

**REDUCING BIODIVERSITY LOSS AT SELECTED  
CROSS-BORDER SITES IN EAST AFRICA:**  
*Integrating Economic Instruments for the Reduction of Forest  
Biodiversity Loss into Sectoral Policies and Strategies in East Africa*

**THE ECONOMIC VALUE OF TANZANIA'S FORESTS:  
REPORT OF A WORKSHOP HELD AT THE COURTYARD HOTEL,  
DAR ES SALAAM – TANZANIA 15<sup>TH</sup> August 2001**

*Fanuel Shechambo, John Salehe and Stephen Mariki*

*Technical Report No. 3*

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# INTRODUCTION

A workshop was held at the Court Yard Hotel, Dar es Salaam on 15<sup>th</sup> August 2001 with the theme “Economic Value of Tanzania’s Forests”. It was the first of a series of national awareness workshops organised by the Economics Component of the East African Crossborder Project (EACBP) implemented by IUCN-The World Conservation Union, Eastern Africa Regional Office. Twenty-two (22) participants attended the workshop (as shown in Appendix VIII), representing Government Departments (9), Parastatal Organisations (4), Research and Training institutions (4), NGOs (1), International organisations (3) and Press (1).

The workshop began by participants introducing themselves and stating their expectations for the workshop. The EARO Biodiversity Economics Programme Officer Francis Karanja facilitated this activity.

Dr. Fanuel Shechambo, the IUCN- EARO Co-ordinator of Biodiversity Economics gave introductory remarks on the objectives of the workshop, and explained the workshop process that was to include presentations, group discussions and wrapping up with a way forward. Dr. Magnus Ngoile, Director-General of NEMC, then officially opened the workshop, emphasising the need for knowing the economic value of various ecosystems in monetary terms and the responsibility of individuals, communities and nations to conserve vital ecosystems such as forests. He emphasised the need for partnership and sharing of those responsibilities and commended the IUCN-EARO for demonstrating partnership with various institutions. He suggested the use of the term “forest ecosystems’ rather than just “forests” in order to make stakeholders outside the forest sector per se to feel included. The notes for the opening session are shown in appendix 1.

Mr. James Yonazi, on behalf of the FAO Representative, performed the closing ceremony, challenging participants to make use of the knowledge gained to create awareness to others who have not had the chance to attend the workshop.

## ISSUES RAISED IN THE PRESENTATIONS

The GEF Cross border National Project Manager, Mr. John Salehe presented an overview of the Cross Border Project objectives, activities and expected outputs. This was aimed at placing the Economics Component implemented by EARO into context. The project manager then emphasised the importance of demonstrating the importance of the environment/forest ecosystem from their own perspective i.e. by focusing on the values that the people have on the forests.

An example was given of the value of sticks carried by every Maasai male, which symbolised one’s status in the community. This stick showed ones wisdom and position at different stages in life in the Maasai culture. Traditionally, different kinds of sticks are used and these were obtained from the surrounding forests. Since the Maasai value their culture, they would not want to destroy the forest to the extent of failing to get the sticks that are important identification symbols. By knowing how much their values can be distorted they would be willing to conserve the forests.

Another point emphasised was that the contribution of biodiversity in the National GDP is low mainly because it is not calculated and it’s statistical data kept e.g. the contribution in ensuring well being of other sectors and in meeting peoples daily needs. Participants requiring more information were referred to the web-site of the Cross-Border Project ([www.x-borderbiodiversity.com](http://www.x-borderbiodiversity.com))

The project manager reiterated that resources are now thought of in terms of values to community members and the approach to conservation is participatory. It is based on reinforcing the do and not only the don’t (s). So far surveys have been carried out at different project sites on the following value analysis, threat analysis and objective analysis. Thus valuation exercises at site level can build on these data.

Two papers by Dr. Shechambo followed this presentation, one on valuation and another on the use of economic instruments in forest biodiversity conservation. The paper on valuation introduced concepts of valuation, valuation techniques and their applications. The paper draws from a draft of a toolkit being developed from training purposes at the cross border sites and the actual valuation exercises expected to be undertaken as part of the project. The paper on valuation is shown as appendix II.

The paper on economic instruments introduced the rationale and need for economic instruments in influencing the behaviour of economic agents towards desired actions. Whereas command and control mechanisms have been practised and their successes/failures are somewhat known, market-based instruments are almost unknown in the area of conservation. These should be explored to complement command and control instruments. Economic instruments include charges, fines, taxes, subsidies, deposit bonds, bonuses performance bonds, etc, which have been tried

elsewhere as market mechanisms to influence responsible environmental behaviour. The challenge was placed on designing simple economic instruments that can be appreciated by local communities.

After the presentations, there was a general discussion in the form of interventions from the participants. The questions raised and responses are shown in Appendix VI.

After lunch participants held group discussions, one group focussing on the contribution of forests to the national economy, role of valuation and application of economic instruments and another group looked at local (community) benefits and costs that need to be taken into account during valuation. The groups made presentations on the issues and a plenary session was held to discuss the way forward (appendix 2).

The presentation by Richard Mariki on “Linkages between Forest Resources and Sustainable Development in Tanzania” was delivered in the afternoon. The paper presented data on the contribution of the forestry sector to the national economy but argues that this was an understatement of actual values, many of which are not captured. Efforts to value forest were scattered in some research and training institutions and thus lacking impact at national policy making. The need for partnership with those institutions was emphasised. The paper is appended (Appendix III).

## **Conclusion**

As a way forward, each participant outlined his/her views on how they might contribute in the coming phase of the project e.g. conducting training and awareness workshops at the three project sites namely, Same, Monduli and Rakai.

In the concluding remarks, the IUCN-EARO Economics Co-ordinator expressed thanks to every one for the roles they played. He was of the view that the workshop had achieved its aim of creating awareness on what the economics component of the Cross-Border project expects to achieve its objectives, to elicit concerns and issues that should be focused into in the next phase and how the various capacities at national level institutions can be used to carry out training and valuation at project sites. We can expect individual and institutional commitment and support in the next phase.

# APPENDIX I: OPENING SPEECH BY DR. M. NGOILE

**[TALKING NOTES FOR THE]  
OPENING SPEECH OF THE DIRECTOR GENERAL OF NEMC DR. MAGNUS  
NGOILE AT THE AWARENESS WORKSHOP FOR THE ECONOMICS  
COMPONENT OF THE CROSS BORDER BIODIVERSITY PROJECT IN DAR ES  
SALAAM, WEDNESDAY 15<sup>TH</sup> AUGUST 2001**

