INTERNATIONAL WORKSHOP ON BIODIVERSITY AND ECONOMICS:

Compilation of Materials

Arasha, Ecuador, June 20-22 2001

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Biodiversity Planning Support Programme

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BIODIVERSITY INTERNATIONAL ASSOCIATION FOR BIODIVERSITY

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IUCN
The World Conservation Union

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This workshop was held June 2001 in Ecuador by IUCN, in collaboration with the Sociedad Peruana de Derecho Ambiental, Association for Biodiversity Information, Kew Botanical Gardens, UNEP and World Bank Institute.

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1. Introduction

This workshop was held June 2001 in Arasha, Ecuador by IUCN, in collaboration with the Sociedad Peruana de Derecho Ambiental, Association for Biodiversity Information, Kew Botanical Gardens, UNEP and World Bank Institute.

It was funded under the UNDP-UNEP-GEF Biodiversity Planning Support Programme, as part of the sub-project Use of Economic Incentives in National Biodiversity Strategies and Action Plans (GF/1200-99-70). It was co-funded under the general agreement regarding co-operation on biodiversity conservation and sustainable development between the IUCN – The World Conservation Union and the Swiss Agency for Development and Co-operation (SDC), as part of the project "Supporting Global Action to Conserve Biodiversity and Sustainably Use Biological Resources: Phase III".

The workshop aimed to draw together both economic and biodiversity planners from different regions of the world to share experiences and lessons learned, and to identify future needs and ways forward in the use of economic measures for biodiversity.

2. Workshop Agenda

DAY ONE: Wednesday June 20

SESSION I: WORKSHOP OPENING

Opening session

Tea & coffee

SESSION II: ISSUES AND EXAMPLES OF ECONOMICS MEASURES FOR BIODIVERSITY PLANNING

Economics and the Convention on Biological Diversity: an overview, *Lucy Emerton, IUCN*

Questions/discussion on economics and the CBD

Valuing biodiversity in economic terms, *Manuel Glave, Grupo de Análisis para el Desarrollo*, Peru

Questions/discussion on valuing biodiversity

Lunch

Creating market incentives for biodiversity conservation, *Venkatesh Sundararaman, University of Washington Seattle*

Questions/discussion on economic incentives for biodiversity

Methods for financing biodiversity conservation, *Lucy Emerton, IUCN*

Questions/discussion on financing biodiversity

Tea & coffee

Mainstreaming biodiversity economics into sustainable development planning, *Dr. Gayatri Acharya, World Bank*

Questions/discussion on mainstreaming biodiversity into sustainable development planning

DAY TWO: Thursday June 21

SESSION III: LESSONS LEARNED IN THE USE OF ECONOMICS FOR BIODIVERSITY PLANNING

Introduction to Session III, *Lucy Emerton*

The use of economics in the NBSAPs of Zimbabwe and Southern Africa, *Dr. Ramos Mabugu, University of Zimbabwe*

The use of economics in the NBSAPs of Uganda and Eastern Africa, *Francis Karanja, IUCN Eastern Africa Regional Office & Telly Eugene Muramira, National Environment Management Authority Uganda*

Questions and discussion

Tea & coffee

The use of economics in the NBSAP of Pakistan, *Dr. Shaheen Rafi Khan, Sustainable Development Policy Institute, Pakistan*

The use of economics in the NBSAPs of Vietnam and South East Asia, *Nicole Casellini, IUCN Vietnam Country Office, & Tran Lien Phong, CBD Focal Poin Vietnamt*

Questions and discussion

Economics in Bolivia's NBSAP, *Gonzalo Mérida Coimbra, Dirección General de Biodiversidad, Bolivia*

The use of economics for biodiversity conservation in Peru, *Raul Tolmos, Peru*

Economic valuation of biodiversity in Oman, *Dr Rasool Al-Jabiri, Ministry of National Economy, Oman*

Economics and Biodiversity in Palestine, *Mohammed Issa Mohammed Mahassneh, Ministry of Environmental Affairs, Palestine*

Discussion: lessons learned in the use of economics for biodiversity planning

Lunch

SESSION IV: NEEDS FOR THE FUTURE – HOW DO WE MAINSTREAM BIODIVERSITY ECONOMICS TOOLS

Working groups on future needs and ways forward in economics and biodiversity planning

Tea & coffee

Plenary discussion on future needs and ways forward in economics and biodiversity planning

DAY THREE: Friday June 22

SESSION V: TRAINING MODULES

Modules running in parallel:

(1) Access to Genetic Resources & Benefit Sharing
(2) Biodiversity & Forest Valuation
(3) Biodiversity and Impact Assessment

Tea & coffee

Modules continue

Lunch

Modules continue

Tea & coffee

Modules continue

SESSION VI: WORKSHOP CLOSE

Workshop close

3. Using Economics For Biodiversity Planning: An Overview

For a long time economists and conservationists found it difficult to speak the same language, let alone to work together towards a common purpose. Yet, over recent years, this situation has begun to change, as they have begun to realise that there is actually a great deal of mutual benefit to be gained from co-operating with each other. Biodiversity conservation goals have come to be recognised as an integral component of economic growth strategies, and economic approaches and tools are increasingly being used in support of biodiversity conservation.

Economics provides a important set of methods and measures for biodiversity conservation. Perhaps most importantly, unless it makes demonstrable economic and financial sense for people to conserve biodiversity, it is unlikely that individuals, households, industries, companies or governments will take action to do so. People will continue to degrade and deplete biodiversity in the course of their activities because they feel that it is more profitable and economically desirable to do so. Reflected in many of the provisions of the Convention of Biological Diversity, and in the Biodiversity Strategies and Action Plans prepared in response to it, economics tools are forming an increasingly important part of biodiversity planning and management processes.

THE PLACE OF ECONOMICS IN THE CONVENTION ON BIOLOGICAL DIVERSITY

Reference to economics in the Convention on Biological Diversity

Articles	6	7	8	9	10	11	12	14	15	16	20	21
Economic valuation		✓										
Economic incentives	✓		✓		✓	✓		✓		✓	✓	✓
Financial resources			✓	✓			✓		✓	✓	✓	✓

The linkages, and interdependence, between conservation and economics are well-recognised in the Convention on Biodiversity (CBD). There are repeated references to the use of economic tools throughout the CBD. In particular, Article 7 calls on Parties to identify and monitor components of biodiversity that are economically valuable or important. Article 11 requires the adoption of economic measures that act as incentives for biodiversity conservation and sustainable use. Articles 20 and 21 reiterate the need to generate and allocate sufficient financial resources to biodiversity. Economic measures are also central, although largely implicit, to the implementation of other parts of the CBD

Since the first meetings of the Conference of the Parties and the Subsidiary Body on Technological, Technical and Scientific Advice to the CBD, economic valuation, economic incentives and financial resources have been the subject of recurrent discussion, resulting in a series of recommendations, decisions and calls for action on their use for biodiversity conservation.

Decisions of the Conference of the Parties relating to economic measures

- **I/2:** Financial resources and mechanism (*finance*)
- **II/6:** Financial resources and mechanism (*finance*)
- **II/7:** Consideration of Articles 6 and 8 (*finance)*
- **II/8:** Preliminary consideration of components of biological diversity particularly under threat and action which could be taken under the Convention (*finance)*
- **II/11:** Access to genetic resources (*valuation*)
- **III/5:** Additional guidance to the financial mechanism (*finance*)
- **III/6:** Additional financial resources (*finance*)
- **III/9:** Implementation of Articles 6 and 8 (*incentives, finance*)

- **III/10:** Identification, monitoring and assessment (*finance)*
- **III/11:** Conservation and sustainable use of agricultural biological diversity (*incentives, finance*)
- **III/12:** Programme of work for terrestrial biological diversity: forest biological diversity (*finance)*
- **III/14:** Implementation of Article 8j (*incentives, finance*)
- **III/15:** Access to genetic resources (*finance)*
- **III/18:** Incentive measures (*incentives*)
- **IV/4:** Status and trends of the biological diversity of inland water ecosystems and options for conservation and sustainable use (*incentives*, *valuation, finance*)
- **IV/5:** Conservation and sustainable use of marine biological diversity (*finance)*
- **IV/6:** Agricultural biological diversity (*incentives, finance*)
- **IV/7:** Forest biological diversity (*valuation*, *finance*)
- **IV/8:** Access and benefit sharing (*valuation, finance*)
- **IV/9:** Implementation of Article 8j and related provisions (*finance)*
- **IV/10:** Measures for implementing the CBD (*incentives*, *valuation, finance*)
- **IV/12:** Additional financial resources (*finance*)
- **V/4:** Progress report on the implementation of the programme of work for forest biological diversity (*valuation*)
- **V/6:** Ecosystem approach (*incentives*, *valuation, finance*)
- **V/8:** Alien species that threaten ecosystems, habitats or species (*finance)*
- **V/9:** Global Taxonomy Initiative (*finance)*
- **V/11:** Additional financial resources (*finance*)
- **V/15:** Incentive measures (*incentives*)
- **V/16:** Article 8j and related provisions (*finance)*
- **V/24:** Sustainable use as a cross-cutting issue (*finance)*
- **V/25:** Biological diversity and tourism (*incentives, finance*)

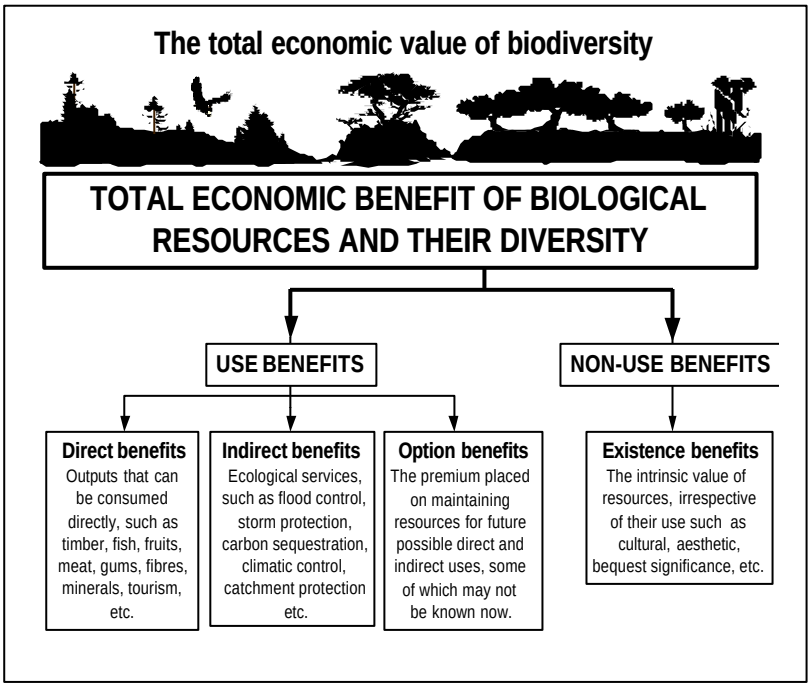
ECONOMIC TOOLS FOR BIODIVERSITY PLANNING

Three sets of economic tools and measures have relevance to biodiversity planning, have been mentioned repeatedly in the CBD and its associated meetings, and can be used to strengthen conservation. These are economic valuation, economic instruments and financing mechanisms.

