and drivers that are responsible for changes ([Task 3A](#)).

Chapter 3 of the Millennium Ecosystem Assessment Manual for Assessment Practitioners (Ash et al. 2010) provides guidance on identifying and prioritising ecosystem services ([Task 3A](#)).

Chapter 3 of the Ecosystem Services: A Guide for Decision Makers (WRI 2008a) provides further guidance on identifying and prioritising ecosystem services ([Task 3A](#)).

‘The Protected Areas Benefits Assessment Tool (PA-BAT)’ (Dudley & Stolton 2009) provides a methodology for identifying the different types of current and potential benefits of protected areas. It also assesses who benefits and by how much, and aims to reveal the degree to which particular benefits are linked to protection strategies. The tool can be helpful for [Task 3A](#) in assessing the benefits of a particular area and in drawing conclusions from its ecosystem services and how they relate to management issues. The tool can also be helpful for [Task 3B](#) in order to identify the beneficiaries of ecosystem services.



Template 6: Understanding the status quo by weighing up ecosystem services costs and benefits (examples from Pang-Ma-O)



What are the issues?	Which ecosystem services are the most important in relation to this issue? Are there trade-offs between ecosystem services?	How do stakeholders relate to those ecosystem services?	Are there gaps or imbalances?
<p style="text-align: center;">↓</p> <p>Issue: Degradation of forest ecosystems and loss of biodiversity through conversion from traditional agro-forestry to mono-cultures</p>	<p style="text-align: center;">Task 3A</p> <p>Important ecosystem services</p> <ul style="list-style-type: none"> • agricultural food production (in particular coffee, tea) • NTFP (medicinal plants, mushrooms, etc.) <p>Regulating services</p> <ul style="list-style-type: none"> • water-regulation (less drought) • erosion prevention • micro-climate regulation • CO₂ sequestration • Clean air <p>Supporting services</p> <ul style="list-style-type: none"> • Habitat for endangered turtles <p>Cultural services</p> <ul style="list-style-type: none"> • Aesthetic value of nature for visitors and residence owners <p>Any ES trade-offs?</p> <ul style="list-style-type: none"> • Higher income from agricultural food production vs. other ES • More tourism income vs. forest loss via hotel construction 	<p style="text-align: center;">Task 3B</p> <p>Villagers/farmers</p> <p>ES providers: those who maintain traditional agro-forestry</p> <p>ES beneficiaries: food, clean air, water regulation, erosion prevention, medicinal plants, NTFP</p> <p>ES degraders: those who convert from agro-forestry to mono-cropping</p> <p>Downstream communities and tea plantations</p> <p>ES beneficiaries: water regulation, micro-climate regulation</p> <p>Non-local businesses</p> <p>ES beneficiaries: aesthetic value, clean air, tourism income</p> <p>ES degraders: constructing houses and hotels</p> <p>Tourists</p> <p>ES beneficiaries: aesthetic value, educational value, clean air</p> <p>National & global citizens</p> <p>ES beneficiaries: species conservation, CO₂ sequestration, medicinal plants</p> <p>Agricultural bank</p> <p>ES degraders (indirectly): financing conversion to mono-cropping, putting financial pressure on indebted villagers</p>	<p style="text-align: center;">Task 3C</p> <p>Which ES providers bear costs for ecosystem stewardship that they do not recover?</p> <p>Agro-forestry tends to be less profitable than mono-cropping (= opportunity cost) and farmers in debt need to increase their income.</p> <p>Which ES beneficiaries receive benefits for free? Which are interested in more ES provision?</p> <p>Tea plantation owners, downstream industry, and wealthy house owners currently do not contribute to ecosystem maintenance.</p> <p>Which degraders are not held liable and why?</p> <p>Farmers who convert land and businessmen who clear forest for construction are not held liable.</p>

Step 4: Identifying opportunities and instruments



Once gaps and imbalances in the provision and distribution of ecosystem services have been recognised, it is possible to identify economic opportunities to initiate positive change. This step involves identifying opportunities to capture ecosystem service values and making an initial selection of suitable economic instruments. Its expected outputs are:

- An overview of ecosystem service opportunities that can address imbalances in the costs and benefits of conservation or tap into innovative business opportunities
- To confirm whether or not the opportunities are worth pursuing
- Ideas for suitable economic instruments.

Task 4 A. Identifying ecosystem service opportunities

At the end of Task 4A you will have specified the ecosystem service opportunities that arise, based on four basic economic principles. You will have filled in the first two columns of Template 7.

What this task is about

As illustrated in Figure 2, we distinguish four types of opportunity. Three types directly link a specific stakeholder role (ES provider, ES beneficiary, ES degrader) to general economic principles, namely the principles of 'Steward Earns', 'Beneficiary Pays', and 'Polluter Pays'. A fourth type concerns 'Innovation': business opportunities based on ecosystem services, through which local communities may benefit from conservation.

Steward Earns: which ES providers could be rewarded for their efforts?

The Steward Earns principle involves rewarding ES providers or compensating them for the costs they incur in providing ecosystem services. For example, landholders in the buffer zone of a protected area might refrain from certain land-use practices in order to maintain the natural habitat for endangered species, or assist in tree planting, patrolling and fire management activities. Financing or rewarding such conservation actions (whether direct management costs or opportunity costs) can motivate providers to maintain or even enhance ES provision. Many economic instruments build on this principle, including the provider side of PES schemes, eco-subsidies, stewardship payments, conservation easements, and debt-for-nature swaps.

Beneficiary Pays: which ES beneficiaries could contribute to the provision of ecosystem services?

In the Beneficiary Pays principle, actors who benefit or profit from ecosystem services are asked to contribute to the costs of conservation. Examples include a beer or water bottling company that relies on a stable flow of clean water from a well-managed watershed, users of coastal infrastructure and settlements that are protected from storm damage by coral reefs and mangrove forests, or hikers and mountaineers who enjoy the facilities of a scenic




national park. They are asked to make some form of payment (financial or other) for the benefits they derive from ecosystem services or to contribute to the cost of their maintenance. Moreover, beneficiaries may be willing to support increased provision of ecosystem services useful to them. Several economic instruments exist to operationalise the contributions, such as the beneficiary side of PES schemes, conservation funds, taxes, charges, user fees, or corporate sponsorship.

Polluter Pays: which ES degraders can be held liable for damage, so that they reduce or stop harmful activities or at least compensate for them?

In the Polluter Pays principle, ES degraders are held liable and asked to compensate for the damage ('negative externalities') that they cause, or to stop their harmful activities. Examples include penalising the pollution of a river that others use for fishing or for drinking water, or creating liability schemes for a sand-mining company that causes erosion and downstream siltation. This is an opportunity to generate funds to remedy or mitigate such damage, and to discourage actors from causing it in the first place. Many regional or national compensation requirements and liability regulations already apply this principle, mainly to corporate activities. But in the case of damage to ecosystem services there are still opportunities for new and better economic instruments, such as fines or offsetting schemes, including voluntary payments within PES schemes.

Innovation: what are new ways for people to tap into business opportunities and financing schemes in order to benefit from ecosystem services and biodiversity?

The last category of ecosystem service opportunity is based on what we call the Innovation principle. It comprises untapped business opportunities based on ecosystem services, and possibilities to access or create new markets and value-adding possibilities. The aim is to find new ways to enhance benefits to people while at the same time preserving biodiversity. Various types of green markets and green products are raising their profile throughout the world to add monetary value to conservation efforts, ranging from more traditional products such as ecotourism or organic foodstuffs to non-traditional markets in forest carbon, biodiversity offsets or forest bonds. Innovation can also focus on enhancing the efficiency and scope of existing ecomarkets and business opportunities, or participation in them. Examples include: developing REDD+ as a form of carbon financing that explicitly benefits local communities and protected areas; providing necessary credit or training to enable protected area residents to invest in developing ecotourism facilities and services; or negotiating premium prices and purchasers for products that are sustainably produced. Such business opportunities tend to need significant financial investment or capacity support. This is a huge challenge when entrepreneurs are local communities without financial resources or business expertise, and economic and financial instruments clearly play an important role.



Practitioners often underestimate the extent to which the **application of economics to nature conservation involves ethical dimensions**. To begin with, the most common economic principles are rooted in considerations of distributive justice. For instance, the Polluter Pays principle aims to prevent people from profiting at the expense of – or even by harming – others. Similarly, having beneficiaries compensate providers for the costs of natural resource management (according to the Beneficiary Pays and the Steward Earns principles) is essentially a dictate of fairness. By tackling imbalances in who benefits from nature's services and who bears the costs of maintaining or enhancing them, economic instruments are essentially a means to reallocate resources and enable fairer distribution. Highlighting this argument can be helpful when communicating the merits of economic instruments to stakeholders.

How to go about Task 4 A

Template 7 can be used to fill in the information for **Tasks 4 A–C**. Before identifying the ecosystem service opportunities, it is useful to provide a rough outline of the desired outcome. You can formulate this in terms of

safeguarded ecosystems, increased provision of ecosystem services, or reduced threats (e.g. of floods or drought). Describe what activities are needed to improve the current situation: for instance, farmers may need to change their land use or agricultural management practices. Write the desired outcomes in the first column of Template 7. Then, working directly from the gaps and imbalances identified in **Task 3C**, think of opportunities based on the first three economic principles: Steward Earns, Beneficiary Pays, and Polluter Pays. Also think of possible business opportunities based on the Innovation principle.

You may involve stakeholders in coming up with ideas and this might have already happened in the first stakeholder workshop. But be cautious: in generating ideas about opportunities you need to reflect on how appropriate they are to the local context (see next **Task 4B**). The second column of Template 7 serves to formulate the opportunities.

Task 4 B. Checking for appropriateness of ES opportunities

At the end of Task 4B you will have reflected on each of the opportunities identified in Task 4A, and decided whether it is appropriate to pursue them further. You will have filled in the third column of Template 7.

What this task is about

In this task you are asked to reflect critically on the appropriateness of the opportunities, often considering factors outside the domain of economics. Not every theoretical opportunity identified from an economic perspective will be appropriate in practice or achievable under existing conditions and endowments.

The **distribution of rights and obligations** (of property, access, or use) is the reference point for determining which economic principles to use. For instance, adherents of economic thinking often propose paying farmers to stop polluting water with pesticides or degrading biodiversity on their land. This is the logic behind many PES schemes: a beneficiary of ecosystem services is asked to pay and money is transferred to the providers. However, proposing such an economic instrument supports the view that land owners may act freely on their own property, even if it negatively affects other members of society. Conversely, if the right of all people to clean air or water was the priority, the land owner could be implicitly bound to care and provide. Under the Polluter Pays principle he could be obliged to stop or reduce pollution or else be held liable for it. Defining such rights and obligations is essentially a political and legal decision, reflecting perceptions of justice in the socio-cultural context. If rights and obligations are already defined (whether formally in legal terms or informally within culturally accepted norms - e.g. the duty to care or the right to water), then proposals for new instruments that disregard them are likely to face resistance and fail. On the other hand, if rights and obligations are undefined, the choice of economic principles and instruments effectively defines them. In this case, groups that benefit from the current lack of regulation may oppose the new instrument.

Moreover, **ethical aspects** may call for caution in the application of economics, particularly market-based instruments such as emission trading or habitat offsetting. Markets control access to goods and services by deciding how much they will cost. This means that people can only have what they can afford, as opposed to a system of equal distribution or a policy of access according to need not purchasing power. Moreover, many people intuitively reject the use of economic terminology in relation to nature, regarding beauty, wildness, sacredness, etc. as being outside the economic domain in the same way as love or friendship. Taking ethical consideration seriously can help to construct a broader set of values around nature and to ease such reservations, but it is wise to anticipate and understand possible opposition to economic approaches and to select instruments which are workable in a specific socio-cultural context.

Here are some situations or examples in which it might be inappropriate or impractical to pursue ecosystem service opportunities:



It is not always appropriate to reward ES provision! Laws or duty of care rules may already require ES provision. For instance, in order to prevent erosion and landslides it is often legally prohibited to cut trees in hilly areas, and many forms of extractive land and resource use are restricted or banned altogether within protected areas. In such cases it is neither appropriate nor legally feasible to pay people to stop doing what is illegal anyway. In other cases, there are no formal laws in place but an understanding and acceptance of ethical norms or standards: for instance, what constitutes good agricultural practice is recognised in many countries without being defined by regulations. Or, consider large-scale landholders who are already one of the wealthiest groups in the region. Should society still compensate them for sparing some of their land to help biodiversity conservation and ecosystem services provision?

It is not always appropriate to ask beneficiaries to contribute! Paying for ecosystem service benefits can be culturally unacceptable. No one expects to pay to breathe clean air or to rest in the shade of a tree, and in many socio-cultural contexts it would be considered wrong to have to pay to enjoy the beauty of a forest and the relaxing sound of the sea, or to collect mushrooms or herbs in a state-owned forest. On the other hand, moral considerations can work in favour of contributions from beneficiaries: for instance, when a poor local farmer or a cash-strapped government department effectively subsidises the provision of ecosystem services to richer urban populations or profit-making industries.

It is not always appropriate for ES degraders to compensate for damage! There is sometimes a thin line between one person's legitimate rights or freedom of action and other people's right not to be harmed by them. For instance, when a farmer cuts down trees on his own property and thereby harms downstream communities by negatively affecting water regulation, should he be made to compensate for the negative external effect or does he have the right to do what he wants on his own land? When pesticides boost production in a large agricultural plantation but also pollute the ground

water, should the owner be asked to compensate for the damage caused or is it more appropriate to ban the use of the pesticide? Such questions of rights and responsibilities cannot be solved by economic reasoning, but are subject to societal norms and perceptions of justice.

It is also possible that polluters who have already paid the fine for their actions may feel entitled to continue. Even if this generates further compensation for those who are affected, it undermines the objective of reducing the damage or stopping it altogether.



Example of the appropriateness of applying the Polluter Pays principle

In the ECO-BEST sites, most opportunities based on the Polluter Pays principle were quickly disregarded. In Thadee, addressing the impact of sand-mining companies on riverbank erosion was seen as too conflictive. In all three sites, introducing new liability schemes for activities on private land (e.g. pesticide use, construction, run-off from stables, and conversion to mono-cropping) seemed beyond the scope of the project. The only opportunity pursued in Pang-Ma-O, albeit on a voluntary basis, was to ask the agricultural bank to which the villagers were in debt to support community-based measures of forest conservation.

Should all innovative business opportunities be pursued? There are many reasons why potentially profitable innovations may not be suitable. For instance, paying for access to what is considered sacred land may not be an option for local communities. Profiting from bio-prospecting can be considered as bio-piracy if the benefits are not shared with traditional knowledge holders. Profitable wildlife tourism or the use of wetlands for waste water treatment may go beyond what is desirable from an ecological perspective.

How to go about Task 4 B

Our experience in applying the framework has shown that inappropriate or unfeasible opportunities (e.g. asking for payment for clean air, rewarding people for obeying the law, selling access to sacred places, etc.) will not in fact be considered. Nevertheless, the following questions serve as an additional safeguard, and they can also help to identify additional conditions or areas of support needed to successfully implement an opportunity. We suggest that you discuss them within your team and with key stakeholders:

- Will this opportunity generate net livelihood benefits for those concerned? Are there (undesired) side effects for other groups?
- Are possible sources of opposition understood and can they be dealt with?
- Is this opportunity likely to have desirable ecological consequences, considering all relevant aspects of biodiversity and ecosystem services?
- Is this opportunity compatible with the legal and institutional context?
- Is this opportunity appropriate according to ethical considerations and within the socio-cultural setting?
- Is there a risk of undermining existing conservation measures (e.g. informal community rules regulating resource use, traditional ways of appreciating nature) and if so, have the implications been considered?

The examples in the paragraphs above explain why appropriateness has to be taken seriously and these are crucial questions to consider. Based on your knowledge of the context, your intuition, and taking into account different stakeholder perspectives, your team ultimately has to judge what is or is not appropriate and decide whether a particular opportunity is worth pursuing. Bear in mind that although these processes are designed to get as close as possible to a 'win-win' situation, it is seldom that everyone is happy in all respects. Some level of understanding and compromise is generally required.

Task 4 C. Coming up with ideas for economic instruments

At the end of Task 4C you will have selected a (set of) potentially suitable economic instrument(s) that tap into the opportunities. You will have filled in the fourth column of Template 7.

What this task is about


At this point, suitable economic instruments can be selected. Table 3 gives an overview and explanations of widely-used economic instruments that have been applied in biodiversity conservation and which stimulate local community involvement and benefit. The framework depicted in Figure 2 shows that economic instruments directly build on the principles behind the opportunities as described in Task 4A. Their deployment often combines several of the economic principles, however. For instance, PES schemes combine contributions from beneficiaries (or in some cases from degraders) with an incentive mechanism for providers of ecosystem services, and there is usually a fund to channel and redistribute the money. Developing and promoting an ecological product often requires start-up financing in this way.

It is important to keep in mind that new economic instruments are typically most effective in combination with existing ones and also with non-economic measures. Most of the time, there are also several sustainability challenges within the same area, and a mixture of instruments is more likely to address them successfully than a single one. For instance, a voluntary scheme by which beneficiaries support ecological land management or conservation actions can improve on the minimum requirements already established by direct regulation (such as rules for land use within protected areas, limits to fertiliser use, legal restrictions on hunting or logging, etc.). It may provide additional bonuses for conservation activities in buffer zones or other conservation areas. Keep in mind that existing policies and instruments that assist conservation do not necessarily originate from environmental policies, but might stem from different sectorial policies, e.g. agriculture and forestry, energy, transport or trade policy.

Building on existing schemes can be effective, but does not always work!

In Thadee, there seemed to be an opportunity to connect the scheme to an existing agreement between NST municipal authority and Thadee sub-district (the upper watershed), by which the municipality granted free waste disposal (worth 200.000 Baht annually) in return for restoration measures. This was abandoned, however, since this scheme did not work effectively: the right to free waste disposal had become taken for granted while the restoration measures remained unclear and unmonitored. Moreover, local authorities did not respond well to the idea of improving the situation by defining clear actions, time lines, etc.





Education and information: Learning about and connecting with nature, or raising awareness about biodiversity and ecosystem service degradation, often encourage the acceptance of new policies, or increase participation in voluntary conservation and management measures. In the long run, true intrinsic appreciation of and connection with nature may be even more important to the success of conservation measures than economic incentives.

How to go about Task 4 C

Start out by looking at the overview of economic instruments in Table 3. The reference to the underlying principles helps you link instruments to the opportunities that you identified in Task 4A and checked for appropriateness in Task 4B. In addition, the table includes information on the suitability of different instruments for local management and policy. The Appendix D provides further examples from case studies where these instruments have been applied. The case studies should inspire and help your team to derive concrete ideas about what could work for you. Bear in mind, however, that devising appropriate economic instruments often requires considerable innovation, because of the unique features of each setting and case. Experiences in other areas are useful to know about but not often directly transferable. All of this should help you judge which economic instrument could work in your context and for your purposes, but a good understanding of economic concepts and instruments is required. It can be very helpful to discuss with someone experienced in implementing economic instruments for conservation.

Compatibility and synergies with existing policy measures must also be considered. Taking stock of existing policies was one aspect of the context analysis in [Step 2](#). It is useful to reconsider the context document in [Step 2](#) and see if it points to shortcomings, trade-offs and blind spots that have been overlooked in the design of current instruments.

Write your ideas for suitable economic instruments in the last column of Template 7. It can help at this point to keep several options in mind. These will be analysed in the next steps in order to clarify if and how they might work in practice before you decide on the best approach.

Selected references and further guidance for Step 4

Guidance on the selection of economic instruments:

The Guide on 'The Polluter Pays Principle' (Cordato 2010) provides an overview on how to use the principle in environmental policies ([Task 4A](#)).

The publication 'Incentive and Market-Based Mechanisms to Promote Sustainable Land Management' (CATIE 2012) presents an analytical framework and tool for how to use incentive and market-based mechanisms (IMBMs) to promote investments in sustainable land management practices (SLMPs) ([Task 4C](#)).

The report on 'Economic Instruments in Biodiversity-Related Multilateral Environmental Agreements' (UNEP 2004) provides an overview of economic instruments and explains their potential role for meeting policy goals in the context of the Convention on Biological Diversity, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and the Ramsar Convention ([Task 4C](#)).