Mr. Chairman,  
Distinguished participants, ladies and gentlemen,

1. It gives me much pleasure to be with you this morning to open the national workshop on the economics component of the EA Cross Border Biodiversity Project. Let me take this opportunity to welcome you all, and in particular those of you who come outside Tanzania and outside the City of Dar es Salaam. I would like you not only to feel at home, but also to be actually at home!
2. Let me, at this juncture, recognise the presence of colleagues from various partner institutions such as the IUCN Regional Office, and .....(mention others represented). To all of you I say KARIBUNI SANA.
3. This workshop is one in a series of consultations that are planned under the East African Cross Border Biodiversity Project. The project, as you may be aware, is an East African initiative to reduce (if not to halt) biodiversity loss in four sites that traverse our borders. The project sites are: Bukoba to Rakai/Mbarara (along the Tz/Ug border), Monduli to Kajiado (Tz/Ke border), Same to Taita-Taveta (Tz/Ke border) and Turkana to Moroto/Kotido (Ke/Ug border). However, the project has higher aims beyond reducing biodiversity loss at the individual sites. Whatever experiences are gained from the project sites should inform policy makers and practitioners the possibilities for replicating those experiences elsewhere in the region and outside. This is important because, as we all know, environmental issues do not recognise national boundaries. In East Africa we share the waters, dry lands, coastal marine resources, the wildlife and the forests, to mention a few. There are many cross border environmental issues that we need to urgently resolve. We have to have the methodologies, policies, laws, institutions and harmonious actions to deal with the issues on the ground. The cross Border project is a humble beginning in this process.
4. Mr. Chairman, this workshop bears special significance in that it aims at raising awareness of national actors on the need to incorporate the ECONOMIC DIMENSION in the various efforts aimed at conserving and sustainable utilisation of biodiversity resources for the benefit of our people in the region. I am informed that more training workshops are planned to take place at the project sites to enable the application of economic and policy instruments that would ensure maximum gains resulting from preventing biodiversity loss.
5. The cross Border project does not work in isolation. Thus, in the spirit of partnership, GEF Project has assigned two partner institutions, (the IUCN-Eastern Africa Regional Office and the African Centre for Technology Studies – ACTS-) to manage two key components of the project, namely economics component and policy initiatives component, respectively. This workshop is the first among many of the economics component and it is my pleasure to open it. I am aware that similar workshops will be held in Kenya and Uganda in the coming two weeks.
6. Distinguished participants, the theme of the workshop “The Economic Value of Forests in East Africa” is pertinent to all of us engaged in governing the environment and natural resources at this time. Indeed it would have been more fitting for the title to be “The Economic Value of the Environment in East Africa”. We should not be tired of emphasising over and over again the fact that environmental resources are the foundation for the well being of our people. Environmental resources provide us with direct and indirect goods and services on a day to day basis. This is particularly true of the economies of the developing countries like Tanzania.
7. Indeed, the future well being of our children and generations to come depends on how wisely we use the resources bequeathed to us from our forefathers. Thus we all have a responsibility to demonstrate the value of the environment in all our policies, programmes and activities at the various levels be it at the household level, at the community level, at the village and district level, at the national, regional and global levels.
8. In order to ensure sustainable utilisation of our resources, it is necessary that we first realise the link between the environmental resources and the various economic activities that we undertake to ensure sustenance of our livelihoods. We have to find ways of demonstrating to policy makers at all levels that degradation of the

environment has real costs to our economies. The opposite is also true that preventing degradation of environmental resources such as forests brings forth flows of economic benefits to households, communities, national economies and beyond. In order to improve policy-making processes, it is essential for economic concerns to be integrated into environmental conservation and likewise integrate environmental concerns into policy making.

9. It is important to focus on how we can communicate effectively to policy makers at various levels, communities and individual households on the value of environmental resources and initiate dialogue on the kind of economic instruments that should be applied that support sustainable utilisation of forests and other environmental resources. The environmental policy of Tanzania recognises the value of using economic and non-economic instruments in influencing prices, costs, incentives and other economic variables that determine peoples production, consumption and land use decisions that impact of use of environmental resources. However, it is our duty to take this process forward by learning from concrete examples on the ground.
10. It is my hope that you will use this day as productively as possible in this endeavour. Your programme includes presentations, group work and a discussion of the way forward. I look forward to receiving your deliberations on the next steps we should take at the project sites.
11. At this juncture, let me thank the organisers of this workshop (the Division of Forestry and Bee-keeping, Cross Border Project and the IUCN EARO) for inviting me to officiate the opening of this workshop and thank all of you for agreeing to commit your time to attend the workshop. I now wish to declare the national awareness workshop on “ The Economic Value of Forests in East Africa’ officially opened and thank you for your attention.

# APPENDIX II: ECONOMIC VALUATION AND FOREST CONSERVATION IN EAST AFRICA

## Presentation by F. Shechambo<sup>1</sup>

Valuation can simply be defined “as an attempt to put monetary values on environmental goods and services or natural resources”. It is a key exercise in economic analysis and its results provide important information about values of environmental goods and services. This information can be used to influence decisions about wise use and conservation of forests and other ecosystems. The basic aim of valuation is to determine people’s preferences by gauging how much they are willing to pay for (give up other benefits), and how much worse off they would consider themselves to be as a result of changes in the availability of given goods and services from an ecosystem such as a forest.

The environmental goods and services being considered in this paper are those derived from forest ecosystems in East Africa. They consist of direct consumable goods and services, indirect ecological services and other non-use benefits such as cultural and religious values. The term “forest” is used in this paper to describe any tree-dominated landscapes be it woodlands, tropical forests and even plantations. Thus for purposes of this paper, the term forest is therefore not used in the strict biological sense<sup>2</sup>.

Forest valuation provides a means of quantifying the benefits that people receive from forests, the costs associated with their loss, and the relative profitability of land and other resources uses which are compatible with forest conservation vis-à-vis those economic activities that contribute to their degradation. Valuation also helps to predict and understand the economic motives, decisions and activities that impact on forest integrity and status.

The fact that not all forest goods and services are bought or sold in markets (e.g. climate regulation, catchment value and other ecological services) makes them particularly difficult to put monetary value on. The economic benefits generated by forests and the economic costs associated with forests degradation or loss, are frequently overlooked by government and private industry, as well as by the land and resource users such as local communities.

This tendency to overlook and undervalue economic benefits and costs means that the potential of forests to generate income, subsistence and other benefits has been under-emphasized in both conservation and development policy, planning and practice in developing countries, especially in East Africa. The result has been that decisions are made or activities are carried out that impact negatively on forest ecosystems.

Experience from East Africa shows that attaching monetary values to forest goods and services aims to make them directly comparable with other sectors of the economy when activities are planned, policies are formulated and decisions made (Emerton, 1998). If properly done and its results made use of, valuation and resource accounting helps policy and decision making in the following ways to:

- **Demonstrate the high value associated with forests conservation**, and underline that forest ecosystems provide quantifiable economic benefits to individuals, households, government, the national economy and global community far beyond what we normally consider them to provide.
- **Highlight that significant costs are incurred as a result of forest degradation and loss** in terms of economic efficiency, equity and growth, public expenditure, private profits and livelihood support.
- **Justify forest conservation** as an economically beneficial investment and a form of land-use option that brings streams of net benefits to government, the private sector and local communities over a long time.
- **Improve and rationalize forest management** by integrating business and economic concerns into conservation strategies.
- **Provide incentives for forest ecosystem conservation** by ensuring that adequate economic benefits accrue from forests to the groups who are responsible for, and bear the costs associated with, their conservation.
- **Identify sustainable sources of funding and financing mechanisms** for forest conservation at community, private sector, government, and international levels.

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<sup>1</sup> Notes of a presentation at National Awareness Workshops, August 2001.

<sup>2</sup> The Marrakesch Accord defines a forest “ as a minimum area of land of 0.05-1.0 hectares with tree cover of more than 10-30 percent with trees with the potential to reach a minimum height of 2-5 metres at maturity *in situ*”. (IUCN, 2002).

Valuation has an important role to play in environmental planning and management activities such as the Crossborder Project because it helps to answer many questions including the following about any given forest ecosystem:

- How much is the forest worth and to whom?
- How does degradation and loss of forest ecosystems lead to costs to different segments of society?
- How can forest conservation be efficiently and equitably financed?
- How can people be motivated to take into account forest benefits and costs of its loss in the course of their economic activities
- How can policy, planning and decision making with regard to forest ecosystems be better influenced?

If a valuation exercise can provide acceptable answers to the above questions, then it goes along way to becoming a useful tool into the assessment and planning for biodiversity conservation. In table 1, a series of important steps that any assessment and planning for biodiversity conservation goes through helps to locate the role of valuation (especially steps 1 and 2).