Economic valuation

Economic valuation is a key step in biodiversity assessment and planning. Economists and decision-makers have traditionally seen the value of biological resources in terms of the direct uses they support – the raw materials they provide for human production and consumption (for example the timber value of natural forests or the fisheries value of coastal and marine ecosystems). Demonstrating the total economic value of biodiversity illustrates the benefits associated with its conservation and highlights the wide range of individuals and groups they accrue to, on and off-site.

Valuation also shows the high and wide-ranging economic costs



associated with the loss or degradation of biodiversity and its components, including on and off-site subsistence losses and decreases in employment, income and foreign exchange earnings as well as the expenditures necessary to replace or mitigate lost biodiversity goods and functions. Calculating economic values also underlines the fact that biological resources and their diversity constitute far more than a static biological reserve. Biodiversity forms a stock of natural capital, which if managed sustainably, can yield in perpetuity a wide range of economic benefits to human populations.

Economic instruments

Many of the goods and services associated with biological resources, ecosystems and their diversity are undervalued by the market, or ignored in macroeconomic and sectoral economic policies. These policy and market distortions and failures result in biodiversity being under-priced, over-consumed and under-conserved. It is treated as a free good which can be mined, converted, depleted or otherwise degraded at no cost.

Economic instruments attempt to overcome these causes of biodiversity loss. They include measures such as property rights, taxes, subsidies, charges, fees, market establishment, trust funds, loans, performance bonds and deposit systems. They are already widely used in other sectors of the economy to achieve development goals, but also have a broad range of potential applications to biodiversity conservation. They aim to change people's behaviour by making sure that they take into account the real value of biodiversity and the broad costs associated with its loss when they make decisions. Thus economic instruments encourage people to conserve biodiversity in the course of their economic activities.

Financing mechanisms

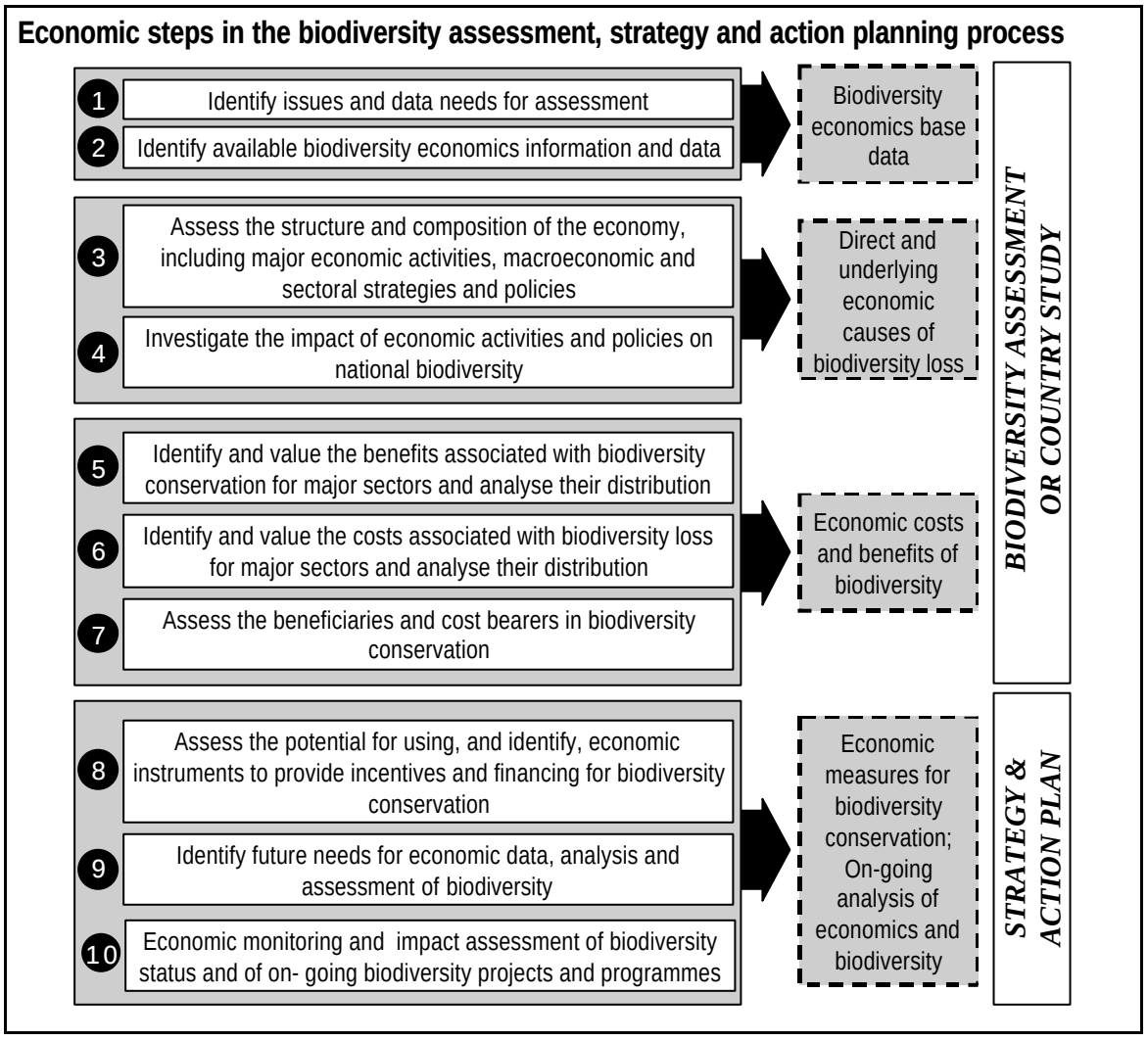
Biodiversity conservation is not cost-free – it imposes a wide range of direct and indirect costs on different economic groups. It is necessary to find ways to offset, compensate for and fund these costs. Various mechanisms can be deployed to finance biodiversity and to compensate the people who bear the costs associated with its conservation. Financing mechanisms operate at many levels – between and within countries, from and to governments, and within the private sector and local communities.

Because traditional sources of funding — central government subventions, donor funds and royalties and other charges — are so limited, and are under competition from so many other sectors of the economy, they are rarely sufficient to finance biodiversity conservation. Yet there are many other, more innovative, ways of raising and allocating financial resources to biodiversity.

Finance can be raised directly from biodiversity resources and services. Sustainable use or trade in biodiversity includes goods such as timber and non-timber forest products and the pharmaceutical, agricultural and industrial applications of biological resources. Services include, for example, water provision, climatic regulation, tourism and scientific research. Finance can also be raised by making sure that charges are levied on economic activities which contribute to biodiversity degradation and loss – such as pollution taxes, land reclamation bonds and waste disposal charges. Other financing mechanisms include the transfer or redistribution of funds between individuals, groups or countries as through measures such as investment promotion, trust funds, loans, debt for nature swaps and offsets.

A FRAMEWORK FOR THE USE OF ECONOMIC TOOLS FOR BIODIVERSITY PLANNING

A major challenge is to develop some kind of systematic framework for the use of economics in biodiversity planning. A first step is the integration of economic measures into existing biodiversity planning processes, i.e. into the two components of on-going NBSAPs: National Biodiversity Assessments or Country Studies, and Biodiversity Strategies and Action Plans themselves. This is relatively straightforward, and involves ten basic steps that can be used to analyse, identify, develop and implement economic aspects of biodiversity conservation



Steps 1-7: The National Biodiversity Assessment or Country Study

The main aim of applying economic approaches in the National Biodiversity Assessment or Country Study is to assess the current economic status of biodiversity in a country. It is possible to demonstrate the economic value of biodiversity, to identify the economic causes of biodiversity loss, and to point to needs for economic measures for the conservation of biodiversity. All of this information is necessary for the development of a Biodiversity Strategy and Action Plan.

Steps 1 and 2: Identifying the data requirements for biodiversity economics assessment

There is often little information available on biodiversity economics, because it is such a new discipline. A very important first step is to broadly define the type of data that will be required in the economic assessment of biodiversity, and to identify where such data may be sourced.

1. Identify issues and data needs for the assessment: Economic aspects of the National Biodiversity Assessment or Country Study will cover a number of key areas, although the particular focus of these areas will vary for different countries. Before starting to collect and analyse information on biodiversity economics it is necessary to identify these areas of focus, including:

- What components of biodiversity are particularly important or under threat?
- What are the main sectors of the economy, especially those that use or impact on biodiversity?
- Which major human groups use, depend or destroy biodiversity in the course of their economic activities?
- What are the main examples of the application of economics to biodiversity?
- Which are the major institutions or agencies involved in biodiversity conservation?

