



Module 3:

Mainstreaming Biodiversity into Sectoral and Cross-Sectoral Strategies, Plans and Programmes

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Introduction to the Module

This module provides an overview of mainstreaming and its importance for achieving National Biodiversity Strategy and Action Plan (NBSAP) goals. It describes specific tools and strategies that can be used to achieve mainstreaming of biodiversity concerns into sectoral and cross-sectoral plans and programmes. These tools and strategies include incorporating biodiversity into national development and/or poverty reduction strategies, using sectoral strategies and tools as entry points for mainstreaming, applying Strategic Environmental Assessments (or: impact assessment tools applied at the strategic level) as tools for mainstreaming, promoting mainstreaming through application of the ecosystem approach and related approaches, and using financial and economic tools for mainstreaming.

The overarching message of the module is that the implementation of NBSAPs, which serve as a key element in national and sub-national policy development and planning processes, should result in demonstrable mainstreaming of biodiversity concerns.

1. What is mainstreaming and why is it important?

The economic survival of various production sectors, and of the people depending on those sectors for their livelihoods, is intricately connected to the conservation and sustainable use of biodiversity. **The word “mainstreaming” can be used synonymously with “inclusion.”** Mainstreaming means integrating or including actions related to conservation and sustainable use of biodiversity in strategies relating to production sectors, such as agriculture, fisheries, forestry, tourism and mining. Mainstreaming might also refer to including biodiversity considerations in poverty reduction plans and national sustainable development plans. By mainstreaming biodiversity into sectoral strategies, plans and programmes, we recognize the crucial role that biodiversity has for human well-being.

According to Article 6b, Parties have an obligation to:

Box 1

“Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.”

The Hague Ministerial Declaration from COP VI in 2002 stated:

*“The most important lesson of the last ten years is that the objectives of the Convention will be impossible to meet until consideration of **biodiversity** is fully integrated into other sectors. The need to mainstream the conservation and sustainable use of biological resources across all sectors of the national economy, the society and the policy-making framework is a complex challenge at the heart of the Convention.”*

Given the importance of mainstreaming, it is not surprising that the Strategic Plan of the Convention addresses this issue. Goal 3 of the Strategic Plan relates to National Biodiversity Strategies and Action Plans and the integration of biodiversity concerns into relevant sectors. In particular, goal 3.3 states:

“Biodiversity concerns are being integrated into relevant national sectoral and cross-sectoral plans, programmes and policies.”

The activities of all economic sectors impact biodiversity in some way and at some level. These impacts can be far-reaching both in time and space. Biodiversity conservation has traditionally been the business of the environment sector, and undertaken through tools such as protected areas. However, the benefits of a protected area established, say, to protect a sensitive lake can be negated through eutrophication caused by the run-off of agricultural fertilizers into that lake. The regulation of agricultural practices rests within the agricultural sector, which is primarily concerned with maximizing production. Without mainstreaming biodiversity concerns into the agricultural sector, the best efforts of protecting the lake in question are likely doomed to failure.

Through mainstreaming, biodiversity concerns will be internalized into the way economic sectors, development models, policies and programmes operate. Integrating biodiversity concerns into the way sectors operate can have immediate benefits in improving environmental quality and productivity, and can also serve as a long-term safeguard for sustainable development.

Ideally, **biodiversity policy should not be seen as independent of sectoral policies, but rather sectoral policies should be seen as an instrument to implement national biodiversity goals.** These goals differ from one country to another.

Mainstreaming of biodiversity into sectors can include strategies to reduce the negative impacts that the sector has on biodiversity. In fisheries strategies this may involve actions to reduce by-catch or eliminate effects of fishing practices on sea bottom habitat. In agricultural strategies, it might involve minimizing the use and optimizing the application of chemical fertilizers and pesticides so as to reduce negative impacts on groundwater, surrounding habitats and wildlife.

