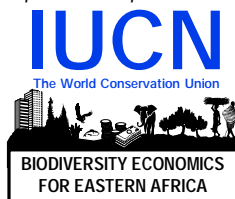

BUILDING ECONOMICS INTO NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS - Experiences from Eastern Africa

Prepared for workshop on *Building Biodiversity into Sectoral Strategies and Action Plans*, GBF 14, 18-20 June 1999, Montreal



Lucy Emerton
IUCN Economics Service Unit
Lucy.Emerton@iucn.unon.org
<http://economics.iucn.org>

1. Why economics? The links between economics and biodiversity

Economics explains how people survive, and analyses the ways in which they act and interact to attain what they want in terms of income, subsistence and other goods and services. It basically addresses the problem of scarcity – how to fulfil people’s unlimited needs and aspirations from a scarce resource base. Incorporating biodiversity concerns into economics involves introducing concepts of sustainability into scarcity – finding ways to meet people’s current needs in a way which is both equitable and efficient, but does not diminish the amount and diversity of biological resources and processes available for future generations. The economics of biodiversity is thus concerned with identifying and understanding the links between economics and biodiversity – how biodiversity contributes to economic activity, and how economic activities in turn impact on the status and integrity of biodiversity.

Economic analysis and tools are accordingly important to the Convention on Biological Diversity. Its three major objectives – conservation, sustainable use and benefit sharing – all require the understanding and use of economics for their implementation. Reflecting this importance, throughout the Articles of the Convention there are repeated calls for the use of economics. Economics plays an especially crucial role in Article 6 of the Convention, which calls upon its contracting parties to develop – in accordance with their specific national interests and conditions – strategies, plans and programmes for the conservation of biodiversity and sustainable use of its components, and to integrate biodiversity conservation and sustainable use into relevant sectoral and cross-sectoral plans, programmes and policies.

Although it is only recently that either economic issues have been brought into biodiversity conservation planning and implementation, or that biodiversity concerns have started to be incorporated into economic analysis, economics has come to play an increasingly important part in the development of National Biodiversity Strategies and

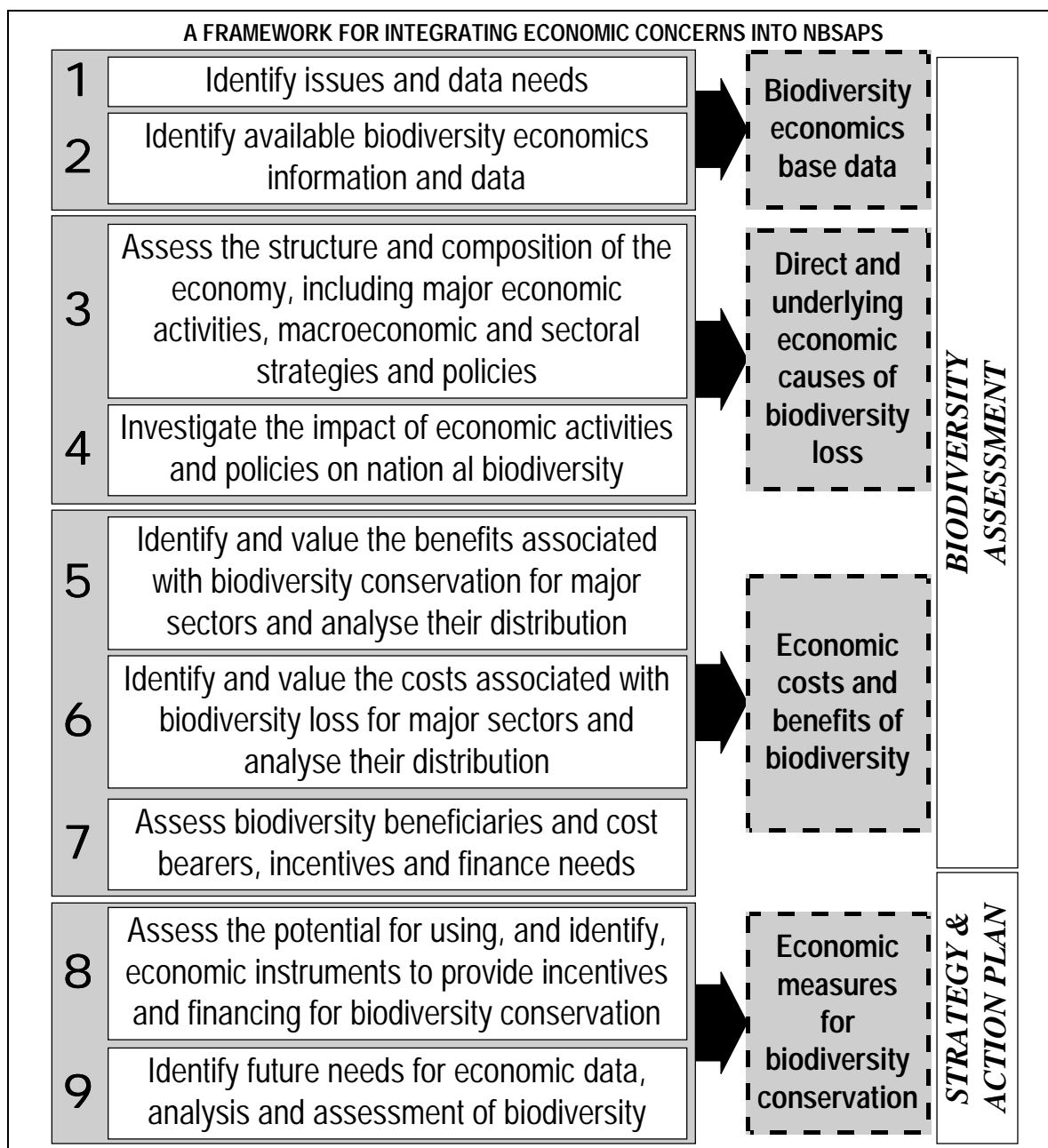
Action Plans (NBSAPs). This paper describes experiences gained in building economic concerns and concepts into NBSAPs in Eastern Africa.