**Table 1: Steps Involved in Economic Assessment and Planning of Biodiversity (Including Forest) Conservation**

Step 1	• Identify environmental economic benefits and costs of a forest ecosystem
Step 2	• <b>Put a value on the environmental economic benefits and costs</b>
Step 3	• <b>Analyse the profitability of economic activities in terms of their environmental effects</b>
Step 4	• Highlight the economic causes of environmental degradation and the need for economic measures to reverse them
Step 5	• Set in place incentives for environmental conservation
Step 6	• Put in place financing mechanisms for environmental conservation
Step 7	• Ensure that economic measures for conservation are sustainable
Step 8	• Ensuring economic measures for conservation are appropriate and sustainable.

Source: Emerton, Lucy (1999), Economic Tools for Environmental Planning and Management in Eastern Africa. IUCN, Biodiversity Economics for Eastern Africa, p.4.

## DEFINING ECONOMIC BENEFITS FROM A FOREST ECOSYSTEM

Traditionally, economists and decision-makers in general tend to appreciate and measure the value of forests in terms of the raw materials and physical products that they generate for human production and consumption, especially focusing on financial or commercial economic activities such as fisheries, agriculture, urban and industrial water supplies. However, these direct uses represent only a small proportion of the total value of forests, which generate economic benefits far in excess of just physical products.

When attempting to put monetary values to forest goods and services it is necessary to take account of the full range of economic benefits associated with forests, as defined by the concept of “total economic value” (TEV). This concept is the sum of the following four main elements of value.

**Direct values:** These are the raw materials and physical products that are used directly for production, consumption and sale including those providing energy, shelter, foods, agricultural production, water supply, transport and recreation.

**Indirect values:** These consist of the ecological functions which maintain and protect natural and human systems through services such as maintenance of water quality, flow and storage, flood control and storm protection, nutrient retention and micro-climate stabilization, and the production and consumption activities they support.

**Option values:** These represent the premium placed on maintaining a pool of forests species and genetic resources for future possible uses such as leisure, commercial, industrial, agricultural and pharmaceutical applications and water-based developments, some of which may not be known now. It is like the portion of income set aside in a savings account for future use.

**Existence and bequest values:** These are the intrinsic value of forests species and areas regardless of current or future use possibilities. They include such as cultural, spiritual, aesthetic, heritage and the value attached to bequeathing such resources to future generations.

All of these categories of benefits have a value because they contribute to economic activity and enhance human welfare. To enjoy any of the values, some resources have to be given up in terms of opportunity costs. Valuation attempts, as far as possible, to measure the monetary value of all the four components of the total economic value forests ecosystems. Thus the concept of total economic value (TEV) is central to valuation as it captures all possible values of a resource. The idea behind TEV is to go beyond the traditional practice of valuation, which normally captures

only direct uses, thus leaving out (and thus undervaluing) other benefits and costs. TEV includes option values and existence values in consideration of future values of environmental resources. The following formula is applied to define total economic value (TEV):

$$\text{TEV} = \text{Direct use value (DUV)} + \text{Indirect use value (IUV)} + \text{Option value (OV)} + \text{Existence value (XV)}$$

Also the symbols UV for use values and NUV for non-use value are commonly used, whereby Use Values (UV) comprises direct use values, indirect use values and option values, so that  $UV = DUV + IUV + OV$ .

Non Use values (NUV) are the existence value and the bequest values, so the  $NUV = \text{Existence value (XV)} + \text{Bequest value (BV)}$ .

So that total economic value (TEV) can be represented as:

$$\text{TEV} = UV + NUV = [(DUV + IUV + OV)] + [(XV + BV)]$$

In valuation, an attempt is made to sum the monetary values for the various elements by using various techniques described in chapter 4. Figure 1 shows a schematic representation of the concept of TEV. Total economic value is broken down into two categories i.e. the use values (UV) and non-use values (NUV). The category of use values has three types of uses:

- **Direct use values** (what humans extract or consume directly from the forest),
- **Indirect values** (these are mainly the benefits from ecological services that support other economic activities and life support systems such as water, climate, flood control, etc.),
- **Option values** (this a premium we place on not using the forest for direct values with the option of using it in future. It is like a bank account in which we deposit money for use in a rainy day).

The category of **non-use value** includes the value that human beings attach to the fact that they would like to have the forest resource exist for its **intrinsic value** and the fact that future generations may also have the opportunity to enjoy such a resource. This is what has been called **bequest value**.

Therefore the total economic value is a simple addition of the four values.

Figure 1: The Total Economic Value of a Forest

# FOREST ECONOMIC VALUE



## TOTAL ECONOMIC VALUE (TEV) OF FORESTS

### USE

**Direct values:** Outputs that can be consumed directly, such as timber, medicines, food, recreation, +

**Indirect values** Ecological services, such as flood control, storm protection, carbon sequestration, and climate amelioration +.

**Option values**  
Premium placed on maintaining resources for future possible direct and indirect uses, some of which may not be known now e.g. cure for AIDS +

### NON-USE

**Existence values**  
Intrinsic value of resources, irrespective of their use such as cultural, religious, spiritual, aesthetic, bequest significance,

## **APPROACHES TO VALUATION**

In the literature and practice of valuation of environmental resources, (See Georgiou, 1997; OECD, 1995; SADC, 1997 and Wimpenny, 1991), three categories of techniques for monetary valuation of environmental resources are recognised:

1. Use of market prices to compute values of goods and services and the value of physical effects (both positive and negative) of environmental changes such as forest degradation or regeneration
2. Creation of hypothetical markets of environmental goods and services to find out what consumers would be willing to pay for environmental goods and services or different states of the environment (also known as stated preferences technique)
3. Use of revealed preferences techniques (observing how economic agents actually pay for environmental goods and services)

Examples of these will be discussed in more detail.

# APPENDIX III: LINKAGES BETWEEN FOREST RESOURCES AND SUSTAINABLE DEVELOPMENT IN TANZANIA<sup>3</sup>

Presentation by S. Mariki

## Introduction

In general terms the Tanzanian society depends on forest resources in varying degrees ranging from household subsistence to nation-wide economic development. However, a large part of the benefits a yet to be recognised and integrated in the planning system at all levels. This has not only hindered effective management, but also deprived the nation of full utilisation of the resources. This paper reviews benefits and values of forest resources in their totality, and the extent to which forest sector in Tanzania has been able to capture these values in economic terms and use them to influence and promote their use in policy formulation and implementation. The paper also provides some interventions as a way forward.

## Background

Tanzania Mainland has an area of 88.7 million hectares of which forests and woodlands are estimated to cover a total of 33.5 million. Agriculture forms the mainstay of the economy, providing up to 50% of the GNP, 80% of exports and 90% of employment.

Tanzania is listed among the poor countries but is endowed with a wide range of natural resources that offer considerable opportunities for economic development. An introduction of dynamic macro-economic policies beginning mid 1980s saw an upward overall economic growth reaching 4.8% and inflation rate dropping to 7% in 2000. This is attributed to continued growth in production, services delivery and improvements in monetary reforms. Key economic indicators are summarised in Table 1.1. The national foreign debt which is an economic burden, had reached US\$ 7.3 billion December 1999, while the averaging US\$ 260 per capita whereas the GDP per capita is US\$ 257. The implications of this weak economy include wobbling growth in the service sectors (health, education and water), the productive sectors (natural resources, agriculture and industries) as well as support services and infrastructure that “enhances” poverty in the country. Main economic measures being implemented to improve economic performance include improvement in revenue collection creation of enabling environment to boost investments hence the contribution of the forestry sector beyond the narrow sources of revenue base.