2. Identify sources of biodiversity economics information and data: Information on economic aspects of biodiversity is typically difficult to access, and spread over a large number of documents. Identifying sources of such information involves:

- Searching existing books, journals and articles for information on economic aspects of the country's biodiversity;
- Identifying the types of data that are routinely collected and analysed by government statistical, economic planning and sectoral departments, especially those relating to prices, basic macroeconomic indicators, volumes of production, earnings, revenues, employment, etc;
- Finding out what kinds of project reports and unpublished research papers have been produced by donors, NGOs, universities and research institutes on the economics of biodiversity;
- Accessing country, sector, development, statistical and environmental reports produced by multilateral agencies such as the World Bank and UN Agencies.

Steps 3 and 4: Analysing the direct and underlying economic causes of biodiversity loss

One of the most important set of activities in a Biodiversity Strategy and Action Plan will be those which aim to overcome the direct and underlying economic causes of biodiversity loss. The two steps described below provide the information necessary to identify which economic policies and activities are leading to biodiversity degradation in a country.

3. Assess the structure and composition of the economy: A country's basic economic attributes — such as its population, livelihood systems, and economic policies, sectors and performance — determine how people use and manage biodiversity. Collecting information about the structure and composition of the economy involves asking questions such as:

- How is the human population distributed: where do they live, within which ecosystems?
- How do the human population earn their livelihoods: what activities do they depend on to generate income and subsistence?
- What is the country's economic history: What are the major sectors in the national economy now, and how have they changed over the last decades? Have there been any major economic crises or shocks (such as civil unrest, unemployment, foreign exchange crises, collapse of domestic or international markets)?
- What has been the macroeconomic and sectoral policy focus: What are the country's economic policy goals now, and how have they changed over the last decades? What kind of economic instruments (such as nationalisation, trade promotion, market interventions, taxes and subsidies, exchange rates, interest rates, the elements of structural adjustment programmes) have been used to stimulate particular economic sectors or activities?

4. Investigate the impacts of economic activities and policies on biodiversity: Once a country's economic structure and composition is known, conclusions can be drawn about the

impact of these economic conditions, policies and activities on biodiversity. In particular, it should be possible to identify the main economic causes of biodiversity loss. This involves asking questions such as:

- Now and in the past, which economic sectors and activities depend directly on biodiversity (such as fisheries, forestry or wildlife), and do they lead to its degradation because they use unsustainable harvesting methods or over-exploit biological resources?
- Now and in the past, which economic sectors and activities (such as agriculture, energy, mining, industry and tourism) impact on biodiversity through their secondary effects because they impact on ecosystem integrity and environmental quality?
- How have past and current economic conditions led to biodiversity being degraded (for example through poverty, population migration, needs for foreign exchange earnings, economic crisis and stagnation)?
- How have past and current economic policies caused biodiversity loss (for example by encouraging biodiversity-degrading activities, by manipulating and distorting prices through subsidies or market interventions, by taxing biodiversity-friendly activities, by withholding funds from biodiversity conservation, by failing to set in place realistic fines and penalties for biodiversity loss)?

Steps 5, 6 and 7: Identifying and quantifying the economic benefits and costs of biodiversity, and highlighting their distribution

Information on the economic values associated with biodiversity, both positive and negative, indicates the basic economic status of biodiversity in a country. It is also central to the development of the NBSAP. The three steps described below provide the information necessary to analyse the costs and benefits associated with conserving biodiversity in a country.

5. Identify biodiversity economic benefits and their distribution: Identifying, and where possible quantifying, the economic benefits of biodiversity provides a strong argument for conservation. Unless it can be demonstrated that biodiversity has a high value, and makes a demonstrable contribution to national development and economic goals, it is often difficult to justify a NBSAP to other sectors of the economy, or to economic planners and policy-makers. This involves asking questions such as:

- What are the major economic benefits associated with biodiversity in the country? This should include consideration of the direct, indirect, option and existence values associated with biological resources, ecosystems and their diversity, as illustrated above in Figure 3.
- In what form, and to what groups and sectors, do these values accrue? For example, are they manifested as contributions to household income, industrial earnings, government revenues, exports, foreign exchange earnings, savings in private or public expenditures? What is the contribution of biodiversity to national income and national development indicators such as GDP, sectoral earnings and employment?
- How far can these biodiversity economic benefits be valued, and expressed in monetary terms? How much are different components of the total economic value of biodiversity worth?

6. Identify biodiversity economic costs and their distribution: Biodiversity conservation also gives rise to costs. It is equally important to be able to identify the type and magnitude of these costs, in order to plan for ways of funding or offsetting them as part of the NBSAP. This involves asking questions such as:

- What are the major economic costs associated with biodiversity conservation in the country? This should include consideration of the direct costs of managing and conserving biodiversity (e.g. expenditures of government departments and NGOs), the opportunity costs (alternative economic opportunities foregone, such as unsustainable land and resource uses in protected areas, or polluting industrial production technologies), and any costs that the conservation of biodiversity imposes on other economic activities (for example wild animal damage to agriculture, human health impacts).

- In what form, and to what groups and sectors do these costs accrue? For example, are they manifested as losses to local livelihoods, industrial profits, government revenues, private or public expenditures?
- How far can these biodiversity economic costs be valued, and expressed in monetary terms? How much are different components of the total economic cost of biodiversity worth?

7. Identify the beneficiaries and cost-bearers in biodiversity conservation: The way in which these biodiversity costs and benefits are distributed between different groups and sectors presents both an explanation of the economic reasons why biodiversity is degraded, as well as pointing to the needs for redistributive economic instruments within the NBSAP. This involves asking questions such as:

- Who are the main economic beneficiaries of a country's biodiversity? For example international tourists, international companies, domestic enterprises, local consumers of resources, government, particular sectors, etc?
- Who are the main economic cost-bearers in biodiversity conservation? For example government and NGO conservation agencies, local communities, etc?
- Is it possible to quantify the economic gains or losses accruing to any of these groups from biodiversity?
- Are there any particular groups who lose out, overall, from the presence of biodiversity?
- What does the distribution of biodiversity economic costs and benefits mean? Does it mean that there are particular groups who gain large benefits from biodiversity at low or zero cost? Are there any particular groups who degrade biodiversity at low or zero cost, and who bears the costs associated with this biodiversity loss? Are there particular groups who therefore have few economic incentives to conserve biodiversity? Are there particular groups who lack the funds to finance the costs associated with biodiversity conservation?

Conclusions from the economic assessment of biodiversity

These seven steps that comprise economic aspects of the National Biodiversity Assessment or Country Study should result in a number of conclusions. In turn, these conclusions will set the basis for integrating economic tools and measures into the National Biodiversity Strategy and Action Plan:

- Why biodiversity conservation is an economically desirable use of funds, resources and land for the country: the economic justification for the NBSAP
- The role that the country's biodiversity plays in international, national and local economies and for different groups such as local communities, industries and the private sector, and government.
- The implications of biodiversity degradation for a country in terms of loss of economic benefits.
- The economic costs of biodiversity conservation that need to be covered or offset in the NBSAP.
- The economic policies, markets and activities that cause biodiversity degradation and loss and need to be addressed in the NBSAP, in both environmental and non-environmental sectors.
- How biodiversity costs and benefits are distributed between different groups and sectors, and where this contributes to biodiversity loss because it results in financial shortfalls or economic disincentives.
- The need to include economic and financial measures in the NBSAP, and how these need to be targeted at particular groups, sectors, economic policies and activities.

Steps 8-10: The National Biodiversity Strategy and Action Plan

The main aim of applying economic approaches in the National Biodiversity Strategy and Action Plan is to make biodiversity economically worthwhile to the various groups upon whom its conservation depends, to overcome the economic causes of biodiversity degradation and loss, and

to ensure that adequate and sustainable funding exists for biodiversity conservation. Integrating economic concerns and measures into the NBSAP involves 3 stages, described below.

Step 8: Recommending economic measures for biodiversity conservation:

The conclusions drawn in the economics component of the National Biodiversity Assessment or Country Study should point clearly to areas where economic measures for biodiversity conservation are required in the NBSAP. It is also necessary to analyse other strategies and actions specified in the NBSAP in order to ensure that each is viable in both economic and financial terms. Recommending economic measures for biodiversity conservation involves:

- Identifying economic instruments and financing mechanisms that can support the broad objectives and goals of the NBSAP.
- Identifying specific actions to overcome or mitigate the direct and underlying economic causes of biodiversity loss.
- Identifying specific programmes of work that are needed to improve economic and financial conditions for biodiversity conservation, identify and pilot economic instruments and financing mechanisms or share experiences about their use.
- Identifying targeted economic instruments and financing mechanisms that can be used to strengthen the implementation of other actions specified in the NBSAP.
- Ensuring that economic instruments and financing mechanisms are appropriate. There are a broad range of economic and financial measures that can potentially be used for biodiversity conservation. Not all will be useful within the context of a particular country's NBSAP or its broader economic, political and social conditions. The choice of economic and financial measures for a NBSAP should always be cross-checked so as to ensure that they will be implementable in practice: for example whether they are consistent with (and support) a country's broader economic and development goals, whether they involve significant costs to implement, whether they are politically acceptable, whether they support social and equity considerations, etc.

Step 9 : Identifying future needs for economic data, analysis and assessment of biodiversity:

Very few countries have a system in place for collecting and analysing biodiversity economics information. It is also likely that much of the background information about biodiversity and economics that is produced as part of the National Biodiversity Assessment and Country Study will be of a very preliminary nature. Thus, actions aimed at improving the state of knowledge on biodiversity economics costs, benefits, incentives and financing, are likely to form an important part of the NBSAP. This includes:

- Actions aimed at collecting and analysing information about issues in the economics of biodiversity that are currently lacking, including building capacity to collect and analyse such data;
- Actions aimed at setting in place systems to assess economic aspects of biodiversity on an on-going basis, which can be applied within the context of monitoring the NBSAP (see below, Step 10), and influencing future biodiversity and economic policies, strategies and plans.

