



## THE COSTS OF ENVIRONMENTAL DEGRADATION AND LOSS TO UGANDA'S ECONOMY WITH PARTICULAR REFERENCE TO POVERTY ERADICATION

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### INTRODUCTION

**A**lthough Uganda's environment and natural resources (ENR) sectors (including agriculture, forests, wild life, wetlands and others) contribute significantly to the economy, only a portion of their contribution is captured in official statistics. A large part of economic values accruing at local, national and global levels is taken for granted by not being valued in money terms. Official statistics indicate that in 1999 for example, the ENR sector contributed over 90 percent of Uganda's exports and supplied more than 90 percent of Uganda's energy requirements in terms of firewood and charcoal for domestic use.

The contribution of the environment to the national economy in Uganda is exemplified by the fact that livelihoods of many Ugandans are intimately tied to the environment both as a source of subsistence household requirements including food and fuel, and as a basis for production. Uganda's agricultural, art and crafts and mining sectors are directly dependent on the environment and natural resource base.

Despite the absence of recent data from labour force surveys in Uganda, the ENR sector is believed to provide gainful informal employment to many Ugandans, particularly

in rural areas. In 1998, it was estimated that 80 percent of the labour force was engaged in agriculture (MFPED, 2000a). Since the sector directly supports the livelihoods of many Ugandans, it is an important factor to be taken into account in poverty eradication strategies of the country.

The contribution of the ENR sector to the national economy can be categorized into four types of values, namely: Direct use values, Indirect use values, Option values and Existence values. Direct use values of the environment and natural resources are those that are derived by consuming goods and services directly such as timber, building poles, local medicines, wild foods and recreation. Indirect use values, on the other hand, are those values derived by consuming or benefiting from critical ecological life supporting services of environment including protection of watersheds, controlling floods and storms, absorption of carbon dioxide (carbon sequestration) and regulating climate.

Option values represent the importance that people attach in not using some resources to meet today's needs by maintaining/conserving environmental resources for possible future use, directly, indirectly, including uses which may

be unknown today, such as cure for diseases like AIDS. The option value is analogous to setting aside a part of one's income in a saving account for use on a 'rainy' day. Lastly, the intrinsic value of environmental resources is the cultural/religious significance of environment and natural resources, irrespective of their use.

#### ENVIRONMENT AND THE ECONOMY: SOME KEY UGANDAN STATISTICS

Gross returns to the national economy from biodiversity	US\$63.9 billion <sup>1</sup> /year
Consumer surplus from gorilla tourism	US\$1.72 million/year
Value of wetlands use to local households	US\$ 11.4 billion/year
Value of papyrus swamp use to local households	US\$ 3.42 billion/year
Value of forest watershed catchment value	US\$ 13.2 million/year
Value of pharmaceutical use of forests	US\$ 1.15 million/year
Costs of soil degradation to crop yields	US\$ 129.3 million/year
Cost of contamination of water systems	US\$ 21.8 million/year

Source: Moyini and Muramira, 2001

<sup>1</sup> Based on 2001 exchange rates: 1 US\$ was equivalent to Uganda shillings 1,650.

The study on which this policy brief is based (Moyini and Muramira, 2001), demonstrates that, although non-traded direct use values of the environment, indirect use values, option values and existence use values are significant to Uganda's economy, their contribution is not captured in the traditional economic indicators/measures such as the Gross Domestic Product (GDP) and National Income (NI). What happens is that the system of collecting data for compiling traditional national accounts only manages to capture that portion of goods and services that are traded in formal markets. Those goods and services from the environment and natural resources that are not traded or monetized and therefore have no formal prices tend to be left out of the national economic accounting framework that is supposed to show the contribution of various sectors to the economy.

One of the consequence of this omission is that the role of the environment and natural resource sector in economic development is taken for granted, thus routinely undervalued and therefore largely ignored in national planning processes (such as the poverty eradication plan – PEAP in Uganda) and allocation of financial resources to priority sectors of the economy.