2. A framework for integrating economic concerns into NBSAPs

There are three major stages in the development and implementation of NBSAPs – first the national biodiversity assessment or country study, then the development of a strategy and plan of action for biodiversity conservation, and finally its on-going implementation, review and reformulation. Economic concerns play an important part in all three of these stages.

In Eastern Africa a framework has been developed for integrating economics into the NBSAP process. In order to generate information and recommendations which are consistent with other aspects of the NBSAP process, this framework follows nine iterative steps:

- ❖ **Step 1 - Identify issues and data needs; Step 2 - Identify available biodiversity economics information and data:** Up-to-date biodiversity information is scarce throughout most of Eastern Africa, and especially little is known about the economics of biodiversity. A first step in integrating economic concerns into the NBSAP process is to identify key economics and biodiversity issues, and to then find out what data and information exist, or can be used, to address these concerns.
- ❖ **Step 3 - Assess the structure and composition of the economy; Step 4 - Investigate the impacts of economic activities and policies on biodiversity:** Analysing the economic conditions which prevail and the economic activities which currently take place in a country, and understanding the policy frameworks within which they are set, provides the basis for understanding how and why economic activities impact on biodiversity. Assessing the macroeconomic and sectoral economic context of a country, and its impacts on biodiversity, helps to isolate the root economic causes of biodiversity loss as well as to identify ways in which on-going policies, economic instruments and growth strategies may be used to enhance national biodiversity conservation.
- ❖ **Step 5 - Identify and value biodiversity benefits and their distribution; Step 6 - Identify biodiversity costs and their distribution; Step 7 - Identify the beneficiaries, cost-bearers, incentives and financing needs for biodiversity conservation:** In order to justify biodiversity conservation and to understand how biodiversity can be sustainably used and its benefits equitably distributed it is



necessary to identify and value both its benefits and costs, and to see how they are distributed among different sectors of a country's population.

- ❖ **Step 8 - Assess the potential for using economic instruments for biodiversity conservation; Step 9 - Identify future needs for economic assessment of biodiversity:** The ultimate aim is to see how biodiversity can be conserved in a country at the same time as economic growth and social equity goals are achieved. The last steps in integrating economic concerns into the NBSAP process are to identify economic tools and instruments which can be used to finance biodiversity conservation, ensure that its benefits are equitably distributed and provide effective incentives for people to sustainably use and conserve biodiversity in the course of their economic activities, and the incorporation of these measures into both national biodiversity conservation planning and practice and into strategies for future national economic growth.