Step 10 : On-going monitoring of NBSAPs and biodiversity status: The role of economics does not end with the production and adoption of a NBSAP, but continues after its implementation. Economic forces and conditions, and biodiversity status, continuously undergo change. It is necessary to assess the economic impacts of changes in biodiversity status, to track the effects of changing economic conditions on biodiversity, and to monitor the effectiveness and impacts of the economic and other measures set in place as part of the NBSAP so that they can be reviewed on an on-going basis.

THE BPSP ECONOMICS THEMATIC STUDY

The UNDP-UNEP implemented Biodiversity Planning Support Programme (BPSP) has a mandate to provide assistance to national biodiversity planners as they develop and implement their National Biodiversity Strategies and Action Plans.

The BPSP includes components dealing with information gathering and dissemination, guidelines and best-practice experience, and regional exchange and thematic workshops, implemented by a network of regional and global partners. For the purpose of preparing thematic guidelines and best-practice experience, a series of studies are being carried out on key aspects of biodiversity planning related to national implementation of the Convention on Biological Diversity.

One of these thematic studies aims to review experiences, lessons learned and ways forward in the use of economic measures in National Biodiversity Strategies and Action Plans. This study is being co-ordinated by IUCN – The World Conservation Union.

Why economics and biodiversity?

The rationale behind this study is that economic concerns are of central importance to biodiversity conservation. Economic forces underlie and explain biodiversity degradation and loss, and economic measures provide a useful set of tools for strengthening biodiversity conservation, sustainable use and equitable benefit sharing.

If National Biodiversity Strategies and Action Plans 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 National Biodiversity Strategies and Action Plans have to be acceptable to (and understood by) other "economic" sectors, decision-makers and planners, if they are to integrate biodiversity concerns into their own strategies, policies and plans.

Documenting experiences and lessons learned in the use of economic measures in National Biodiversity Strategies and Action Plans, and providing guidance on best practices and methods for this, can thus make an important contribution to biodiversity conservation planning and management practice.

Components of the Economics Thematic Study

The economics thematic study deals with the economic valuation of biodiversity and with economic incentives for biodiversity conservation. It is being carried out between October 2000 and August 2001, and includes four main activities and sets of outputs:

- An **annotated bibliography** of literature dealing with the theory and application of economics to biodiversity planning, including case studies on specific countries, ecosystems and economic issues
- **National and regional case studies** looking in detail at how economic measures have been integrated into the development and implementation of National Biodiversity Strategies and Action Plans
- A **global workshop** drawing together both economic and biodiversity planners from different regions of the world to share experiences and lessons learned, and to identify future needs and ways forward in the use of economic measures for biodiversity
- **Guidelines** on methods and best practices in the use of economic measures for biodiversity planning, illustrated with case studies and examples from different ecosystems and countries.

4. Workshop Aims and Content

Lucy Emerton, IUCN

Workshop on

Biodiversity & Economics

IUCN
The World Conservation Union

GLOBAL ENVIRONMENT FACILITY
Biodiversity Planning Support Programme

Economics Thematic Study

1. Synthesis of methods and examples
2. Regional case studies
3. Global workshop
4. Best practice guidelines

Synthesis of methods & examples (completed)

- 300 annotated books, articles and papers on biodiversity economics
- Biodiversity economics internet resources
- Thematic, regional and topic indexes
- Dissemination of electronic documents

National & Regional Case Studies (completed)

- How economics was used in NBSAPs
- Successes and failures
- Lessons learned
- Constraints, obstacles and gaps
- Conditions for success
- Future needs in NBSAP implementation

Global Workshop (June 20-22)

- Review of cases and experiences
- Information exchange
- Specialist areas
- Overcoming obstacles
- Future needs & work programme
- Interchange of countries, agencies and institutions

Best Practice Guidelines (August)

- Biodiversity economics methods and tools
- Regional and national experiences of economics in biodiversity planning
- Successes and failures, lessons learned
- Steps and techniques for using economics for biodiversity planning

Workshop on Biodiversity & Economics Agenda

DAY 1

ISSUES AND EXAMPLES OF ECONOMIC MEASURES FOR BIODIVERSITY PLANNING

- Economic valuation of biodiversity
- Economic incentives for biodiversity
- Financing mechanisms for biodiversity
- Mainstreaming biodiversity into sustainable development planning

DAY 2

LESSONS LEARNED IN THE USE OF ECONOMIC MEASURES FOR BIODIVERSITY PLANNING

- Regional and national case studies and examples from Africa, Arab States, Asia and Latin America
- What have we learned?
- Gaps, needs and potentials

Where do we need to go in the future?

DAY 3

KEY TOPICS IN BIODIVERSITY ECONOMICS & BIODIVERSITY PLANNING

- Economic valuation of forest biodiversity
- Access & Benefit Sharing
- Environmental Impact Assessment & Biodiversity

Workshop on Biodiversity & Economics Aims & Outputs

A relaxing, challenging, relevant, and enjoyable workshop

Sharing of ideas, information and experiences across countries, agencies & sectors

Better awareness and understanding of biodiversity economics issues & topics

Identification of concrete needs & ways forward in using economic measures for biodiversity conservation

5. The Biodiversity Planning Support Programme

Dr. Ken Creighton, UNDP and Dr. David Duthie, UNEP

UNDP - UNEP - GEF

BIODIVERSITY PLANNING SUPPORT PROGRAMME

1

Biodiversity Planning Support Programme

Development Objective:

To improve the conservation, sustainable use, and equitable sharing of benefits derived from biological diversity through enhancing the ability of parties to implement the Convention on Biological Diversity.

2

Biodiversity Planning Support Programme

Purpose :

To strengthen the ability of Parties to the CBD to develop and implement NBSAPs in accordance with their obligations under Article 6 of the Convention.

3

Biodiversity Planning Support Programme

Project Outputs:

- improved access to specialized information for biodiversity planning and CBD related issues;
- guidelines and training modules based on best practice experience;
- a dynamic and ongoing exchange of ideas and experience through regional, horizontal networks

4

Biodiversity Planning Support Programme

1. Activities to improve access to information:

- data gathering, translation and dissemination of materials at global, regional and national levels;
- enhancement and extension of existing web sites and establishment of new sites within the regions;
- development and strengthening of existing intra-regional networks for non-electronic

Biodiversity Planning Support Programme

2. Guidelines and training modules for:

- strategic planning, defining inter-sectoral linkages and indicators for monitoring and assessment;
- coping with biosafety issues and biotechnology;
- bio-prospecting and safeguarding intellectual property rights for indigenous knowledge;
- in situ conservation measures and sustainable management incentives;
- biodiversity and agriculture, access to

Biodiversity Planning Support Programme

3. Foster a dynamic and ongoing exchange of information, methods and experience through:

- network building workshops;
- enhanced dissemination mechanisms;
- improvement of intra-regional capacity for information management and exchange;
- support for production of materials in local languages.

6. Economics and the Convention on Biological Diversity

Lucy Emerton, IUCN

Economics and the Biodiversity Convention:

An Overview

Lucy Emerton
Head, IUCN Environmental Economics Programme Asia
IUCN
The World Conservation Union

The Biodiversity Convention
Where Does Economics Come In?

ARTICLE 7 Valuation	ARTICLE 11 Incentives	ARTICLE 20 Finance

Articles	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*14*	*15*	*16*	*20*	*21*
Economic valuation	✓	✓										
Economic incentives	✓		✓		✓	✓		✓		✓	✓	✓
Financial resources	✓		✓	✓			✓		✓	✓	✓	✓

Economic Valuation
Calculating Biodiversity Benefits

USE			NON-USE
Direct values Outputs that can be consumed directly, such as timber, medicines, food, recreation, etc.	**Indirect values** Ecological services, such as flood control, storm protection, carbon sequestration, climatic control, etc.	**Option values** The premium placed on maintaining resources for future possible direct and indirect uses, some of which may not be known now.	**Existence values** The intrinsic value of resources, irrespective of their use such as cultural, aesthetic, bequest significance, etc.

Economic Valuation
Costing Biodiversity

MANAGEMENT COSTS	OTHER ACTIVITIES	OPPORTUNITY COSTS
For example: Costs of equipment, capital, wages, buildings, running costs, policing	**For example:** Human disease and injury, livestock losses, crop destruction, competition for resources	**For example:** Alternative land uses, technologies and profits foregone

Economic Incentives
Overcoming Biodiversity Loss

Direct causes - Economic Activities that ...