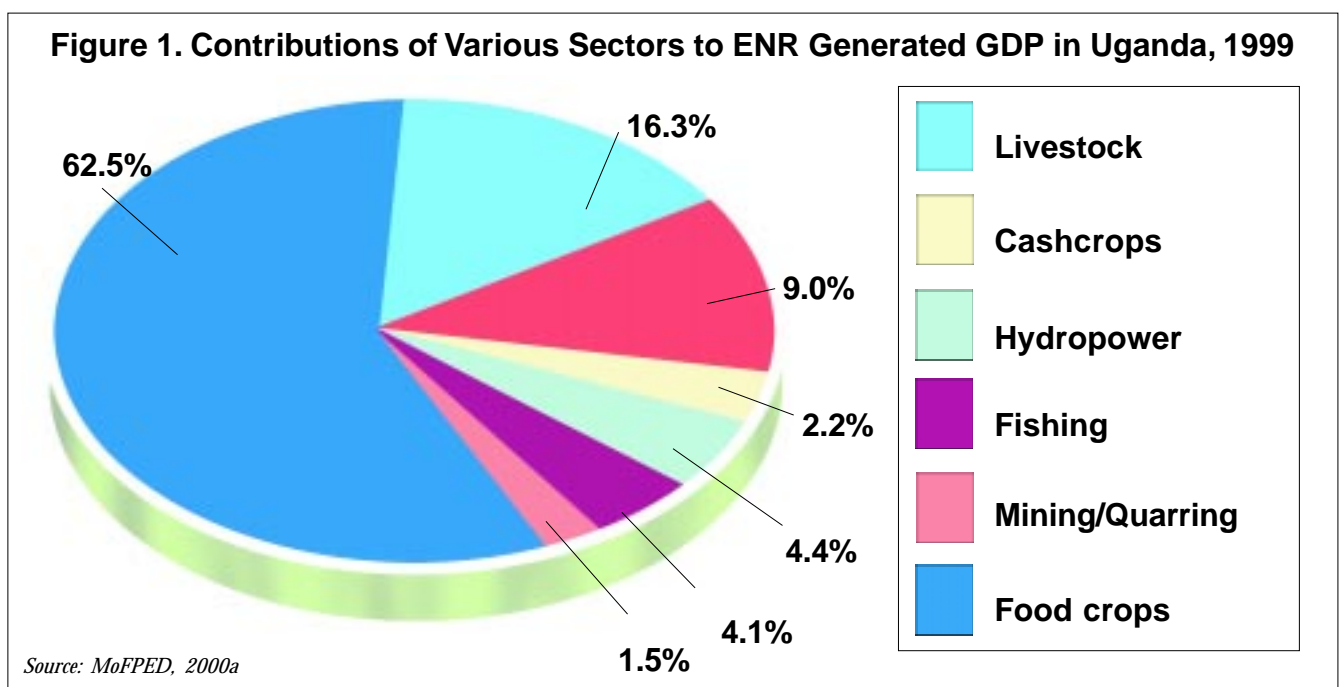
The other equally serious consequence is that environmental degradation is not treated as a cost and therefore reflected as a loss to the economy. By undervaluing the contribution of the environment and ignoring the costs of degradation, policies are formulated that end up promoting environmental degradation. Also inadequate funds are invested to support sustainable utilization and protection of the environment and natural resources.

## ENVIRONMENTAL COMPONENTS OF SECTORAL INCOME IN UGANDA

Out of the total size of Uganda's economy (as measured by conventional GDP), the environment and natural resource sector contributed 54.4 percent of total GDP in 1999 (MoFEP, 2000a).<sup>2</sup>

The environment and natural resources sector consists of food crops, cash crops, livestock, forestry, fishing,

mining and quarrying, hydropower and water. Figure 1 shows the contribution of these sub-sectors to environment and natural resources sector GDP. Food crops alone accounted for 62.5 percent; while the total contribution of the agricultural component (including livestock and cash crops) was 87.8 percent in 1999.