Mainstreaming might also include strategies through which activities in production sectors not only prevent negative impacts on biodiversity, but might actually benefit biodiversity. For example, small-scale farming or aquaculture activities, when undertaken in a sustainable manner, might actually provide local relief to the pressure on commonly harvested wild species.

Positive biodiversity impacts might also be optimized through promoting poor peoples' access to and benefits derived from the use of biological resources (e.g. community-based forest management or joint forest management, promotion of traditional multi-species and multi-variety agricultural practices, securing access to medicinal resources for local use, strengthening traditional cultural practices governing the use of wild resources, clarifying disputes over land tenure, etc.

2. What are some of the basic requirements of mainstreaming?

Mainstreaming, on a basic level, requires **an understanding of the relationship of a specific sector to the conservation and sustainable use of biodiversity** as well as mechanisms, the will and ability to identify win-win situations that benefit both biodiversity and the sustainability of the specific sector.

Efforts to mainstream biodiversity into sectoral strategies need to be based on a clear understanding of how that sector

1. Impacts biodiversity
2. Provides ecosystem services
3. Can help reach NBSAP goals through sector-specific tools

Individuals involved in biodiversity planning and policy will therefore need to be familiar with the operating practices of each sector, the actual and potential impacts of that sector on biodiversity, sectoral management practices and their value for conservation and sustainable use of biodiversity. Many sectors have specific biodiversity-relevant knowledge in the form of information (including traditional knowledge) and resource management techniques that can be utilized to reach NBSAP goals.

Box 2

Example: Ecosystem services provided by agricultural landscapes

The ecosystem services provided by a healthy agricultural landscape include: the conservation of soil and generation and renewal of soil fertility, pollination of crops and natural vegetation, natural control of potential agricultural pests, detoxification and decomposition of wastes, and maintenance of watershed functions. These services are provided by many natural cycles operating at different rates and scales- such as biogeochemical cycles of carbon, occurring on a global scale, or life cycles of soil organisms, occurring in a handful of soil. Understanding these cycles and fostering their proper functioning and communicating this information to stakeholders are key to conserving agricultural ecosystem services.

Communication is a key element of sectoral mainstreaming. A strong and clear message about the importance of biodiversity to improved sectoral production, livelihoods, poverty and national development is needed to promote biodiversity. This message will need to answer the question of “why people should care about biodiversity”, and should be communicated across levels and branches of the government, as well as the general public.

More information about developing a communications strategy can be found in Module 7.

3. What strategies for mainstreaming exist?

Biodiversity management is complex and requires the **active and effective participation of stakeholders** not only at different levels of government, but also in the large number of sectors potentially impacting the environment. On a very basic level, mainstreaming requires:

- An understanding and acceptance of the importance of a healthy environment to well-functioning production sectors. This will require an extensive strategy of communication, education and public awareness.
- A mechanism to bring together representatives of various sectors in order to coordinate activities and address common concerns. This mechanism may take the form of, for example, a committee, a coordinating body (such as a steering group) or an interagency group.

There are **several strategies** to undertake mainstreaming on the national level, including:

- Incorporating biodiversity into national development and/or poverty reduction strategies
- Mainstreaming biodiversity into production sectors
- Using other tools and strategies for mainstreaming

Each of these strategies will be discussed in further detail below.

A. How to mainstream biodiversity into national sustainable development and poverty reduction strategies?

For biodiversity to become a top priority nationally, its **relevance to livelihoods, poverty and national development needs to be highlighted**. On the national level, one way to accomplish this is through incorporating biodiversity-relevant issues into Sustainable Development Strategies and Poverty Reduction Strategy Papers (PRSP). PRSPs describe a country's macroeconomic, structural and social policies and programs to promote growth and reduce poverty, as well as associated external financing needs. PRSPs are prepared by governments through a participatory process involving civil society and development partners, including the World Bank and the International Monetary Fund (IMF).