- Over-exploit resources
- Use destructive methods
- Convert natural habitats
- Pollute air, water and land

Underlying causes

- Economic policy distortions
- Economic market failures
- Economic price failures
- Economic livelihood failures

Economic Incentives & Finance
Making Biodiversity Worthwhile
Making Biodiversity Sustainable

Demonstrating the high economic value of biodiversity, and ensuring that this value is made real and integrated into people's economic and financial decisions

Using economic and financial instruments in support of biodiversity

Sustainable Conservation & Economies
Planning, Policy and Management

Integrating economic concerns into biodiversity policy, planning and management

Integrating biodiversity concerns into economic policy, planning and management

The Relevance of Economic Measures
to Biodiversity Strategies, Policies & Plans

- Provides a justification for conservation
- Identifies & overcomes the direct and underlying causes of biodiversity loss
- Sets in place positive incentives for biodiversity conservation
- Maximises biodiversity profits and values
- Offsets and covers biodiversity costs
- Generates and allocates finance for biodiversity
- Makes biodiversity conservation attractive and viable
- Makes biodiversity strategies and action plans sustainable both within and outside conservation sectors

7. Valuing Biodiversity in Economic Terms

Manuel Glave, Grupo de Análisis para el Desarrollo, Peru

Economía de la conservación: límites metodológicos y políticos

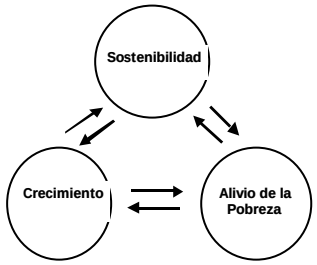
Manuel A. Glave Testino
(GRADE)

Notas de la presentación en el Seminario Internacional sobre Biodiversidad y Economía (IUCN, UNDP-BDSP)
Ecuador, 20-22 de Junio del 2001

Esquema de la Presentación

- Antecedentes teóricos: el triángulo crítico de la sostenibilidad y los límites del concepto
- Los métodos de valoración: límites metodólogicos
- Sistemas de información ´bioeconómicos´
- Algunos ejemplos prácticos

Triángulo crítico de los objetivos del Desarrollo



Desarrollo Sostenible

- Límites teóricos: nivel de medición / dimensiones del triángulo crítico
- Límites políticos: Representación intergeneracional / Etica y Política / Disponibilidad a pagar
- Límites institucionales

Valor Económico Total

- Valor de Uso Directo
- Valor de Uso Indirecto
- Valor de Opción
- Valor de Existencia

- ¿Y cómo se hace? Sistemas de Información

Métodos de Valoración 1

- Análisis comparativo de usos alternativos
- Costos evitados
- Costos de la "reconversión" o del manejo
- Estimación de subsidios a pagar (!!)
- Intertemporalidad: la tasa de descuento
- Cota Inferior: negociación política

Métodos de Valoración II

- Valoración Contingente
- Costo del Usuario (Costo de Viaje)
- Precios Hedónicos
- Costo de oportunidad

- ¿Información disponible o construida?

Sistemas de Información

- Agenda de investigación bioeconómica
- Información como bien público y no como generadora de renta
- Aplicación de metodologías a procesos de zonificación económica-ecológica

Algunas aplicaciones

- Disponibilidad a pagar por Areas Protegidas
- Servicio de producción de agua en Montañas
- Areas Protegidas e Hidrocarburos (casos de Pacaya y Candamo en Perú)
- *Premium* de precios por productos orgánicos y/o solidarios (caso del café)
- Rol de la iniciativa empresarial: cómo vender "poco de mucho"
- Programa de Becas BIOFOR (USAID - IRG)

Políticas "Optimas"

- Agendas de política ambiental: quién prioriza y cómo se gestiona
- La cuestión del Sistema de Gestión
- Capacidad de respuesta de la ciudadanía
- La cuestión indígena: ¿la cultura en la economía de mercado?
- Negociación y concertación de políticas: organización de *stakeholders* (activos organizacionales)

Desarrollo Sostenible y Liberalismo

- ¿Ordenamiento, zonificación, o simplemente planificación?
- ¿Regulación o control? El desafío de los incentivos económicos
- Desafíos de la normatividad ambiental

8. Creating Market Incentives for Biodiversity Conservation

Venkatesh Sundararaman, University of Washington Seattle

(Creating) Economic Incentives for Biodiversity Conservation

Venkatesh Sundararaman
University of Washington
Seattle

International Seminar on Biodiversity and Economics
Ecuador 2001

1. Introduction

- Background
- Biodiversity conservation, species extinction, etc. through unsustainable use, ecosystem destruction.
- National/International Priorities: Industrial Pollution and Biodiversity Conservation
- Burden on developing countries

2. Factors Contributing to Biodiversity Loss

- Institutional and Regulatory Failures
  - Poorly defined property rights
  - Enforcement of laws and regulations
  - Overlapping jurisdictions
- Poorly designed policies
  - Over reliance on Command & Control Approaches
  - Conflicting policies that erode conservation objectives
- Market Failures
  - Costs of species extinction
  - Economic benefits of biodiversity conservation/wildlife
- Poverty and Sustainable Livelihood
  - Deforestation, Soil Degradation, and Feedback effects.
  - Risk, insurance (health, natural disasters, etc.)

3. Institutional & Regulatory Framework

- Constitutional Provisions: Many countries today have enshrined environmental conservation and protection in their national constitutions and this is true for countries at all points on the development spectrum. (For example, Singapore, India, Cambodia and Indonesia, Costa Rica, and others)
- Environmental Legislation/Sector Specific Legislation: Typically end-of-pipe approaches to environmental protection such as fees, charges, standards, etc.
- Implementation and Regulatory Bodies: Environmental Ministries, Agencies and other Government, Quasi-Government and other Organizations.

4. Policy Design

- Command and Control:
  - Over reliance on C&C, and adapting these approaches without consideration for local environments;
  - Monitoring and enforcement difficulties;
  - Paucity of resources;
  - Institutional considerations particularly lack of authority and overlapping jurisdictions;
  - Coordination failure and
  - Incentive structures
- Conflicting policies. Conservation and agriculture, land tenure and land rights.

5. Incentive Mechanisms

- Classification of Incentives
  - Direct Incentives
  - Indirect Incentives
  - Disincentives
  - Perverse Incentives
- Incentive Mechanisms
  - Economic
  - Community/Information
  - Regulatory
  - Risk Management

6. Addressing Market Failures

- Market based instruments (MBIs): These include the following:
  - Property rights (attributes), market creation;
  - Fiscal instruments, charge systems, financial instruments, liability systems, deposit-refund systems and guarantee bonds
  - Livelihood support systems

7. Incentive Approaches

"Incentives can be defined as factors that motivate, encourage or compels actions or behavioral change to maintain, replenish or restore biodiversity"

Incentives	Method
Economic	Pricing Quantity
Community/Information	Education/training Scientific research/information gathering Product labeling
Regulatory	Preferential treatment Government assurances
Risk Management	Compensation Insurance

Adapted from Brown et al.

9. Remedies

- Environmental Pricing
  - Internalize External Cost
  - Raise Revenue from Polluting Sources
  - Remove Harmful Subsidies
  - Agriculture
- Pricing Energy Conservation
  - Electricity (California!!! Prices and Politicians)
- Green Taxes

- Fishing : Individual Tradable Quotas
  - Reduces overcapitalization
  - Protects biomass
  - Increased safety at sea
- Land use :Tradable Development Rights
  - Development credits allocated to landowners in areas designated for conservation
  - Developers can purchase credits and increase the density of development in other areas designated for growth
  - Lower cost, more efficient

- Payments for Environmental Services (water purification, pollination, genetic information)
  - Beneficiaries pay for services received
  - Examples : Costa Rica ("Environmental" water), Ecuador (Cuenca Watershed), New York Watershed
- Long term Commitments
  - Ratification
  - Renegotiation Proofness in the Design of Contracts

10. Conclusions

- It is possible to use economics both to identify the behavioral sources of the problem and to design a suitable remedy.
- Numerous economic incentive devices are available to be enlisted.
- Incentive devices/mechanisms have to be carefully designed and constructed for specific use.

9. Methods for Financing Biodiversity Conservation

Lucy Emerton, IUCN

Methods for Financing Biodiversity

Lucy Emerton
Head, IUCN Environmental Economics Programme Asia
IUCN
The World Conservation Union

An Outline of the Presentation
Methods for Financing Biodiversity

- What biodiversity costs do we have to cover?
- How was biodiversity conservation funded traditionally?
- Why is there still a problem in funding biodiversity?
- Examples of new and innovative funding niches and financing mechanisms for biodiversity
- A framework for developing a financial strategy for biodiversity conservation policies, plans and actions

Illustrates many of the economic issues in biodiversity conservation

The need to demonstrate the (real) value of biodiversity conservation in the face of seemingly more "profitable" development, investment and land-use options

The need to address the economic policies and activities that lead to biodiversity loss

The need to ensure that there are economic incentives for biodiversity conservation, not just against it

The needs to:
(a) Ensure there are sufficient funds to implement conservation activities
(b) Ensure that biodiversity generates enough finance to offset its opportunity costs

How do we raise and allocate sufficient, sustainable & appropriate long-term finance ...

for all the different cost-bearers in biodiversity conservation?

Markets and Charges
Improving Existing Ones

Where biodiversity goods or services are underpriced

Where biodiversity-conserving groups are not benefiting from markets

Where biodiversity conservation is less profitable

Where biodiversity degradation is more profitable

Where market activities are leading to biodiversity loss

Markets and Charges
Developing New Ones

Where biodiversity goods or services are underpriced

Where biodiversity goods or services are free

Where there is untapped market potential for selling biodiversity goods and services

Where markets focus only on activities that cause biodiversity loss

Private Business & Enterprise
Encouraging Biodiversity Investment

Where biodiversity use and management is the monopoly of government

Where government cannot afford to bear the costs of conservation

Where there are market opportunities for biodiversity use and management

Where biodiversity can yield good profits and investment returns

Voluntary Contributions
Soliciting Private Donations

For flagship species and ecosystems of global interest or world heritage

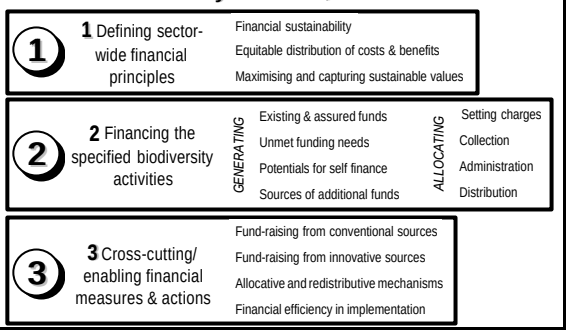
Where contributions can yield non-cash advantages

Where individuals and firms can save money by contributing

Allocating Conventional Finance
Making Sure Funds Reach Biodiversity

Where existing sources are yielding funds, but these funds don't reach biodiversity sectors and cost-bearers

Identifying a Financial Strategy
For Biodiversity Policies, Plans & Actions



10. Mainstreaming Biodiversity Economics into Sustainable Development Planning

Dr. Gayatri Acharya, World Bank

Mainstreaming Biodiversity Economics into Sustainable Development

Gayatri Acharya
World Bank

Sustainability and Biodiversity

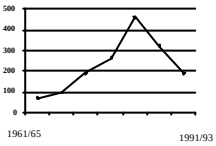
- Sustainability means using a long term decision making horizon.
- Particularly difficult for environment vs development decisions.
- Time scale of many environmental phenomena is large relative to regular economic choices.