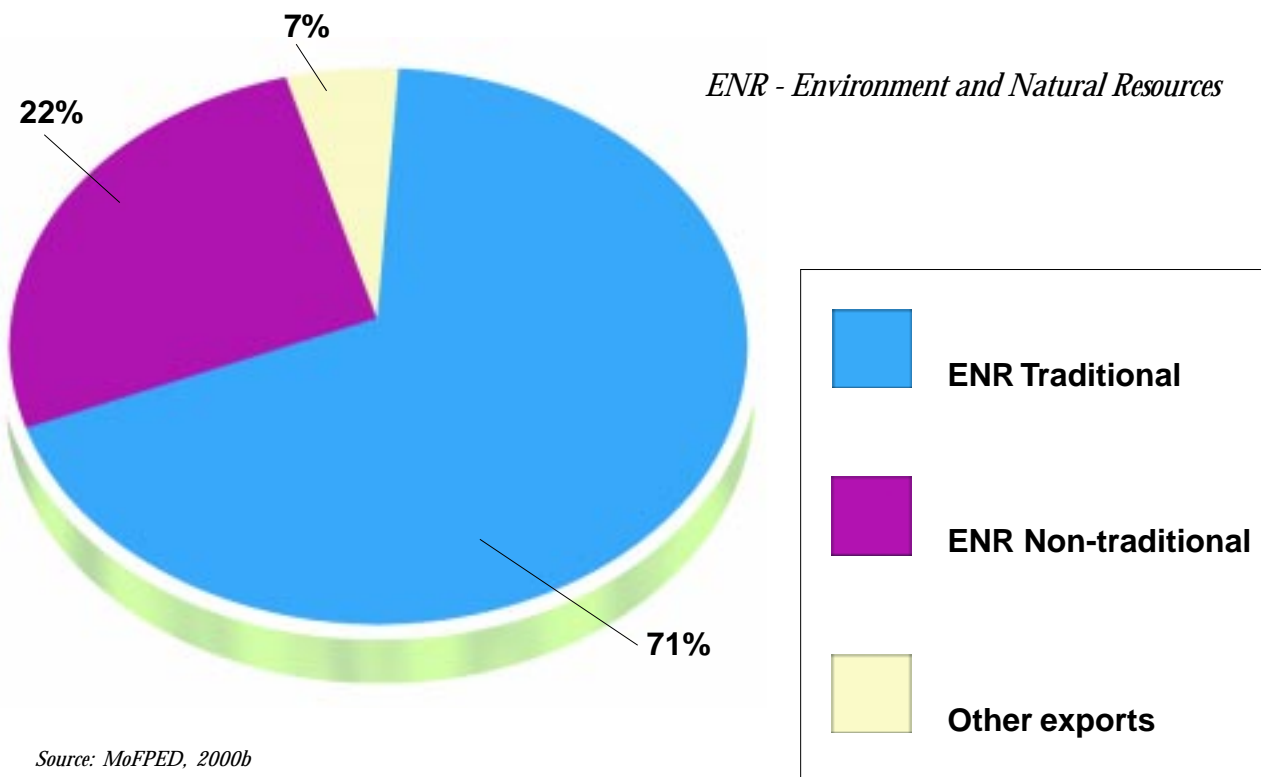
<sup>2</sup> Based on estimates of 32 percent of monetary and 84 percent of non-monetary GDP. Note that this non-monetary contribution accrues largely to Uganda's rural poor (MoFPED, 2000 a).

The high dependence of Uganda's economy on the environment and natural resources sector is explained by the large size of the agricultural segment of the economy and the rather dominant role that extractive rather than industry and services play in the national economy. This dependence is further consolidated by

the role of nature-based tourism in the services sector in Uganda ( i.e. air and ground transport, hotels and lodging).