Integration of biodiversity into PRSPs and Sustainable Development Strategies is accomplished through participation of biodiversity experts and practitioners in their development, launching and implementation. Such participation raises greater awareness of biodiversity issues and priorities as well as about the contribution of protected areas, habitat restoration, and sustainable use to poverty reduction and development at the planning level. This will raise the profile of biodiversity issues on the national level and

will assist in incorporating biodiversity and natural resource issues into development co-operation agendas.

CASE STUDY: Sustainable rural livelihoods in Ethiopia

Ethiopia's National Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) incorporates biodiversity conservation and sustainable utilization. The document indicates that during the plan period:

- 7700 specimens will be characterized and made available for researchers and other users
- 6500 specimens of high economic value endemic on endangered varieties will be conserved
- 1 duplicate, 10 field and 15 community gene banks and 14 in situ conservation areas will be established

In the Conservation Strategy of Ethiopia genetic, species and ecosystems biodiversity conservation and management are treated and given a high priority.

A similar project called Farmer-Based Approach to the Conservation of Ethiopia's Plant Genetic Resources worked extensively to promote food security and improve rural livelihoods through in-situ conservation of local agrobiodiversity through the creation of 12 community gene banks providing affordable seeds of 400 farmer varieties from 22 crops to more than 3000 participating farmer conservators. These gene banks were locally operated and aided in the creation of community conservation associations which trained thousands of farmers across the country. The result was the preservation and cultivation of hundreds of major crop varieties previously in danger of disappearing as well as the creation of market incentives for in-situ crop conservation.

Such mainstreaming initiatives can lead to more secure rural livelihoods and improved biodiversity conservation by restoring the complex interaction of genetically diverse traditional crop varieties (landraces) with their associated pests, predators and pathogens. The initiatives also retain traditional farmer knowledge associated with landraces, knowledge which can be instrumental in utilization and development of new crop varieties from farmers' original landraces. In all cases, stakeholder involvement is essential for success of the initiatives.

For further information see Ethiopia's 3rd national report, <http://www.gefonline.org/projectDetails.cfm?projID=351> and http://www.undp.org/gef/undp-gef_publications/publications/ethiopia_plant%20genetics_brochure.pdf

B. How to mainstream biodiversity into production sectors?

Mainstreaming biodiversity into production sectors requires the identification and **prioritization of "entry points"** that will provide an opportunity for inclusion of biodiversity-relevant information and/or activities into sectoral operating processes. The main sectoral entry points consist of the development and updating of various sectoral strategies and tools.

Each sector has its own specific strategies, activities and tools for addressing issues relevant to sustainability. These tools are discussed in more detail in the following sections, and include:

- Sectoral strategies, action plans and programmes
- Industry standards, codes of conduct, guidelines and good practices
- Certification schemes
- Ecosystem approaches specific to a given sector

Sectoral strategies, action plans, programmes

Most nationally important **sectors have their own action plans and/or programmes**. National Forestry Action Plans (NFAP) and/or National Forestry Programmes (NFP) contain activities to address forest sector issues with the aim to achieve sustainable forest management. National fisheries development/management plans contain similar activities for the fisheries sector, while national tourism plans address tourism development, and national agriculture plans deal with the development of the agriculture sector. Like NBSAPs, these plans and programmes are ideally developed with the participation of a wide range of stakeholders.

As can be seen from the description of India’s National Forestry Action Programme in the box below, the issues addressed by the programme relate directly to sustainable use of biodiversity, even if there is no explicit reference to biodiversity.

Like NBSAPs, sectoral action plans and programmes are usually an evolving process, requiring periodic assessment and update. These periodic updates can provide an opportunity for biodiversity experts to become involved in the redrafting process, and for biodiversity concerns to be mainstreamed into the action plans and programmes.

Box 4

CASE STUDY: India’s National Forestry Action Programme

The similarities between CBD objectives and those of sustainable forest management can be illustrated through India’s National Forest Action Programme (NFAP). The introduction to the NFAP states: “Sustainability of forest ecosystem is an essential component of environmental conservation efforts”. The objective of NFAP is to enhance the contribution of Forestry and Tree Resources to ecological stability and people centred development through qualitative and quantitative improvements in forest resources.