Chapter 2 of the Millennium Ecosystem Assessment report 'Ecosystems and human well-being, Policy Responses, Findings of the Response' (Chambers & Toth 2005) presents a basic overview of the wide range of policy instruments and measures (including economic ones) to regulate human interaction with ecosystems ([Task 4C](#)).

UNEP (2009) has developed a Training Resource Manual on 'The Use of Economic Instruments for Environmental and Natural Resource Management' that provides detailed descriptions for understanding and selecting economic instruments, and can be used for training purposes ([Task 4C](#)).

Chapter 4 of the Conservation Finance Guide (CFA 2008) presents a description of various conservation finance mechanisms ([Task 4C](#)).

Table 3: Overview of economic instruments according to the four principles

Economic instrument	Steward Earns	Beneficiary Pays	Polluter Pays	Innovation	How it works	Suitability for local community involvement and benefit
User fees & surcharges	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Imposes fees or charges for the use or consumption of goods, services or activities associated with the natural environment. These may be used to generate revenue, recover costs and/or manage demand. If the aim is to generate income, all or some of the fees are retained and reinvested in conservation (or channelled to fund the people who manage the land, resources or facilities for which charges are being made).</p> <p>Common examples of user fees include:</p> <ul style="list-style-type: none"> Protected area entry fees Parking, waste disposal and sanitation fees Timber royalties Fishing, hunting and trophy fees Other resource-harvesting fees (firewood, medicinal herbs, wild plants, etc.) Bioprospecting fees Charges for the use of tourist facilities (climbing, hiking, camping, etc.) Restaurant, hotel and land concessions and rental fees. 	<p>Although local communities can in principle impose, collect and retain user fees, additional legal and administrative conditions are usually required. It is particularly important to know that:</p> <ul style="list-style-type: none"> Clear ownership or other management rights are usually required before user fees can be imposed While procedures for setting and collecting user fees can be determined via bye-laws or other local instruments, legal frameworks are often enshrined in national law Where a group of people (rather than an individual) is involved in collecting fees and using revenues, an agreed mechanism needs to be in place for collecting, holding and allocating the resulting income.
Payments for Ecosystem Services (PES)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>Landholders or resource managers are rewarded or compensated for managing land and resources in a way that generates specified ecosystem services. Payments are made by the beneficiaries of ecosystem services, and may be provided in cash or in kind (e.g. via monetary payments, contributions of infrastructure, technical training, access to loans, etc.).</p> <p>PES are most frequently made to regulating services such as water quality and supply, landscape enhancement, biodiversity conservation and disaster risk reduction.</p>	<p>PES can provide an effective way of channelling income to the community and generating conservation incentives for local land and resource users. However, many conditions are required for successful, effective and equitable PES schemes, including:</p> <ul style="list-style-type: none"> Clear and enforceable property rights Negotiated, binding agreements Monitoring of compliance and delivery Transparent mechanisms for collecting, administering and distributing funds.
Carbon payments	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<p>A special form of PES which involves the sale of certified emissions reductions (carbon credits), generated by undertaking land and resource uses which sequester carbon, or which avoid or reduce carbon emissions.</p>	<p>In principle, carbon payments can easily be paid at local community level. Reducing Emissions from Deforestation and Forest Degradation (REDD+) and other voluntary forest carbon sales often explicitly build in community and biodiversity objectives.</p> <p>Developing verified schemes and selling the resulting offsets is technically and administratively complex. It is often difficult for communities to access carbon markets without outside technical and financial assistance.</p>
Direct payment (e.g. conservation concessions & contracts, compensation etc.)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>People are provided with performance-based payments for undertaking agreed conservation actions. These payments can occur within PES schemes, but they are often made by international agencies, governments, companies or NGOs and not necessarily by the beneficiaries of the ecosystem services. They typically focus on compensating the opportunity costs of foregoing a particular land or resource use in order to secure conservation goals.</p>	<p>Direct payments most commonly go to local communities in high biodiversity areas.</p> <p>Some direct payment schemes have proved controversial, when they involve international conservation agencies paying people in developing countries to give up rights of access or use, or cease certain livelihood activities.</p>

Economic instrument	Steward Earns	Beneficiary Pays	Polluter Pays	Innovation	How it works	Suitability for local community involvement and benefit
Insurance schemes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Insurance schemes compensate local people for cost or damages related to conservation (e.g. crops or livestock eaten by wildlife).	Insurance schemes can work well at local level, often in combination with other measures.
Voluntary donations and corporate sponsorship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Individuals or companies interested in conservation, or who benefit from ecosystem services, or accept that they play a role in the degradation of ecosystems, voluntarily sponsor activities that enhance biodiversity or channel funds to local communities.	These arrangements often specifically target communities in high biodiversity areas, or are connected with the provision of a particular ecosystem service (e.g. a village where eco-tourism happens, or near a protected area, or within a territory where mining is carried out).
Taxes		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Activities that use ecosystem services or run the risk of harming biodiversity and ecosystem services are subject to 'ecological' tax or to relatively higher tax rates.	Taxes can effectively target small-scale producers or consumers to meet both livelihood and conservation objectives. The key question is whether community or other local authorities have the political power to decide or to influence tax measures.
Tax reliefs, subsidies	<input checked="" type="checkbox"/>				The government supports products, technologies, investments and practices that minimise or prevent environmental degradation, or contribute towards conservation goals by relatively lower tax rates, tax exemptions, or payments.	Tax reliefs and subsidies can be granted to small-scale producers and consumers, combining livelihood and conservation objectives. Subsidies or tax reliefs are often decided at national or state level, and may be outside the scope of local projects.
Ecological fiscal transfers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Redistribute public revenue according to certain criteria, including conservation measures. Payments compensate for the costs of conservation measures (including opportunity costs) and reward the provision of public benefits.	By definition, fiscal transfers redistribute revenues within or between public sector agencies. Their main application at local level is to fund local government administration or line agencies, helping lower-tier governments with the cost of providing nature-related public goods and services. They usually target regions which contain an especially large protected area, or which host biodiversity of exceptional significance or provide particularly valuable ecosystem services to other sectors and parts of the country.
Benefit/revenue-sharing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			A flat fee or percentage of public revenues or private income streams generated from conservation products and services are shared with local residents. The intention is to recognise that local people play a key role in conserving the environment and enabling the revenue streams that are generated by it, and to provide them with positive incentives and tangible benefits to continue to do so.	Benefit and revenue-sharing arrangements commonly targeted at communities in areas of high biodiversity (e.g. in or around a Protected Area). Sometimes payments are made directly to households or individuals as cash dividends, but more often funding is given to local authorities or village committees to spend on development activities.
Prizes, awards & other recognition	<input checked="" type="checkbox"/>				Prizes, awards or other honours are used as a way of recognising and rewarding individuals, groups or villages/towns which display particularly good environmental practices.	Prizes and awards are often given to individuals, businesses or local groups.
Fines, penalties & legal liabilities		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		People who overuse, harm, or pollute the environment are legally obliged to pay for the damage they cause. The aim is to motivate individuals and companies to avoid or minimise environmental impacts or, if damage is already done, to oblige the responsible party legally and financially to compensate for it.	Effective local enforcement depends on the collaboration of relevant authorities and general compatibility with the law.

Economic instrument	Steward Earns	Beneficiary Pays	Polluter Pays	Innovation	How it works	Suitability for local community involvement and benefit
Tradeable quotas, rights & permits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Sets overall or individual limits on the use, conversion or pollution of the environment. Resource users, land developers or polluters who wish to exceed their quota or right must buy permits from others. The sellers of these permits are those who are not using their own allocation, or who have gained credits from conserving the resource or ecosystem service elsewhere.	Although the users of the quotas, rights and permits are usually larger-scale industries, in principle there is potential for local communities to trade their allocated permits or quota, or to accrue credits through conservation activities.
Auctions & tenders	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Auctions are a mechanism to decide which landowners receive a contract that pays them to change land use and carry out landscape conservation measures on their land. So several landowners make competing propositions or bids for the price they ask to implement conservation measures and a buyer (government or private) will decide which one to accept (usually lowest price for comparable measures).	These mechanisms have been applied mainly in developed countries, such as the US, Australia, or Netherlands. An advantage is that local government agencies become clear information about the cost to achieving the desired outcomes.
Biodiversity offsets, habitat/mitigation banking	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Companies whose activities damage biodiversity or destroy natural habitats (e.g. agriculture, forestry, oil and gas, mining, transport or construction) invest in biodiversity conservation elsewhere in order to balance or compensate for damage. Biodiversity offsets are usually pursued as a final step after on-site environmental harm has been reduced and alleviated as much as possible. When a conservation bank (or 'mitigation banking') is established, a landowner who acts to conserve the natural habitat is seen as making a deposit in the bank and receives credits. Another landowner who wants to develop the habitat or otherwise impact on it must purchase a credit from the bank.	Local suitability depends on responsible authorities, but schemes are often determined by national law. There are often high transaction costs in setting up, monitoring and managing the schemes.
Debt-for-nature swaps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		A portion of debt is forgiven in exchange for environmental conservation measures.	These have been used at international level when a developed country writes off a developing nation's foreign debt. At local level, the challenge is to convince banks as debt holders to participate.
Deposits & performance bonds			<input checked="" type="checkbox"/>		Individuals or companies undertaking activities which threaten the environment or require some form of mitigation, remediation or management plan are required to make a (usually refundable) deposit of funds against the expenditure involved.	Although these have limited application to most community-level activities, they serve to safeguard local environmental quality.
Green products & markets (alternative income & employment sources)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	Income streams are developed from products based on the sustainable use of land and natural resources, which use environmentally-friendly production processes, or which replace environmentally-damaging sources of income and employment. This may involve reforming existing products and markets or establishing new ones.	Widely used as incentives and sustainable income sources for communities in areas of high biodiversity. It is worth noting that external assistance is often required to assist communities in identifying and accessing new products and markets, sourcing credit and investment capital, and developing commercially viable business plans.

Economic instrument	Steward Earns	Beneficiary Pays	Polluter Pays	Innovation	How it works	Suitability for local community involvement and benefit
					Common examples include: <ul style="list-style-type: none"> • Wild nature-based products (e.g. honey, fruits, natural cosmetics, handicrafts) • Domestication of wild species (e.g. flowers, medicinal plants, commercial species) • Eco-tourism. 	
Certification & eco-labelling	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	Eco-labelling and certification are voluntary trademarks awarded to products or services deemed to be environmentally sustainable. The idea is to enable them to charge a price premium and reach new markets – thus providing an incentive for businesses to operate in a way compatible with biodiversity conservation. Common examples include: <ul style="list-style-type: none"> • Fisheries • Timber • Eco-tourism • Organic agriculture. 	Although in principle eco-labelling and certification schemes enable local communities to reach new markets and profits, the high transactions costs of complying with particular standards or creating a ‘brand’ can be prohibitive. Certification based on local production can be an option for smaller-scale local initiatives.
Credit & loans	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	Credit and loans or preferential terms and conditions are explicitly granted to green products and enterprises, or may stipulate certain environmental requirements in their terms of agreement.	Small-scale loans and microcredit, in particular, have particular application for local communities. They can provide an important mechanism for accessing investment funds and an alternative to high-interest local lending institutions. They are useful to marginal groups who lack the collateral or other conditions required for conventional loans.
Green investment facilities (conservation bonds, green investment funds, etc.)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	These are larger-scale sources of credit and investment for green or biodiversity-based enterprises. While most of these facilities operate on a commercial basis, some provide funding on preferential or concessional terms. Bonds for instance are tradable capital market instruments issued by sovereign governments, states, municipalities or corporate entities to raise upfront funds, backed up by the promise to repay the investor the value of the bond plus periodic interest payments.	In principle these can serve to fund local community enterprises or sustainable farming. In practice, the minimum amount of capital or credit offered may be too large for small-scale or microenterprises. They are often used to fund joint ventures or partnerships between larger (international) companies and local communities, or to promote externally-run businesses which operate fair trade or other ethical practices, or which explicitly aim to involve and benefit local communities.
Land/resource management & usage rights	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	The allocation of clear, secure and enforceable use and/or management rights is often a prerequisite for the implementation of economic instruments.	These rights are a vital precondition of local communities becoming engaged in conservation activities or enterprises, in order to safeguard their interests and ensure that they engage on a fair and equitable basis.
Environmental training & education programmes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Training and education is often a prerequisite for the implementation of economic instruments. For example, may enable entrepreneurs and producers to take up new practices or technologies, trigger behavioural change, or increase consumers’ awareness of the range of options open to them and the positive benefits of green products and practices.	These almost always complement and reinforce economic instruments. They are often required in order to enable and empower producers, consumers and investors to take up new activities, opportunities and practices.

Sources: CATIE (2012), UNEP (2004), UNEP (2009), CFA (2008)

Template 7: Identifying ecosystem service opportunities and suitable economic instruments (examples from Pang-Ma-O)

What change is necessary in order to improve the situation?	Which ecosystem service opportunities arise?	Is the ES opportunity appropriate to pursue?	Which economic instruments could be suitable? (describe all possible options at this point)
<p>Desirable change: Maintenance or increase of agro-forestry and forest ecosystem management</p>	<p>Task 4A</p> <p>Steward Earns: who could be rewarded, why, and how?</p> <ul style="list-style-type: none"> Payments to agro-forestry farmers for ecosystem maintenance and/or tree-planting <p>Beneficiary Pays: who could contribute, and how?</p> <ul style="list-style-type: none"> Downstream beneficiaries of climate and hydrological regulation could contribute to ecosystem protection National conservation programmes interested in local biodiversity 	<p>Task 4B</p> <p>Apparently YES, but make sure that design does not undermine current conservation motives/action</p> <p>YES</p>	<p>Task 4C</p> <p>Debt-for-Nature swap where a bank makes an agreement with debtors to relieve debts if they commit to conservation measures (community forest management, turtle protection, agro-forestry)</p> <ul style="list-style-type: none"> CSR activity for the bank? as business model? <p>(perhaps debt could be sold off to beneficiaries)</p> <p>PES scheme for hydrological services connecting down-stream beneficiaries with upstream agro-forestry farmers.</p> <p>Eco-labelling of agro-forestry products (green tea, coffee) and access to new markets could create additional benefits.</p> <p>Eco-tourism: activities for studying turtles, medicinal plants, agro-forestry management</p> <p>Conservation rewards for turtle protection or protection of medicinal plants (e.g. by government, business, or NGOs)</p>
	<p>Task 4A</p> <p>Polluter Pays: who should be held liable and how?</p> <ul style="list-style-type: none"> Farmers and businessmen who build houses could be asked to compensate. <p>Innovation: new ways to benefit people</p> <ul style="list-style-type: none"> Additional income to agro-forestry farmers through product certification and access to new markets Nature-based tourism Educational programmes for studying turtles and medicinal plants 	<p>NO: on private land farmers currently have free choice of land use, and businessmen may buy land and construct houses</p> <p>YES</p>	



Communication challenges and tips for Stage 2


Communicate the project's aims and visions using terminology that people understand!

Communication of the project's goals is essential. In the first year of ECO-BEST even the workshop moderators found it hard to understand the goals of the project and the concepts behind it. In particular, the more technical terms such as economic instruments, ecosystem services, TEEB, policy mechanisms, etc., will not be familiar to many stakeholders, and may lead to misunderstanding or misinterpretation. It will help to find easy terminology and give examples and explanations. In ECO-BEST, we developed the following slide to communicate the general idea behind the approach and we used case study examples to illustrate what economic instruments are and how they can help achieve conservation and livelihood goals.

In simple terms...

We have a 'toolbox' to help nature conservation and communities.

- What needs to be fixed here?
(Which ecosystem issue should we tackle?)
- Which (economic) tool or instrument will do that best?



We want to answer these questions together with you!

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Use visual aids!

Visual aids are very important to inspire people, help them picture changes in the landscape and believe in innovative solutions. In Bu Phram, a constructed picture of the area after ecological restoration showing wildlife tourists made the vision more real.

Vision of the Bu Pram landscape in 2023



Videos from camera traps were very successful in convincing people that wildlife and land are interrelated. Community leaders were invited to visit a wildlife tourism site where international consultants presented success stories of wildlife tourism in other countries. In Thadee, a map of the entire river basin and hydrological models for possible future scenarios helped people understand the bigger picture (many only knew their local area). Success stories from other countries and visits to a Laos PES site made key stakeholders want to establish such a scheme, although it was also felt that 'Thailand is very different'.

Communicate why you have chosen the site!

You need a good message that conveys why you have chosen this site. In Bu Phram, it was the wide interest (e.g. from UNESCO) in improving the ecological corridor. In Thadee, the fact that the province was known for its strong political engagement, good education, and stable social identity as a 2000 year-old kingdom made it apt for trying out innovative solutions.

Communicate the participative approach!

In Thailand, local authorities and stakeholders are accustomed to regulations and authorities telling them what to do, and to development or conservation projects that offer money in return for specific actions. This 'top-down' culture posed a challenge to communicating our participatory approach and the team had to repeat over and over that this project seeks to enable a process by which stakeholders eventually set up a new mechanism themselves and make it work on a sustainable basis.

Build trust and positive thinking!

In Bu Phram, a major challenge to reaching buy-in for innovative stakeholder-driven solutions was the need to change the general attitude from fear of the National Park taking back the land to a positive vision based on collaboration and trust between park authorities and communities. In particular, farmers with land close to the forest were afraid that if vegetation grew back they would lose their usage rights. On the other hand, National Park Department officials traditionally relied on law enforcement and expected that changes had to come from higher level. Sometimes it was difficult to convince national park staff to participate in meetings where they would feel uncomfortable.

Avoid false expectations!

Expectation management is the key to a positive lasting relationship of trust and buy-in from stakeholders. It is of course important to raise interest by highlighting the potential benefits for people from the implementation of economic instruments. On the other hand, false promises should not be made or high hopes generated before properly assessing what is both useful and feasible. This would risk disappointing people and undermining trust, and might have negative consequences for future collaboration. In Bu Phram local communities initially got the wrong idea that the project would help them to obtain clear land titles. It took a lot of explaining by an lawyer who had recently moved to the village before people understood that the project could not solve the title issue but would nevertheless be useful to them.

Take a broad perspective on 'why nature is important'!

Don't try to force people to think in terms of academic concepts. Local people will have a profound knowledge of the role of nature, including its benefits to their well-being and livelihoods, but they are unlikely to be familiar with the concept of 'ecosystem services'. It is a good idea to start with the broad question of why local nature and ecosystems are important and to whom, and then to narrow down and prioritise the aspects that seem particularly relevant, using culturally meaningful terms. In Thadee, the TEEB icons for ecosystem services sidetracked and confused people, since some of the symbols meant nothing to them or suggested completely different things from what the designer intended.

Stage 3

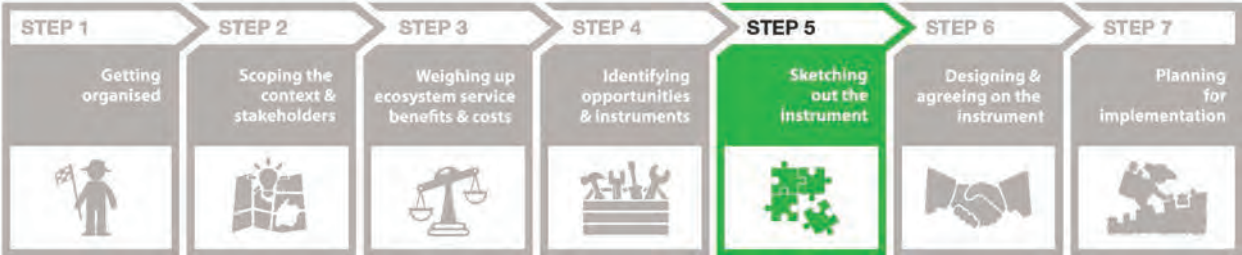
Designing and planning the instrument

With the short-list of potentially suitable economic instruments at hand, this part of the guidelines supports the participative design and planning process of the economic instrument(s), clarifying what exactly is to be implemented, how, and by whom. The guidance in Stage 3 is in some ways more general than the guidance in Stage 2. The reason is twofold:

- i) the context of the local situation will be different for each application;
- ii) the type of instruments selected at the end of Stage 2 can take many forms.