**Table 1.1 The key economic indicators**

Indicator/Year	1995	1996	1997	1998	1999
GDP (mil.)	4 622.5	5 676.2	6 785.4	7 439.8	8 226.0
GDP per capita	168.6	200.6	233.0	252.0	284.5
Exports	344.7	353.3	383.1	243.2	195.5
Balance of payments	-382.1	-231.2	-633.4	-636.7	-639.6

Source: Planning Commission, 2000

## Forest management financing and inputs

Financing of the forest sector is mainly from three sources namely (i) government budget through Treasury subventions for personnel emoluments (ii) retained income from the forest revenues (56% of the revenue collected) and (iii) donors' support to specific projects contributing to 68% of the annual budget. Revenues have however, been low (only about 10% of the potential is collected) with a narrow base relying mostly on timber and fuelwood necessitating continued donor dependence. This skewed financing is related to inadequate valuation of the forest resources in terms of forest products and services.

## Forest Values and their roles in the society

### Forest resources

Forests and woodlands, which cover about 33.5 million hectares, constitute 38% of the total land area in the mainland. The forests offer habitat for wildlife, beekeeping, unique natural ecosystems and genetic resources as well as forming an important economic base for the country's development. Forests and woodlands are recognised as an important resource base for social and economic development of Tanzania and the provision of many basic benefits and opportunities to rural and urban communities. These include food security, income generation and enhancement of

<sup>3</sup> By S.W.L. Mariki, Forestry & Beekeeping Division, Dar es Salaam

Presented at the National Awareness Workshop on Valuing Forest Resources, Dar es Salaam

agricultural productivity and help stabilise water supplies. Open woodlands and other forests are constantly turned into farmlands for agricultural crops and animal husbandry. About 13 million hectares of the forests have been gazetted as forest reserves including 80 000 hectares of industrial plantations and 1.6 million hectares of strategic forests such as water catchment and mangroves owned and managed by the central and local governments through the Forest and Beekeeping Division (FBD) in the Ministry of Natural Resources and Tourism (MNRT). Forests on the general lands as classified under the Forest Policy, Land and Village Acts cover 19 million ha. Forest distribution is given in Table 1.2.

### Private forests

Private forests that involve farm forests, natural forest on granted right of occupancy and traditional forest areas/trees are estimated to be 150 000 ha including community woodlots mostly of small sizes (<1.0 ha). Only small proportions of natural forest plots exist on lands with granted right of occupancy.

**Table 1.2 Distribution of forest area by type, use and legal status**

<b>Forest type</b>	<b>1 000 ha</b>	<b>Proportion in %</b>
Forests (other than mangrove forests)	1 141	3.4
Mangrove forests	115	0.3
Woodlands	<u>32 299</u>	<u>96.3</u>
<b>Total</b>	<b>33 555</b>	<b>100.0</b>
<b>Use of forest land</b>		
Production forest area	23 810	71.0
Protection forest area (mostly catchment areas)	<u>9 745</u>	<u>29.0</u>
<b>Total</b>	<b>33 555</b>	<b>100.0</b>
<b>Legal status</b>		
Forest reserves	12 517	37.3
Forest/woodlands in national parks, etc.	2 000	6.0
Non-reserved forest land	<u>19 038</u>	<u>56.7</u>
<b>Total</b>	<b>33 555</b>	<b>100.0</b>

Sources: Ministry of Natural Resources and Tourism, 1998

### Biodiversity Resources

Tanzania has been classified as one of the “megadiversity” with numerous biological hotspots and unique ecosystems of high diversity of species in a variety of habitats, species and genetic levels. These high value resources are not quantified and not reflected in the economy though. Forest reserves with catchment values nourishing water sources occupy 2% of the country’s total area and about 3% of the country’s surface is area also gazetted as forest reserves that overlap with the protected areas devoted to wildlife conservation. Altogether, Tanzania has allocated about 25% of its total area to national parks, game reserves and game controlled areas. All these are values that transcend the forest and wildlife sectors to tourism industry and the informal sector.

Reflecting on the above mention values, the national planning process ought to have recognised their contribution at least local level. Incidentally, these values have continued to be mentioned in passing but not reflected in economic terms.

### Forestry Resources and Their Contribution to the National Economy

Forests are important in Tanzania due to the numerous goods and services they offer both in the national economy and the society. In both rural and urban areas, wood-based energy consumption is estimated to account for about 92% of total energy, which is also not quantified in monetary terms and not reflected, in the national economy. The estimated contribution to the GDP was on the average 3.3% over the period including hunting (Box 1) in the last decade and about 10% of exports. It employs about 3% of paid labour and even a bigger proportion of people in the informal forestry related sector activities that include artisanal forest based and fuelwood trade. Again these values have not been monetized and therefore not indicated in the planning circles.

## Box 1: Contribution of Forestry to the GDP (1990 – 1999)

Year	Contribution to GDP (TShs million)	% Contribution	Overall GDP (TSho million)
1990	23 424	3.1	723 650
1991	31 627	3.2	944 548
1992	40 908	3.2	1 222 665
1993	52 576	3.3	1 546 501
1994	71 328	3.4	1 972 864
1995	93 772	3.4	2 619 105
1996	120 054	3.5	3 216 060
1997	147 666	3.4	3 967 091
1998	168 340	3.3	4 714 617
1999	173 466	2.8	5 651 580

Source: Planning Commission, 2000

### Forest products values and trade

Forest products have contributed notably to the national export earnings. Net export in forest products has been fluctuating in the last five years ranging from US\$ 2.5 to 14.1 million and main products have been timber, carvings, tree seeds and bee products (Table 1.2).

### Non-wood forest products and Services

Non-wood forest products (NWFPs) play a crucial role in the daily livelihoods as well as in income generation at local and international levels. Eco-tourism, which is being promoted for sustainable forest management, is also being promoted as one of the alternative uses of natural forests that has low negative impacts to the ecosystem. This is also being taken as a potential source of income and revenue for the communities living adjacent to natural forests with high biodiversity values and scenic features.

**Table 1.2 Summary of exports of forest products (1995/96-1999/2000)**

Product	1995/96		1996/97		1997/98		1998/99		1999/2000	
	Amount	Value (US\$ 1000)	Amount	Value (US\$ 1000)	Amount	Value (US\$ 1000)	Amount	Value (US\$ 1000)	Amount	Value (US\$ 1000)
Logs, m <sup>3</sup>	5 295	908.3	2 178	436	9 525	6 191.60	3 896.52	717.95	1 366.7	382.43
Rough Sawn Timber, m <sup>3</sup>	130	14.5	51	5.7	8 630.78	1 035.70	8,065.86	684.46	7 964.7	993.00
Blackwood timber, m <sup>3</sup>	74.2	923.9	28.6	355	107.5	1 357.60	122.26	1 193.20	75.72	852.32
Floorings, m <sup>3</sup>	863.7	2613.5	329.7	998	1 125.47	3 405.60	67.76	128.40	45.65	76.25
Carvings, pcs	165 493	557.8	52 197	105	264 512	891.5	253,124	967.64	169,870	238.34
Tree seeds, tons	15.6	144.78	-	-	-	-	0. 216	11.64	21.2	2.03
Beeswax, tons	202	677.9	202	678	316	1 044.80	332	1,202.70	251	1 229.78
Honey, tons	-	-	2.46	2.1	225	274.9	39	35.53	44.7	32.51
(Others)	-	-	-	-	-	-	3 645.34	481.20	-	9.73
<b>Total</b>		<b>5 840.68</b>		<b>2 578.96</b>		<b>14 180.80</b>		<b>5 422.72</b>		<b>3 616.39</b>

Source: MNRT, 2000

## **Traditional medicinal plants**

Chemical and biological studies indicate a rich wild and cultivated flora of medicinal and aromatic plants on traditional medicinal plants. About 1,000 plant species are used in traditional medicine practice in Tanzania, representing 10% of the country's flora (Kamwenda and Kway 2000). Over 35 medicinal and aromatic plants used in various international pharmacopoeias have been acclimatised in the country. About 400 plant species widely used in traditional medicine in Tanzania are under detail phyto-chemical and phyto-pharmacological studies. This provides large potential values if could be tied to their substantive value.