The NFAP is seen as an evolving process, with updates made at 10-year intervals.

The full NFAP is available on-line at <http://envfor.nic.in/nfap/summary.html>

Standards, codes of conduct, guidelines and good practices

Production sectors use a **number of tools for achieving environmentally and socially sustainable resource management practices**. These tools include **standards, codes of conduct, guidelines and good practices**. Mainstreaming biodiversity into these tools can

be achieved through the participation of biodiversity experts in their drafting and/or review.

Standards are policy guidelines that regulate the effect of human activity upon the environment. Standards may specify a desired state (e.g. lake pH should be between 6.5 and 7.5) or limit alterations (e.g. no more than 50% of natural forest may be damaged).

Guidelines provide voluntary and practical advice and streamlining on how to undertake particular processes. Guidelines, for example the CBD Tourism guidelines (see box below), are usually relatively general and can be applied to a number of circumstances.

Codes of Conduct can be very detailed, and set out standards of behaviour for responsible practices with a view to ensuring sustainable resource use. A good example of a sector specific code of conduct is the FAO Code of Conduct for Responsible Fisheries (see box below).

Good practices (or best practices) are informal examples of actions that can be undertaken to achieve certain sustainability goals, or points that need to be kept in mind towards this end. The best practices for conserving agricultural ecosystem services outlined in the box below provide an example of such good practices.

Box 5

EXAMPLE: The FAO Code of Conduct for Responsible Fisheries

The FAO Code of Conduct for Responsible Fisheries, with its accompanying Technical Guidelines is an authoritative digest of the principles of sustainable fisheries. It is as valid for nations as it is for local communities involved in fisheries regulation. Article Seven (Fisheries Management) deals with many important biodiversity-related issues, including:

- excess fishing capacity,
- the special requirements of developing countries and small-scale, subsistence and artisanal fisheries,
- the conservation of habitats and ecosystems,
- effects of humans on habitat,
- aquaculture,
- by-catch and selective harvest,
- the need to base management on the biological and genetic characteristics of stocks,
- the need for gathering knowledge on social and economic impacts of fisheries management and conservation,
- coastal zone management, and
- the need to adopt a precautionary approach.

The Code and associated guidance are available on the FAO website at:

<http://www.fao.org/DOCREP/005/v9878e/v9878e00.htm>

Box 6

EXAMPLE: Resources for mainstreaming biodiversity into tourism operations

CBD Sustainable Tourism Guidelines

The CBD has produced international guidelines for activities related to sustainable tourism development in vulnerable terrestrial, marine and coastal ecosystems and habitats of major importance for biological diversity and protected areas, including fragile riparian and mountain ecosystems. These guidelines, which are available on the CBD website (<http://www.biodiv.org/programmes/socio-eco/tourism/guidelines.asp>) should provide a starting point for integrating biodiversity concerns into tourism development.

WTO Global Code of Ethics for Tourism

The World Tourism Organisation has launched the Global Code of Ethics for Tourism, which addresses environmental, social and economical principles of sustainable tourism. Articles 3, 5, and 9 in particular address the environmental and social aspects of sustainability. The text of the Code provides a useful resource for anyone drawing up similar agreements at a national or regional level. More information can be found on the WTO website at <http://www.world-tourism.org/>.

Box 7

EXAMPLE: Some best practices/lessons learnt in conserving agricultural ecosystem services

- It is important that everyone- farmers and policymakers both- understand the concept that agricultural ecosystem services can sustain themselves with proper design
- Ecosystem services have the potential to reduce both off-site inputs and on- and off-site pollution
- Promoting identification and taxonomy is necessary.
- Assessment of risks over time, relative dependence, and sustainable livelihoods are critical issues for agricultural biodiversity, and need to be in appropriate balance
- Policy makers are biased toward large scale plans, whereas much of agrobiodiversity is fine-scaled.
- Costs and benefits of agrobiodiversity goods and services need to be identified.
- It is necessary to enhance capacity for adaptation to change.
- Creating popular awareness and education is necessary for change.