Following the tasks in the step-wise process serves as a general road map, but we also provide links to other resources that may offer more specific guidance on a particular economic instrument.

Step 5: Sketching out the instrument



The team now specifies the structure and main components of the selected economic instrument(s). This involves determining the key actors, their roles and motivations, and clarifying the broader requirements and supporting conditions and analyses. The expected outputs are:

- The roles of key actors in the economic instrument are defined along with the conditions and constraints of their participation; and possible impacts on their livelihoods, environment and social situation are screened.
- Economic feasibility and cost and benefit sharing needs are assessed, and legal, institutional and other supporting conditions for the implementation of the economic instrument are understood.
- If required, additional information is provided or studies are made or commissioned.

You now need to look in more detail at the list of suitable instruments from the analysis in **Task 4C**. There is no fixed recipe for how and when to conduct a prioritisation. You can start working either on the instrument that seems most promising or on a sensible combination of two or more. Or, if several options look promising, you can analyse two or more in parallel and then decide which one works best. In other words, for different components of instruments **Tasks 5A–C** can be performed either together (for instance, a multi-faceted PES scheme or different activities under the umbrella of a local co-development plan) or separately. By the end of **Step 5** you must be clear about which instrument(s) or combined arrangement you want to pursue and in which order.

It makes sense to pursue different instruments separately or as a package!

In Pang-Ma-O, the idea of a debt-for-nature swap was pursued with the Bank of Agriculture and Cooperatives (BAAC), to which villagers were in debt. Later, as a separate endeavour, the project started to assess whether certification of agro-forestry and developing new markets for organic tea and coffee might create additional income for villagers, and how ecosystem services beneficiaries (e.g. downstream agriculture, tap water authority, tourism industry and wealthy owners of newly-built residential houses) could support community forest management.

In Bu Phram, an umbrella agreement on a co-management scheme between NP authorities and local communities was a priority, to provide a legal and institutional basis. More specific measures are already sketched out in the agreement, such as payments for letting palm trees grow on agricultural land and for developing eco-tourism, as well as cost and benefit sharing agreements.



Task 5 A. Specifying key actors and their roles, motivations, and constraints

At the end of Task 5A you will have specified the key actors in the economic instrument, clarified what will motivate them to participate, and screened possible impacts or unintended consequences of the instrument for them. You will have filled out Template 8.

What this task is about

You will now need to specify in detail how the instrument will work in practice. First, identify the **key actors** that need to be part of the arrangement and clarify each one's **role in the new arrangement** brought about by the economic instrument. Important actors may be the providers, beneficiaries or degraders identified in [Step 4](#), but also intermediaries, supporting institutions, political figures, etc. You could seek support from intermediaries between providers and beneficiaries, financial organisations, well-known local personalities, international organisations helping build local resources, among others. In addition to engaging active supporters, it may be just as important to procure the passive consent or acceptance of those who initially oppose the initiative.

You should understand the **motives of relevant actors** in order to ensure that they agree to participate. For instance, some may need additional information to convince them of how the provision of ecosystem services benefits them, or of the income opportunities or other benefits of the economic instrument. In some instances farmers are not sufficiently aware that they could improve the productivity of their own land, for instance by using crop rotation or fewer pesticides. Communicating the benefits of more sustainable practices can help them realise they already have an incentive to change. Identifying and setting in place the appropriate conditions and incentives for actors to participate is a central challenge of the instrument design. Security of access rights for farmers, public recognition of a company's contributions or improved relationships between stakeholders can be important non-financial motives, as well as traditions, beliefs, social norms, or a sense of justice.

ES providers: Incentives for ES providers will usually include some form of support or reward for (additional) provision in line with the Steward Earns principle. The main challenge will be to determine what type of reward would lead to the desired effect (i.e. biodiversity conservation and greater provision of ecosystem services). If monetary, the amount might be based on the direct costs of a more conservation-friendly management or on opportunity costs. However, it is often difficult to verify such costs and full compensation is not always feasible or necessary. More importantly, you need to analyse the conditions under which ES providers would agree to adopt conservation instruments. This does not stop at comparing the income and expenditure of different land management options. While the prospect of money often increases willingness – as well as actual ability – to adopt a particular practice or technology, there is a wide variety of additional factors: for example, the timing, stability and certainty

Consider the different motivations of land holders!

In Thadee, many farmers interested in participating and implementing ecological restoration measures on their land were not all that bothered about financial compensation. To a large extent they had a strong and long-lasting connection to their land and intrinsic spiritual motives (e.g. to give back to nature). Their main aim was to achieve a long-term vision, recognition for their ecological actions and some technical or in-kind support (e.g. seedlings for native trees).

In contrast, farmers in Bu Phram felt little intrinsic motivation for ecological landscape development since most of them had only been in the area for 30–40 years. Their main need was to feel secure about living in the area and working the land, and to have stable income opportunities.

of earnings; the risk involved; the technical expertise and the production inputs required; the alternative earnings and opportunities that are diminished or foregone; the type of product or output that is generated; and the actors' own values, tastes and aspirations. Ultimately, determining the appropriate rewards will be a matter for discussion and negotiation.

Land users often have an **intrinsic motivation** to protect nature and natural resources. This reflects their environmental values and connection with nature, or relates to existing (informal) community norms governing the sustainable use of natural resources. Depending on the context and the design of policy instruments, economic framing and monetary incentives run the risk of eroding intrinsic motivation (for instance, if financial motives become overriding,



or if external regulations supplant informal community rules). In other cases intrinsic motivation can be enhanced, for instance when economic incentives show that conservation in the area is appreciated by outsiders. In selecting and designing effective economic instruments it is therefore essential to understand existing motives for safeguarding nature and ecosystem services, and to carefully assess how economic instruments are likely to affect them.

ES beneficiaries: One of the biggest challenges is to motivate ES beneficiaries to contribute to ecosystem service provision. Credible information on the benefits of ecosystem services and the importance of maintaining them is crucial if they are to pay for what has so far been free. On top of that, additional motivation and arguments may be necessary. If the beneficiary is a company, it may be interested in sustainable access to resources and ecosystem services, in a positive public image, in a good relationship with the local population, or even in contributing to the common good within and beyond its activities. Once beneficiaries show a general interest and openness to dialogue and learning, there is a good chance of achieving voluntary contributions. In other cases, regulatory action can force beneficiaries to contribute fairly to the provision of the services they use. For instruments such as user charges or consumption-based taxes, government authorities usually fix and enforce the contribution. As in the case of rewards, the appropriate amount to pay is another issue. Again, while calculating the received benefits may provide a useful benchmark, much depends on the negotiation processes. It can help – at least to begin with – to suggest non-financial contributions (e.g. in-kind donations, manpower, training, legal advice) in order to achieve general buy-in from beneficiaries.

ES degraders: It is similarly challenging to motivate ES degraders to voluntarily help limit pollution or compensate for damage. Revealing how harm to biodiversity and ecosystem services affects the well-being of other stakeholders can be a powerful message when degraders are not fully aware of the effects of their actions. Engaging in dialogue, relationship-building, new public/private partnerships and negotiating voluntary agreements are always helpful. However, experience has shown that regulatory tools are often needed to limit degradation, hence the application of taxes, liability and offsetting requirements, fines, or restricted permits. It is even more difficult for local initiatives to deal with ES degraders when regulatory action and its enforcement is decided at a higher level (e.g. if it is a matter of national law).

Be creative and flexible when engaging beneficiaries!

In Thadee, ECO-BEST found it very challenging to get ecosystem service beneficiaries to contribute. The NST Municipal Tap Water Unit did not agree to compulsory 'ecological fees' for fear of political repercussions. As a compromise, a voluntary fee was included in all tap water bills. The project helped prepare television and radio spots to raise awareness among water users. The newly established association supports the municipality with the collection of voluntary ecological fees from the local enterprises that confirmed willingness to pay.

In Bu Phram, several ideas for making small contributions were thought of and seen as first steps which could be developed later. In recognition of contributors, stickers were given to passing car drivers and companies in the area. Lan palm handicraft association agreed to buy only from farmers who let native trees grow on their land and pay 3 Baht more per leaf. The owner of the hotel and shopping complex sponsored an exhibition of Lan products and production processes, provided national park information in his facilities, and agreed to grow native trees on part of his land. Hotels, restaurants, tourism companies and the chamber of commerce provided a gateway to identifying further beneficiaries.



Avoid greenwashing!

In Bu Phram, a key actor was the owner of a newly constructed shopping, hotel and recreation complex across the road from Thap Lan National Park headquarters. He was simultaneously a provider (indirectly, as chairman of the park advisory committee and sponsor of conservation and community events), beneficiary (mainly from the scenery around his tourism complex), and degrader (converting large areas of land for building and cattle breeding and contaminating the creek). While he professed interest in the project and agreed to support it, his way of doing so (by staging exhibitions in his complex and through networking) could also be seen as self-promotion through green marketing. The strategy of the project was to engage him more and achieve greater commitment step by step.



Sustainable or green business opportunities can often be based on creating greater demand for products or activities already familiar to local people. Communities or individuals, as potential entrepreneurs, will need to be



made aware of opportunities to upscale. They will often require external guidance and expertise in setting up and running a business, identifying new markets, joining certification schemes, and – in particular – finding start-up financing. In these cases, banks or micro-credit providers need to be involved who would provide financing, or NGOs who manage certification schemes.

In addition to the actors' motives, it is important to understand **current constraints** that might hinder their participation or even create opposition. For instance, fear of political risk can be an important demotivating factor; an unclear land title situation can affect commitment. These constraints need to be addressed if the instrument is to have a chance of success.

Last but not least, you should try to assess **possible social, environmental and livelihood impacts of the economic instrument on different groups**. While a more detailed analysis of these impacts will be carried out later (alongside the feasibility assessment in [Task 6B](#)), it is important at this stage to get a broad idea of the effect of the economic instrument on different people. Your screening should cover direct and intended impacts (e.g. in the PES scheme, who will have to modify their land use and forest harvesting practices?) as well as possible secondary and/or unintended consequences. You need to consider the consequences for the primary actors (e.g. the impact on women's income of reducing agricultural space, the effect of changes in farm production on household food supplies, and whether these changes will result in pressure on other ecologically sensitive areas), and also for other groups in the community. Will farm labourers lose their jobs? How will ethnic minorities be affected by losing their access to the forest? Will the new technologies and enterprises generate waste and/or pollution? This kind of impact screening can help you to flag any important issues (inequities, potential points of conflict, or additional co-benefits) that need to be addressed in the design of the instrument. It should also assist in identifying needs for additional measures to mitigate negative impacts and/or opportunities to maximise positive ones.

How to go about Task 5 A

Once you have specified the main actors, we recommend discussing with them their reasons and motivations. What is currently preventing them from performing the desired activities? What might motivate them to do so? It is important that this motivation is not necessarily (or at least not only) financial. Looking back at the second column of template 7 ([Task 4A](#)) can help identify which actions or activities are required of the actor in order to make the new economic instrument a success.

- Will the actor make payments or other contributions?
- Will the actor be a recipient of rewards in return for (additional) conservation activity?
- Will the actor be an intermediary or supporter in the economic instrument?
- Which other relevant role does he or she have in the new arrangement?
- What are the intended (and possible unintended) impacts of the new arrangement on the actor?
- Might special measures need to be in place to mitigate any negative impacts and/or maximise positive ones?

Template 8 can then be used to summarise the role of key actors in the economic instrument and to understand the challenges of achieving their buy-in. It is important that this table does not only include the primary or direct participants. It should also include other affected parties who do not have a direct implementation role, but whose livelihoods may be impacted. It is also important to identify what you do not yet know and decide if you need additional information on the motives of relevant actors (the final column of Template 8). If so, carry out additional supportive studies or analyses within [Task 5C](#).



Academic work on economic instruments frequently refers to 'buyers' and 'sellers' in ecosystem service 'markets'. In practice it is very rare that ecosystem services are actually sold and bought or even traded as market commodities, and such wording may confuse people or even cause them to reject the idea. Terms such as 'beneficiaries' who 'support' the 'providers' of ecosystem services can be more useful and also communicate much better the fact that support or contributions from beneficiaries may not necessarily be in the form of money; i.e. that providers can be motivated by other factors such as recognition or technical support.

Template 8: Key actors and their role in the economic instrument, the possible livelihood impacts and measures (selected examples from Bu Phram)

Proposed change (copy from first column of template 7)								
Convert mono-cash crop cultivations to grassland with natural vegetation (Lan palm trees) and salt licks and ponds for wildlife.								
Economic instrument to achieve this change (take a promising instrument from the last column of template 7 that you want to further develop)								
Co-management agreement with a 'Conservation and Ecological Restoration Fund' to compensate farmers and development of eco-tourism and nature-based products								
Key actor	What is the role of this actor in the economic instrument?	What specific actions or behaviour of this actor are required?	What does the actor need in order to take this role? • information on... • support with... • access to... etc.	What are the constraints?	What are the intended social, environmental & livelihood effects of the instrument for the actor?	What unintended social, environmental & livelihood consequences might arise?	Is there a need to consider special measures to mitigate effects or manage / target impacts?	What do you not know yet and have to study further?
Thap Lan National Park management and PAC	<ul style="list-style-type: none"> Legalize the instrument mechanism and its implementation. Building trusts with the Bu Phram SAO and individual land users. Promote the Fund to the public. Coordinate the Fund operation and monitoring. 	<ul style="list-style-type: none"> Sign the co-management agreement. Publicize the agreement to concerned DNP authorities. Organize PAC meeting as required. 	<ul style="list-style-type: none"> Commitment of farmers joining the scheme with agreed actions. Green lights from the DNP superiors. Confidence that the scheme is in accordance with the law. 	<ul style="list-style-type: none"> Fears to be pioneering such a scheme for buffer zone management. No experience with bottom up approaches. 	<ul style="list-style-type: none"> Reduced conflicts with farmers and local authority on land use and tenure. Improved ecological status of buffer zone (wildlife corridor). Potential role model for other Thai NPs. Follow UNESCO WH Committee recommendations. 	<ul style="list-style-type: none"> Increasing risk of human-wildlife conflicts. New migration of workforce into the area with pressure on land. 	<ul style="list-style-type: none"> Compensation for wildlife damage to be included in the Fund rules. Capacity development on community-based tourism. 	<ul style="list-style-type: none"> Legal study to confirm if and how Article 19 of DNP legislation can enable the scheme.
Bu Phram Subdistrict Administration (SAO)	<ul style="list-style-type: none"> Communication of scheme to individual farmers. Coordinating allocation of compensation payments and monitoring. 	<ul style="list-style-type: none"> Sign the co-management agreement. Publicize the agreement. Monitor farming activities and enforce no-hunting rule. 	<ul style="list-style-type: none"> Official notification of the co-management plan and benefit sharing from DNP. Support with community-based ecotourism management. 	<ul style="list-style-type: none"> Administration team has limited experiences and vision of opportunities for wildlife tourism. 	<ul style="list-style-type: none"> Bu Phram could become leading wildlife tourism destination supported by government investment (complementary to reconstruction of highway 304 to pre-serve WHS status). 	<ul style="list-style-type: none"> Shift of economic activities from agriculture to tourism will increase water consumption and waste (both solid and water). 	<ul style="list-style-type: none"> Capacity building and learning from good practice in other wildlife tourism destinations. 	<ul style="list-style-type: none"> Understand implications for Bu Phram SAO budget allocation system.
Farmers who switch from mono-cash crop to wildlife friendly habitat. 2) Abstain from using chemical fertilizer and let Lan tree grow (but continue to harvest crops).	<ul style="list-style-type: none"> Providers for wildlife suitable habitat Potentially provider of eco-tourism services 	<ul style="list-style-type: none"> Change land use and allow natural vegetation grow (incl. no more leasing of land for tapioca or eucalyptus plantation) For 1), allow wildlife watching spots or tower managed grassland, saltlick, and ponds on suitable sites 	<ul style="list-style-type: none"> Written confirmation that land use rights are maintained even when ecosystem is restored. 	<ul style="list-style-type: none"> Fear that incrementally will lose rights to the land. Need for stable income. 	<ul style="list-style-type: none"> Increase or at least no loss in farmer income. Reduce risk of income losses from crop price fluctuations and disease. 	<ul style="list-style-type: none"> Increasing risk of human-wildlife conflicts. Other villagers might intrude for wildlife hunting. 	<ul style="list-style-type: none"> Compensation for wildlife damage to be included in the Fund rules. Check points for wildlife that is co-managed by villagers and the park. 	<ul style="list-style-type: none"> Understand needs of farmers to agree to land use change (financial compensation, technical assistance, etc.)



Task 5 B. Clarifying necessary and supporting conditions

At the end of Task 5B you will have specified the economic feasibility, defined cost and benefit sharing needs, and identified other necessary and supporting conditions for the economic instrument to work effectively. You will have filled out Template 9.

What this task is about

Economic feasibility

If the economic instrument is to work sustainably, it must be economically feasible. You must think about the **financial inflows and costs** involved as well as the **financial risks**. So you first need to clarify which tangible revenues, income or other proceeds the selected instrument should generate and how likely it is to do so. You need to check:

1. All sources of inflow and the expected level of inflow (e.g. through payments from ES beneficiaries, new business opportunities, access to microcredit or subsidies, interest from endowment capital)
2. The variability (i.e. riskiness) of each inflow, by determining i) the factors that influence variability (e.g. market prices, demand for a product, interest rates, weather conditions), ii) the direction and degree to which they do so, and iii) how you expect those factors to develop in the future (e.g. possible price increases, new bank interest rates).

Then you need to determine the costs involved in setting up and running the instrument, including all financial payments to ES providers. When you compare expected inflows and costs, keep in mind that the instrument should not only cover transaction costs but also generate and re-allocate additional (financial) benefits to support ecological and/or social purposes. So you have to identify:

1. All types of costs and the expected amount (e.g. payments to ES providers, costs of running an office or employing people to manage and monitor the instrument, obtaining permits, buying materials)
2. The variability of each cost, by determining i) the factors that drive it (e.g. permits required, paperwork), ii) the degree to which those factors influence the level of cost, and iii) how you expect those factors to develop in the future (e.g. salary increases, costs of materials).

In addition to these calculations, you should also check if there are any other options that could achieve the same results with less effort and expense (i.e. whether the instrument is cost-effective). Determining income streams, transaction costs, or cost-effectiveness may require additional supporting analyses (see [Task 5C](#)).

Cost and benefit sharing

Once you have identified the cost streams and the new and additional benefits you can consider how best to cover the costs and distribute the benefits. It may be desirable – or necessary – to ensure that particular groups or sectors are especially targeted in the allocation (or at least not left out). Failing to deal with issues of different stakeholder costs and benefits may lead to later conflict, or even ultimately undermine the success and sustainability of the instrument. In some cases, the distribution will be straightforward. For example, if the instrument is an agricultural subsidy, it is obviously the farmer who should receive it and the government who will fund it. In other instances the arrangements are not so obvious, and will require negotiation between the various parties involved. This often happens when property rights and ownership are unclear, or the instrument is being implemented by a group or community: e.g. if eco-tourism revenue is to be spent on improving village infrastructure; if a group of land users jointly manage an area for which PES payments are being made; or if a forest made available for bio-prospecting is owned communally. Finally, there may be political, ethical or distributional reasons for targeting particular groups: e.g. to benefit low earners and safeguard their interests; to recognise the traditional knowledge and intellectual property rights of ethnic minorities; or to ensure that most of the expenses are paid by corporate sector partners and the richer farmers.

Legal and institutional requirements

Successful implementation also depends on legal and institutional requirements. It is often impossible for individuals to engage in PES schemes or enter new markets unless they have a clear, enforceable right to use and benefit from the lands or resources. Farming associations or cooperatives could be indispensable in implementing and monitoring a certification scheme. You need to specify building blocks for the instrument, such as:

- Forming a support committee or working group with representatives of main stakeholder groups
- Engaging or constructing legal entities, e.g. a private company, a cooperative, or an association
- Assigning rights or responsibilities (e.g. land tenure, resource access, co-management)
- Promoting the amendment of rules and regulations (e.g. supporting PES schemes) or ensuring that the instrument is backed by existing rules and legislations.