Environmental Timescales

Long term impacts

- Global warming
- Soil degradation
- Fisheries depletion
- Desertification
- Local climate change from deforestation

Production of Anchovy



Environmental Timescales

Long term benefits

- Watersheds can operate indefinitely and provide ecosystem services such as water supply
- Fisheries and forest resources can last for centuries if managed well.
- Biodiversity resources can have potentially unimaginable uses and values

Hurdles to achieving sustainable development

- Policy failure – e.g. subsidies for land clearance
- Market failure
  - Externalities – e.g. pollution damage
  - Missing markets – e.g. biodiversity
- High discount rates

Mainstreaming means…

- Biodiversity concerns are addressed simultaneously with development concerns
- Contributions of biodiversity conservation to human welfare are explicitly recognized in development planning
- Financial sustainability for biodiversity planning is ensured by inclusion in planning budgets

Sustainable resource use: local values

Incremental net benefits of improved management for three forest products (Rs.mill/yr)

	From Current use to Sustainable use	% of Forest Sector GDP
Fuelwood	423	5.1
Terai Timber	645	7.8
Rhino management	35	0.4
Total incre-mental Net Benefit	1103	13.3

Incremental costs and global benefits

- Current household use is not sustainable, in either economic or environmental terms
- Improved management would be environmentally more sustainable and have significant benefits for Nepal
- Further management and technical interventions would enable biodiversity-friendly measures to be introduced - these would have economic costs for Nepal but global benefits

Making Sustainability Operational

- Longer time horizon will assign higher shadow prices to long-lived assets, including environmental assets.
- Important to recognize economic contributions made by environment.
- Address market and policy failures by identifying incentives that work.

Implications for decision making

- Most conventional economic time frames short-change environmental issues.
- Lack of essential information to improve analysis
- Ecological-economic data collection not always compatible

In the final analysis…

- Biodiversity economics can provide important information for convincing policy makers of the development dividends of investing in natural capital
- Linking conservation with development by identifying economic benefits is key to the financial sustainability of biodiversity action plans
- Conservation planning is enhanced by improved understanding of sectoral links and development goals

11. The Use of Economics in the NBSAPs of Zimbabwe and Southern Africa

Dr. Ramos Mabugu, University of Zimbabwe

The use of economics in the NBSAPs of Zimbabwe and Southern Africa

Dr. Ramos Mabugu, University of Zimbabwe

The context of Southern Africa

- The socio-economic and political environment
  - Common challenges
  - Development differences
- The physical and natural environment
  - Non-renewable resources
  - Renewable resources

Zimbabwe

- **When the NBSAP process took place**
  - Project approved by GEF in 1994 and became effective Jan 1997
  - NBSAP finalised by May 1998, and presented to CBD/COP in Bratislava in May 1998.
  - Was submitted officially to the CBD secretariat on Officially launched nationally in June 2000
  - Since then, project has been at final stage of implementation and still awaits parliament and cabinet approval

How far economics came into the assessment

- Economics team of 3 members (out of 15)
- Addressed issues of valuation, winners and losers and incentive structure
- Attempted a CBA of biodiversity: pitfalls and usefulness
- Important constraint was data availability

Economic reasons for biodiversity loss

- Population expansion
- Externality and market failure
- Public goods and policy failure
- Distribution of assets

What were the strengths and weaknesses of the NBSAP process regarding economics?

- Brings valuation to the forefront (+)
- Undeterred by data limitations: innovation (+)
- Extensive consultation (+)
- Addressing political economy questions e.g., land reform, macro-management (-)
- Devotes too much attention to valuation alone: should also discuss (-)
- Instruments and innovative financing mechanisms for biodiversity conservation (-)
- Economic (opportunity) costs of biodiversity conservation (-)

Have any economic policies/actions actually been implemented in the country relating to biodiversity since the NBSAP was adopted?

- Change in legislation concerning intellectual property rights
- Sustainable use of forest biodiversity in traditional medicines (approved for funding)
- Not much on other ideas relating to tenure, pricing etc
- Macroeconomic and political instability
- Capacity constraints

Comparison with other countries

- Based on comparison of Malawi, Mozambique, Swaziland, Zambia and Zimbabwe.
- Conclusions/lessons from Southern Africa/NBSAPs
  - Little/no consideration given to economics (valuation, incentives, winners and losers etc) consideration
  - No discussion of innovative financing mechanisms
  - Little or no involvement of economists in the NBSAP process
  - Overutilisation of ***CAC*** as environmental management tool
  - Perceived lack of available capacity to carry out work to integrate economics into the NBSAPs
  - Paucity of data

Special conditions impacting on use of economics

- Poverty, unemployment, AIDS: Development first
- Culture
- Historical background
- Political factors
- Limited government capacity
- Size of the non-market sector

The way forward in Southern Africa?

- formalising a policy on biodiversity change that is consistent and well integrated with other national environment and development policies;
- securing the future of the CBD/NBSAP Office within the Ministry of Environment and Tourism
- building skills in environmental economics and developing strategies and actions to address the various capacity constraints identified.
- Addressing data needs
- Regional efforts
- *Time-consistency* problems and enhancing *credibility*

12. The Use of Economics in the NBSAPs of Uganda and Eastern Africa

Francis Karanja, IUCN Eastern Africa Regional Office & Telly Eugene Muramira, National Environment Management Authority Uganda

ECONOMICS IN UGANDA's NBSAP

NBSAP Process

- Process began in June 1998. Funded By World Bank-GEF;
- NEMA led the process, later IUCN provided technical assistance;
- First Draft, (Edition) ready for Government approval in April 2001;
- Next steps; approval by NEMA board of governors and the Policy Committee on the Environment;

Economics in the NBSAP

- Training and awareness creation;
- Assessment and formulation of economic measures for the NBSAP; and
- Guidance in developing measures and instruments for innovative financing measures, biodiversity conservation, sustainable use and equitable sharing.

Economic Assessment

- Clear and well formulated

ITEMS ADDRESSED IN THE ECONOMIC ASSESSMENT

Critical Review of economic-biodiversity linkages, issues, problems and opportunities	√
Analysis of economic policy incentives and disincentives to biodiversity conservation.	√
Impacts of sectoral economic activities and policies on biodiversity	√
Biodiversity economic valuation	√
Recommendations for the use of economic instruments	√

ECONOMICS in the NBSAP

4 crosscutting issues for NBSAP:

- Social equity;
- Sustainably economic viable biodiversity management;
- Appropriate and sustainable finances for NBSAP process; and
- Strengthen capacity through policy, legislation and institutional measures.

Current examples of Economic Measures and Instruments in Uganda

- Every new policy is subjected to environmental economic analysis
- Revenue sharing in National Parks – 20% - to local government and then to communities
- Strategy for implementation, roles and responsibilities, management of accounts and disbursement of funds, reporting. (UWA, 2000)
- Sustainable Wildlife Utilization outside National Parks. Classes of uses.
- FACE
- Bwindi Impenetrable and Mgahinga National Parks and ecotourism, financial mechanisms
- Navikubo Swamp, water purification in Kampala

Strengths…….

- Strong rationale for the integration of economics.
- Strong integration of valuation.
- Efforts made to list some economic measures and instruments into the logical framework.
- Communities and Industry are considered.

And Weaknesses

- Too much emphasis on valuation without enough consideration to financial mechanisms.
- Although strong rationale for economics, most activities are based on command and control techniques, indicating that a strong programmatic approach for the integration of economics is not currently in place.

Conclusions and Lessons

- Process did not include consultation at the district level. The integration of economics would have the most context at that level.
- Need to analyze the types of perverse incentives.
- Providing communities with the incentives which are based on benefit sharing and sustainable use are most important in the region due to the high degree of dependence on natural resources. This needs to be developed in tandem with an enabling institutional and social environment for CBNRM.

Recommendations & Lessons

- NBSAP needs to go through a wider and deeper process of consultation at the District level.
- There is still an emphasis on the command and control aspects of biodiversity conservation.
- Examples of the use of economic measures are *ad hoc* and far between. More experiences and effort needs to be placed to ensure better use of incentive measures and financing mechanisms.
- Better integration of the NBSAP with other policy processes in the region such as PEAP, PMA, Land Act is required to lend credence and viability to the NBSAP.

Finally…

The political will and managerial capacity will be required to infuse and mainstream economics into biodiversity conservation and sustainable use so as to integrate NBSAP goals into political, development and economic planning processes.

13. The Use of Economics in the NBSAP of Pakistan

Dr. Shaheen Rafi Khan, Sustainable Development Policy Institute, Pakistan

INTEGRATION OF ECONOMICS INTO PAKISTAN'S BIODIVERSITY ACTION PLAN

Shaheen Rafi Khan
Arif Pervaiz

June 15, 2001

Study for the IUCN

Sustainable Development Policy Institute

Contents

Analytical Framework

Biodiversity-economic linkages are best articulated in the context of environmental conservation

Dealing with the problem at its source is as important as direct initiatives to protect species and habitats

The institutional requirements are complex but the absence of an holistic approach can lead to less than satisfactory outcomes

Review of the BAP Process

Pakistan signed the CBD in 1994. In 1996, funding was secured from the World Bank/GEF to develop a BAP

A PMT was set up under IUCN-P/WWF leadership to guide the process

The BWG, an advisory body, comprising 22 specialists in different fields, was formed soon after to review and approve the BAP

An outline for the BAP was prepared during a two-day consultative workshop in Sept. 1996. Following upon this, 13 national experts were contracted to write sector papers

Based on these papers and the workshop output, a first draft of the BAP was prepared and circulated for comments in Oct. 1997

In August 1999, the PEPC endorsed the BAP

Review of Economic Measures in the BAP

The BAP process had very limited economic input

Our sense is that this was due less to oversight and more to a lack of capacity.