3. Identifying economic concerns and impacts through biodiversity assessment

The first stages of integrating economic concerns into the NBSAP process – the economic assessment of biodiversity, comprising steps 1 to 7 in the framework specified above – have yielded important information in Eastern Africa. In particular, the identification and valuation of biodiversity economic costs, benefits and their distribution has helped to demonstrate:

- ❖ The *economic, developmental and social justification for biodiversity conservation*. The adoption, and ultimate success, of NBSAPs does not rely just on the actions of conservation planners and decision makers. Biodiversity conservation must also be attractive to donors, to other divisions of government, to the private sector and to local communities, because it depends on their acceptance and active support. Quantifying the economic benefits associated with biodiversity conservation, and the economic costs associated with its loss, provides a strong – and often much needed – justification for the development and implementation of NBSAPs. It shows that biodiversity conservation is an economically, developmentally and socially beneficial use of funds, land and other resources because it helps to maintain national economic indicators and growth and contributes to government revenues, commercial profits and household livelihoods. It also shows that the long-term economic costs associated with biodiversity degradation and loss are wide ranging, and ultimately undermine the economic security of all these groups. *Economic assessment of biodiversity provides a basic justification for the development and implementation of NBSAPs.*

BIODIVERSITY ECONOMIC VALUES AS A JUSTIFICATION FOR THE SEYCHELLES NBSAP

Economic assessment demonstrates that biological resources, ecosystems and their diversity have a high economic value in the Seychelles. With a gross value of some US\$ 320 million a year, biological resource utilisation and ecosystem services also form the basis of the Seychelles' major economic sectors of tourism and fisheries, which together account for the bulk of income, employment and foreign exchange earnings in the country. Biodiversity-related goods and services contribute nearly a fifth of the Seychelles' GDP, a quarter of national employment, more than a third of government revenues, three quarters of foreign exchange earnings and in excess of 95% of export earnings. Economic assessment shows clearly that the benefits of biodiversity accrue throughout the Seychelles economy and population, and that biodiversity degradation and loss would impose significant private and public costs by eroding the most productive sectors of the economy. By demonstrating the economic importance of biodiversity, and by highlighting the fact that biodiversity degradation would give rise to untenable costs for most sectors of the population, economic assessment provides a strong justification for the development and implementation of a NBSAP in the Seychelles.

THE UNEQUAL DISTRIBUTION OF BIODIVERSITY COSTS AND BENEFITS IN ERITREA

Although the economic value of biodiversity is high in Eritrea – biological resource utilisation activities and ecosystem services which can be quantified together have an economic value of over US\$ 350 million a year, and underpin much of the country's production and consumption – biodiversity benefits are unequally distributed. While the bulk of biodiversity benefits accrue at the household livelihood level, many rural communities stand to lose out in economic terms from biodiversity conservation because particular land and resource uses will be curtailed. Economic assessment also makes it clear that public sector expenditures required for conservation are far higher than government earnings and revenues currently accruing from biodiversity, and that commercial and industrial producers largely benefit from biodiversity at low or zero cost, while freely degrading and depleting resources and ecosystems in the course of their economic activities. It also demonstrates that significant global economic benefits are generated from the conservation of Eritrea's biodiversity. All these findings indicate that a NBSAP for Eritrea must include measures which will penalise commercial producers who deplete or degrade biodiversity, which will ensure that rural communities are not economically worse off as a result of biodiversity conservation, which will attempt to capture at least some of the global benefits of Eritrea's biodiversity as tangible cash inflows, and which will raise adequate funds to cover government costs of biodiversity conservation programmes and projects.