As far as trade in medicinal plants is concerned, a total of 98 plants and 12 animal species were being traded locally for medicinal purposes in large urban centres such as Dar es Salaam, Tanga, Arusha and Moshi. These values on household economies are not reflected in the local and national planning. This indicates that a sizeable amount of income can be made out of the sales of the traditional medicines. Most Traditional Medical Practitioners (TMPs), of whom are women selling powdered plant material, bark, roots and leaves earn between Tsho 1 500 and 6 000 (US\$ 2.5 and 10) per day in urban centres, but incomes in the rural areas are relatively lower. In any case the contribution of the medicinal trade to household economies through employment and income generation is substantial. The Forest Act (under revision) recognises these values and promotes their development.

## **Fodder, fibres and thatch grass**

Fodder from trees and shrubs are particularly important during the dry season, when availability of grasses is markedly reduced. Feeding livestock inside forests therefore takes place during this season when resources within general lands have been exhausted. The importance of dry grass for thatching cannot as well be overstated. Most houses in rural areas of Tanzania are of grass thatch and plant fibres are important both for domestic use and for sale. Dry grass is also used for fencing homesteads compounds. Such uses are important and contribute significantly to the normal running of lives in the rural areas.

## **Local benefits from non-timber forest products**

Despite financial benefits reflected in the earlier sections, other positive attributes of forests to household incomes include agricultural production and food supply in the form of fruits, leaves, seed, oils and roots that serve for food security. Absence of or inadequate valuation of these products and services has led to poor reflection in the national economy.

The skewed and oversight in some of these values and services has and negative impacts to some societies. In some aspects, the most vulnerable segments of the marginal communities depending on forests and forest products especially the hunters and gatherers such as the Barbaig and Hadzabe in Arusha and Singida drylands/woodlands place their survival on forests. Expansions of agricultural land, ranching lands and enclosed wildlife areas have pushed these communities to marginal lands and changed lifestyles.

Also the focus on only timber as the main forest product has overlooked these services. Some other benefits from forests are related to contribution to the basic needs for energy, building materials, and subsistence economies for rural communities from non-wood products for consumption and sale such as medicinal products, honey and beeswax and extractives. Non-wood forest products contribute in various ways to household food security in terms of wild vegetables and fruits. For instance, wild green leafy vegetables are an essential part of every diet, accounting for about 80% of all side dishes in West Usambara and about 20% of the total foods consumed during the months of June and July among the Luo in Tarime District (Masayanyika and Mgoo 2001). Thirty-one common edible mushroom species in Tanzania are widespread in the miombo forests that cover over 70% of the forest in the country. Wild roots and tubers are also highly depended on in Mtwara region. Monetizing all these would give a proportionately large part of the sectors contribution to the economy.

## **Attempts to capture these values**

### **An overview of valuation efforts**

Some efforts have been made or are planned under various projects. The socio-economic aspects are addressed under projects geared towards establishing the contribution of the forest sector to the Gross Domestic product (GDP). These projects include the Catchment Forest project; GEF Crossborder Biodiversity project and RIPS just to mention a few. Specific areas include Forest valuation, assessment of the contribution of forests to the livelihood of communities, contribution to food security and Gross Domestic Product.

Several isolated cases of valuing forest have been attempted by a number of institutions. These studies have however, not influenced much policy and planning of forest resources.

Benefits from the forests in terms of total economic value comprise the sum of its direct value; indirect value and option that constitute use values. The direct value of natural forests in Tanzania comprises the total value of the direct uses, which are made of it by various groups and individuals. These include the extraction of wood and non-wood

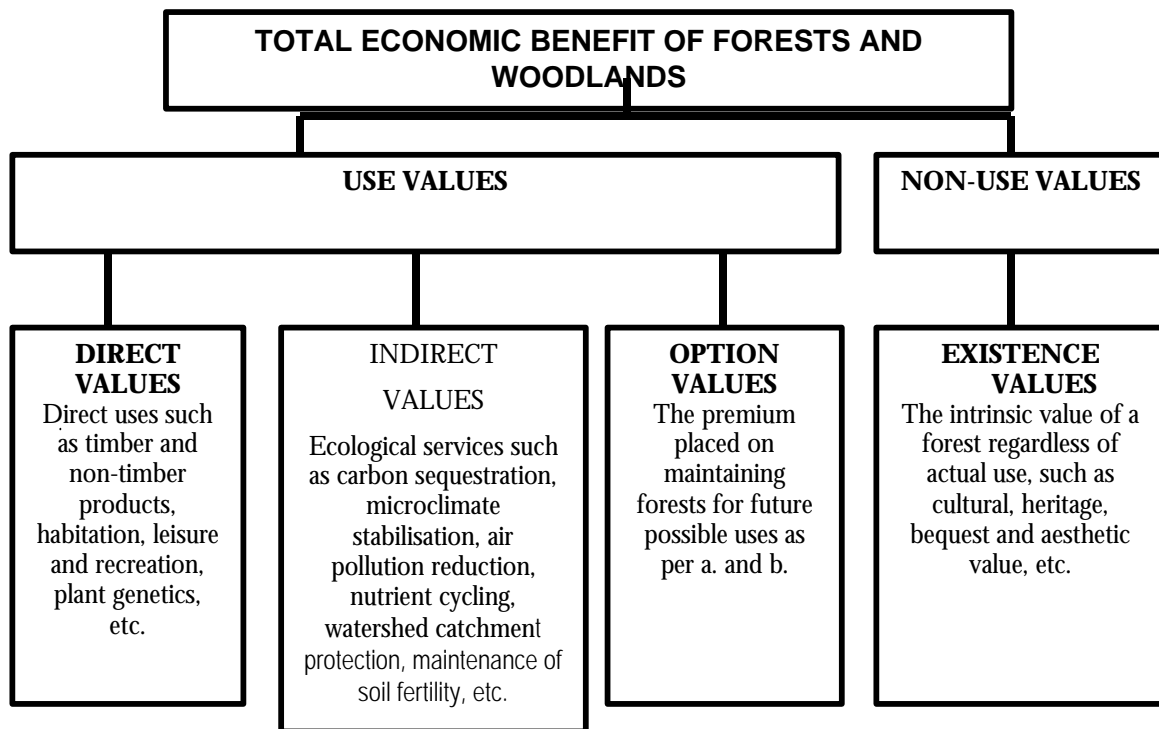
products as well as non-extractive activities such as recreation, education and habitation. At the national level the value of forests is estimated at US dollars 750 per hectare based on royalties collected, exports and tourism earnings (Monela 2000) and at local level the Miombo's woodlands contribution is as much as US\$ 1 050 per hectare based on the value of sustainable harvesting of wood, beekeeping and other forest based benefits such as fruits, mushrooms, game meat, medicinal products and water conservation (EPIQ Tanzania 1999). At global level, the value of the Tanzanian forests is estimated at US\$ 1500 per hectare based on the recycling and fixing of the carbon dioxide (Monela 2000). The valuation of these benefits depends on whether one is doing economic analysis or financial analysis. In economic analysis environmental benefits are included whereas for private or financial analysis the environmental benefits are omitted.

When forest products are bought and sold we can look at their market price in order to assess their values. This price reflects the value that people place on it. In a situation where such direct prices are not available, working at the prices of the market alternatives can do valuation. It should be noted though that timber royalty setting in natural and plantation forests is done administratively not yet through the market mechanism. It should be noted further that processed forest product prices include royalty plus other production costs plus company profit. Valuation techniques that have been employed include Willingness to pay and also travel costs consequently constructing the demand for the forest based on travel expenditure. Calculating travel costs is a particularly useful way of assessing the tourism, recreation or leisure value of forests, which charge no direct entry fee.