When there are different options, for instance in the choice of legal entities, then you may need to conduct specific analyses within [Task 5C](#) to decide which ones are most suitable.

Supporting activities

A number of activities can further enhance the success or effectiveness of the instrument, such as:

- Technical training and capacity building
- Facilitating or organising training and awareness-raising activities to communicate the importance of the envisioned changes
- Mobilising trustworthy local personalities to champion or host the project
- Mobilising external investments.

Think out of the box to ensure the institutional basis of the instrument!

In Bu Phram, there was no legal basis for collaboration and benefit-sharing between NP and communities. With the help of legal advisors, the project identified an article in NP legislation giving park managers a degree of autonomy in decision-making to improve ecosystems and which could be interpreted as allowing joint management. The NP department was hesitant at first but then agreed.

In Thadee, it took a year to select the 51 members of the Klong-Thadee sub-river basin committee from different stakeholder groups. Even then it was difficult to have the committee officially endorsed. The municipal water authority refused, and the provincial representative of the environment ministry regarded it beyond its responsibility. Finally, the provincial representative helped convince the provincial governor authorities to endorse the committee.

Raise awareness with community activities!



Check dams are relatively small, temporary structures constructed across a swale or channel. They are used to slow the velocity of concentrated water flows, a practice that helps reduce erosion.

In Thadee, an obstacle to establishing watershed restoration measures for flood and drought prevention was that the effects are gradual and not easy to verify or demonstrate. The project therefore supported an initiative by which communities received materials and technical assistance for building biobased check dams along the river. People then saw the immediate effects, felt proud of their achievements, and recognised their ability to collaborate. This helped create mutual trust and involvement in other local initiatives; it fostered better monitoring of and collaboration in flood prevention in the rainy season; and it visibly reduced droughts in nearby farms during summer. A further offshoot was to enable schoolchildren to observe rare and endemic fish species and to appreciate a healthy river ecosystem.

Some of the activities mentioned not only help to implement the economic instrument, but are often important in their own right. Training, education, and awareness-raising activities are crucial for stimulating more sustainable action in the longer term. The building of stakeholder committees that aim to improve local environmental conditions or to ensure local sustainability can be the foundation of local development and self-governance.

How to go about Task 5 B

The above structure can help you make a template or overview table to calculate economic feasibility. Determining the inflows and costs, as well as the risks involved, will almost certainly require study and additional analysis (see [Task 5C](#)) and you want to make sure that you have the necessary expertise and experience in financial matters. Are you confident that your basic calculations include all significant costs? Have you considered the financial risks if, for instance, an inflow does not materialise and/or costs end up higher than expected? Could this endanger the overall effectiveness of the instrument?

In determining a cost and benefit sharing scheme, it is crucial to consider what the actors involved regard as fair. But when you assess that in consultation with them, make sure their expectations aren't too high about what benefits they might receive in practice.

A first step towards identifying necessary conditions can be to look again at the relevant actors identified in [Task 5A](#) and the constraints on them. Talking to stakeholders and using the context information gathered in [Step 2](#) may also be helpful. Think through what the suggested instrument means for each actor and what would help them to see it as a practical opportunity to make real improvements. Template 9 helps structure the identification of favourable conditions. The final column asks whether there are open questions that need clarification by means of additional supportive study or analysis. This feeds into [Task 5C](#).

Task 5 C. Providing supporting analyses

At the end of Task 5C you will have defined which additional supporting analyses are required and you have either started conducting them yourself or commissioned external experts to do so. You will have filled out Template 10.

What this task is about

At this point, there will probably be a need for further supporting analyses or studies. [Tasks 5A](#) and [5B](#) should have clarified what is needed. The purpose of **additional information** is likely to be:

- To generate awareness and acceptance among stakeholders – in particular the key actors – of the need for change
- To confirm the feasibility, effectiveness or appropriateness of an economic instrument
- To compare different design aspects of the instrument, e.g. possible institutional set-ups for a fund, ecological certification schemes, or forms of credit for up-start investments.

The Appendix E offers an overview of different types of analysis that can be useful, distinguishing ecological analyses, ecosystem service valuation, market analyses, cost assessments, and legal analysis. It shows that they require very different approaches, methods, and data. Here are some examples of **study questions** that could arise:

- What is the potential for generating local income by developing a specific ecological tourism activity or nature-based product?
- Which transaction costs are needed to set up and run the instruments?
- How much would it be appropriate (and realistic) for ES beneficiaries to contribute to ecosystem provision within a PES scheme?

Template 9: Necessary and supporting conditions (selected examples from Thadee)

What are the necessary or supporting conditions for successfully implementing the economic instrument?	Why are these necessary?	How can the conditions be fulfilled?	Which activities are required?	'Essential' or 'useful'?	What open questions need to be clarified by a study or analysis?
Self-organising ability of stakeholders to host and manage a river basin-wide PES scheme	There is currently no official coordinating body comprising stakeholders along the river basin that is capable of managing a PES scheme.	Establishment and official registration of a Thadee Sub-river Basin Committee.	<ul style="list-style-type: none"> Identification of potential members. Meetings to establish the committee. Transparent and inclusive election process for committee members. Agreement on committee mandates and functions. Official registration (e.g. with Regional Office of the Water Resources Department or the NST Governor Office). Door to door visits to both offices to explain the objective, structure, and administration of the committee. 	Essential	Who needs to be included in the election process? Which authority can officially nominate and register the committee?
A hosting institution for managing a watershed conservation fund	<ul style="list-style-type: none"> Under current law no existing organisation or administration body is qualified to collect and pay funds. It is unclear whether or when the committee could take this role. 	Registration of an association or foundation at local level.	<ul style="list-style-type: none"> Clarify mandate and functions. Clarify legal basis for registration. Clarify registration procedures. Submit proposal to relevant agencies for registration (NST municipality or provincial governor). 	Essential	<ul style="list-style-type: none"> What are the registration procedures? Which documents are needed? What legislations can be referred to when the proposal is submitted to NST governor?
Communication to local authorities and population	Awareness of ecosystem services of watershed management is low. Beneficiaries' willingness to contribute of beneficiaries needs to be increased.	Short film, spots on local radio, flyers	<ul style="list-style-type: none"> Develop communication material (key message, slogans, graphical illustration, etc.). Subcontract a local, film maker to produce the short-film. Interviews with supporters of the scheme. Design flyers with simple information on the Thadee PES Fund and subcontract the local publishing company. Prepare brief information for local radio stations and request its broadcast. Involve members of the Committee in radio and TV programmes. 	Essential	<ul style="list-style-type: none"> What are the most effective communication channels in the area? Who could support marketing (financially or in-kind)?
Technical training and seedlings for tree planting	Some providers have expressed a need for training and forest tree seedlings as non-financial support.	Organise trainings and provide seedlings within the functions of the PES scheme.	<ul style="list-style-type: none"> Collaborate with supporting farmers who produce forest tree seedlings for charity. Search and negotiate price of seedlings of popular species that are available in the market. Seek collaboration with Royal Forest Department in providing seedlings of non-traded species and for technical expertise. 	Essential	<ul style="list-style-type: none"> Which tree species should be promoted and who can provide expertise to farmers? What are the requirements for long-term collaboration with the NST forest office and how to involve them in running the PES scheme?



- How much would it be appropriate to pay providers of ecosystem services for changing to a more ecological or conservation-friendly land use practice (within a PES scheme)?
- What reasonable level of entry fees could be set for a new tourism area?
- How much would it be appropriate for degraders of ecosystem services to pay in compensation?
- What benefits in terms of hydrological ecosystem services can we expect from a proposed reforestation measure?
- Which areas (e.g. within a watershed) are particularly suitable for environmental objectives such as enhancing ecosystem service provision, improving a wildlife corridor, or protecting certain species?
- What kinds of social, environmental and/or livelihood mitigation and management plans may be required as part of the instrument's design?

Before performing or commissioning an analysis or study, it is worth reflecting on the **required level of detail, depth, and scientific rigour**. Remember that you want to start implementation as soon as possible. If studies take too much time, stakeholders might lose interest and then the process will lose momentum and energy. You need to discuss this within the team and with the relevant experts. Academics may favour higher standards of scientific rigour than someone with a more pragmatic approach. You need to find the right balance to ensure credible results which you and others can trust, while taking into account practical constraints. Generally the choice will depend on:

- the extent to which effects are already known and accepted
- the scale of the issue and type of stakeholders to convince
- whether the purpose is to raise awareness of the process or to establish the concrete design of the economic instrument
- the extent to which data is readily available or has to be generated
- the resources available, including time, money and access to experts.



The following aspects are useful to consider when contracting experts for specific analyses or studies:

- Since time and resources are usually scarce, you should be very clear about the purpose of each additional analysis within the overall context of the process before commissioning a study;
- Make sure that the experts understand the 'big picture' and the role of their specific contribution to the applied aims and needs of the project. It can help to organise field trips to the project site and workshops with other contributing experts from different academic fields;
- The team should encourage interdisciplinary understanding or even active cooperation between contributing experts from different academic fields (e.g. ecological modelling and economic valuation) and ensure that the results are compatible;
- Specific Terms of Reference (ToRs) and feedback rounds are helpful: for instance, a detailed public proposal of the study design during which the experts explain the approach and the methods they intend to apply.

How to go about Task 5 C

Study needs will often become apparent after identifying the possible motives of actors for participating in the instrument ([Task 5A](#)) and the necessary conditions for implementing it ([Task 5B](#)). For this reason, the last column of templates 8 and 9 ask what you do not yet know and need to study further. Before actually starting or commissioning any additional supporting study or analysis, you should be very clear about its purpose. This is important for justifying the time and effort, but it is also necessary for the selection of relevant study methods and to formulate Terms of Reference (ToR) in case you require external support. Filling out Template 10 can help you clarify the purpose of the study and to select suitable approaches.

When the results of the supporting studies and analyses are known, they need to feed into the process according to the purpose that you identified. In [Step 6](#), they will be used to determine the specific architecture and design of

the instrument. For instance, results of studies intended to convince key actors to participate must be shared with those actors and feed into consultations and negotiations. Studies to determine financial inflow or cost will help to finalise the economic feasibility study and to adjust the financial aspects of the design proposal. Legal studies will feed into the institutional and legal setup, etc.

If you were still not sure which instrument(s) or package of measures to pursue, you should now be able to make this important decision based on the additional knowledge. A specific design proposal (Step 6) and implementation plan (Step 7) should only be made for the instruments you still consider viable.

Template 10: Specifying additional supporting analyses (examples from Bu Phram)

Type of study or analysis	What is the purpose of the analysis or study?	Which questions need to be addressed by the analysis or study?	Which approach, method and data could be used?	Who could do the analysis?
Market analysis	To understand the potential of eco-tourism in Bu Phram.	<ul style="list-style-type: none"> How willing are people to pay for specific eco-tourism services? How would payment be made? What kind of services and facilities would tourists appreciate and pay for? What types of tourists are interested (nationality income class, age group, etc.)? 	Contingent valuation survey with users of Highway 304 to elicit willingness to pay.	Economist
Ecological zoning	To determine suitability of land for restoration.	<ul style="list-style-type: none"> Which land plots between Thap Lan and Khao Yai National Park should be categorised as 1st, 2nd and 3rd priority to be restored? 	Focus group discussions among the park, wildlife NGOs, and village leaders.	Ecologist
Wildlife inventory	To demonstrate that the region is abundant in wildlife and to determine suitable spots for wildlife watching.	<ul style="list-style-type: none"> What kind of wildlife inhabits the area? Which spots are most frequently used by wildlife? 	Photo traps, reports on encounters with animals, analysis of tracks	Wildlife experts (NP staff), hunters
Needs analysis with farmers / Willingness to accept compensation	To determine amount of compensation to farmers for restoring land to wildlife-friendly conditions.	<ul style="list-style-type: none"> How much compensation do farmers need to support the scheme? What are other conditions or criteria for participating? 	Choice experiment with farmers.	Environmental economist
Willingness to pay (to a fund)	Identify potential contributors and the type and amount of their payments.	<ul style="list-style-type: none"> Which beneficiaries are willing to contribute to ecological restoration? What are the conditions or criteria for their contributions? What form of contribution, how much and for how long? 	Face to face interviews	Project staff



Selected references and further guidance for Step 5

Guidance on designing specific instruments (Task 5A/B)

Payments for Ecosystem Services (PES) | The booklet 'Laying the Foundation: An Analytical Tool for Assessing Legal and Institutional Readiness for PES' (Hawkins 2011) offers an analytical framework for assessing legal and institutional readiness for PES transactions. Its intention is to offer public sector officials material that can be used to identify options and gaps within in their particular legal and institutional contexts.

The 'Payments for Ecosystem Services – Getting started: A primer report' (Forest Trends et al. 2008) provides detailed guidance on designing PES schemes.

Chapter 7 of the 'Plan Vivo Guidance Manual' (2012) provides specific guidance for designing and implementing payment for ecosystem service programmes with rural communities.

The 'Payments for Ecosystem Services (PES): best practice guide' (Smith et al. 2013) assists with the design and implementation of Payments for Ecosystem Services schemes. An Annex document provides some case studies.

The WWF study 'Payments for Ecosystem Services Literature Review: A review of lessons learned, and a framework for assessing PES feasibility' (Morrison & Aubrey 2010) firstly distils key pre-conditions and considerations for developing a PES scheme and secondly uses these conditions and considerations to develop a framework for assessing opportunities and feasibility of implementing a PES scheme in a given context.

Carbon payments | The 'Guide to Building Redd+ Strategies: A toolkit for REDD+ practitioners around the globe' (WWF 2013) is designed to provide REDD+ practitioners and their local partners with the information necessary to develop national and subnational strategies.

Direct payment (e.g. conservation concessions & contracts, compensation, etc.) | The 'Direct Payments to Conserve Biodiversity' (Ferraro & Kiss 2002) paper describes and critically reviews a wide range of conservation incentives and direct payment schemes, including PES, conservation contracts and concessions.

The 'How should we incentivise private landowners to 'produce' more biodiversity?' (Hanley et al. 2012) paper discusses a number of policy options for providing private landowners with incentives to conserve biodiversity, such as conservation auctions and conservation easements and addresses various policy design problems.

Taxes | The Guide 'Environmental Taxation. A Guide for Policy Makers' (OECD 2011) describes the design of environmental taxes and political economy considerations in their implementation.

Biodiversity offsets, habitat/ mitigation banking | The report 'The use of market-based instruments for biodiversity protection – the case of habitat banking' (ten Kate et al. 2010a) identifies a range of information and experience with habitat banking from around the world and from economic theory, and provides an institutional analysis for practical implementation.

The Business and Biodiversity Offsets Programme (BBOP) (2012) has produced a series of guidelines to help developers, conservation groups, communities, governments and financial institutions seeking to consider and develop best practice related to biodiversity offsets, including: Biodiversity Offset Design Handbook, Biodiversity Offset Cost-Benefit Handbook and Biodiversity Offset Implementation Handbook.

Green products & markets (alternative income & employment sources) | 'Harnessing Markets for Biodiversity: Towards Conservation and Sustainable Use' by OECD (2003) gives a conceptual framework and real-world case studies to help policy makers, potential investors, NGOs and practitioners in the identification and use of markets for biodiversity products and services that can promote their conservation and sustainable use.

Financial instruments | The Guide to Conservation Finance (WWF 2009) provides an overview of conservation financing mechanisms that have been implemented throughout the world and informs field practitioners about which of the available financing mechanisms they could apply to achieve their conservation aims (also Task C).

Spergel & Taïeb (2008) provide in 'Rapid Review of Conservation Trust Funds' a comprehensive global review of best practices and lessons learned in the development and implementation of conservation trust funds.

Other or various instruments | Chapter 4 of the study 'Economic Instruments in Biodiversity-Related Multilateral Environmental Agreements' (UNEP 2004) suggests some thematic areas where the use of economic instruments could be further developed and discusses the conditions for the successful implementation of such instruments.

TEEB for Business (2012b) WRI (2008b), and WBCSD (2011) explain how an ecosystem service approach and valuation can help motivate business actors to contribute to safeguarding ecosystems and biodiversity.

UNDP (2012) has produced guidelines on 'Multi-Stakeholder Decision-Making. A Guidebook for Establishing a Multi-Stakeholder Decision-Making Process to Support Green, Low-Emission and Climate-Resilient Development Strategies'.

The WWF field guide 'The Green Buck: Using economic tools to deliver conservation goals' (Le Quesne & McNally 2005) describes and illustrates on case studies examples three main areas of economic instruments for conservation.

Guidance on selecting and conducting additional supportive analyses (Task 5C)

The website of the ValuES project (GIZ et al. 2014 – www.aboutvalues.net) is a particularly relevant source of further guidance on approaches and methods for ES analyses (see Appendix E).

UNEP (2010) provides a guidance manual for valuation of regulating ecosystem services.

InVEST is a set of tools provided by the Natural Capital Project (2012) to map and value ecosystem services in order to better align economics with conservation.

Emerton (1998) describes the rationale and different methods, as well as the limitations of economic valuation of biodiversity and ecosystem services.

Step 6: Designing and agreeing on the instrument



In order to be approved by the key actors, the instrument needs to be feasible and acceptable to stakeholders. This step involves presenting a convincing model of how the instrument would work, clarifying institutional and administrative details, and confirming the feasibility and effectiveness of the design.

As a result you will have:

- Finalised a design document for the instrument
- Clarified institutional and administrative modalities
- Confirmed feasibility and obtained agreement to proceed.

Once you have received the results of the additional studies, your team (ideally with the active participation of key stakeholders) should be able to decide which instrument or package you want to develop.

Task 6 A. Elaborating the basic design and architecture of the instrument

At the end of task 6A you will have prepared a well-structured document that brings together the outcomes of the earlier steps of the assessment process in order to convey the basic design and architecture of how the selected instrument will work.

What this task is about

The objective of this task is to put together a design document which

- 1) describes the rationale and objectives of the new instrument,
- 2) lays out its architecture and delivery mechanisms,
- 3) clarifies who would participate and what their role would be, and
- 4) summarises how costs and benefits would be shared and key risks and impacts managed.

The table of contents in Template 11 suggests the minimum content of the design document. The design document should serve several purposes. Its overall aim is to convey what the instrument is all about. As such, it can be used to communicate aims and outcomes to its intended participants, potential donors or funders, and other interested parties. The design document also provides information necessary for institutional and administrative modalities (see [Task 6B](#)), a way to double-check feasibility and acceptability (see [Task 6C](#)), and the basic elements of a contract or agreement for implementing the instrument (see [Task 7C](#)).



A graphical model can help illustrate the basic design!



How to go about Task 6 A

By now, most basic aspects of the design document will have been generated. You may have already tried to tie it all together within a conceptual model or a complete description. Meet with your team, use your notes from earlier steps and Templates 8 and 9 (actors, roles and enabling conditions) and start linking it all together. Write up the design document following the structure of Template 11. Approach this task with the clear intention to come up with a proposal that outsiders will easily understand and find sensible. A diagram might help you understand the links and/or to communicate the design to stakeholders.

While drawing up your draft proposal and writing the design document it is important to remember that your next step is likely to include testing your proposal with stakeholders, usually in a workshop setting. **Tasks 6B** and **6C** will clarify specifics and will serve as a basis for contractual arrangements in Step 7. In order to get the most out of this opportunity for testing, it is worth emphasising areas of uncertainty or where you perceive risks. Be aware also that your proposal may not be as easy to grasp as you think. Before you release it, check whether it is easily comprehensible to a wider group of stakeholders. You don't want them to react negatively to your proposal just because it isn't clear enough.