ECONOMIC CAUSES OF BIODIVERSITY DEGRADATION AND LOSS IN DJIBOUTI

Economic assessment provides valuable insights into the causes of biodiversity loss in Djibouti. It highlights key productive sectors of the economy which contribute to biodiversity loss through their activities – including unsustainable exploitation of biological resources in livestock, fisheries and wildlife trade sectors and destructive harvesting methods and production technologies employed in agricultural, fisheries, tourism, shipping, industrial and urban settlement sectors. In turn, economic assessment also makes it clear that a number of structural and policy factors underlie this biodiversity degradation and loss. The extreme division between the urban, commercial sector and the rural, subsistence economy in Djibouti has major implications for the development of a NBSAP, because the two are largely distinct in terms of biodiversity impacts, policy influences and economic activities. While biodiversity impacts in the rural economy are largely related to climatic, livelihood and security factors, the activities of the urban sector are strongly influenced by government development strategies. Although there is no centralised planning or formal policies in Djibouti, broad macroeconomic and sectoral development strategies do exist, and have impacted on the status and integrity of biodiversity in the country. Especially, development strategies have promoted as key sources of economic growth sectors which have the most potential to impact negatively on biodiversity – the urban, infrastructural, commercial and fisheries sectors. Strategies for these sectors contain no consideration of biodiversity, there are no well-defined or properly-enforced measures to avoid, mitigate or penalise for biodiversity degradation, and there is no single, co-ordinated legal or policy instrument which deals with biodiversity, environment or natural resources. The economic assessment makes it clear that Djibouti's NBSAP must include actions concerned specifically with modifying the types, levels, methods and markets of economic activities which directly deplete, degrade, pollute and convert biodiversity, as well as effecting policy and legal reforms in both environmental and non-environmental sectors of the economy.

- ❖ The ***economic benefits and costs of biodiversity conservation are unequally distributed between different groups***. While biodiversity conservation can usually be demonstrated to lead to a net economic gain at national and global levels, and to contribute substantially to government budgets, private profits and community livelihoods, it also incurs costs. As well as the direct expenditures associated with conservation projects and programmes, these include the opportunity costs of investment, industrial and land use options foregone. These costs and benefits are unequally distributed. While the major benefits of biodiversity conservation often accrue at global and national levels, it is governments and local communities who typically bear many of its recurrent costs. This is not only inequitable, and often unsustainable, but also undoubtedly acts as a constraint to biodiversity conservation, sustainable use and equitable benefit sharing. ***Economic assessment of biodiversity provides an indication of the likely economic impacts of NBSAPs on different groups.***

- ❖ Multiple ***economic forces drive biodiversity degradation and loss***. Economic activities damage, convert, replace or otherwise interfere with biodiversity in many ways. These economic activities comprise the direct causes of biodiversity degradation and loss. They are in turn permitted or encouraged to occur as a result of broader policy, institutional and market forces which make it more profitable or desirable, or fail to penalise, when people under-value, over-consume and under- conserve biodiversity. These policy, institutional and market arrangements comprise the underlying root causes of biodiversity degradation and loss. ***Economic assessment of biodiversity identifies areas, sectors and economic activities which comprise the direct and underlying causes of biodiversity degradation and loss.***

4. Making sure that biodiversity conservation is economically desirable, equitable and sustainable: supportive economic tools for biodiversity strategies and action plans

Economic assessment of biodiversity provides the basic information from which a NBSAP can be developed. Biodiversity conservation in general, and the actions specified in NBSAPs in particular, will be incomplete – and very unlikely to succeed – unless they make economic sense overall, at all levels of scale and for all sectors. By highlighting the major beneficiaries and cost-bearers of biodiversity conservation, and pinpointing the direct and indirect causes of biodiversity degradation and loss, the economic assessment of biodiversity identifies areas where supportive economic measures are required to ensure the financial and economic desirability of NBSAPs, and to enhance their equity and sustainability. The second stage of integrating economic concerns into the NBSAP process – the identification of economic measures for biodiversity conservation, comprising steps 8 and 9 in the framework

specified above – has yielded important information in Eastern Africa by showing that there is a pressing need to set in place, as part of NBSAPs, economic measures which ensure that:

- ❖ The ***perverse incentives which drive biodiversity degradation and loss are identified and overcome***. Having identified the direct and underlying economic causes of biodiversity degradation and loss in the course of the economic assessment of biodiversity, it is necessary to ensure that actions are taken as part of the NBSAP to curtail these destructive activities and to overcome the perverse incentives which cause them to take place. This requires action at a number of levels, including setting in place positive economic incentives for biodiversity conservation as described below. Key economic measures to overcome perverse incentives also include the establishment and enforcement of financial penalties against biodiversity degradation, and the integration of biodiversity concerns into the policies, strategies and actions of other sectors of the economy which contribute to biodiversity loss.

- ❖ There exist ***positive and appropriate incentives and enabling circumstances*** for people to conserve biodiversity in the course of their economic activities. The economic assessment of biodiversity identifies groups for whom, and production and consumption activities in which, biodiversity conservation does not make economic sense. The NBSAP provides a vehicle for setting in place the conditions under which people will feel themselves to be better off if they conserve biodiversity than if they degrade or deplete it. This involves the establishment of positive incentives, which enhance the desirability and profitability of economic activities which contribute to biodiversity conservation.