Source: Managing Agricultural Resources for Biodiversity Conservation. UNEP Biodiversity Planning Support Programme Thematic Studies.

See <http://www.unep.org/bpsp/Agrobiodiversity/agrobiodiversity%20thematic/agbioguide.pdf>

Certification schemes

Certification schemes go a step further than voluntary codes of conduct in demanding

adherence to a set of criteria which a given operation must meet before they can use the logo or name of the certification scheme. It is important for mainstreaming that biodiversity experts are involved in developing criteria for both national and international certification schemes

Certification schemes that include biodiversity in their criteria can be an extremely powerful tool for mainstreaming because they present the consumer with a choice to buy a more sustainable product. Some examples of certification schemes include those developed by the Marine Stewardship Council, the Forest Stewardship Council and the Marine Aquarium Council. There are also a number of tourism certification schemes.

Box 8

EXAMPLE: The Marine Stewardship Council Certification Scheme

The Marine Stewardship Council (MSC) is an independent, global non-profit organization set up in the mid-1990s to promote sustainable fishing by harnessing market forces. The MSC has developed an environmental standard for sustainable and well-managed fisheries. It uses a product label to reward environmentally responsible fishery management and practices. Consumers, concerned about overfishing and its environmental and social consequences will increasingly be able to choose seafood products which have been independently assessed against the MSC Standard and labelled to prove it. This will assure them that the product has not contributed to the environmental problem of overfishing. The MSC principles and criteria stipulate that fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.

Further information, including information about available grants can be found on the MSC website at <http://www.msc.org/>.

Ecosystem approaches specific to various sectors

Some sectors **have their own ecosystem approaches, which can be complementary to the CBD ecosystem approach** (see section C of this module). Two examples include Sustainable Forest Managements and the Ecosystem Approach to Fisheries. These approaches can be very effective tools for mainstreaming biodiversity concerns into sectoral practices, provided that they incorporate the concepts found in the principles as the CBD ecosystem approach.

Box 9

EXAMPLE: Sustainable Forest Management

In 1992, the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forest of the United Nations Conference on Environment and Development (UNCED), also referred to as "Forest Principles", defined a new paradigm for forest management, through a set of 15 principles in support to the overall objective of contributing to the management, conservation and sustainable development of forests and their multiple functions and uses. In this regard, the concept of sustainable forest management (SFM) is complementary to the CBD ecosystem approach, both of which are based on the tenet of sustainability. SFM incorporates the following key sustainability concepts: (i) stewardship; (ii) enabling environment; (iii) continuous flow of goods and services without undermining the resource base; (iv) maintenance of ecosystem functioning and biodiversity; (v) maintenance of economic, social, and cultural functions; (vi) benefit-sharing; and (vii) stakeholder participation in decision-making. More information, including guidance, criteria and indicators can be found on the FAO website at www.fao.org/forestry

Integrating biodiversity into the legal framework specific to sectors

None of the sectors can be addressed in isolation, and therefore biodiversity and **sectoral legal frameworks** should take into account, and coordinate with, each other. Traditional knowledge should also be taken into account.

C. How to mainstream using other strategies and tools?

Other strategies and tools for mainstreaming that are not specific to any given sector include:

- Strategic environmental assessment (SEA)
- The CBD ecosystem approach
- Financial strategies and tools

Each of these strategies and tools are discussed below in more detail.

Strategic environmental assessment (SEA)

Integrating **environmental impact assessment (EIA) requirements into development planning** can be a powerful tool for mainstreaming, provided that the EIAs incorporate biodiversity considerations. EIAs and strategic environmental assessments (SEAs) are used to ensure that projects, programmes and policies are economically viable, socially equitable and environmentally sustainable. Strategic environmental assessments have high potential for addressing biodiversity in planning and decision-making.