Template 11: Table of contents for the design document

Chapter	Content	Comes from... or source...
1. Executive summary	In one page, what is the aim of the instrument, how would it be implemented, and what would it achieve? This may be presented via a table, flowchart or other type of graphic.	N/A
2. Context & rationale	What situation is the instrument being introduced into, what ecosystem management or conservation/development issues does it endeavour to address, and why is it necessary?	<i>Step 1</i>
3. Objective and intended results / outcome	What does the instrument intend to achieve, for whom, and what change will it bring about?	<i>Step 3/4</i>
4. Architecture & delivery mechanisms	What are the key steps and actions required to establish and operate the instrument, what are the organisational and administrative modalities by which this will be accomplished, and how will it be funded?	<i>To be defined now</i>
5. Administrative and economic feasibility and efficiency	What are the specific administrative modalities? Is economic feasibility and sustainability ensured?	<i>To be added after Task 6B</i>
6. Key participants, roles & responsibilities	Who will coordinate and oversee the operation of the instrument, who are its primary participants and what are their roles? Which other groups or sectors might feel knock-on effects or impacts?	<i>Task 5A</i>
7. Economic feasibility	What tangible revenues, income or other proceeds does the instrument generate? What (transaction) costs need to be covered?	<i>Task 5B</i>
8. Cost & benefit sharing arrangements	How will additional costs and benefits generated by the instrument be shared between different groups? If there are potential doubts about this, are they explicitly recognised and how will they be resolved?	<i>Task 5B</i>
9. Other necessary and supporting conditions & means of securing them	What additional legal and capacity conditions are required for the instrument to be effective and successful, and how will these be provided?	<i>Task 5B</i>
10. Management plan (including monitoring mechanism and impact mitigation measures)	What measures will be set in place to avoid, minimise or remediate any negative social, environmental or livelihood impacts, and/or to maximise positive impacts? What processes and mechanisms will be set in place to deal with disputes? How will the need for change be identified and responded to (i.e. what kind of adaptive management process will be in place)?	<i>To be added in Step 7</i>



Task 6 B. Clarifying institutional and administrative modalities

At the end of Task 6B you will have specified institutional and administrative modalities for the instrument design, based on consultation with the actors and institutions involved. You will have added this information to the design document and could use it to draw up formal arrangements or contracts.

What this task is about

The premise of this task is that the design and architecture of the instrument as mapped out in [Task 6A](#) was quite general, so you now need to specify more detailed modalities and procedures within the relevant institutions. The questions are summarised in Template 12, distinguishing between administrative modalities and financial aspects that determine the economic feasibility and sustainability of the arrangement. The questions are actually very basic (who would do what, how often, in what format, for how much, how is it managed, what if they fail to comply? etc.) but will supply the level of detail required to finally discuss a concrete design with the relevant institutions and, in many cases, to prepare a contract or formal agreement.



Voluntary schemes are a way to apply the 'beneficiary pays' principle!

In Thailand there is no legal basis yet for applying the Beneficiary Pays principle by which authorities could collect and allocate funds from beneficiaries of ecosystem services. Although legal advisors recommended taking advantage of legal loopholes, the local authorities did not want to do anything that might go against (or beyond) the law. Both in Thadee and in Bu Phram, part of the solution was to rely on a system of voluntary payments and to register independent associations for collecting and distributing funds.

How to go about Task 6 B

Template 12 presents a checklist with questions to address. A number of points will have emerged from formulating the overall mechanism and writing the document in [Task 6A](#). It is best to discuss directly with the stakeholders and institutions involved what they will be expected to do, which modality works best for them, their fears and concerns and how modalities might be changed to address these. It is essential that the functioning of the instruments fits into the normal procedures of the institution or the individuals expected to participate. For instance, a voluntary charge should be added to a regular payment that people already make, not treated as a separate administrative step. In [Task 6A](#), formulating the overall mechanism involved thinking about governance structure and financial flows. However, when you go through the checklist and discuss it with stakeholders, you may feel a need for additional information: e.g. to estimate administrative costs, to construct a more detailed governance model, or to clarify the legal basis for the instrument. In that case, you might want to go back to the guidance provided in [Task 5C](#).



Many economic instruments have been implemented which in the end did not work effectively because they had been copied from elsewhere or designed at a desk. It is essential to adapt any instrument to the local situation it is to operate in. Even its name can affect its acceptance and implementation. Involving local people as much as possible is the best way to avoid overlooking important details: both those directly affected and those who can provide an impartial perspective on social and cultural requirements but from an insiders' point of view.

Template 12: Checklist for institutional and administrative modalities



Administrative modalities
<ul style="list-style-type: none"> • What are the concrete modalities for the effective functioning of the instrument within the relevant governmental or non-governmental institutions? • What are the capacity needs? Is adequate capacity and funding available from government and other groups to implement the instrument? • What happens in the case of non-compliance?
Economic feasibility and sustainability
<p>Financial feasibility:</p> <ul style="list-style-type: none"> • What are the expected costs of <ul style="list-style-type: none"> - design - implementation - operation - monitoring and enforcement? • Who bears the costs? Are necessary funding streams and investments secured? • How will payments be made? How often, where, and by whom? • Can costs be reduced by adapting the design? <p>Financial and institutional sustainability:</p> <ul style="list-style-type: none"> • Is the instrument self-financing, at least in the longer term? • Do the contractual arrangements have a limited time span and, if so, what might happen afterwards? <p>Adaptability:</p> <ul style="list-style-type: none"> • Will the instrument still work if circumstances change (e.g. prices, government, technology, climate, extreme weather conditions)? If not, can it be easily adapted?

Task 6 C. Double-checking feasibility, acceptability and buy-in

At the end of Task 6C you will have confirmed that the instrument is feasible and acceptable, based on the checklist in Template 13. You will have adapted the proposal where this was not the case.

What this task is about

This task has three main aims:

- (i) to double-check feasibility – can it really work or have we overlooked any decisive detail?
- (ii) to make sure that the design and framing including the wording is acceptable in the social and cultural context
- (iii) to confirm that key actors are committed to participating in and supporting the implementation of the instrument.

Most of the work to achieve these three points has already been done in previous steps. In [Task 4B](#) you checked whether specific opportunities are compatible with and appropriate to the context at hand. This should have been a good first safeguard against proposing anything completely unacceptable or infeasible. Then in [Tasks 5A and B](#) and [6A and B](#) you defined and refined most crucial aspects. The task here is to double-check you haven't missed anything and to address any remaining doubts. The questions in Template 13 serve as guidance for this purpose. At this stage it may also be necessary to carry out a more formal assessment of social, environmental and/or livelihood impact. Whether or not this is required depends on the significance of the effects that you noted in the feasibility check in [Task 6B](#). The laws and administrative/financial systems where the instrument is being implemented may also determine its necessity, as well as the requirements of any donor or funding institutions; and, if needed, what level of detail and response is required. Depending on the results of the feasibility and impact assessments, it may then be necessary to go back to [Task 6A](#), and modify the instrument design. Usually, this requires adding appropriate response measures: in other words, planning how to deal with the issues encountered.

Appropriate wording can make a difference!

For negotiations and contractual arrangements in ECO-BEST, culturally appropriate wording was important. The term 'ecological fee' was acceptable but 'water fee' was not, since historically (by royal decree and national law) people have a right to water.

How to go about Task 6 C

Template 13 presents a checklist of questions that address the different criteria for feasibility and suggests how to test for them. Some aspects of the feasibility check will require deskwork and discussion within the team, to make sure that all aspects have been covered. You can then make a list of points that require further stakeholder consultation. Importantly, broad social and cultural acceptability will have to be confirmed with stakeholders, e.g. key resource persons such as religious or community leaders, or teachers who know the local people and the norms, attitudes, and beliefs governing social life.

Key stakeholder commitment requires direct and intensive contact, either by individual consultation or in a workshop setting. The general objectives of a workshop at this stage might be:

- to present the draft proposal for economic instrument(s) and the rationale behind it
- to present results of additional analyses that help demonstrate the rationale and feasibility of the proposal
- to receive feedback on feasibility and needs for adjustment
- to ensure buy-in and agreement to proceed with the planning and implementation.

The design document developed in [Task 6A](#) and amended in [Task 6B](#) serves as the basis for discussion, but make sure that it is presented in a format that participants understand. If possible, it could help to provide draft proposals prior to the workshop, so that they can organise their thoughts beforehand. Participants should be encouraged to think critically about risks and bring their perspectives on things that might go wrong and changes that should be considered.



Template 13: Checklist for assessing the feasibility and acceptability of the instrument

Criteria	How to address this?
Ecological effectiveness	
<ul style="list-style-type: none"> How exactly and in what time frame can the ecological objectives be realised? How can we ensure that the achievement of ecological objectives (e.g. specific biodiversity conservation targets) will be effective, timely, and enduring? Could the economic instrument have serious negative consequences in the case of changing conditions and uncertainties? What if <ul style="list-style-type: none"> current (intrinsic) motivation for protecting biodiversity (e.g. cultural norms, spiritual or emotional connection) could be undermined by an economic instrument ('motivation crowding')? How can this be avoided? actors have wrong incentives, or there are negative spill-over effects (e.g. if neighbouring communities protest or if production processes in agricultural sectors suffer)? How could you avoid or mitigate these? 	Expert consultations and analyses
Social effectiveness, equity, and social justice	
<ul style="list-style-type: none"> Are the expected consequences for all stakeholders perceived as fair? Who would gain from successful implementation of the economic instrument? Who stands to lose? What negative effects on stakeholder groups might be expected, including future generations? What mechanisms could mitigate them? What vulnerable or marginalised groups might be unduly affected (e.g. women, the poor, the landless, indigenous minorities)? What formal or informal rights of stakeholder groups might be affected (e.g. access rights, land use rights)? Is the instrument acceptable in the local socio-cultural conditions? This includes issues of framing and wording (e.g. changing the name may make a difference). 	Expert consultations Stakeholder consultations and workshops
Political and legal viability	
<ul style="list-style-type: none"> Is the economic instrument acceptable to different stakeholders (political decision-makers, administrative authority, company owner, environmental conservation groups)? Do the decision-makers have the authority to establish the instrument or does a government body need to be involved? If so, how will this be managed? Is the decision-making process behind the instrument transparent enough to be understood by all parties? Is the economic instrument in line with relevant legal and financial frameworks (both national and federal)? 	Stakeholder workshop and consultations



Selected references and further guidance for Step 6

Guidance on planning and testing the feasibility of economic instruments

Chapter 6 of Young et al. (1996) provides design principles for policy instruments (Task 6B).

Chapter 3 of the Conservation Finance Guide (CFA 2008) describes business planning for protected areas (Task 6A).



Step 7: Planning for implementation



Finally, the instrument is ready to be rolled out. This step involves formulating an action plan, preparing and signing necessary formal agreements, and handing over to the implementing partners. Its expected outputs are:

- An action plan for implementation is developed, including a system for monitoring progress and impacts
- Responsibility for implementation is taken over by the agreed lead institution, agency or group
- Any formal agreements or contracts required to proceed with implementation are signed
- Reports on and evaluation of the step-by-step process will have been made.

From now on, the key actors in the instrument should gradually take over the management and organisation of the implementation process and then keep the instrument up and running. We refer to these actors as ‘implementing partners’. Step 7 is ideally already being led or at least co-coordinated by the implementing partners. By the end of the step the implementing partners must assume full responsibility. Your team and the institutions or agencies you represent will then adopt a facilitating role to support implementation. Moving from a leading to a facilitating role may involve a loss of control, since political processes have their own pace, but it ultimately increases the chance of sustained and self-governed implementation and change.

The smoothness of handing over responsibilities to implementing partners will depend on how well they have been engaged in the overall process. By involving them as direct participants from the outset you should have secured their close cooperation, support and buy-in. Conversely, without such engagement, it is unlikely that the instrument will be acceptable, viable or sustainable in practice.

Task 7 A. Developing an action plan

By the end of Task 7A you and the implementing partners will have developed an action plan for implementing the selected instrument. This should i) detail the tasks to accomplish and the mile-stones to reach; ii) identify the actors responsible for undertaking them and the timeline for delivery; and iii) specify the means by which progress will be monitored.

What this task is about

The basic design and architecture of the instrument was put together in [Task 6A](#), and the more detailed modalities and procedures were specified in [Task 6B](#). Now you need to turn all this into a **concrete plan of action**, to show how it will be implemented in practice. This can be a means of sharing information with key stakeholders about activities to be undertaken and their expected outcomes. It will also demonstrate to potential funders and donors that a clear and logical plan for implementation has been thought through and formalised. Most action plans will contain some or all of the following information:

21	31	37	45	61	73	81
STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Getting organised	Scoping the context & stakeholders	Weighing up ecosystem service benefits & costs	Identifying opportunities & instruments	Sketching out the instrument	Designing & agreeing on the instrument	Planning for implementation

- The goal(s) of the instrument and the intended outcome(s)*
- Actions to establish and operate the instrument*
- Timing of activities*
- Who is responsible for carrying out activities⁺
- Targets, indicators and milestones of achievement⁺
- Costed budget⁺
- Monitoring plan

**Essential details / ⁺Helpful information*

At a minimum, the action plan should lay out the goal and intended outcomes, and the activities and time frame required to achieve them. However, most action plans also set **milestones and targets** and specify what needs to be done and by whom. This enables checking that everything is on track and going as planned once implementation commences. It is also usual practice to attach a budget to the action plan, and to indicate sources of funding. This ensures that the action plan is not just a wish list.

As shown in the examples below, action plans are often integrated into broader conservation or development policy, planning or management processes. This offers an additional – and usually very necessary – source of support (and often budget) for the development of economic instruments, and ties them into the achievement of wider conservation and development outcomes.

The example in Box 3 illustrates how basic action plan elements were presented in a sustainable financing strategy and action plan for three Marine Protected Areas in the Andaman Sea region of Thailand. The example in Box 4 shows how details on targets, milestones, and responsibilities were incorporated into a five-year strategy and action plan.

As we have seen, the action plan should go beyond merely listing what is necessary to establish and operate a particular instrument – it should also give an idea of the expected outcome. Usually it will also specify measurable targets and the indicators and milestones to be achieved within a given time frame. It will then help in monitoring whether everything is going as planned. **Monitoring** measures progress, informs decisions that will increase the likelihood of achieving intended outcomes, and enhances accountability, learning and communication. Having proper monitoring in place from the beginning can significantly enhance the credibility of the economic instrument, and strengthen stakeholder confidence and buy-in.

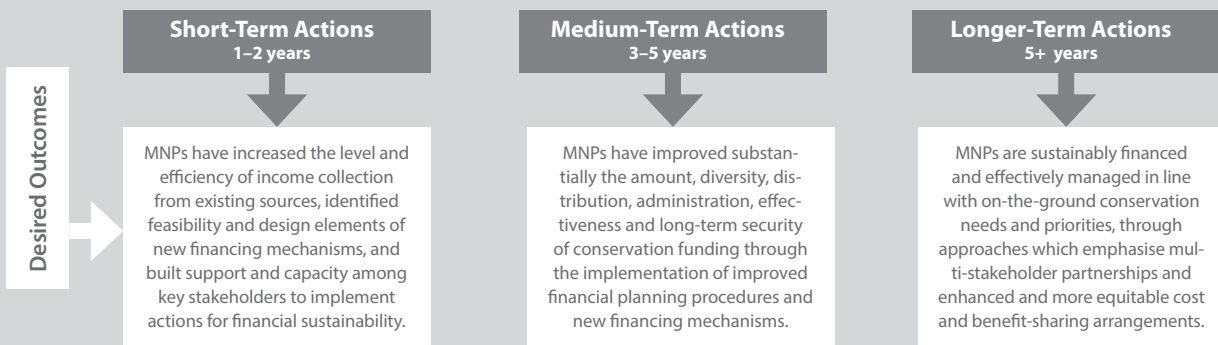
Monitoring may take place at a very basic level, to track general progress in line with the work plan and budget. This may be a requirement of the investor, donor, agreement, contract or regulation under which the instrument is being funded or implemented. Some types of economic instruments go further, and demand adherence to particular **standards or regulations**: e.g. verified carbon offset schemes and accredited certification schemes; conditional or mandatory payments for ecosystem services; execution of land management concessions or running of protected area facilities and services; or delivery of production or trade contracts. In such cases, independent third-party monitoring and verification of progress and/or compliance may be required.

Box 3: Developing a sustainable financing strategy and action plan for Andaman Marine Protected Areas, Thailand (Nabangchang et al. 2012)

In 2012, a **sustainable financing strategy and action plan** was developed for three Marine Protected Areas (MPAs) in the Andaman Sea region of Thailand: Lanta, Similan and Surin. This was to help PA planners and managers to secure financial resources and to set in place incentives for local economic benefit and conservation support. It was put together through a process of fieldwork carried out in the three National Parks. It involved extensive research and consultation with the Department of National Parks, Wildlife and Plant Conservation (DNP), local fishing communities, tourist operators and other stakeholders. At a **strategic level**, the overall goal was 'to enhance the financial sustainability of Lanta, Similan and Surin Islands Marine National Parks by ensuring that sufficient financial resources are made available, spent wisely and administered efficiently to enable effective MNP management and biodiversity conservation'. Four areas of financial need and opportunity were highlighted: enhancing existing revenues; developing new financing mechanisms; strengthening financial planning; and administering new sources of funds. In turn, twelve instruments were identified as feasible, appropriate and acceptable.



The action plan section of the document then listed the short, medium and long-term actions that would be undertaken to establish and develop each of these instruments, and laid out the intended outcomes.



One of the main instruments selected to achieve these outcomes was the establishment of a **Marine National Parks Conservation Trust Fund**. This would have two functions: 1) to provide a mechanism for receiving, retaining and allocating financial resources for the effective management of MNPs; 2) to administer grants and shared revenues to NGOs and communities to fund the promotion of marine and coastal conservation activities.

The broad design and architecture of the proposed Trust Fund was drawn up – including its intended beneficiaries, funding sources, administrative arrangements and institutional set-up – using similar processes to those outlined in Steps 5 and 6 of these guidelines. The actions required to establish and maintain the Trust Fund were then listed:

<p>Short-term actions (1–2 years)</p>	<ul style="list-style-type: none"> Initiate request for seed funds from Department of National Parks and other potential contributors, including private sector and external donors Review legal provisions and needs for trust fund establishment, operation and disbursement procedures Conduct consultation on trust fund options Carry out detailed design and feasibility studies Discuss and negotiate earmarking arrangements for existing and proposed income Develop fund operations manual Develop fund financial management system Develop formats for proposals, monitoring and reporting Establish monitoring system
<p>Medium-term actions (3–5 years)</p>	<ul style="list-style-type: none"> Draft and submit legal amendments if required Legally establish trust fund Establish bank account and other financial management systems Secure start-up funds Recruit staff and establish Management Unit Appoint Board of Directors Establish Technical Advisory Group Shortlist and contract potential third-party service providers Develop and approve medium-term and annual work plan Publicise and market fund to potential beneficiaries and donors Launch call for applications Commence fund disbursement Commence monitoring, reporting and audit procedures
<p>Longer-term actions (5+ years)</p>	<ul style="list-style-type: none"> Conduct regular monitoring and evaluation, reporting and audit Review, revise and modify fund focus and operations as required

Box 4: Setting targets and indicators for implementing local incentives for conservation in Lower Amu Darya Biosphere Reserve, Uzbekistan (Emerton 2010b)

In 2011, the Lower Amu Darya Delta State Biosphere Reserve was established in Karakalpakstan in north-western Uzbekistan. A 5-year business plan was developed to secure funding and local conservation incentives to enable the Protected Area Management Plan to be implemented.

Three types of community conservation incentives were identified: 1) locally-managed concessions and leases for undertaking sustainable land and resource activities, 2), development of ecotourism activities, and 3) a prize/award to recognise and reward good conservation practices. Four broad stages of activity were specified for establishing and operationalising these instruments, and their outcomes were elaborated. The aim was to give Biosphere an idea of what needed to be done within a given time frame to improve the engagement of local communities in conservation and its benefits.