- ❖ ***Adequate and sustainable sources of finance*** are provided to cover the costs of biodiversity conservation, and of the actions specified in NBSAPs. The economic assessment of biodiversity identifies the various groups who bear the costs of, or lose out in economic terms from, biodiversity conservation. The development of a NBSAP also involves the formulation of budgets and cost projections for its component programmes, projects and activities. Financing mechanisms must be integrated into the NBSAP to cover all these costs, in terms of direct cash expenditures, compensation for economic opportunities foregone or precluded, and the sharing of benefits. Ensuring that adequate funds are available for biodiversity conservation, in a suitable and sustainable form and accruing to appropriate groups, forms a vital economic measure in NBSAPs.

ECONOMIC MEASURES TO OVERCOME PERVERSE INCENTIVES IN ERITREA

Economic assessment shows that a number of structural, policy and market factors act as perverse incentives against biodiversity conservation in Eritrea. Macroeconomic and sectoral economic policy provide strategies for development and define the conditions under which the economy is run, and aim to stimulate production and consumption and regulate the ways in which it is carried out. Because they have the goal of achieving national economic development and growth goals, they do not self-evidently support biodiversity conservation, and sometimes contribute to its degradation and loss. They do this by promoting particular types of economic activity and particular production technologies which have the potential to erode biodiversity (such as arable agricultural expansion into arid and semi-arid rangelands, fisheries commercialisation, increased mining activities, industrial and infrastructural development), by omitting consideration of biodiversity (such as the lack of environmental impact assessment procedures in urban and industrial planning) and by using economic instruments which manipulate prices and profits to make particular biodiversity-degrading activities and products desirable to producers and consumers (such as subsidised and below-market resource pricing in water, forestry and energy sectors, implicit subsidies to export crop producers, subsidies to water consumption and inducements to rapid and unplanned investment in industry). Structural and historical characteristics of the Eritrean economy – most notably three decades under external occupation and civil war, which resulted in severe economic stagnation, population displacement and environmental degradation – have also exacerbated these biodiversity impacts. A number of actions can help to overcome these perverse incentives, including the integration of penalties against biodiversity degradation into industrial and natural resource development activities, the full-cost pricing of natural resources and the improvement of prices in the agricultural sector.

POSITIVE ECONOMIC INCENTIVES FOR BIODIVERSITY IN SEYCHELLES

The activities of two major groups in the Seychelles particularly contribute to biodiversity degradation and loss – industrial producers, and users of biological resources in the tourism, marine and wildlife trade sectors. Both groups benefit in financial and economic terms from depleting biodiversity, because it is cheap or free for them to do so. Economic assessment of biodiversity makes it clear that the characteristics of the Seychelles economy influence the choice of economic instruments for biodiversity conservation. Due to a high dependence on imported products, already severe taxes and accordingly high domestic prices, and because of the high cost of exporting Seychelles products overseas, a major concern is not to increase consumer prices or production costs unduly, or to make Seychelles goods uncompetitive on the world market. It is clear that positive incentives which reward consumers and producers for biodiversity conservation because they save them money, increase production efficiency or decrease production costs, will be far more effective, appropriate and acceptable, and more compatible with national development goals, than economic instruments which penalise producers and consumers by raising production costs or increasing domestic prices. A wide range of positive incentives for biodiversity conservation are recommended for the Seychelles NBSAP which target industrial producers and users of biological resources. These include the imposition of deposit bonds on marine tourism operators and industrial developers which are fully refundable on good environmental practice, relatively lower rates of duty and taxation on cleaner and more efficient harvesting equipment and production technologies, differential land use and property taxes, the introduction of secure and tradable rights over resource management and utilisation, and the provision of credit on preferential terms to sustainable resource utilisation activities and alternatives to biodiversity-depleting enterprises.