The importance of natural resources to the economy is further illustrated in figure 2 on the composition of Uganda's exports in 1999.

**Figure 2. Uganda's Exports 1999 (Total Exports Value: US\$ 478,750,000).**



Exports from the ENR sectors are mainly natural resources-based agricultural exports such as timber, fish, honey, simsim, etc. The traditional ENRs include agricultural/forestry products such as coffee, cotton, tea, cocoa, etc. The non-traditional ENRs include the new natural resource-based exports such as honey, flowers and thatch grass.

Figure 2 shows that the Environment and Natural Resources Sectors contributed over 90 percent of Uganda's exports, valued at US\$ 478,750,000 in 1999. The composition of exports was dominantly agricultural

based cash crops with coffee, fish and fish products and hydropower generation playing a growing role. Whereas the sector's contribution to exports is expected to grow in the future recovery and growth of the economy, a number of limitations need to be addressed. These include the need to add value to the primary products of the sector to raise export value and ensure guaranteed prices, and improving both profitability and productivity of the environment and natural resource endowments. Higher productivity and profitability of the sector are likely to support more sustainable use patterns.

## COST OF ENVIRONMENTAL DEGRADATION IN UGANDA

The high dependence of Uganda's economy on her environment and natural resource base implies that degradation of the environment undermines the potential for the economy to grow on a sustainable basis. The costs of environmental degradation in Uganda have been conservatively estimated to be between 4-12 percent of the gross national income (GNP) (Republic of Uganda, 2001). Table 2 shows some of the estimated costs of degradation to the Ugandan economy.

In the agricultural sector for example, the direct economic costs due to soil productivity loss resulting from incipient soil erosion have been put at 190 kg/ha/yr. for maize implying a total annual loss in income across the economy of US\$ 57,000 per hectare per year. The cost of over-fishing and the consequent and growing decline in fish catch and fisheries income was estimated at about US\$ 16.8 billion per year. On the other hand,

the cost of controlling the water hyacinth in Lake Victoria at the peak of the problem in 1996/1997 was estimated at between US \$ 100,000 – 500,000 per year for the Ugandan part of the lake alone. The cost of health care and loss in labour productivity from mortality and morbidity due to contaminated water has been estimated at a further cost to the Ugandan economy of between US\$ 22 – 35 million per year. On the other hand, improper handling of solid waste by the community costs the City Council of Kampala up to US\$ 1.5 billion per month in garbage collection and disposal.

The above sectoral costs of environmental degradation translated into macro-economic level costs of up to US\$ 169-457 million. Specific examples of the estimated cost of environmental degradation at the macro-economic level include the following:

Biodiversity loss	US\$ 506 billion/year
Degradation of soil resources	US\$ 225 billion/year
Rangeland degradation	US\$ 815 million/year
Wetlands encroachment	US\$ 2 billion/year
Water hyacinth pollution	US\$ 870 million/year
Contamination of water systems	US\$ 38 - 61 billion/year