Stages of activity		Outcomes
1	Scientific, social and financial/marketing scoping surveys	Appropriate concession areas identified and mapped, appropriate tourism activities identified and planned
2	Formalisation of terms and conditions for concessions, leases and prize/award system	Formal agreement of terms and conditions of concession areas and prize/award system completed
3	Implementation of concessions, tourist activities and prize/ award system	Local people participating in and benefiting from concessions, tourist activities and prize/award system
4	Provision of technical and marketing support to local communities engaged in concessions and tourism	Local people benefiting from appropriate technical and marketing support to enable and maximise income generation

Next, the specific actions required to establish and operate each of the three groups of instruments were planned. Timing and responsibilities were specified for each action as well as targets and milestones of achievement. The aim was to make it clear to all the main actors involved what their role would be and when they would be required to participate in key activities. It is worth noting the importance of the action plan in securing this support and buy-in. For example, in relation to community concessions and leases the following actions, outcomes, timing and responsibilities were identified:

Actions	Timing	Target	Milestones	Responsibility
Use GIS, mapping and ecological surveys to identify potentially suitable areas for community concessions	2011	Appropriate concession areas identified and mapped	Concessions mapped by end of 2011	Biosphere Reserve authority
Carry out community consultations and financial feasibility analysis to identify potentially suitable activities and areas for community concessions				
Formalise terms and conditions for community leases and concessions	2011–12	Formal agreement of concession areas, terms and conditions	Drafting of terms & conditions commenced by mid-2011 and concluded by mid-2012	Biosphere Reserve authority, with support of local authorities and other line agencies
Allocate concessions and leases in Economic/Transition Zone	2012–15	Concessions and leases for Economic/Transition Zone lands allocated to local communities	First concessions and leases allocated by end of 2012; new allocations made each year thereafter	
Provide technical assistance and support to concession holders for sustainable land and resource uses and marketing/value-added opportunities	2012–15	Concession holders provided with appropriate technical and marketing support	Support commences by end 2012, continues each year thereafter	Biosphere Reserve authority, with support of local authorities and other line agencies
Provide continued monitoring and enforcement that the land and resource uses are carried out as agreed	2012–15	Land and resource uses in concessions carried out sustainably, in line with agreed terms and conditions	Baseline conducted by mid-2012, monitoring system in place by end 2012, monitoring and reporting activities continue each year thereafter	
Investigate possibilities of extending the range of sustainable land and resource uses that can be carried out under community concessions	2011–15	Agreement on further development of concession-based land and resource uses	Scoping and feasibility studies carried out by end 2011	Biosphere Reserve authority, with support of local authorities and other line agencies

The resulting action plan formed the final section of the 2011–2015 business plan for the Biosphere Reserve. The idea was that each year it would be translated into quarterly targets and incorporated into the Biosphere Reserve's annual management plan.

Something that is often especially important to monitor – but more difficult to do so than activities, outputs, milestones and budget spending – is the extent to which the instrument has been taken up and accepted by the main participants and is achieving the impacts or outcomes for which it was designed. There is often a need to demonstrate (to the funder, investor, or to political decision makers) that the instrument that you are implementing has been successful and effective from a conservation or development viewpoint. In a similar vein, many economic instruments are built on unproven hypotheses or unsubstantiated assumptions: for example, if we change land use here it will improve hydrological services there; or PES can reduce poverty at the same time as reducing forest degradation. Only when the instrument has been piloted can these theories be verified. The example in Box 5 describes the indicators and methods that were used to monitor these kinds of impacts and chains of causality for a pilot PES scheme in Vietnam.

Box 5: Monitoring Payment for Forest Environmental Services in Lam Dong Province, Vietnam (Winrock International 2011).

In 2006, a sustainable PES-based financing mechanism was initiated in Lam Dong Province, Vietnam. This was explicitly designed to maintain biodiversity at the same time as generating income for forest owners, thus helping to reduce rural poverty. It involved channelling payments made by forest ecosystem service beneficiaries (most notably hydropower and water supply companies) to rural communities and other forest owners (including Protected Areas, commercial companies and state-owned enterprises).

This was the first operational PES scheme in Vietnam and was intended to stimulate and inform the development of similar arrangements across the whole country. Thus it was particularly important to be able to demonstrate how well the intended goals had been met. Various systems were set up to monitor the impacts of the scheme, covering the key issues to be address and checking the underlying assumptions – most notably that improving forest owners' income and livelihoods would motivate them to increase forest protection, which would in turn improve key biodiversity and hydrological services). A deliberately wide range of project participants was asked to help collect monitoring data. This was to foster buy-in and awareness, as well as to make use of their different mandates, skill-sets and areas of knowledge.

Area of change	Indicators measured	Means of data collection	Undertaken by
Project delivery	<ul style="list-style-type: none"> Progress towards stated objectives, outputs and activities (as per work plan) Disbursement of project funding (as per budget) 	Project reports and records	USAID/Winrock International (project donor & implementer)
Forest protection	<ul style="list-style-type: none"> Time spent by forest owners on patrolling & management activities Number of forest protection violations and fines Payments to forest owners 	Monthly review of records and community meetings	Protection staff assigned by forest owner organisations,
Contracting procedures & payments	<ul style="list-style-type: none"> Contracting procedures Disbursement of payments Number of payers/payees Amount of payments 	Quarterly review of financial records, progress reports	Forest Protection & Development Fund
Household livelihoods Forest threats & status	<ul style="list-style-type: none"> Payments received Change in household income sources Role of PES in household income Incidence of poverty Number of arrests for illegal logging Forest area and quality 	One-off socio-economic survey of forest owners (households, national parks, seedling company) and payers (hydropower, water supply, tourism companies); literature review; key informant/expert interviews	Consultants hired by Winrock International
Water regulation & soil conservation services	Water discharge and sediment yields from representative land use/vegetation types: <ul style="list-style-type: none"> Broadleaf evergreen forest Pine forest Mixed agriculture systems Intensive agricultural systems 	Daily measurements from four gauging stations in sub-catchments of the Da Nhim watershed	Lam Dong Province Technical Working Group & Department of Natural Resources and Environment

How to go about Task 7 A

While there are many different methods by which an action plan can be developed, it is always desirable – and usually absolutely essential – to ensure that representatives of major stakeholder groups participate in it. Without their active input and support it may prove very difficult to put the plan into practice. At a minimum, they should be familiar with its contents and agree with them. Ideally, it is these actors who should lead the development of the action plan and take ownership of it, while you take on a supporting advisory role.

It can be useful to follow the structure of the action plan in Box 3.

Task 7 B. Drafting an agreement and handing over to implementing partners

At the end of Task 7B, implementing partners will have reached a binding agreement (e.g. a contract) and taken over the implementation and operation of the economic instrument.


What this task is about

Step 6 elaborated and documented the detailed design and key procedures for the economic instrument and secured a commitment to proceed from key actors: essentially an agreement to become implementing partners. In Step 7A you worked together with those implementing partners to develop a detailed action plan for implementation, and you identified workable monitoring systems and procedures. These arrangements now need to be formalised.



Even an agreement that is not legally binding may require a written format!

In Thadee, the following document served to formalize the agreement between landholders and the PES Fund.



สมาคมอนุรักษ์สิ่งแวดล้อมนครศรีธรรมราช สอ.นต.
Association of NST Environmental Conservation ANEC

Certificate of Agreement for Thadee Sub-river Basin Ecosystem Service Fund Payments

Certificate no.: _____ Date: (Day)..... (Month) (Year)

This voluntary agreement is made between the Association of Nakorn Si Thammarat Environment Conservation (ANEC) as payer of the Ecological Fee and myself, (name in full): (ID Card Number), as an ecosystem service provider.

I confirm that I own the rights to the land situated at (property number and street name)
(village/town/city) (Sub-district).....
(District) in Nakorn Si Thammarat Province.

This land is currently in use for:
 residential purposes (..... Rai) and/or agricultural purposes (..... Rai).

I hereby volunteer to join ANEC and to keep a total land area ofRai for storing runoff water and to stabilising the soil in order to help reduce flood and drought risk in the middle part of Thadee Sub-river Basin. I voluntarily commit to:
 keeping the above land for water infiltration and/or increasing and maintaining the growth of trees with deep roots.

My commitment is for the period from (month) (year) to (month) (year), inclusive.

In return for this, ANEC will pay me Baht. I understand that this agreement is not legally binding but serves to show that I will support ANEC's initiative to reduce flood and drought risk to residents of Nakorn Si Thammarat.

Signature of Receiver (Ecosystem Service Provider in NST Province): _____ Signature of Payer (PES Fund Manager for Thadee Sub-river Basin, ANEC): _____

Some instruments may not involve negotiating an agreement in a narrow sense, for instance in deciding prizes and awards, granting an environmental subsidy, eco-tourism activities or marketing nature-based products. Even so, the participants will usually need to **agree on strategic or practical issues** (e.g. to ensure financing or technical support) and perhaps on what to do if plans are changed or promises not kept. Some formal arrangement will often be necessary, such as registering as a legal entity or signing a contract with a financial intermediary.

An economic instrument often requires several formal acts and/or contractual arrangements!

In Thadee, the establishment of a hydro PES scheme involved two formal administrative acts:

- the official endorsement of the Klong-Thadee sub-river basin committee by the provincial representation of the environmental ministry
- the registration of the Association of Nakhon Si Thammarat Environmental Conservation as juristic person in the provincial registry, signed by the governor, including official permission to use the name of the province in the title of the association and a list of the specific activities and the members of the executive committee.

Then, contractual arrangements were specified for making payments to communities and land holders in return for ecological activities.



Other types of instruments obviously require some kind of formal, binding agreement between the different parties involved: for example, most PES schemes require a legally binding agreement or contract. Eco-labelling or certification requires that particular production standards are maintained, and credit financing involves agreements between recipient and lender. In most instances, a **formal written document** is required which states clearly and unambiguously the purpose and details of the instrument, lays out rights and responsibilities, and safeguards the interests of all parties. This can be an umbrella agreement such as a letter of intention, a Memorandum of Understanding (MoU), or a co-management plan; or it can be a specific contract with individual actors for conservation rewards, certification scheme, product sales contract, revenue-sharing arrangement, etc. In some cases, an umbrella agreement will be a first step, followed by a series of more specific contracts.

Often the format and terms of this agreement will already be fixed, and will extend beyond the control of either the participants or the instrument itself. Microcredit and loan agreements, for example, will conform to the requirements of the lending institution; certification and eco-labelling standards will usually be based on predetermined criteria; and joint management contracts, concessions and leases will usually be standardised for all protected areas. In these cases, your main role is to facilitate information-sharing, to provide advice and if necessary to assist the local participant to understand and fulfil the requirements of the agreement they are entering into.

Strong institutions and effective community self-organisation are vital!

In Pang-Ma-O, the ability of the community to organise and manage itself was a critical condition for successful collaboration with the agricultural bank. Bank representatives openly stated that the logistical and administrative challenges in the Tree Bank scheme (e.g. tagging and registering trees, setting up a committee, appointing leaders) were partly intended to test the community's ability to self-organise effectively. Since this went well, they were willing to discuss additional support and collaboration.



In the case of an entirely new agreement or contract for the implementation of an instrument, a written agreement can be drafted based on the design document, the feasibility study and the impact assessments. At this stage you should check that the provisions and mechanisms of this agreement are fully consistent with (and enforceable by) both customary practice and modern law. A draft agreement can be discussed by the implementing partners and amended and further specified as necessary. Template 14 contains a checklist of contract components to assist this. Legal advice may be required to ensure that the rights of all signatories are respected and there are no legal errors or inconsistencies.

Three aspects of an agreement are particularly important to emphasise:

- **Cost and benefit sharing arrangements** relate to who is entitled to gain from revenues, income or other proceeds generated by the instrument, and who should incur the costs of implementing it. These must be clearly specified, based on the work you carried out in [Task 5B](#). This includes agreeing who will bear which costs (or receive which benefits) and in what proportion, at what time, and in what form they will be allocated. In some cases, a more formal supplementary agreement may be necessary or even required by law: e.g. on bio-prospecting and the fair and equitable sharing of benefits arising from genetic resources. In some cases cost and benefit sharing arrangements can be incorporated into the agreement. In other cases, especially where arrangements are complex or involve significant new income and expenses, a separate contract or agreement may be necessary.
- **Management and mitigation arrangements** relate to who is responsible for dealing with possible negative environmental, social and livelihood impacts of the instrument, and what safeguards or actions they are expected to perform. The design details elaborated in [Task 6B](#) and the action and monitoring plan in [Task 7A](#) will have ascertained whether these provisions are necessary and, if so, what they should involve. The agreement will need to i) include any social, environmental or other management or mitigation plan, ii) specify who is responsible for implementing it, and iii) detail the means by which compliance will be monitored and enforced and the penalties for non-compliance. In many cases a separate contract or agreement will have to be developed with the specific actor(s) responsible for management, mitigation or safeguards.
- Related to the second point, contractual arrangements should specify what happens in the case of unforeseen difficulties or unintended negative effects, including options to **adapt or terminate** the instrument. For instance, direct payments within a PES scheme are usually made to landholders for activities that are expected to improve biodiversity (e.g. community patrolling to prevent poaching). If the activities are not carried out properly and the desired effects do not happen, then payments need to be stopped or the terms for paying them altered.

How to go about Task 7 B

Ideally, the implementing partners will have already taken the lead, so the job of your team is finished and you can hand over the implementation process with the completed action plan. Very often, however, you will still be actively involved in formalising the commitment between implementing partners and other actors involved.

Negotiating and eventually signing agreements can be a complicated and lengthy process. The path to achieving this includes [Task 6B](#), where you should have achieved buy-in from key actors. In fact, it goes back even further, to the consultations and discussions or even lobbying activities during [Step 5](#) when you prepared a workable and feasible proposal. From that point until a contract is finally signed can take months or years. Even more than before, the process during the negotiation phases needs leaders and strong characters. Success will depend on you making a viable and appropriate proposal, but also on the ownership and engagement of implementing partners. As in all political processes, good timing and windows of opportunity can play a major role (e.g. political elections, disasters or events that highlight the need for change). When you started [Task 6B](#), negotiations should have been far enough advanced to focus on fixing the details bringing them together within a formal document, and then signing it. [Template 14](#) provides a checklist of contract components that can help to define an agreement and make sure that you have not forgotten any crucial aspects. Of course, a lawyer should review all agreements before signing.

Template 14: Checklist of contract components (adapted from UNEP 2008)



Context and form
<ul style="list-style-type: none"> • A title for the agreement • Start and end dates • Detail of the physical area the contract will cover • Stakeholder details and addresses • Objectives of the agreement • Definitions (e.g. conservation measures, payments, land owner, etc.) • Contract time frame • Description of the legal rights of each party (e.g. under what conditions the contract can be terminated; rights to verification) • Signature of each party (must be legally of age or otherwise permitted)
Actions and responsibilities of parties
<ul style="list-style-type: none"> • Define and clearly state actions to be taken by each party (provider, beneficiary, degrader intermediary, other) • Define responsibilities of each party and specify under what circumstances contract conditions are met, considering relevant criteria such as fairness, non-leakage, etc. • Payment terms: type of payments (e.g. cash, in-kind, technical assistance,), timing (e.g. a schedule), recipient(s) • Agreed role of third parties • Clarify how risks of unavoidable loss (e.g. related to natural events) are to be handled and how this risk will be shared between parties • Warranties (i.e. guarantees that specific facts or conditions are true or will happen)
Cost and benefit sharing arrangements
<ul style="list-style-type: none"> • Specify how revenues, income or other proceeds generated by the instrument will be owned and/or shared between actors • Specify the purposes for which any shared proceeds will be utilised and the administrative arrangements • Specify how the costs and expenses of implementing the instrument will be covered and/or shared between actors
Management and mitigation plans
<ul style="list-style-type: none"> • Lay out any social, environmental or other management or mitigation plan that will accompany the instrument • Specify the actors responsible for implementing management/ mitigation plans, and their roles and responsibilities, including funding • Specify the means by which compliance will be monitored and enforced, and the penalties for non-compliance
Monitoring and enforcement
<ul style="list-style-type: none"> • Monitoring requirements • Verification requirements • Consequences of regarding transgressions of agreements (e.g. punishments, sanctions) • Actions to be taken in unforeseen circumstances • Rules for modifying or adapting the contract • Accepted reasons for terminating the contract

Task 7 C. Reporting on and evaluating the process and the instrument

At the end of Task 7C, you will have reported on the experiences and lessons learned from the process. At a later stage you will review the implementation process and the effectiveness of the economic instrument that you set in place.

What this task is about

At the end of Task 7C, you will have reported on the experiences and lessons learned from the process. At a later stage you will review the implementation process and the effectiveness of the economic instrument that you set in place.

The task of **reporting on** and **evaluating** the process is strictly speaking not part of – or necessary to – implementing an economic instrument. And yet a report is very often required by the funders of a project or the initiative that commissioned it. In addition, reviewing the different stages and activities of the process can be very usefully combined with identifying **experiences and lessons**, which in turn can be used to make **recommendations** for improving the process or instrument design. Formulating such lessons and recommendations is sometimes part of report requirements, but is in any case a very important activity that helps your team and others to benefit from what has been learned and apply it in the future.

Longer-term review and evaluation of the effectiveness and sustainability of economic instruments is often neglected, since implementation projects terminate at this point or run out of funding. This is unfortunate, since many lessons can only be learned by looking at longer-term functioning and in particular the longer-term impacts of a measure or instrument. As described in Task 7A, longer-term review and evaluation of social and environmental impacts should be built into the monitoring procedures. So you will have to decide whether you and your team, project or organisation should be involved in these tasks at all – and if so, to what extent and in what way: by contributing to these monitoring procedures or by going beyond. Going beyond could mean, for instance, comparing effectiveness across instruments or projects, or systematically analysing success factors to derive lessons and recommendations for future design and implementation. As mentioned in Task 7A regarding monitoring, indicators for measuring success are crucial. They should directly measure outcomes affecting livelihoods (e.g. the number of families with significant additional income), conservation activities (e.g. a certain number of trees planted per year), and environmental outcomes (e.g. improvement of water flow or quality). This also enables assumptions to be verified about relationships between activities and conservation success (e.g. whether agro-forestry reduces sedimentation in the river).

How to go about Task 7 C

The tables and checklists in the templates are a good basis for reporting the stages, milestones and out-comes of the step-by-step process. At the end of the project or even during it (annual or midterm) they can be easily adapted to meet reporting requirements. In order to derive lessons and recommendations, take time to sit together with your team and review what was done within each step by asking questions such as:

- What has been achieved here?
- What went smoothly, and why?
- What were the challenges? How did we overcome them?

Possible channels for disseminating lessons and recommendations include academic journals, policy briefs, or different forms of media.

Revisiting the implementation after 1 year and then after 3–5 years allows assessment of the longer-term impacts of the economic instrument on biodiversity and livelihoods, and whether the instrument is working sustainably. For ex post evaluation of effective functioning, in particular for comparative analyses across different sites or schemes, it can be a good idea to collaborate with researchers who may be interested in such analyses from an academic perspective.

Selected references and further guidance for Step 7

Guidance on preparing an action plan

Chapter 8 of TNC’s Conservation Action Planning Handbook (2007) provides guidance pertaining to the staffing, time-line and costs of implementing conservation actions (Task 7A).

Guidance on monitoring

The Open Standards for the Practice of Conservation (CMP 2015) helps teams to be systematic in planning, implementing, and monitoring their conservation initiatives (Task 7A).

The World Bank (1998) has prepared ‘Guidelines for Monitoring and Evaluation for Biodiversity Projects’.

You can help us improve the guidelines!

We are planning to prepare a Version 2 that will incorporate lessons and experiences from users around the world. We encourage you to contact us and share experiences ideas, requests, or criticisms to help us improve these guidelines.

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Appendices

Appendix A

The TEEB (2010) classification of ecosystem services

'Provisioning Services' are ecosystem services that describe the material or energy outputs from ecosystems. They include food, water and other resources.



Food • Ecosystems provide the conditions for growing food. Food comes principally from managed agro-ecosystems but marine and freshwater systems or forests also provide food for human consumption. Wild foods from forests are often underestimated.



Raw materials • Ecosystems provide a great diversity of materials for construction and fuel including wood, biofuels and plant oils that are directly derived from wild and cultivated plant species.



Fresh water • Ecosystems play a vital role in the global hydrological cycle, as they regulate the flow and purification of water. Vegetation and forests influence the quantity of water available locally.



Medicinal resources • Ecosystems and biodiversity provide many plants used as traditional medicines as well as providing the raw materials for the pharmaceutical industry. All ecosystems are a potential source of medicinal resources.

'Regulating Services' are the services that ecosystems provide by acting as regulators, e.g. regulating the quality of air and soil or by providing flood and disease control.



Local climate and air quality regulation • Trees provide shade while forests influence rainfall and water availability both locally and regionally. Trees or other plants also play an important role in regulating air quality by removing pollutants from the atmosphere.