FINANCING MECHANISMS FOR BIODIVERSITY IN UGANDA

The Government of Uganda currently spends some US\$ 3.27 million a year on public sector activities which are related to biodiversity conservation. The implementation of a NBSAP will increase this figure substantially. Simultaneously the presence of biological resources and their diversity, and their conservation, incurs costs on rural communities in Uganda of up to US\$ 75 million a year in terms of wild animal damage to agricultural enterprises and US\$ 311 million a year through exclusion from land and resource uses in strict protected areas. All these costs will need to be covered in the NBSAP, if it is to be acceptable and affordable both to government and to the communities who live in and around biodiversity areas. Various financing mechanisms are proposed for the NBSAP. Although conventional sources of funds – including central budget subventions, donor grants and loans – already form an important means of financing biodiversity conservation in Uganda, by themselves they are unlikely to be a sufficient, or sustainable, means of financing all the activities contained in the NBSAP. Uganda has an efficient and rapidly-expanding private sector, including a number of enterprises and industries which directly depend upon, or have an interest in, the continued provision of biological resources and ecosystem services. Various means of tapping into both domestic and international private funds are proposed as financing strategies for NBSAP activities, including the instigation of new markets and charges for biodiversity goods and services, a range of co-management, cost-sharing and direct investment arrangements, as well as the commercialisation of biodiversity utilisation and markets and private charitable contributions, sponsorship and advertising deals. Attention is also paid to ensuring that sufficient financial and economic gain accrues at the local level from NBSAP activities, so as to balance the indirect and opportunity costs of biodiversity conservation. In addition to the extension of existing community benefit-sharing and co-management agreements in biodiversity-rich areas, a variety of biodiversity-based local enterprises and markets, as well as financial instruments specifically targeted at promoting participation in sustainable utilisation activities, alternatives to biodiversity-damaging activities and investment in efficient harvesting and production technologies are proposed.

5. Lessons learned and ways forward in building economics into NBSAPs

The integration of economic concerns and concepts has undoubtedly strengthened NBSAP processes in Eastern Africa. By providing an economic justification for biodiversity conservation, and underlining the need to make conservation activities economically attractive and financially sustainable for different groups, it has been particularly useful in ensuring that NBSAPs gain broader acceptance, and are practically implementable. The use of economic analysis and tools has also yielded valuable information about the links between economic activities and the status and integrity of biodiversity in different countries.

The application of economic tools and analysis to biodiversity is however still in its early stages in Eastern Africa. A major concern is, having successfully built economic issues into NBSAPs, to maintain and extend this momentum in the future. A number of lessons learned and recommendations for future action have been identified from Eastern African countries' experiences, including:

- ❖ ***The need to build regional capacity and awareness in the economics of biodiversity:*** in most Eastern African countries there are still very few people who have skills and experience in the application of economics to biodiversity conservation. Although both awareness and acceptance of the importance of economics to biodiversity is growing, there is a need to extend this capacity still further, among both biologists and economists, and within both conservation and development agencies.
- ❖ ***The need for continuing dialogue between economic and biodiversity planners and practitioners:*** in many countries the integration of economic concerns into NBSAPs has provided the first opportunity for economists and natural scientists to collaborate in formulating strategies and action plans. It is vital that this dialogue is maintained in the future so that economics concerns continue to be integrated into biodiversity planning, policy and practice, and if possible expanded so that biodiversity concerns are routinely incorporated into economic and development planning, policy and practice.
- ❖ ***The need to build economic concerns into the on-going implementation, review and reformulation of NBSAPs:*** the programmes, projects and activities specified in NBSAPs are yet to be implemented in most Eastern African countries. Both economic conditions and the status and integrity of biodiversity will change as NBSAPs are implemented. There is a need for NBSAPs to be continuously monitored, reviewed and reformulated as necessary in response to these changing conditions. Economics must also be built into the day-to-day implementation, monitoring and evaluation of NBSAPs.

6. References

IUCN Eastern Africa Regional Office, 1997, *Using Economics for Biodiversity Strategies and Action Plans in Eastern Africa*

Government of Seychelles Conservation and National Parks Section, Division of Environment, Ministry of Foreign Affairs, Planning and Environment, 1997, *Economic Assessment of Biodiversity in Seychelles*

Government of the State of Eritrea Department of Environment, Ministry of Land and Water, 1998, *Economic Assessment of Biodiversity in Eritrea*

Government of Djibouti Bureau Nationale de la Diversité Biologique, Direction de l'Environnement, Ministère de l'Environnement, du Tourisme et de l'Artisanat, 1999, *Economic Assessment of Biodiversity in Djibouti*

Government of Uganda National Environmental Management Authority, 1999, *Economic Assessment of Biodiversity in Uganda*