### The concept of total economic value

The common concept of total economic value that include direct value, indirect value and option value (which are all use values), plus its existence value (a non-use value) is provided in the figure 1. Source Emerton 1996, IUCN 1998

**Fig. 1: The Total Economic Values of forests**



### Direct values

The direct value of an indigenous forest comprises the total value of the direct uses, which are made of it by various groups and individuals. These include the extraction of wood and non-wood products as well as non-extractive activities such as recreation, education and habitation. The degradation or clearance of indigenous forests implies the loss of direct use values. Conversely, forest conservation usually implies maintaining direct use values at sustainable levels. Attempts to quantify these values are summarised in the following sections.

### Wood and non-wood products

Wood-based energy consumption is estimated to account for about 92% of the total energy consumed in Tanzania and therefore woodfuel is an extremely important forest product. The estimated contribution of the forest sector to the Gross Domestic Product (GDP) is 3% and constitutes 10% of the country's registered exports.

Timber, poles, fuelwood and charcoal have market prices, which can be used to value these resources. Experience has shown although fuelwood is used free of charge in the villages it can also have its price established in places where it is an important input to a commercial undertaking like local brew making, tobacco curing and brick making. Firewood consumption in the country is estimated at 1.5 m<sup>3</sup> per capita per annum. This consumption is valued at Tosho 7 500 based on a royalty of Tosho 5 000 per cubic meter. This indicates that the revenue that would be obtainable if all firewood was charged would be Tosho. 232,500 Million! In other word, the government is saving this amount that would be otherwise used to import fuel, or generate and distribute electric power. Apart from these wood products non- wood forest products are of great value to people.

### **Non-wood forest products**

The non-wood forest products can be grouped into food products for consumption and sale, medicinal products for consumption and sale, honey and beeswax, extractives and grass. Food products from forests include both plant and animal (FAO 1992). The plant food products encompass stems, shoots, tubers, roots, leaves, flowers, fruits, nuts, oil seeds, condiments, spices and mushrooms used by majority of communities in the country. Animal food products include honey, bush meat, bird eggs and insects. These non-wood forest products also contribute in various ways to household food security. In places where such forest products provide up to 20% of the household food supply, this reflects an average saving of 20% of their domestic food requirements. The sale of such products has also contributed significantly to the household economies.

### **Wild Vegetables, Mushrooms and Tubers**

Wild vegetables are used as spinach and eaten in a form of sauce served as a side dish making up an important source of vitamins contributing to the household food security. For instance, Fleuret (1979) reported that wild green leafy vegetables are an essential part of every diet, which accounted for 81.2% of all side dishes in West Usambara. Uiso & Johns (1996) also supported this fact where they documented that consumption of cultivated and wild species of leafy vegetables, among the Luo in Tarime District accounted for almost 23% of the total foods consumed during the months of June and July. Tanzania is also rich in mushrooms as part of their diet and therefore do collect the mushroom from the forests that again contribute immensely to rural households' food security.

Missano *et al* (1994) found in their survey of forest foods dependency in two villages of Mtwara region that cassava-like wild starchy roots known locally as *ming'oko* are an important tuber obtained from forests and the drier period of the year, this tuber form the main source of starch.

### **Wild Animals and Honey**

Wild animals are another group of important forest food products. The range of species consumed includes birds and their eggs, insects, rodents and other larger animals. Such values although recognised in the various Policies, are yet to be quantified.

Honey is another valued NWFP around the world. Tanzania has a high potential of bee resources, which is estimated to be 9.2 million colonies capable of producing about 138,000 tonnes of honey and 9,200 tonnes of beeswax/year. Yet, the production per year is estimated to be 4,860 tonnes of honey and 324 tonnes of beeswax only (MNRT 1998b). Honey is nutritionally valuable, especially due to the energy it provides. It is normally consumed as a side dish and jam and in many parts of Tanzania. Also honey is used for making local brew popularly known as *Wanzuki*. (Kihwele *et al*, 1999).

### **Medicinal and Pharmaceutical Products**

It has been estimated by the World Health Organisation (WHO) that 80% of the world's population rely on traditional medicines to meet their daily requirements (Akerele 1993 quoted by Marshal 1999). The traditional Medicine Research Unit of Muhimbili Medical Centre has conducted a number of surveys with aim of taking the inventories of Medicinal plants in various parts of the country Mahunnah (1991), Chhabra and Mahunnah (1994), Schlage *et al.*, (1999) and Hendberg *et al.*, (1983). Such studies have shown that about 1000 plant species are used in traditional medicinal practice in Tanzania, representing 10% of the country's flora. About 400 plant species widely used in traditional medicine in Tanzania are under detail phyto-chemical and phyto-pharmacological studies (Mahunnah 1993). Most Traditional Medical Practitioners (TMPs) have an average earning of between US\$ 2.5 - 10.0 per day in large urban centres. In any case the contribution of the medicinal trade to household economies through employment and health is substantial.

### **Fodder and Thatch Grass**

Fodder from trees and shrubs are particularly important during the dry season, when availability of grasses is markedly reduced. Feeding livestock inside forests therefore takes place during this season when resources within public lands have been exhausted. The importance of dry grass for thatching cannot be overstated especially in the rural areas

## **Leisure and Educational Excursions**

To date, there is currently little organised tourism in Tanzania's indigenous forests and it is not easy to estimate the value of leisure and educational visits. In Jozani Chwaka Bay Conservation Area, Zanzibar eco-tourism brought in more than 8 million Tanzania shillings per quarter (July –September 2000) signifying the potential for such kind of activities in increasing revenue.

## **Water**

Water is one of the forest products that is enjoyed by all forest adjacent communities and urban dwellers far downstream, The Uluguru Mountain forests for instance are a major source of the Dar es Salaam water supply 200 km away. Katigula (1999) attempted to value water and established that water unit (litre) price among villages adjacent to East Usambara forest reserve that a 20- litre bucket could on the average fetch Tosho 20 that would amount to annual household monetary saving ranging from 28,676 Tosho to 41,519.

At the national level the value of forests is estimated at US dollars 750 per hectare based on royalties collected, exports and tourism earnings (Monela 2000) and at local level the Miombo's woodlands contribution is as much as US\$ 1050 per hectare based on the value of sustainable harvesting of wood, beekeeping and other forest based benefits such as fruits, mushrooms, game meat, medicinal products and water conservation.

## **Indirect Values**

Many forest benefits have no market and no close market substitutes. It is particularly difficult to find any realistic market-based price for the ecological services forests provide and for the option and existence values of forests. Contingent valuation methods (CVM) have come into the foreground over the last decade and are now one of the most widely used methods for assessing the value of environmental goods and services which have no market. CVM are not based on observed market behaviour but instead infer people's Willingness To Pay (WTP) or Willingness To Accept payment by eliciting bids for a good or service under a hypothetical scenario where it would be available for purchase. They ask people such questions as "if the forest ceased to protect your water catchment, how much compensation would you be willing to accept when the streams and rivers coming from the forest were no longer clean and their flow well-regulated? Or "what would you pay to know that forest biodiversity is being maintained? At global level, the value of the Tanzanian forests is estimated at US\$ 1500 per hectare based on the recycling and fixing of the carbon dioxide (Monela 2000).

CVM are a good way of valuing forest goods and services, which have no market of market substitutes but provide clear and tangible benefits to people. They are commonly used to value the ecological; option and existence values people obtain from forests. Option value is the premium that people put on conserving a forest for future uses, which are not carried out now, over and above the direct use values involved. By definition, it is impossible to identify all these future uses. Although it is possible to gather estimates of option values from interested parties or potential future users, no such data exists in Tanzania. However, the option value of indigenous forests can be assumed to be positive.

The existence value of a forest relates to its intrinsic worth, regardless of actual use: it is the value people derive from simply knowing that a forest exists, even if they never visit it. This includes cultural heritage, bequest and aesthetic significance.