*Source: Emerton and Muramira, 1999*

## REFLECTING ENVIRONMENTAL VALUES IN THE NATIONAL PLANNING FRAMEWORK

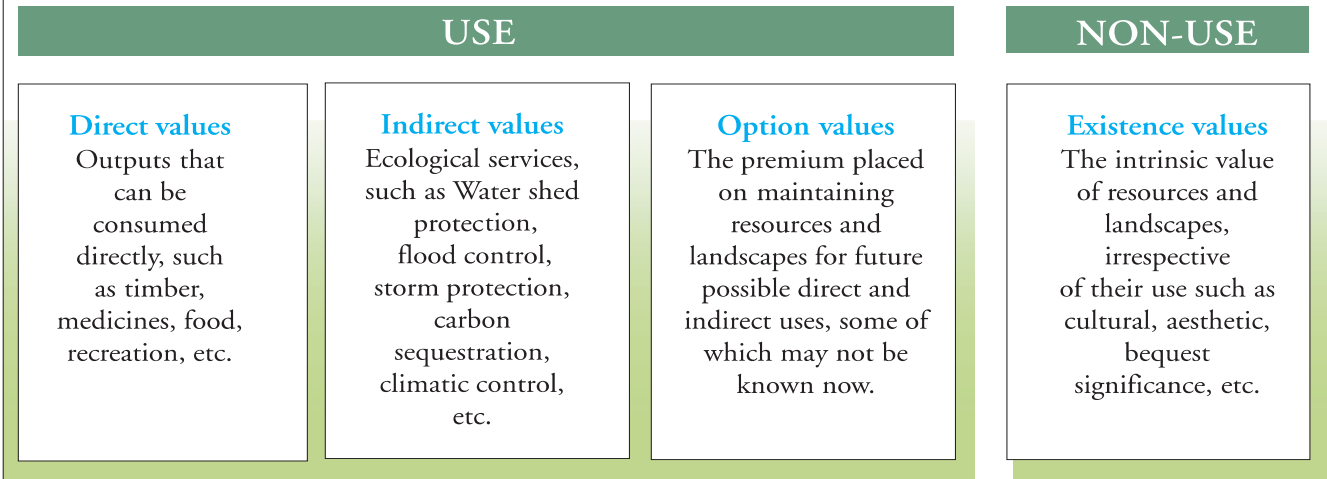
Traditionally, economic planners, politicians and other policy makers tend to consider the direct use value of environmental resources including the raw material and some subsistence use value of natural forests, fisheries, wetlands and other forms of biodiversity. This leads to a situation in which land and resource management systems will focus only on the commercial level extraction of resources, at the expense of other less tangible values or wider socio-economic development

goals. Because it under-values the environment, this tendency also means that conservation is often difficult to justify in the face of other competing investments that are perceived to yield greater and more immediate returns, but which may be unsustainable in the long run. The vicious cycle of natural resource under-valuation, over-consumption and under-funding is thus perpetuated.



*(Adapted from Emerton, 2001)*

## TOTAL ECONOMIC VALUE OF ENVIRONMENT



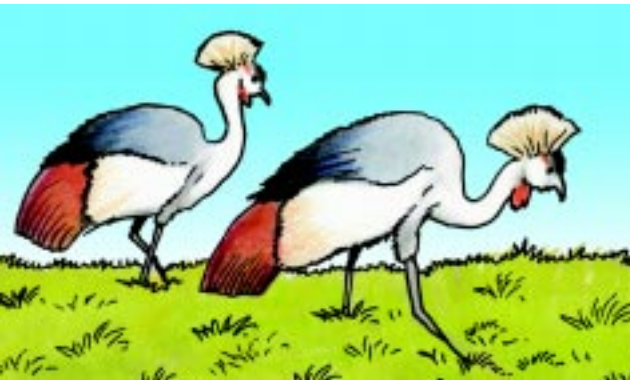
Wider definitions, which encompass the total economic value of the environment, have become increasingly accepted globally. Total economic value includes consideration of broader benefits beyond direct, commercial uses, including non-marketed values, ecological functions and non-use benefits. As well as presenting a more complete picture of the economic importance of the environment, it demonstrates the high

and wide ranging economic costs associated with the loss or degradation of biodiversity and its components, which extend far beyond the loss of direct use values. This underscores the fact that environmental resources constitute far more than a static reserve. Instead they are viewed as a stock of natural capital, which if managed in a sustainable manner, can yield a wide range of direct and indirect economic benefits to mankind in perpetuity.

## CONSERVING THE ENVIRONMENT, ERADICATING POVERTY AND SUSTAINABLE LIVELIHOODS IN UGANDA: WHERE DO WE GO FROM HERE?

There is no doubt that Uganda remains one of the poor economies in the world today, having suffered several decades of political uncertainty and social unrest in the seventies and first half of the eighties. It is therefore unrealistic to expect it to have the resources to undertake massive and independent environmental and natural resource management programs without trading off other

equally (if not more pressing) competing areas of national investments. In today's jargon, there is therefore, talk about mainstreaming environment in priority development plans, policies and poverty eradication programmes. However, this has led to more marginalisation of the ENR in terms of priority financial allocation.