Impact assessment processes are in place and applied in many countries, however biodiversity considerations are often inadequately addressed. Achieving mainstreaming of biodiversity would therefore require two conditions:

1. Ensuring that EIAs and SEAs are applied in such a way that sound science and public participation provide a foundation for sustainable development.
2. Ensuring that national impact assessment procedures adequately incorporate biodiversity-relevant issues.

Box 10

EXAMPLE: CBD draft guidelines for incorporating biodiversity-related issues into environmental impact assessment legislation and/or processes and in strategic environmental assessment

The CBD has developed voluntary guidelines assist countries in incorporating biodiversity-related issues into environmental impact assessment and strategic environmental assessment legislation and procedures. A publication containing these guidelines is available:

in English at <http://www.biodiv.org/doc/publications/imp-bio-eia-and-sea.pdf>

in French at <http://www.biodiv.org/doc/publications/cbd-ts-26-fr.pdf>

and in Spanish at <http://www.biodiv.org/doc/publications/cbd-ts-26-es.pdf>.

The guidelines explain when and how to consider biodiversity issues in combination with the existing EIA and SEA process.

To ensure that projects and programmes with a potential impact on indigenous and local communities undergo an appropriate impact assessment process, the Akwé: Kon voluntary guidelines for the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities have been prepared by the Open-ended working group on Article 8 (j). This should be seen as complementary to the voluntary guidelines on biodiversity-inclusive impact assessment. The guidelines are available on the CBD website at <http://www.biodiv.org/doc/publications/akwe-brochure-en.pdf>.

In addition, a case study database is available at <http://www.biodiv.org/programmes/cross-cutting/impact/search.aspx>

Box 11

CASE STUDY: Integrating Strategic Conservation Planning with Environmental Impact Assessment in the Western Cape, South Africa: a report card.

The outputs of systematic conservation planning can have significant positive implications for bioregional planning and co-operative governance in areas of high conservation value. Such plans can aid sound decision-making and land use by systematically and explicitly prioritising options for conservation actions at a landscape scale. However, systematic conservation plans, such as the Cape Action for People and the Environment (C.A.P.E.), generally emphasise the strategic integration of conservation targets with spatial planning instruments rather than directly informing environmental impact assessment (EIA) at a project or site level. C.A.P.E. outputs have consequently seldom been incorporated in any noticeable measure in the values, practice or

administration of environmental impact assessment (EIA) in the Western Cape. This can have negative implications for biodiversity conservation outside of the formal system of protected areas. This paper explores the relevance, limits and constraints of strategic conservation planning outputs to EIA. An argument is presented in favour of energetic “mainstreaming” of strategic conservation planning outputs with EIA by means of a negotiated, collaborative process involving EIA practitioners, conservation planners and statutory agencies and departments. It is concluded that such a process potentially holds combined benefit for EIA practice, off-reserve biodiversity conservation and co-operative governance in the Western Cape.

http://www.eia.nl/nceia/pdfs/sea/casestudies/17_rsa_conservation_planning_western_cape.pdf

Box 12

CASE STUDY: Integration of Biodiversity Aspects in Strategic Environmental Assessment of Nepal Water Plan and Environmental Impact Assessment of Operational Forest Management Plans in Nepal

This case study focuses on inclusion of biodiversity aspects in the Strategic Environmental Assessment (SEA) report of the Nepal Water Plan (NWP) finalised in July 2003, and separate plan-level Environmental Impact Assessment (EIA) reports of the Operational Forest Management Plan (OFMP) of Bara, Rautahat, and Dhanusha districts prepared in 1995, 1996 and 2000 respectively. The EIA report of OFMPs is taken into consideration as they are of plan level impact assessment.

Nepal has prepared OFMPs of 20 Terai districts, and has included EIA as a separate chapter with a view to inform the decision-makers and the implementers to integrate environmental aspects including biodiversity conservation during their implementation (of OFMPs). The EIA report of OFMPs has more or less similar contents, issues, impacts, mitigation measures and monitoring requirements. The NWP is of national character, and OFMPs are location specific, i.e., within the administrative jurisdiction of the District Forest Office. The districts are the administrative units of His Majesty's Government of Nepal (HMGN). Each District Forest Office administers forest conservation and management activities including biodiversity aspects in forests, protected areas and wetlands. At present, about 39.6% of Nepal's total area (of 147,181 km²) is under forest cover and the forestry organisations administer it.