Review of Economic Measures in the BAP

The BAP provides an excellent analysis of the causes of biodiversity loss.

It accounts for the sector spread.

Also identified clearly are the indirect, economic causes of biodiversity loss.

Review of Economic Measures in the BAP

Valuation

Economic Policies

Pricing and Incentives

Review of Economic Measures in the BAP

Weaknesses

The recommendations for fiscal incentives conflict with the present thrust of sector reforms

The suggested provision of subsidies and grants also runs counter to prevailing economic reform policies

However, proposed sector disincentives are more market-driven

Review of Economic Measures in the BAP

Consistency between macro, sector and project level measures can be ensured by a linked approach. The Action Impact Matrix (AIM) represents one way of doing this.

Review of Economic Measures in the BAP

Ultimately, the BAP has to be seen as part of a larger picture, in conjunction with other policies and measures designed for, or resulting in, biodiversity conservation.

General Recommendations

Valuation

Good data is a pre-requisite for valuation.

The MoE should commission/produce an annual 'state of the environment' report.

The report should be used for
- incorporating environmental information into national accounts,
- formulating sector pricing policies,
- undertaking cost-benefit analysis of projects, and carrying out IEEs and EIAs

Specific Recommendations: Theme-Based

Selection of a critical theme (forest, water, soil, air)

Selection criteria could be:
- costs,
- biodiversity conservation priorities,
- institutional and political feasibility of remediation,
- scope for community participation,
- implications for equity,
- data availability etc.

Specific Recommendations: Forests

Valuation

- Collect and compile data on forest resources (survey of genetic resources)
- Asses forest degradation trends
- Propose modalities for generating data on a continuous basis
- Develop valuation methodology consistent with available data
- Suggest mechanisms for incorporating such data in national accounts

Specific Recommendations: Forests

Economic Policies

- Identify perverse incentives
- Identify downstream effects of deforestation
- Compile information on royalty systems
- Compile information on FD salary structure
- Compile information on administrative measures (fines and permits)
- Assess exchange rate and tariff policies and their impact
- Assess financial and econ. incentives (discount rates, subsidies) which make development more attractive then protection

Specific Recommendations: Forests

Project Level Incentives

- Transferable development rights
- Explore possibilities for introducing 'green' markets
- Community managed trophy hunting
- Revenue generation through local tourism and controlled auction of birds and animals
- Marketing of processed timber and non-timber products
- Employment generation through eco-tourism and forest protection

Specific Recommendations: Forests

Institutional Pre-requisites

- Adopt habitat (land-use) approach to PA Management
- Establish secure property/tenure rights for resident communities
- Institute JFM as a legal requirement in forest laws
- Establish VOs and work through existing CBOs/NGOs
- Establish community/Pvt. Sector partnerships
- Impart conservation education and training
- Nurture and promote traditional management systems

14. The Use of Economics in the NBSAPs of Vietnam and South East Asia

Nicole Casellini, IUCN Vietnam Country Office & Tran Lien Phong, CBD Focal Point Vietnam

International Workshop on Biodiversity and Economics, Ecuador, June 20-22, 2001

IUCN The World Conservation Union

The Use of Economics in the NBSAPs of Viet Nam and South East Asia

Nicole Casellini, IUCN Viet Nam

Tran Lien Phong, CBD focal for Viet Nam

Map of South East Asia:

Source: ASEAN

Background information:

10 Countries:

- Brunei Darussalam
- Cambodia NBSAP development expected to begin shortly
- Indonesia NBSAP completed and approved in 1993
- Laos NBSAP development expected to begin shortly
- Malaysia National Policy on Biological Diversity officially launched in 1998

Background information (con't):

- Myanmar
- Philippines NBSAP completed in 1996 and approved in 1997
- Singapore CBD's objectives achieved through the 'Green Singapore Plan'
- Thailand Has not yet ratified the CBD
- Viet Nam NBSAP completed in 1994 and approved in 1995

Main causes of biodiversity loss:

- Over-harvesting of timber
- Practice of shifting cultivation (slash-and-burn cultivation)
- Forest fire
- Over-exploitation of firewood and NTFPs
- Illegal hunting, poaching and trade in wildlife species
- Destructive and unsustainable fishing methods
- Degradation of mangroves and coral reefs
- Over-use of chemicals in agriculture and industry subsequent soil and water pollution

The case of Viet Nam:

Economic background:

- Economy in transition
- Reforms *Doi Moi:*
  - Price liberalization
  - Development of export oriented sectors
  - Privatization and equitization
  - Promotion of the private sector
  - Establishment of a banking system
  - etc.

Environmental background:

- Biodiversity endowment:
  - 276 mammal species
  - 249 reptiles species
  - 828 bird species
  - 2,470 fish species
  - 5,500 insect species
  - 12,000 plants species

Economic causes of biodiversity loss:

- Agriculture: loss of agro-biodiversity, over-use of chemical pesticides and fertilizers
- Forestry: loss of forest cover and habitats, soil erosion, water sedimentation

Economic causes of biodiversity loss (cont'd):

- Fisheries: loss of marine biodiversity, degradation of coastal marine habitat, wetlands and mangrove forests
- Industry: air, freshwater, marine
- water and soil pollution, destabilization of wetlands
- Unsustainable use of wildlife

Integration of economics into the NBAP for Viet Nam:

- When did the NBAP process took place:

Preparation of the NBAP started in 1993 with the participation of a group of experts from the following sectors: agriculture, forestry, fisheries, and biodiversity planners

Integration of economics into the NBAP for Viet Nam (cont'd):

- How far economic elements were included in the Biodiversity Action Plan:

Estimation of the total value of biodiversity as being equal to the annual income of the agriculture, forestry and marine sectors, *i. e.* USD2 billion (based on the State Annual Statistics)

Integration of economics into the NBAP for Viet Nam (cont'd):

- What are the main obstacles to the integration of economic measures into the BAP:
  - insufficient awareness of policy and decision-makers on the value of biodiversity and the necessity to take it into account in the planning and accounting process;
  - non consultation of economist during the preparation phase;
  - unavailability of adequate methodology for evaluating the monetary value of biodiversity lack of valuation methodology and know-how
  - lack of broadly recognized data on the economic value

Integration of economics into the NBAP for Viet Nam (cont'd):

- Have any economic policies/actions being implemented:
  - The NBAP is addressing the relationships between biodiversity and State economic programmes, such as poverty reduction, new economic and resettlement policy, adoption of high yield crops, reforestation, etc.
  - Valuation, incentives and policies are proposed (*e.g.* on replanting and protecting forests)
  - Case study on the evaluation of the economic value of biodiversity in two communes: Tam Dao and Cat Ba National Park
  - Creation of ecological villages, etc.

Economics into the NBSAPs:

Valuation:

The necessity to estimate the full value of biodivesity (not only the % of GDP or export) for conservation and management planning is recognized

- **Develop and adopt standardized methodologies for economic valuation of species, ecosystems and genes, including their services**
- **Integrate ecological and environmental values of natural habitats into the national accounts**
- **Calculate and compare benefits of environmental services with costs of conservation (staff salaries and lost of agricultural opportunities)**
- **Use traditional cost-benefits criteria to justify PAs**
- **Calculate economic returns of NTFPs and sustainable yield**

Economics into the NBSAPs (cont'd):

Incentives:

The necessity to adopt incentives to enforce a policy and mobilize funding for biodiversity conservation is recognized

- **Eliminate perverse disincentives from development policies (*e.g.* international trade tariffs, government subsidies to agricultural plantation, etc.)**
- **Review and address impacts of the international debt on biodiversity resources utilization**
- **Develop incentives to protect biodiversity resources where legislation is not adequately implemented, especially in PAs**

Economics into the NBSAPs (cont'd):

Policies:

The necessity to integrate biodiversity conservation strategies into sectoral planning and propose alternative sustainable livelihood source is recognized

- **Policy reform are needed where development policies contribute to biodiversity loss**
- **Revise land tenure policy and especially regulations that govern the ownership, access and management of natural resources**
- **Designate and train governmental agencies as focal points to perform economic analysis of natural resources allocation**
- **Set up procedures for systematic incorporation of economic analysis into governmental decision-making**
- **Improve the use of EIA for natural resources allocation and activities such as tourism**
- **Establish a governmental task force to set up a funding strategy for biodiversity conservation (*e.g.* debt-for-nature swapt, etc.)**

Conclusion:

The National Biodiversity Action proved to be a very useful tool to bring national planners together and understand the necessity to take the total value of biodiversity into account

Methodologies and know-how on valuation and integration of biodiversity and economic planning are still missing and expertise should be built at various level of the government, especially for the economic sectors relying on biodiversity

15. Economics in Bolivia's NBSAP

Gonzalo Mérida Coimbra, Dirección General de Biodiversidad, Bolivia

TALLER INTERNACIONAL SOBRE DIVERSIDAD Y ECONOMIA

ECUADOR JUNIO 20 - 22

Economía y Biodiversidad

Estrategia Nacional para la Conservación de la Biodiversidad

La Economía de la Biodiversidad en Bolivia

Importancia Nacional

1988 – 1996	Ingresos % PIB	Empleo %
Silvicultura, Caza y Pesca	**1,00**	**0,73**
Eco-etnoturismo	**1,57**	**1,57**
Agrobiodiversidad	**1,45**	**6,46**
Biodiversidad	**4,01**	**8,76**