Carbon sequestration and storage • Ecosystems regulate the global climate by storing and sequestering greenhouse gases. As trees and plants grow, they remove carbon dioxide from the atmosphere and effectively lock it away in their tissues. In this way forest ecosystems are carbon stores. Biodiversity also plays an important role by improving the capacity of ecosystems to adapt to the effects of climate change.



Moderation of extreme weather events • Extreme weather events or natural hazards include floods, storms, tsunamis, avalanches and landslides. Ecosystems and living organisms create buffers against natural disasters, thereby preventing possible damage. For example, wetlands can soak up flood water whilst trees can stabilise slopes. Coral reefs and mangroves help protect coastlines from storm damage.



Waste-water treatment • Ecosystems such as wetlands filter both human and animal waste and act as a natural buffer to the surrounding environment. Through the biological activity of micro-organisms in the soil, most waste is broken down. Thereby pathogens (disease causing microbes) are eliminated, and the level of nutrients and pollution is reduced.



Erosion prevention and maintenance of soil fertility • Soil erosion is a key factor in the process of land degradation and desertification. Vegetation cover provides a vital regulating service by preventing soil erosion. Soil fertility is essential for plant growth and agriculture and well-functioning ecosystems supply the soil with nutrients required to support plant growth.



Pollination • Insects and wind pollinate plants and trees which is essential for the development of fruits, vegetables and seeds. Animal pollination is an ecosystem service mainly provided by insects but also by some birds and bats. Many leading global food crops depend upon animal pollination including important cash crops such as cocoa and coffee.



Biological control • Ecosystems are important for regulating pests and vector borne diseases that attack plants, animals and people. Ecosystems regulate pests and diseases through the activities of predators and parasites. Birds, bats, flies, wasps, frogs and fungi all act as natural controls.

'Habitat or Supporting Services' underpin almost all other services. Ecosystems provide living spaces for plants or animals; they also maintain a diversity of different breeds of plants and animals.



Habitats for species • Habitats provide everything that an individual plant or animal needs to survive: food; water; and shelter. Each ecosystem provides different habitats that can be essential for a species' lifecycle. Migratory species including birds, fish, mammals and insects all depend upon different ecosystems during their movements.



Maintenance of genetic diversity • Genetic diversity is the variety of genes between and within species populations. Genetic diversity distinguishes different breeds or races from each other thus providing the basis for locally well-adapted cultivars and a gene pool for further developing commercial crops and livestock. Some habitats have an exceptionally high number of species which makes them more genetically diverse than others and are known as 'biodiversity hotspots'.

'Cultural Services' include the non-material benefits people obtain from contact with ecosystems. They include aesthetic, spiritual and psychological benefits.



Recreation and mental and physical health • Walking and playing sports in green space is not only a good form of physical exercise but also lets people relax. The role that green space plays in maintaining mental and physical health is increasingly being recognised, despite difficulties of measurement.



Tourism • Ecosystems and biodiversity play an important role for many kinds of tourism which in turn provides considerable economic benefits and is a vital source of income for many countries. Cultural and eco-tourism can also educate people about the importance of biological diversity.



Aesthetic appreciation and inspiration for culture, art and design • Language, knowledge and the natural environment have been intimately related throughout human history. Biodiversity, ecosystems and natural landscapes have been the source of inspiration for much of our art, culture and (increasingly) science.



Spiritual experience and sense of place • In many parts of the world natural features such as specific forests, caves or mountains are considered sacred or have a religious meaning. Nature is a common element of all major religions and traditional knowledge, and associated customs are important for creating a sense of belonging.

Source: TEEB for Local and Regional Policy Makers (2010 – www.teebweb.org, p.19); Icons designed by Jan Sasse for TEEB

Appendix B

Guidance for the first stakeholder workshop (Steps 3 & 4)

Issue	Critical Planning Questions
Purpose / Goals	<p>➔ What are the goals of the workshop?</p> <ul style="list-style-type: none"> • Achieving a common understanding of the project objectives • Engaging stakeholders and involving them in the process, making clear that the success of the initiative relies crucially on their ideas and their collaboration. • Generating awareness and understanding of the services which nature provides to people, both locally and elsewhere • Learning from stakeholders to identify local 'ecosystem service opportunities'
Participants	<p>➔ Who should be invited to participate in the workshop?</p> <p>This should be decided based on the stakeholder analyses in Step 2, taking into account all relevant aspects such as local hierarchies or existing conflicts and collaborations. Too many people may be difficult to handle, so small working groups should be formed and later report back. 20-30 seems a good size. If there are more stakeholders who should be involved, think about organising several workshops. This may also be a good idea for other reasons, for instance if stakeholders are far apart and travel is difficult, or if there are conflicts that make it risky to attend a joint workshop. Another reason might be that if stakeholders come from different social levels or have other (cultural? political?) differences, some may not speak up when others are present.</p> <p>➔ How to ensure that stakeholders participate?</p> <p>In some cases stakeholders may already be interested in the study and workshop attendance will be no problem. In others, travel costs and even accommodation might need to be reimbursed, food provided, or allowances paid. It can also matter who addresses the invitation to participants. Should it be the mayor or district head, or would a protected area manager or a research team be more effective? Contact through letters and emails might be enough in some cases, but in others it might be better to make personal invitations during short individual visits or within other events. It is also important to look at appropriate gender balance and, if necessary, take account of any obstacles to the participation of women.</p>
When & Where	<p>➔ When should the workshop take place?</p> <p>The date for the workshop should fit properly into the schedule of the assessment team, making sure that preparatory work and organisation can realistically be finished. Moreover, the timing should meet the needs and availability of participants. There may be periods (harvesting, holiday, etc.) or specific dates (public holidays, religious events, etc.) that would make it difficult for stakeholders to attend. Invitations should be sent in good time, allowing people to plan for their attendance. How much time to give them may vary considerably between cultures and also hierarchical levels. Administration staff, for example, may have a busy schedule and need to know well in advance. Some communities are not used to this kind of planning. For them it is important that somebody shows up to invite them in person.</p> <p>➔ How long should the workshop take?</p> <p>We suggest a full-day workshop in order to have sufficient time to cover all issues.</p> <p>➔ What is a good location?</p> <p>The location deserves careful thought. For instance, it should be sufficiently 'neutral' and not offend any stakeholder group. It should be easy to reach, the rooms should be big enough to host the desired number of people, and the necessary technical equipment must be available (or the workshop design adjusted accordingly). Options for catering or even accommodation may need to be considered.</p>

Issue	Critical Planning Questions	
Roles & Responsibilities	<p>➔ Who will moderate the workshop?</p> <p>The moderator should be able to concentrate on the moderation and to maintain the flow of the process as a whole. Presentations, group work facilitation, and reporting results are better done by others. The moderator has a challenging task: he/she should be skilled in facilitating workshops but also needs a good understanding of the issues and concepts in order to react flexibly and constructively to participant input. Has he or she read and fully understood this guidance manual?</p> <p>➔ Who will officially introduce and end the workshop?</p> <p>It is worth considering who should open the workshop and speaks the introductory and closing words. Here, local hierarchies must be respected.</p> <p>➔ Who will observe the general dynamics and adapt accordingly?</p> <p>The organising team should be prepared to handle unforeseen dynamics, but any intervention during the workshop should be handled with care, so that the moderator does not lose authority and control. One good idea is to assign the role of an official assistant to the moderator so they can have regular short conversations, for instance while participants are involved in exercises.</p> <p>➔ Who takes care of logistical and administrative issues?</p> <p>There should also be someone in charge of all technical and administration questions (e.g. reimbursement, hotel booking, room planning, lunch and coffee breaks, etc.).</p> <p>➔ Who will record the results and how?</p> <p>Assign responsibility for recording the results and for preparing reports back to the team and to participants.</p>	
	Workshop Format & Methods	<p>➔ What methods and materials should be used?</p> <p>Adapting to each participant group is fundamental. Carefully choose the most appropriate methods (e.g. presentations, plenary discussions, group work, games, etc.) and make sure that all necessary material (computers, white boards, posters, etc.) will be available. Consider language as well. Do all participants speak the same language? Are there local dialects? Might the moderator and the group facilitators face any difficulties? Are all presentations in a language that participants will understand? Here, it is also crucial to consider technical language, which may be a barrier to understanding and create frustration. TEEB and the ecosystem service concept tend to be very academic. Good explanations and wording suited to the target audience are keys to good communication. Additional challenges arise if participants are illiterate. In that case, presentations and exercises should rely more on pictures, symbols, drawings, etc.</p> <p>➔ Will we need breakout groups? Do we have necessary space and material?</p> <p>If you have 20 or more participants, do much of the dialogue work in small groups of 10 to 12. Much smaller than that and you lose energy and diversity; much larger and it's hard for people to have enough time to really explore the issues and contribute to the discussion. If you are working with larger groups, split larger plenary sessions into smaller gatherings in which most of the real dialogue will take place.</p> <p>➔ How to present workshop results to participants and how to announce follow-up?</p> <p>People will want to know the answers to certain questions: What will happen next? How will the results of this workshop be used? How do we keep in touch? When do we meet again? They should have the answers to these questions by the end of the workshop. Sometimes an illustrated leaflet or a one-page flyer (perhaps with the date of the next meeting) will remind them that something is going on and help them spread the word.</p>

Further guidance on stakeholder workshops

The EAF Planning and Implementation Tool for Stakeholder Workshops (FAO – EAF-Net 2011) provides a forum for the identification, discussion and resolution of issues using input from multiple stakeholders or groups.

Outline of a workshop plan			
Agenda Topics	Guiding Questions	Methodology & Approaches	Challenges & remarks
Introduction Getting to know each other, the project and the main ideas	<ul style="list-style-type: none"> A presentation round where all members of the assessment team and participants introduce themselves. Presenting the project objectives. Explain the objectives and the process of the workshop. Show people that we take them seriously and want their input. A round of Q&A. Let people ask questions! Let them speak – and be sensitive to their own understanding of the situation and the role of the project. Avoid misunderstandings from the start! 		<ul style="list-style-type: none"> Be careful not to be too technical; a few examples of good practice cases can help. Make clear that what we want to achieve is supposed to help them, but do not create too high expectations.
Exercise 1 <ul style="list-style-type: none"> Identifying relevant local issues Understanding and prioritising the benefits of nature (ES) Identifying where and how they originate 	<ul style="list-style-type: none"> Which are the most important nature-related problems/issues you see for the ... site? Why is nature in and around your community important? Who benefits from healthy ecosystems? Where (spatially) do the benefits originate? Where do they go? 	<ul style="list-style-type: none"> Use working groups to come up with important local issues. In the plenary, these issues are then shared and the moderator helps to summarise, so that in the end 7–10 issues remain. For understanding the benefits of nature you can split groups according to spatial boundaries (e.g. ecosystems, land use types, or sub-districts). Participants can write or draw on paper cards to build a group result, where the most relevant benefits of nature (i.e., ecosystem services) are gathered on one big sheet of paper with a map of the area. Prioritising ES works well by voting 	<ul style="list-style-type: none"> Be careful to focus only on nature-related problems. Are people open and honest about issues?
Exercise 2 Understanding how stakeholders relate to ecosystem services	Describe the attitude of specific (groups of) people to the benefits of nature in this area. <ul style="list-style-type: none"> Who acts as a steward of nature? Who helps provide the benefits? Who benefits and in what way? Who harms nature? 	<ul style="list-style-type: none"> Group work, discussion. For each important ES, determine who is steward (+), who benefits (😊) and who degrades (-). Graphically illustrate the relationship between groups of people and the ecosystem services (e.g. on the board with the map of the area). 	<ul style="list-style-type: none"> Be careful with the term 'degrader'. Make clear that this is not about judging people or activities as bad, but about understanding the situation and how things can be improved.
Exercise 3 Identifying opportunities for improving the situation	How can we increase benefits from ES (and thereby contribute to solving the local issues)? <ul style="list-style-type: none"> How to support stewardship? Can beneficiaries contribute to protecting nature? How to stop damage? What other potential is there for people to benefit more from nature and natural resources? 	<ul style="list-style-type: none"> In groups, participants can be asked to think of two or three actions or strategies. First write them on cards and then share them with the rest of the group. The group can then discuss which 5-7 actions they find most interesting and relevant for enhancing the provision of ecosystem services. Those actions will then be shared with the plenary. Brainstorming: use cards to collect ideas. Share the outcome with the rest of the group and discuss. 	<ul style="list-style-type: none"> Be aware that different stakeholders will have different degrees of willingness to change Make it clear that this is only brainstorming and that the goal is to be innovative and inspiring – and also that not all these changes will occur. Avoid false expectations about what the project will be able to do.
Conclusion	<ul style="list-style-type: none"> Present summarised results. Clarify the next steps, prepare a 'take-home-message' for the participants Announce the next steps (incl. next workshop). 		<ul style="list-style-type: none"> Take care that people feel included in follow-up processes. Allow for questions.

Appendix C

Additional example of applying Steps 3 and 4 to Bu Phram

Identifying ecosystem service opportunities and suitable economic instruments in Bu Phram subdistrict | Prachin Buri province, Thailand

<p>Task 3A</p> <p>Clarifying relevant issues and the role of ES</p>	<p>Issues: Insufficient wildlife corridor between Khao Yai and Thap Lan National Parks due to utilized land surrounding Highway # 304 (both NPs part of UNESCO World Heritage Site); on Thap Lan NP side, communities feel insecure due to lack of official land ownership titles; general lack of cooperation between communities and NP management; illegal harvesting of endemic Lan palm leaves in the forest</p> <p>Ecosystem services: Provision of agricultural products, erosion prevention, forest services (CO₂ sequestration, species habitat incl. protected Lan palm tree, NTFP, water regulation); water provision and fisheries</p> <p>Trade-offs: Higher and stable income from agricultural food production (using chemical fertilizer) vs. species habitat, erosion prevention, soil degradation; infrastructure development (roads, resorts, shopping mall) vs. wildlife corridor improvement</p>
<p>Task 3B</p> <p>Understanding how stakeholders relate to ES</p>	<p>Villagers: <i>ES providers:</i> those farmers who let palm trees or other trees grow on their land or practice organic (pesticide-free) cultivation <i>ES beneficiaries:</i> all villagers using food, water, Lan palm tree, NTFP and benefiting from micro-climate and water regulation <i>ES degraders:</i> tapioca and eucalyptus mono crop farmers who use excessive pesticides, sellers of products based on illegal forest use (palm leaf products, tree stump carvings, sugarcane planters); illegal wildlife hunters/traders</p> <p>Thap Lan NP management: wildlife and forest management</p> <p>Local conservation NGOs: wildlife conservation</p> <p>Community professional association: harvesting of palm trees, herbs, rubber</p> <p>Private Sector: <i>ES providers:</i> petrol company with financial contributions (CSR activities) <i>ES beneficiaries:</i> tourism agencies, restaurants, resorts, hotels benefit from scenery; Lan leave handicrafts enterprises, local drinking water producers; "Kabin buri 304" industry downstream benefits from water provision and recruits labor force <i>ES degraders:</i> waste water pollution and land conversion by resort development and cows breeders</p> <p>Tourists and users of highway 304: <i>ES beneficiaries:</i> wildlife watching, nature trails, scenery <i>ES degraders:</i> road kill due to speeding, and littering along the road</p> <p>Govt. admin. national & provincial: Irrigation, tourism</p> <p>National and global citizens: biodiversity heritage conservation</p>
<p>Task 3C</p> <p>Recognizing gaps and imbalances</p>	<p>Unrecovered costs of ES provision or potential costs for more ES provision</p> <ul style="list-style-type: none"> Maintenance of biodiversity on agricultural land is higher effort (harvesting that protects trees, less pesticides), Farmers on Thap Lan side fear that leaving natural vegetation recover will increase risk that they lose land use rights Local authorities and communities may have to give up (part of) infrastructure development <p>Unpaid ES benefits or interest in more ES provision:</p> <ul style="list-style-type: none"> Tourism and shop operators benefit from scenery but do not financially support conservation; Community association for Lan palm handicraft does not contribute to recovering of the palm; "Verona resort" owner has prime location between two NPs and has not contributed to costs; has an interest in solving conflicts between NP and communities; Downstream industries do not contribute to improve the living conditions of their labor force; Conservationists are interested in keeping UNESCO WHS status but provide little support. <p>Uncompensated ES degradation</p> <ul style="list-style-type: none"> Tapioca and eucalyptus farmers are not held liable for impact on biodiversity, soil, water; Illegal forest users and poachers are rarely caught and punished; Verona resort is not held liable for impacts of waste water, exotic species introduction (e.g. horticultures and cows). Speeding on highway 304 that leads to animal road kills is monitored, but rarely punished.

Identifying ecosystem service opportunities and suitable economic instruments in Bu Phram subdistrict | Prachin Buri province, Thailand

Task 4A
Identifying ES opportunities

- “Stewards earns” opportunities:**
- Farmers could be rewarded (payments, honor certificates, technical assistance, etc.) for organic and wild-life-friendly agriculture and native tree restoration;
 - Farmers on Thap Lan side could receive security that native vegetation recovery will not lead to loss of land use rights;
 - Local authorities could be supported in their efforts towards sustainable development by provincial and national authorities;
 - NP management could receive additional funds for restoration via benefit-sharing scheme.

- “Beneficiary pays” opportunities:**
- Local tourism and shopping operators could contribute to grassland and palm tree restoration;
 - Community organization for Lan palm production could support sustainable harvesting on productive land and enforce non-use of Lan trees in forest;
 - “Verona resort” owner could contribute financially, with land donation (on Khao Yai side), and promote “sustainable business” in the area;
 - Local drinking water producers could contribute financially.
 - National and international conservation organizations could provide funds.

- “Polluter pays” opportunities:**
- “Verona resort” owner could be asked to reduce and/or compensate for his impacts (e.g., run-off from stables)
 - Speeding on highway 304 and road kills could be pursued and punished.

- Innovation opportunities:**
- Ecological product certification; new markets for sustainable Lan products
 - Nature-based tourism (wildlife watching, bike tours, homestays, etc.)
 - Educational activities (wildlife, Lan education center)

Task 4B
Checking the appropriateness to pursue the ES opportunity

Unclear, but potentially YES: on Thap Lan side it is currently difficult to pay people who do not officially have ownership land title; those farmers most inclined to ecological agriculture are the “newcomers” whose land use tenure is least secured.

YES in general, but acceptability needs to be checked for each group of beneficiaries separately.

NO, with legal situation little chance to hold “Verona owner” liable via the Environmental Quality Promotion Act 1992, it is more promising to win him as an ally for partnership in green tourism etc.; Punishment for speeding subject to police, (collaborations with NP authority perhaps in far future).

No, but requires trust in authorities by the farmers (rights to use land), investment and technical support on certification or label development and operation, and wildlife based tourism management.