The development process in Uganda is guided by Vision 2025, the Poverty Eradication Action Plan (PEAP) which is Uganda's Poverty Reduction Strategy Paper (PRSP), various Ministerial Policy Statements and donor -led co-operation framework papers. Sectoral development plans are now consolidated into sector wide development plans (SWAP) to enhance as much as possible, synergies across sectors and to minimize conflicts and duplication of effort. Overall coordination and implementation oversight for the PEAP and SWAPs is however, provided by the Policy Monitoring and Analysis Unit (PMAU) in the Ministry of Finance, Planning and Economic Development.

To be able to fully reflect the contribution of the environment to economic development therefore, the planning frameworks in Uganda need to recognize and fully take into account environmental values. Yet, although Ugandans greatly depend on environmental resources, the PEAP makes limited reference to the environment as an important input to fighting poverty. This needs to be fundamentally changed in subsequent revisions of the PEAP.

Related to the above is the fact that the significant contribution of the environment and natural resources sector to national socio-economic development is not adequately reflected in the national accounting frameworks such the compilation of GDP. The contribution of a natural resource like forests to GDP in 1999 for instance, was grossly undervalued at a mere 1.8 percent compared to 6.1 percent when a more accurate estimate was attempted. The computation of GDP and other national income aggregates continues to omit the full monetary value of environmental goods and services and their contribution to production. This oversight needs to be corrected by adopting methodologies that aim at "greening of the national accounts".

The greening of the national accounts will, however, follow the logical development of a system that carefully tracks and records the production and consumption data of various use and non-use values of the environment and natural resource stocks in Uganda. The database of environment statistics, indicators and accounts would become an important input into a future environmental



accounting framework for Uganda. These statistics would also help to monitor in a more practical way, the role of the environment and natural resource base in fighting poverty.

In the meantime, change in perception on the contribution of environment and natural resources sector to economic development must take place. The contribution of ENR's remains under-estimated, leading to inadequate resource allocation to the sector. As the ENR sector gradually upgrades its position to the priority list of government programmes and financing plans, budget and non-budget resources have to be found to improve environment and natural resource management in Uganda. In this regard, non-budget sources of funds, which are outlined below should be explored:

## NON-BUDGET SOURCES OF FUNDS TO BE EXPLORED

- Economic instruments which in addition to encouraging people to conserve environmental resources, have a large potential to generate funds;
- Endowments, foundations and trust funds. The private sector could be interested in contributing to local trusts, foundations and endowments;
- Offsets, credits and debt for nature swaps are internationally sourced funds whereby foreign governments or private companies may fund local environmental activities in exchange for the pollution savings such activities achieve.

In this way, by mobilizing non-budget sources of funds, Uganda may be able to increase investment in the maintaining the integrity of its natural capital i.e. the stock of environmentally provided assets such as soil, sub-soil minerals, forests, water, wetlands and other natural resources that forms the basis of all economic activity and livelihoods. It will have been one of the few African countries to have taken a first step in innovative financing for the management of the environment for sustainable

development. Increased investment in environmental management is likely to increase earnings to the economy due to improved productivity of of biotic elements; avoiding losses of future incomes (e.g. by controlling impact of soil erosion on agricultural productivity); avoiding future costs (e.g. of having to replace lost soil nutrients and extensive curative medical care) and having a healthy and productive labour force.



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this project is co-ordinated by IUCN – The World Conservation Union, and aims at integrating economic instruments for the reduction of forest biodiversity loss into sectoral policies and strategies in East Africa.

The views and opinions in this publication are those of the authors. They do not necessarily reflect those of IUCN, SDC, GEF, UNDP, or FAO.

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