The foregoing run down of benefits from forests, both direct and indirect, consumptive and non-consumptive forest products indicate the complexity associated with valuing the entire range of the products.

A study by the UNEP in collaboration with the Centre for Environmental Economics and Development Research (CEDR) in March 2001 on environmental Impacts of Trade Liberalisation in Tanzania Forest sectors showed positive impacts related to this move that include; changing production, management and technology trend in the forest sector which are reflected by increased value added declining effective rate of protection and increased market price of the traded forest products. They also include scale impacts in the form of increased sector's total contribution to GDP, increased investment growth, and increased sector to employment. The economic values of all these impact have been estimated at present value of US\$ 79,216,508 annually.

The negative impacts observed are from this study are effects related to changes in the hydrological cycles due to declining forest density, loss in soil fertility thereafter accelerating undesirable farming practice like shifting cultivation, decline of forest productivity in a given area, increased rate of deforestation, decline in productivity particularly of agricultural sector, increased forest invasion and social migration to the forest margins, increased human health problem. Monetary value of these negative consequences have been estimated at present value of US\$ 80,567,647 annually which is above monetary value of positive impacts estimated at \$ 79, 216,508 implying a net negative trade impact of \$ 520,931 discounted present value.

# MACRO-ECONOMIC POLICIES WITH RESPECT TO FOREST RESOURCES

Since mid 1980s Tanzania adopted a series of emergency plans, Economic Recovery Programmes, policies and institutional reforms meant to revive economic growth. These include the Planning and Budgetary Management System Reform

Liberalisation of trade, deregulation of foreign exchange controls, privatisation, removal of subsidies, new marketing system, and new finance system among others have been instituted. Important parts of previously fully state controlled forest sector are being privatised through various means, ranging from outright sales to handing over management roles to local governments, communities and the private sector. The forest sector has subsequently reviewed its policy to reflect the present macro-economic policies of the government. The Forest and beekeeping Division's (FBD) role is to support and co-ordinate other stakeholders in forestry development by providing enabling environment through:

- Setting appropriate policy and regulatory frameworks
- Ensuring availability of raw material
- Providing market information

The important aspect is that Forest authority strives through various management options to ensure improved and sustainable management of both the natural and plantation forests. The forest sector has subsequently adjusted her sectoral policy, regulations and programmes towards these frameworks.

## WAY FORWARD

### **Integrating Forest values and their implications for management of forests and trees**

The reassessment of both direct and indirect benefits of forests reveals that conservation of natural resources cannot take place in isolation from socio-economic development especially in areas where local people live on close forest resources. As the Forest Policy and National Forest Programme advocate and push for devolution of forest management to communities, local people take responsibility for management work if in return, they receive access to and equitable benefits. The only way such benefits can be argued for in the participatory planning process is if the values for the products and services can be demonstrated. What is required is going beyond the listing and prioritising products and forest services to tying a value.

In a study done by EPIQ (1999) reports that Duru-Haitemba forest has the potential value of about US\$ 9,500,000 per annum if it managed sustainably. This signifies the need to manage forests for multiple uses so that their values can be adequately tapped to support livelihoods of the surrounding communities.

### **Developing the values and integrating them in the national planning system**

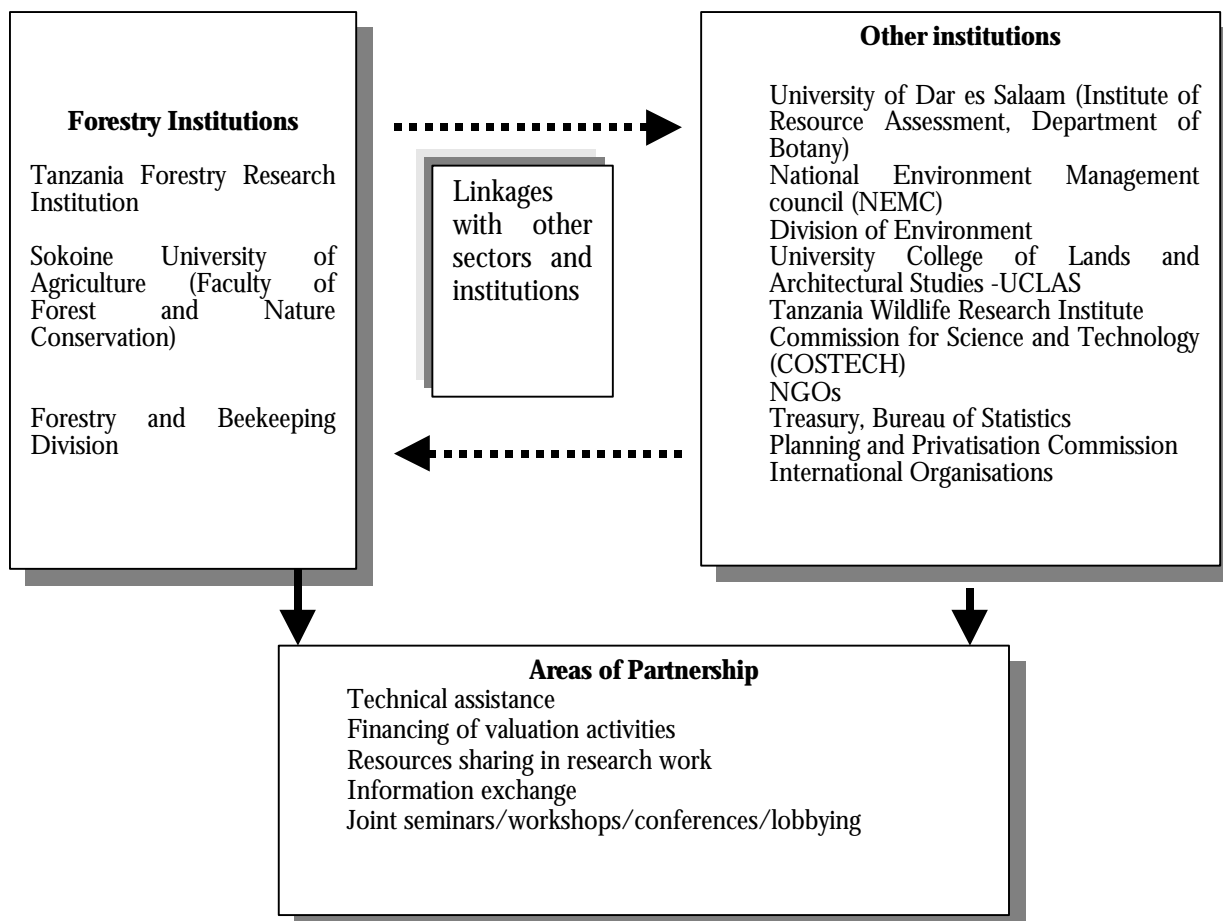
As demonstrated above, only a limited proportion of the forest values have been quantified and taken up in the sectoral and national planning process. Consultations with various stakeholders keep throwing the ball to one another. The Planning and Privatisation Commission considers this to be the responsibility of the forest sector while the forest sector and it related institutions argue that the National Planning Authority ought to develop a criterion for incorporating such values in their system, noting that the existing framework has limitation as regards forest services and non traded products. What is needed here is getting commitment from the various institutions as in principle all agree to these huge values that are ignored in the economy.