The plan level EIA has been conducted only for the forestry sector. The SEA of NWP is the first of its kind in the water resources sector.

http://www.eia.nl/nceia/pdfs/sea/casestudies/15_nepal_water_plan.pdf

The CBD ecosystem approach

The ecosystem approach, with its **provisions for societal choice, stakeholder participation, interconnectedness of ecosystems and adaptive management** provides an effective guide for mainstreaming efforts. By its very nature, it also provides for **integration between various sectoral interests**. The five parts of operational guidance and 12 principles of the ecosystem approach (see decision V/6) and the associated implementation guidance (see decision VII/11) outline a method for managing human activities in a way that provides for sectoral integration.

Box 13

EXAMPLE: The ecosystem approach sourcebook – learning about and applying the ecosystem approach

The ecosystem approach sourcebook provides a practical way to learn about implementing the ecosystem approach. The case study database at the heart of the sourcebook can be used to browse and learn from the examples of others. In addition, anyone (once registered) can try to submit a case study, and in the process learn how their project measures against the principles of the ecosystem approach. Finally, the sourcebook also provides guidance in the form of the beginners and advanced guides to the ecosystem approach.

The sourcebook is available on the CBD Secretariat's website at <http://www.biodiv.org/programmes/cross-cutting/ecosystem/sourcebook/home.shtml>

Other integrated approaches, such as **integrated marine and coastal area management, integrated riverbasin management, land-use planning, Large Marine Ecosystems and integrated oceans management** also provide for sectoral integration in a way that is consistent with the ecosystem approach. Undertaking coastal management, for example, will force all sectors and other stakeholders to get together and resolve conflicts in order to develop a common vision and the associated activities required to realize that vision.

Box 14

CASE STUDY: Large Marine Ecosystems foster integration

Sustainable fisheries management is best undertaken on an ecologically relevant scale. One good option is to work on the scale of Large Marine Ecosystems (LMEs). LMEs are coastal areas that extend from river mouths to the outer boundaries of continental shelves and the outer margins of coastal currents. They are geographically extensive (200,000 km² or more) and politically complex. The fifty LMEs include the marine areas most heavily fished and most subject to stress of resource extraction, habitat loss and pollution. Management of large marine ecosystems reflects principles adopted by the United Nations Convention for the Law of the Sea (UNCLOS), Agenda 21 and the Global Plan of Action (GPA) for the Protection of the Marine Environment from Land Based Activities. Together, these principles constitute an ecological framework for achieving the objectives of UNCED and the Convention on Biological Diversity.

By its very nature, management of LMEs requires integration to address common issues of concern, such as overfishing, coastal erosion, oil and chemical spills. Vertical integration is achieved through the involvement of all levels of government, from local to national. When LMEs cross national boundaries, transboundary and/or regional cooperation is required. LME management also requires the participation of all sectors utilizing the LME space (horizontal integration), including fisheries, shipping, oil exploration, tourism, etc. Scientific input is required for management, and many LME projects also include capacity building and educational components. All LME projects have established some form of coordination mechanism that allow the various stakeholders to communicate and take decisions on management.