Importancia Nacional

1988 – 1996	Ingresos % PIB
Biodiversidad	4.01
Minería	6.17
Hidrocarburos	4.72

Importancia Departamental

1988 – 1996	Ingresos % PIB	Actividad
Pando	17.33	**Prod. Silvicultura**
Beni	9.64	**Prod. Maderables**
Potosí	5.44	**Agrobiodiversidad**
Oruro	4.24	**Agrobiodiversidad**
Resto	< 4.01	

Importancia Departamental

ECOTURISMO

- ☛ 6 departamentos participación similar o mayor al promedio nacional
- ☛ No incluye SCZ, Pando y Chuquisaca
- ☛ Ninguno excede el 3% PIB departamental

Mayor Distribución; Subutilización

Distribución del Ingreso

1988 – 1996	Silvicultura, caza y pesca	Etno-ecoturismo	Agrobiodi-versidad
Remuneraciones	15,04	36,59	12,11
Renta Mixta	28,14	25,29	72,67
Exc. Bruto explotación	56,68	37,98	15,21
Impuestos Indirectos	0,13	0,14	0,0

Multiplicadores

Actividad	Multiplicador 1988 – 1996
Silvicultura, Caza y Pesca	1,40
Eco-etnoturismo	2,20
Agrobiodiversidad	1,28
Petróleo Crudo y Gas Natural	1,94
Minerales Metálicos y No Metálicos	1,56

Conclusiones

Debilidades

- ☛Baja productividad
- ☛Predominancia en departamentos de menor desarrollo relativo
- ☛Potencial de ecoturismo subutilizado
- ☛Presencia de estructuras precapitalistas de producción

Conclusiones

Fortalezas

- ☛Aglutina importantes contingentes humanos
- ☛Comparativamente a hidrocarburos y minería, su importancia no es marginal
- ☛Ecoturismo:
  - ✓Alto factor multiplicador
  - ✓Distribución menos desigual del ingreso

Conclusiones

Políticas Propuestas

La economía de la biodiversidad debe:

- ☛Orientarse al mercado internacional
- ☛Aumentar progresivamente la creación de valor agregado

Factores de Riesgo o Limitantes Específicos

Enfoque

- ☛ Caso de Estudio: Principales Areas Protegidas ➡ Potencial en biodiversidad
- ☛Análisis de:
  - ✓ Tendencias (información secundaria)
  - ✓ Percepciones (Fichas de consulta)

Población

- ☛En 11 de las 14 áreas protegidas principales tasa de crecimiento mayor a la rural
- ☛En principales áreas de Beni, Cochabamba y La Paz la tasa excede de 4%
- ☛Tasas responden a flujos migratorios desde occidente.

Población

	Incidencia de Pobreza (%)	Analfabetismo (%)
Prom. Nacional	65	20
Prom. Rural	80	36.5
Mayor que Prom. Nal.	100	71
Mayor que Prom. Rural	100	21

Servicios Públicos

	Agua (%)	Alcantarillado (%)	Electricidad (%)
Prom. Nacional	65	20.65	55.48
Prom. Rural	80	0.93	15.57
Menor que Prom. Nal.	100	100	100
Menor que Prom. Rural	100	64	64

Otros Factores

☛50% de las secciones de provincia de las principales áreas protegidas sólo cuentan con vías secundarias y deficientes

☛Régimen de propiedad no proclive a la atracción de inversiones ➡ predominancia de propiedad fiscal y comunitaria.

Percepciones

Principales dificultades

①Acceso a financiamiento (5 dptos)

②Falta de infraestructura vial (2 dptos)

③insufieciente energía eléctrica (1 dpto)

Percepciones

Dificultades no determinantes

①Falta de asistencia técnica

②Débiles derechos propietarios

③Falta de maquinaria y equipo

④Créditos caros o de corto plazo

⑤Desigual distribucion de la propiedad

Conclusiones

Debilidades

☛Capital humano poco calificado y con muy limitada capacidad de gestión

☛Serias dificultades de acceso al financiamiento y de capacidad de inversión

☛Insuficiente infraestructura caminera y energética, y de servicios públicos

Conclusiones

Amenazas

Presiones migratorias y bajos ingresos

⬇

☛Crisis de las políticas de conservación

☛Uso insostenible de la biodiversidad

Conclusiones

Prioridad Estratégica

Revertir la amenaza de aprovechamiento insostenible de la biodiversidad

Conclusiones

Políticas Propuestas

- ☛Programa de inversión pública en zonas de alto potencial y densidad demográfica
  - ✓ Infraestructura
  - ✓ Servicios públicos
  - ✓ Capacitación y entrenamiento
- ☛Promoción del microcrédito rural
- ☛Crear un ambiente favorable a la atracción de inversiones

Temas pendientes

- ☛Diagnóstico de la sostenibilidad financiera del área de conservación ➡ importante pero de menor prioridad que el área de aprovechamiento sostenible
- ☛La conservación de la biodiversidad y su relación con otros sectores ➡ no es crucial en el área económica

16. The Use of Economics for Biodiversity conservation in Peru

Raul Tolmos, Peru

El rol del análisis económico en la planificación de la Biodiversidad en Perú: Oportunidades y Tendencias

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Economía ambiental y de recursos naturales

Quito, 20-22 de junio, 2001

Análisis Económico de la Biodiversidad: Situación Actual

- Principio "usuario-pagador" en principales leyes que afectan biodiversidad
- Instrumentos económicos y financieros al nivel del Sistema Nacional de Areas Naturales Protegidas por El Estado (SINANPE) básicamente
- Subsidios explícitos e implícitos en sectores económicos (e.g. forestal, pesquero, agricultura, turismo)
- Instrumentos económicos como generadores de rentas antes que generadores de cambios en conductas (dentro y fuera del sector de la conservación)

Análisis Económico de la Biodiversidad: Situación Actual

- Débil capacidad de ejecución de fondos de la autoridad de parques
- Restricciones presupuestales (fondos de contrapartida local)
- Oposición en el Sector Economía a los canjes de deuda (sinking funds)
- Desbalance en el portafolio GEF en Perú
- Falta conexión entre políticas de alivio a la pobreza y las de conservación y uso sostenible de la biodiversidad
- Falta documentar sólidamente y en un lenguaje apropiado los beneficios económicos del SINANPE

Análisis económico de la biodiversidad: Restricciones

- Sectores son juez y parte: captura de rentas versus uso sustentable
- Énfasis en productos de la biodiversidad con mercados
- Análisis económico del uso tradicional de la biodiversidad y servicios ambientales asociados está casi ausente
- Estadísticas poco confiables sobre productos de la biodiversidad
- Fijación y recaudación de rentas recae en los sectores. El Ministerio de Economía no interviene.

Aspectos económicos y financieros de la biodiversidad: Tendencias

- Lenta transición desde el mecanismo financiero de canje de deuda por naturaleza hacia nuevos instrumentos de financiamiento del SINANPE
- Conceptualmente, apertura hacia instrumentos de mercado (subastas/licitaciones/cuotas/certificación)
- Unidad de asuntos productivos y ambientales en el Ministerio de Economía y Finanzas

Aplicación de Instrumentos Económicos y Financieros

- Estimación de relación beneficio-costo para una muestra de Areas Naturales Protegidas (1995)
- Fondo Fiduciario (PROFONANPE) con recursos de canjes de deuda por naturaleza (US$ 40 millones)
- Estudio económico y financiero para las sustentabilidad de la gestión del SH de Machupicchu (1999)

Sustentabilidad Financiera y Económica de las ANPs

- Debilidad y vacíos en la información sobre costos operativos
- Costos de oportunidad no son contabilizados
- SH de Machupicchu: información incompleta sobre costos operativos.
- Oportunidades perdidas para capturar el excedente del consumidor áreas naturales protegidas con un flujo importante de turistas (Manu, Huascarán, etc.)
- Riesgo de perder recursos GEF (Banco Mundial) por no aprobar reglamentos (Ley de Areas Naturales Protegidas)

Concesiones para Ecoturismo

- Costos fijos de supervisión de concesiones de ecoturismo
- Ingresos brutos del concesionario.
- Cálculo de tarifas (monetarios) por el uso de las concesiones
- Proceso des subastas/licitaciones del derecho de uso de concesiones para ecoturismo
- Cambio del "petitorio" hacia la competencia (licitación)
- Mayor transparencia sobre rentas por concesiones
- Recursos humanos

Manejo Forestal y Eliminación de Subsidios Implícitos

La actual Ley Forestal y de Fauna Silvestre introduce la figura de la subasta de concesiones.

Nuevamente la idea de capturar el excedente del consumidor a partir de su máxima disposición a pagar por la concesión

En algunos lugares, las tarifas forestales vigentes (basadas en criterios administrativos) capturan una parte insignificante del valor de la madera en pie

Para un metro cúbico de caoba en pie, las tarifas forestales sólo capturan el 5% de su valor (en pie).

Manejo del Recurso Hídrico y Eliminación de Subsidios Explícitos

Tarifas de agua de los proyectos de irrigación son fijadas por el Ministerio de Agricultura.

Tarifas muy por debajo del costo económico del agua y de los costos de operación y mantenimiento de la infraestructura del esquema de irrigación: US$ 0.003 /m^3 (Banco Mundial, 2000)

Bajo precio del agua + bajas tasas de recaudación de las tarifas cobradas = agua desperdiciada y usada ineficientemente

El gobierno interviene con donaciones de equipos y subsidios para los costos de operación y mantenimiento

Resultado final: salinización de suelos

Anotaciones Finales

La captura del excedente del consumidor es una condición necesaria pero no suficiente.

Es necesario asegurar la distribución de beneficios ex-ante. Ejemplo: INRENA versus INC.

Factores políticos y de políticas públicas impiden la implementación de medidas económicas que favorecen el uso sustentable de la biodiversidad (e.g. diferenciación de precios).

La falta de una masa crítica que integra el análisis económico y la planificación de la biodiversidad es una cuestión educacional antes que estructural (mediano y largo plazo)

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