### **Developing partnerships in for forest valuation**

Noting that forest resources touch on a number of sectors, institutions and even individuals at household level, establishment of the respective benefits and values would require their input. Partners include governmental sectors and organizations, NGOs, private entities, end users of forest products and forestry related international donor agencies. Prominent institutions and sectors include the Treasury, Planning and Privatization Commission, Bureau of Statistics, Tanzania Forestry Research Institute, Sokoine University of Agriculture (Faculty of Forestry and Nature Conservation, Faculty of Agriculture), Forestry and Beekeeping Division, National Tree Seed Project (NTSP) Forestry Training Institute). Others are the University of Dar es Salaam, National Environment Management Council (NEMC), Division of Environment, University College of Lands and Architectural Studies (UCLAS), Tanzania Wildlife Research Institute, College of African Wildlife Management, Mweka; Commission for Science and Technology (COSTECH), Institute of Traditional Medicine, Muhimbili University College of Health Sciences, Tropical Pesticides Research Institute (TPRI) and a number of NGOs.

As of now, the UDSM, SUA, TAFORI and the FBD have sporadically attempted to initiate valuing of forest resources but such pilot cases have not filtered into the national planning system. What is apparent though is absence of clear collaboration and partnership mechanisms. Option that could be pursued relates to development of Memorandum of Understanding (MOU) between institutions, sectors and organisations. For the forest institutions, more binding Agreements could be entered into where issues of joint planning and execution of research activities, publication of findings and dissemination could be addressed. Figure 2 displays such interlinkages.

**Figure 2: Interlinkages for forest resources valuation in Tanzania**



**Action Plan for the research activities based on issues**

Basing on the Forest Policy and the National Forest Programme, forest resources valuation issues identified and requiring action are summarised in table 5.1.

**Table 5.1. Forest resources valuation issues identified and requiring action**

Issue	Outputs	Indicators	Main Activities
Poor understanding on the value of forest eco- system products and services.	Both tangible & intangible values of forest consider/ incorporated into National Accounting System.	Increased percentage of forestry contribution to the GDP  Mechanisms for collaborative resources valuation exist	Conduct special studies for valuation of both tangible and intangible forest resources.  Lobbying for consideration and incorporation of these values National Accounting System.  Prepare and present a proposal on consideration and incorporation of values into National Accounting System.

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# APPENDIX V: QUESTIONS RAISED IN THE PLENARY

## Question

Is it true that fish is one of the values of the cross-border forests? if so, what is the relationship between the two?

## Answer

Yes. That is the case in the ground water forests for instance the forests in Kagera where the river has some channels in the forests where there are seasonal fishing activities carried out and taken as values. NB: It is a minor value, though.

## Question

How is the forest value monetized?

## Answer

Taking medicine as one of the values of the tropical forests; we can monetize the value by showing how the traditional medicine can save a lot of money that could have been used to transport a sick person to the hospital in town. It's hard though to allocate actual money values of the forests or it's products; the values are high in the sky but it depends on the perception angle that one use to calculate the equivalence in terms of money.

## Question

How are the local communities empowered in the process of carrying out conservation activities?

## Answer

The project applies a participatory approach through which the local community has the power to make decisions and they are the main activists of the project.

## Question

What incentives are people given for conservation?

## Answer

- Granting the people authority and things like uniforms etc which increases their morale in keeping up the work. When there are financial activities that are carried out, then the community members get a share of the revenues. The giving of direct financial incentives has been discouraged in order to make people feel as part and parcel of the activity so that the process may continue in case there are not enough funds for offering payments for carrying out such activities.

# APPENDIX VI: OUTPUTS OF GROUP DISCUSSIONS

Participants were divided into two groups discussion groups as follows:

## **GROUP 1: COMMUNITY COSTS, BENEFITS & INCENTIVES HOW MUCH DO COMMUNITIES GAIN AND LOSE FROM FORESTS?**

### **GUIDELINES FOR DISCUSSION**

1. Who are the main forest gainers and losers?
2. What are the main potentials to capture new forest values?
3. What kinds of activities have been tried that add local value to forests?
4. What is the potential for additional activities?

### **COSTS/LOSSES INCURRED BY LOCAL COMMUNITIES**

Grazing land  
Livestock  
Arable land  
Attack from Wild animals as well as rape cases on women and children.  
Crop damage (Elephants as they search for food near people's residences and farms)  
Limited access by miners  
Limited opportunity to hunting  
Limited access to food gathering e.g. firewood, poles collection  
Limited income due to limitations of access for resources which could have generated income e.g. charcoal

### **BENEFITS / GAINS TO LOCAL COMMUNITIES**

Conserving water sources hence minimising the distance people have to go to get water  
Soil conservation  
Water catchment  
Sustainable hunting  
Sustainable opportunity to practice rituals and other cultural activities  
Sustainable income due to wise use of the resources as well as utilisation, beekeeping.  
Establishment of people's own woodlands.

### **INCENTIVES** (*What is needed so that the areas can be turned into reserves*)

Planting of trees and fodder plants (for woods collectors etc)  
Cost and income sharing from joint management  
Ecotourism and revenue acquiring from it  
Community conservation services  
Moral satisfaction from joint management  
Empowerment of local communities in the process for instance decision making or by setting correct guideline that will enable implementation of the available good policies.

## **GROUP 2: VALUATION AND ECONOMIC POLICIES AT NATIONAL LEVEL WHAT ARE THE ECONOMIC MOTIVATIONS / ECONOMIC POLICIES CAUSING FOREST LOSS IN TANZANIA?**

### **GUIDELINES FOR DISCUSSION**

1. What are the economic causes/motivations of/for forest loss?
2. What are the major sectors causing forest degradation?
3. What are the major price and market distortions?

## **ECONOMIC CAUSES**

- Supply and demand driven
- Better prices/price motivation
- Devaluation
- Substitute commodity (alternative energy sources)
- Inflation rate

## **ECONOMIC MOTIVATIONS**

- Better prices
- Export market
- Demand
- Land degradation
- Poor performing methods
- Technology use (low use)
- Grazing
- Removal of subsidies

## **ROOT CAUSES**

- Poverty (poor people in relation to land degradation)
- Population growth which goes hand in hand with high demand
- Powerful interest
- Ignorance
- Inappropriate cultural practices
- Political instability (wars in neighbouring countries it results e.g. in flooding other countries which may results into land degradation etc)
- Open access to resources/ forests.
- Arson
- Sabotage
- Climatic change

## **MAJOR SECTORS**

- Agriculture
- Energy
- Forestry
- Transport
- Mining
- Judiciary
- Industry
- Informal sector

## **MAJOR PRICE AND MARKET DISTORTIONS**

- Unpriced / overpriced (e.g. external markets) or underpriced
- Undervaluation of forest
- Subsidise and incompatible policies across the border.

## APPENDIX VII: WORKSHOP PARTICIPANTS

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## APPENDIX VIII: WORKSHOP PROGRAMME

- 8.30 Registration, Self-introductions and expectations: Facilitated by Mr. Francis Karanja, IUCN-EARO
- 9.00 Official Workshop Opening – *Dr. M. Ngoile, Director General NEMC*
- 9.15 Introduction to the Workshop - *Dr. Fanuel Shechambo, IUCN- EARO*
- 9.40 An overview of the National Crossborder Biodiversity Project – Mr. J. Salehe *National Project Manager*
- 10.00 Coffee Break
- 10.30 The Economic Valuation of Forests: An Overview - *Dr. Fanuel Shechambo - IUCN EARO*
- 11.00 The Linkages between Forests and Sustainable Development – Mr. S.Mariki *National Focal Point*
- 11.30 Integration of Economic Instruments into Forests Conservation in EA - *Dr. Fanuel Shechambo – IUCN-EARO*
- 12.00 Plenary Discussion - *Facilitated by IUCN and National Focal Point*
- 1.00 Lunch
- 2.00 Groups discussions - *Facilitated by IUCN and National Focal Point*
- 3.30 Groups presentations - *Facilitated by IUCN and National Focal Point*
- 4.00 Coffee/Tea Break
- 4.15 Charting the way Forward - Plenary
- 4.45 Workshop closing - Dr. Alan Rodgers, FAO/UNDP/GEF
- 5.00 Departure