Task 3C
Pre-selecting suitable economic instruments

- Due to the overlapping land use rights situation, an umbrella agreement between NP authorities and the communities is needed. A co-management and development plan as legal basis seems feasible under the National Park law Act, Article 19. This agreement can include and facilitate
- official limited right to harvest Lan palm leaves on farm land
 - zoning and mapping of land use for conservation purposes
 - support for development and benefit sharing scheme
 - new markets for local and organic products (e.g. organic rice, Lan palm products), ecological tourism activities (wildlife watching, waterfall tours, biking, homestays, etc.) and educational activities
 - certification scheme (eco-labelling) and selling local products in the shopping complex
 - incentives for sustainable land use (according to zoning – e.g. grass land for conservation management, mixed cropping, etc.) in form of money, green credits, access to loans, agricultural assistance, insurance scheme for damage from wildlife
 - corporate sponsorship schemes (CSR) with “Kabinburi 304” industry downstream
 - fines for speeding and wildlife road kills (later stage, subject to police and national park authorities)

Appendix D

Economic instruments illustrated by case studies

Economic instrument	Steward earns	Beneficiary pays	Polluter pays	Innovation	Case studies
User fees & surcharges	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Kenya: Most private and community conservancies levy a hotel surcharge or bed tax. Across the twenty local conservancies and trusts included in Kenya's Northern Rangeland Trust, annual payments totalling more than USD 0.5 million are used to pay for rangers' salaries, educational bursaries and other ventures identified as a priority by local communities. (Northern Rangeland Trust 2014)</p> <p>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, e.g. just under a third of all revenue goes to fund a small grants programme for each of the villages in the park. (Erdmann et al. 2003)</p> <p>Lao PDR and Viet Nam: Partnerships between the University of Illinois at Chicago, the international pharmaceutical company Glaxo Smith Kline, the National Centre for Science and Technology and Cuc Phuong National Park in Viet Nam, and the Traditional Medicine Research Centre in Lao PDR have been attempting to operationalise ethical models for bioprospecting, involving benefit-sharing arrangements, technology transfer, capacity building and community development (Soejarto et al. 2004)</p>
Payments for Ecosystem Services (PES)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>Indonesia: In Cidanau watershed, a steel company that relies on stable water provision pays groups of upstream farmers to plant trees in order to increase water quality and water regulation. (TEEBcase by E. Mbak 2010)</p> <p>Gabon: Upstream communities and Monts de Cristal National Park receive payments from Société d'Énergie et d'Eau du Gabon in recognition of the ecosystem services they provide to downstream hydropower and urban water supplies. (Emerton and Nlom 2011)</p> <p>Costa Rica: The Procuencas PES programme receives revenues from a hydrological fee included in each user's water bill and from partnerships with private companies. (TEEBcase by Redondo-Brenes and Welsh 2010)</p>
Carbon payments – PES for Carbon	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<p>Mexico: Carbon sequestration payments assist farmers and communities in Chiapas and Oaxaca to develop sustainable land management practices. (TEEBcase by A. Morrison 2010)</p> <p>China: Gaoligongshan Nature Reserve Buffer Zone in China is being regenerated with native forest, to create a buffer zone between the nature reserve and surrounding communities. The scheme uses local labour and forestry farm plantation investment. Villagers will earn income from forest products, and forestry farms will earn carbon credits sold on the international voluntary market. (Kram et al. 2012)</p> <p>Kenya: A community-led mangrove project, Mikoko Pamoja ('mangroves together'), is among the first coastal REDD+ initiatives in the world to receive accreditation. It involves reforestation and protecting mangroves, and establishing a Casuarina plantation to provide an alternative source of firewood and timber for local people. The scheme expects to capture about 3,000 tonnes of carbon a year, providing income of just under €10,000 from the sale of carbon credits on the global market. (Huxham et al. 2012)</p>
Direct payment – e.g. conservation concessions & contracts, conservation easements, compensation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>Cambodia: A series of direct conservation payment schemes has been instituted around Kulen Promtep Wildlife Sanctuary and Preah Vihear Protected Forest. These involve agri-environment payments, the development of wildlife-friendly products, and the provision of direct contracts for bird nest protection to local communities. (Clements et al. 2010)</p> <p>Democratic Republic of Congo: The International NGO WWF has signed a 10-year conservation contract with a local community adjacent to Salonga National Park to set aside 10 hectares of forest as a permanent plot for carbon sequestration. Activities such as agriculture, hunting and collecting non-timber forest products are forbidden. Payments are made annually to the chief, involving compensation in the form of cash, agricultural equipment, livestock and food staples. (Tchiofo Lontsi 2008)</p> <p>Tanzania: Terrat Village has a voluntary agreement with Tarangire National Park tourism companies whereby villagers forgo tree-felling and conversion to agriculture and settlement. In return for maintaining savannah grassland as pasture instead, they receive funding for community development activities. (Nelson 2008)</p>
Insurance schemes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>Nepal: An insurance scheme compensates villagers for loss of livestock to snow leopards. In return, the villagers ensure better herding practices to free up grazing land for natural prey. (TEEBcase based on Snow Leopard Trust 2010).</p>

Economic instrument	Steward earns	Beneficiary pays	Polluter pays	Innovation	Case studies
Voluntary donations and corporate sponsorship	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<p>Latin America: The Nature Conservancy (TNC) 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, donors receive a certificate acknowledging their stake in the 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)</p> <p>United Arab Emirates: HSBC, the international bank, provided financial assistance for establishing the first protected mountain area in the UAE: Wadi Wurayah. The main goal was to assist the Fujairah Municipality and Government of Fujairah to create and manage a mountain Protected Area and set up a team of conservation rangers from local tribes. Funding was provided over three years to carry out biodiversity and habitat surveys, analyse water samples, consult with local communities, and develop a Protected Area management plan (WWF 2015).</p> <p>Myanmar: The Taninthayi Nature Reserve is funded by three gas pipeline companies: the Total-operated Motamma Gas Transportation Company, Taninthayi Pipeline Company and PTT Exploration and Production. Payments are made as compensation (but not as direct offsets) for impacts on biodiversity along the pipeline route (Pollard et al. 2014).</p> <p>Malaysia: Malua BioBank in Sabah aims to create a commercially sustainable model for large-scale rainforest conservation and restoration in Malua Forest Reserve through the withdrawal of logging concessions. To finance its operations and to endow a trust fund, the BioBank issues and sells Biodiversity Conservation Certificates, with each USD 10 certificate representing 100 square meters of rainforest restoration and protection. (MWHCB Inc. 2012)</p>
Taxes		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<p>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)</p> <p>Japan: Forest beneficiaries in several prefectures pay an environmental tax to help improve forest management (TEEBcase by Kiichiro Hayashi 2010).</p>
Tax reliefs, subsidies	<input checked="" type="checkbox"/>				<p>Japan: Farmers who convert to producing rice without pesticides or chemical fertilisers in winter-flooded paddies are compensated with subsidies. (TEEBcase by Nishimiya 2010)</p> <p>South Africa: Private land contracted as statutory conservation areas can benefit from income tax reduction on management expenses, deductions from income tax on value of land, and property rates exclusions. (CAPE 2009)</p>
Ecological fiscal transfers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>Brazil: Since the early 1990s, the Federal Constitution has allowed 25% of the revenue from taxing the circulation of goods, services, energy and communications to be allocated to municipalities. Of this share, a quarter is allocated according to criteria defined by each state, often including environmental characteristics. These include the size of the protected estate as well as a PA 'quality index' and using fiscal revenues to compensate for land-use restrictions for conservation purposes. (May et al. 2002)</p> <p>Philippines: The Philippines Reforestation, Watershed Management, Health and/or Environment Enhancement Fund is a mechanism of the Electric Power Industry Reform Act of 2001 for returning hydropower revenues to catchment conservation. It is managed by the Department of Energy, and funded by government-imposed 'Social Responsibility' compensation paid by electricity generation companies levied at PhP 0.01 per kWh of production. These funds are accessed by means of annual work plans submitted jointly by the hydroelectric power company and the local government to the Department of Energy. (Rosales 2003)</p>
Benefit/revenue-sharing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<p>Congo Basin: In the Democratic Republic of Congo, fines for poaching and tourism fees from PAs are divided equally between central and site levels and distributed to local authorities, PA managing agencies and local communities. In Cameroon, the current forest tax payment system is run on a 50:40:10 principle: 50% of the income goes to national administration, 40% to the communal office and 10% is managed by a committee on behalf of the rural communities in and around the logging area. In the Central African Republic, most forestry and hunting charges are shared between central government, the forestry administration and local authorities; different revenue-sharing formulae are applied depending on the specific type of charge. (Emerton and Nlom 2011)</p> <p>Pakistan: The Community-Based Trophy Hunting programme, established in 1986 on tribal lands in Balochistan, aims to strengthen local incentives for the conservation of large mammals by generating revenues from hunting that can be shared with local communities. The hunting licence fee is fixed by the National Council for the Conservation of Wildlife (a federal agency of the Ministry of Wildlife) and hunting permits are auctioned in the national press and by internet. The fee has two components — 20% is a licence fee paid to the Provincial Government and 80% is a trophy fee paid to the community where the hunt took place. (Iftikhar 2004)</p>

Economic instrument	Steward earns	Beneficiary pays	Polluter pays	Innovation	Case studies
Benefit/revenue-sharing (cont.)	<input checked="" type="checkbox"/>				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 Willmott 2001)
Prizes, awards & other recognition	<input checked="" type="checkbox"/>				Romania: The village of Sinca Noua has declared itself to be the first 'ecological village' in the country, and the local council has elaborated a sustainable development strategy. This includes measures to strengthen small-scale traditional agriculture by certifying it as organic, the development of ecotourism, the creation of Protected Areas, and the implementation of an environmental education plan for the local population. In recognition of these efforts, Sinca Noua was awarded the 'European Village' prize by the EU in 2005. (Sinca Noua Foundation and Stroming Ltd, 2005) The global Equator Prize is awarded each year to local and indigenous community initiatives that advance innovative solutions for people, nature and resilient communities. To date, 152 community organisations have been awarded the Equator Prize. The Equator Prize 2015 will showcase outstanding local and indigenous community efforts to reduce poverty, protect nature, and strengthen resilience in the face of climate change. (Equator Initiative 2015)
Fines, penalties & legal liabilities		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		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) Vietnam: Environmental fines, pollution charges, environmental protection fees, CDM/CER payments, environmental deposits and bonds are all earmarked for environmental protection. (Emerton 2010a)
Auctions & tenders	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Australia: Auction for Landscape Recovery addresses the natural resource management and environmental problems in the northeast wheat belt of Western Australia. The highly biodiverse landscape is threatened by salinity and the effects of large scale clearing for agriculture. The auction was devised as a sealed bid, price-discriminating auction over two rounds, with \$200,000 available to private landholders submitting single, multiple or joint tenders for on-ground works focussing on biodiversity conservation measures. It resulted in a total of 21 separate management contracts for periods of up to three years, focussing on the fencing of remnants and other biodiversity assets such as naturally saline wetlands and granite outcrops, revegetation and associated fencing, rabbit and fox control and corridor construction.. (Gole et al 2005)
Tradable quotas, rights & permits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		USA: In 1980, New Jersey established Tradable Pinelands Development Credits to limit development in environmentally sensitive areas and allow prospective developers to trade for development rights on available land. (Landell-Miles and Porras 2002) Australia: New South Wales achieved cost efficiency by using nutrient trading to allocate responsibility among three sewage treatment firms. (UNEP 2009, p. 151) Brazil: The 'Forest Code' requires each rural property to maintain a proportion of forest under natural vegetation. Recent provisional regulations allow landowners to satisfy the requirement for one property through a forest reserve located on another. The reserve site may be owned by another party, opening the possibility of trading land development rights. (Drechsler and Wätzold 2007).
Biodiversity offsets, habitat/mitigation banking	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		Germany: The law obliges project developers to offset impacts on landscapes and biodiversity by renaturalising comparable habitats. (ten Kate et al. 2010b) 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) USA: A wetland banking schemes in California allows developers who destroy wetlands to offset the environmental damage by paying to protect a sensitive wetland in another location. (Office of Policy, Economics, and Innovation and Office of Water 2005)
Debt-for-nature swaps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		El Salvador: Payments from a trust fund were used to reduce farmers' yearly debt repayments by up to 30 percent. In return, the farmers had to maintain traditional agro-forestry coffee production and refrain from logging. (Rainforest Alliance 2012).

Economic instrument	Steward earns	Beneficiary pays	Polluter pays	Innovation	Case studies
Deposits & performance bonds			<input checked="" type="checkbox"/>		<p>Philippines: Within the Industrial Forest Management Agreement (IFMA), forest leases are awarded to the concessionaire who posts the highest performance guarantee bond to ensure that all obligations under the lease will be discharged. (UNEP 2009)</p> <p>Mongolia: Companies granted mining licences must deposit a rehabilitation bond into a designated bank account before beginning any mining activity. The bond covers 50 percent of the estimated cost of restoring an ecological zone and is managed by the local government. The expenditure deposit must cover the approved closure plan for the mine, and the developer is required to take certain measures in relation to environmental protection and reclamation during the closure of the mine or plant. (Centre for Social Responsibility in Mining 2014)</p>
Green products & markets (alternative income & employment sources)	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<p>Rwanda: A high-end gorilla tourism lodge has been established. It is owned by the local community but under a management contract given to a private sector company, with initial capital provided by the US government. Under the agreement, the local community provided land for the lodge, and receives income from its operation. Among these revenues is a US\$56/night bed tax which earns around USD 250,000 a year for community activities. This money has been invested in basic infrastructure such as roads, rural electrification and rainwater harvesting, as well as in the further development of local tourism-based enterprises. Community members also benefit from employment in the lodge and related businesses. (Emerton and Nlom 2011)</p> <p>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)</p>
Certification & eco-labelling	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<p>Democratic Republic of Congo: Industrie Forestière d'Ouessou (IFO), a subsidiary of the Swiss Danzer Group, achieved FSC certification in 2009 for its concession which borders the Odzala-Kokoua National Park. In addition to employing sustainable production and harvesting practices, the arrangement involves maintaining local access to natural resources, supporting local sustainable businesses and funding social initiatives for the PA-adjacent community. Eco-guards are also employed to help control poaching and protect biodiversity. (Emerton and Nlom 2011)</p> <p>Japan: The local Oriental White Stork scheme allowed successful reintroduction of the white stork into Japanese rice paddies by increasing payments to farmers who change to ecological rice production. (TEEBcase by Hayashi and Nishimiya 2010)</p> <p>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 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)</p>
Credit & loans	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<p>Russia: In the Katunsky Biosphere Reserve, micro loans have been issued and used for producing and packing organic local products, primarily mountain honey. Borrowers established a non-governmental association of honey producers, and average income among project participants increased by about 30%. Eco-agricultural farming practices have been promoted more broadly and local agricultural products are marketed using the official logo of Katunsky Biosphere Reserve, allowing them to access premium markets and prices. 'Reserve Katunsky' was officially registered as a trade mark and the products are sold in Moscow, St. Petersburg and Novosibirsk. (Emerton 2008)</p> <p>Malaysia: The Green Technology Financing Scheme (GTFS) was established by the government to boost investment, production and utilisation of green technology-based products. Producers and users of green technology obtain soft loans, with the government subsidising 2% of the interest rate and providing a guarantee of 60% on the amount of financing. (Malaysian Green Technology Corporation 2012)</p> <p>Sudan: In the Gedaref and Kassala states, the establishment of a revolving micro-credit fund for biodiversity enterprise development has enabled villagers to develop new trade in Gum Arabic and other non-timber forest products. (Emerton 2012)</p>

Economic instrument	Steward earns	Beneficiary pays	Polluter pays	Innovation	Case studies
Green investment facilities (conservation bonds, green investment funds, etc.)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Africa: Verde Ventures provides loan, equity and grant financing for conservation-oriented businesses, including marine eco-tourism in Mozambique, chocolate production in Ghana, garment eco-factories and agro-industry in Kenya. (Conservation International 2014)</p> <p>USA & Latin America: EcoEnterprises Fund was established in 1998 as a venture capital fund targeting community-based sustainable businesses in rapidly expanding environmental sectors such as organic agriculture, ecotourism, sustainable forestry, and non-timber forest products. Ecosystem Investment Partners is a private equity management firm established in 2006 to acquire conservation properties and generate investment returns through wetland, stream and endangered species mitigation opportunities in the United States. The Amazon Carbon and Biodiversity Investment Fund is run by Bio Assets, the successor of a large Japanese forestry company, and focuses on investing its own and third party capital into developing and implementing carbon, biodiversity, renewable energy and biofuels projects in Brazil. (Emerton 2015)</p> <p>Korea: In 2014, the Export-Import Bank of Korea issued a USD 500 million green bond, intended to be used to finance low carbon and climate resilient growth projects. (Emerton 2015)</p>
Land/resource management & use rights	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<p>Slovenia: The Nature Protection Law allows PAs to be managed via commercial management concessions and stewardship agreements run by companies or NGOs. For example, the management of the Nature Reserve Škocjanski has, been entrusted to the biggest nature protection NGO in Slovenia, while SOLINE Pridelava Soli d.o.o (Salt Production Co. Ltd.) manages Secovlje Salina Nature Park. (Sovinc 2005)</p> <p>Namibia: Wildlife management and utilisation rights have been devolved to local people under the community-based natural resource management (CBNRM) programme. This is a joint venture between Government and non-government institutions, communities, community-based organisations and development partners. The programme aims to provide incentives to communities to manage and use wildlife and other natural resources sustainably and productively. In the first ten years of its operation, up to 2007, more than fifty community wildlife conservancies were registered, involving 118,700 km² of communal land that is home to about 221,000 people. In 2007 the Ministry of Environment & Tourism passed a national policy for granting tourism and wildlife concessions on State land, including in Protected Areas. The policy awards concessions for poor rural communities in or near parks, especially conservancies, enabling them to benefit directly from tourism and wildlife utilisation (e.g. hunting or cropping) in recognition of their wildlife and land management role and reduced livelihood options. (Brown and Bird 2011)</p>
Environmental training & education programs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Nepal: In the Terai region, environmental and health measures were tackled in a collaborative and integrated manner, combining community forest management, promotion of biogas to decrease deforestation, measures to improve quality of sanitation and drinking water, and health education programmes to raise awareness about HIV/AIDS and family planning. (TEEBcase by Almack and Chatreaux 2009)</p>

Appendix E

Additional supportive analyses (Task 5 C)

Ecological analysis can help key actors understand and appreciate the problems associated with the current situation and to accept the need for conservation efforts. It provides evidence of bio-physical relationships between drivers of ecosystem change and (the loss of) biodiversity and ecosystems. For instance, analysis can demonstrate the effects of forest conversion on the occurrence of flood and drought events, on sedimentation rates, or on carbon sequestration. Ecological studies can also be necessary to understand the effectiveness of different management options (e.g. conservation activities or agricultural management schemes) on biodiversity and ecosystem services provision or other relevant environmental indicators (e.g. quality of water, soil or air).

In some cases, it can be useful to conduct an **ecosystem services valuation** to illustrate how changes in ecosystem service provision affect the wellbeing or economic values (damage, benefits, etc.) of relevant stakeholder groups. Such studies typically require interdisciplinary work on ecosystem services, linking bio-physical and socio-economic analyses. Consider for instance the effects of an increase in watershed forest cover from 10% to 20%, of a change from cash crop monoculture to agro-forestry, or of removing an agricultural subsidy, or of a new law allowing no livestock within 100m of a river to reduce bacteria. These analyses must determine the ecological effects of different management options before assessment is possible of the resultant ecosystem service provision and its effects on the wellbeing of different stakeholders. It will be crucial to use appropriate indicators, both for bio-physical and socio-economic analysis and to gain access to the necessary data. Should economic valuation of ecosystem services be applied, then the choice of appropriate valuation technique(s) is crucial for generating credible and useful results. Valuation methods are chosen depending on the problem statement, the type of ecosystem service, and the local cultural context. It is difficult to make general recommendations. The valuation expert will have to be aware of the merits and limits of different methods and select the approach that best suits the situation and purpose at hand.

Another type of study is market analysis. Before introducing an innovative ecological product, a **market analysis** of its sales potential and distribution channels for ecological products may be required. Or you may want to determine the potential of a product certification scheme (eco-label) and consumer demand for a certified product, or identify options for joining existing certification schemes.

Cost assessments are an additional type of useful analysis. Sometimes **direct costs** have to be estimated to work out the financing of proposed activities (e.g. reforestation, wetland restoration, change to organic agriculture, wildlife monitoring), or to weigh the cost-effectiveness of different options. Determining opportunity costs is frequently useful when the economic instrument (e.g. a PES scheme) involves motivating providers of ES to forego more profitable activities (e.g. monoculture land use, pesticide use, exploitation of forest resources, or over-fishing). Knowing **opportunity costs** can help understand the barriers to participation in the economic instrument and how to motivate ES providers to participate. In some cases, this motivation may be financial, in which case the opportunity costs can help to decide how much should be paid.

Legal analyses can be important, especially when the legal situation regarding land use or property rights is unclear, or when you have to decide which legal entity (such as associations, cooperatives, or a limited liability corporation) is most suitable to be part of the proposed institutional arrangement.

Finally, other types of studies, such as an analysis of the workings of specific institutions (e.g. water or agricultural authorities), or the assessment of community norms that currently govern resource use, can also play an important role.

Further guidance on additional supporting analyses

The ValuES website by GIZ et al. (2014) provides a 'Methods Database' with 'Method Briefs' explaining a large number of relevant methods and tools, including for

- Ecological/hydrological studies,
- Ecosystem services valuation (social and monetary),
- Participatory mapping,
- Cost-benefit and cost-effectiveness analysis for assessing and comparing policies, programmes or projects.

The ValuES 'Methods Navigator' helps you search and filter methods according to your needs.

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