Economic and financial tools

Biodiversity forms a stock of natural capital, which if managed sustainably can yield, in perpetuity, a wide range of direct and indirect economic benefits to human populations. **Economic concerns are of central importance to biodiversity conservation.** Economic forces underlie and explain much biodiversity degradation and loss, and economic instruments provide a useful set of tools for strengthening biodiversity conservation, sustainable use and equitable benefit sharing. If NBSAPs are to be effective they must be justifiable in economic terms, they also need to make efforts both to overcome the economic causes of biodiversity loss and to ensure that economic incentives are set in place, which encourage biodiversity conservation. Equally, the goals and strategies specified in NBSAPs have to be acceptable to other “economic” sectors, decision-makers and planners, if they are to integrate biodiversity concerns into their own strategies, policies and plans. Economic tools that can assist in mainstreaming efforts include

- Economic valuation
- Economic incentives

Over the last decades a range of **economic tools** have been developed or refined with which to quantify the total economic value of biodiversity, and to express it in monetary terms. These tools can be useful in distinguishing between short-term and long-term economic costs and benefits (immediate costs of conservation vs. long term gains), and may assist in answering who should pay the costs of conservation (developers vs. local communities). Increasingly, **valuation tools** are being used to illustrate the benefits of biodiversity conservation and sustainable use, to point to ways of sustainably maximising and capturing its benefits, and to better analyze the economic impacts of biodiversity conservation and loss on different groups and sectors. Calculating economic values underlines the fact that biological resources and their diversity constitute far more than a static biological reserve.

Setting in place **economic incentives** provides an important source of support and encouragement for biodiversity conservation, and is required in Articles 11, 20 and elsewhere in the CBD. Within the context of the Convention, an incentive is defined as “A specific inducement designed and implemented to influence government bodies, business, non-governmental organisations, or local people to conserve biological diversity or to use its components in a sustainable manner. Incentive measures usually take the form of a new policy, law or economic or social programme.”

The following box illustrates some key lessons learned from integrating economic measures into NBSAPs.

Box 15

Key lessons learned from integrating economic measures into NBSAPs

- Bringing in a detailed consideration of biodiversity economics at the start of the NBSAP planning process presents a strong foundation upon which to develop the subsequent strategy and action plan.
- Economic valuation can provide a convincing, and much-needed, justification for biodiversity conservation
- Analysis of the full benefits and costs of biodiversity conservation, and of the economic structures and policies that influence these values, provides important information about direct and underlying economic causes of biodiversity loss.
- Biodiversity Country Studies, by documenting and analysing the links between biodiversity and the economy, point to the ways in which economic measures can, and should, be used to support biodiversity conservation in the NBSAP.
- Economic aims provide a basic rationale and component of biodiversity conservation in most countries, and as such cross-cut the goals, strategies and actions contained in NBSAPs
- Economic instruments and incentives which aim to overcome the economic causes of biodiversity loss and provide a supportive economic environment for conservation are crucial to the success and long-term sustainability of NBSAPs.
- The successful implementation of NBSAPs, and their impact on biodiversity status, depends largely on the extent to which the conservation goals and actions they contain are accepted by decision-makers and planners in other sectors of the economy, and integrated into their own strategies, policies and plans.

Conclusion

This module has highlighted some examples of ways to mainstream biodiversity concerns into sectoral and cross-sectoral strategies, plans and programmes. Use of one or several of the strategies and tools outlined here will help in ensuring that the goals of NBSAPs are accepted by various production sectors and by decision-makers. This acceptance can be demonstrated through the integration of biodiversity concerns into the day-to-day operations of those sectors. In addition, mainstreaming can also be furthered through integrating biodiversity-relevant sectoral issues into country NBSAPs. This latter issue is discussed in further detail in module 2.

Discussion Questions:

- Has your country managed to mainstream biodiversity concerns into sectoral and cross-sectoral strategies, plans and programmes?
- Can you provide some examples of specific instances where mainstreaming in your country has been successful/unsuccessful?
- Are there other methods, besides those that are discussed in this module, to provide for effective mainstreaming?

List of Acronyms

CBD	Convention on Biological Diversity
COP	Conference of the Parties (to the CBD)
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
IMF	International Monetary Fund
NBSAP	National Biodiversity Strategy and Action Plan
NFAP	National Forestry Action Plans
NFP	National Forestry Plan
PRSP	Poverty Reduction Strategy Paper
SEA	Strategic Environment Assessment
UNEP	United Nations Environment Programme