Economic Considerations in Environmental Management

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Overview

Tanzania is a large country covering about 945,200 km2 of which 942,800 km2 are in Tanzania mainland. Of the total area in Mainland Tanzania, 881,300km2 is land and 61,500 km2 is water. Most of Tanzania mainland (about 44ml. ha) is covered by extensive forests and woodlands offering a diverse habitat for wildlife, unique, ecosystems and valuable genetic resources. The wide ecological diversity favours production of a wide range of agricultural, livestock, forest and marine products. Tanzania is also rich in some mineral resources particularly gold, diamond, gemstones, coal, tin, mica, salt, gypsum, lime and gas.

The last national population census in 1988 reported a count of 23.2.ml. people of which 22.5.ml. are in Tanzania mainland. The national average population density is low at about 26 people per km2 and the annual growth is 2.8%. However, there is a wide variation in regional densities with much of the population distributed in the periphery of the country. In 1993, the population of Tanzania mainland was estimated at 25.8 ml.

The Economy and Performance

Tanzania is predominantly a land-based economy. Agriculture is the single most important economic activity accounting for more than 50% of the GDP and merchandise exports, and 80% of the employment. Subsistence food crop production dominates the agricultural economy accounting for about 55% of the agricultural GDP.

Overall, economic performance in Tanzania began to deteriorate in the mid 1970s. Some of the important contributing factors include the oil price shocks of the 1970s, decline in volume and value of the major exports, break-up of the East African Community (1977), the war with Uganda (1978), expansion in external debt burden and unfavourable weather (1973/74, 1979/80, 1981/82). Inadequate macro and sectoral policies also played a big role.

The worst economic period was in 1983 when GDP growth was negative

at -2.38%. Since then GDP growth averaged 3 - 4% per annum. Agricultural production was the worst in 1978 when agricultural GDP was -1.7%. Production started to improve in the mid 1980's when agricultural GDP started to grow at about 4-5% per annum. The biggest increases were recorded in maize, paddy, cotton and cashewnut production.

Poverty Profile

Inspite of the government's strong commitment to reducing poverty, Tanzania is still a very poor country. Average per capita income is estimated at around US$ 110. Based on two poverty lines (households with less than Sh.46,173 and Sh.31,100 a year per adult equivalent) used in a recent poverty analysis; about 50% of all Tanzanians live in households with expenditures below the higher poverty line and 36% (hard core poor) are below the lower poverty line. The study also revealed that in Tanzania poverty is mainly a rural phenomenon. About 59% of rural residents are poor compared to 39% in urban areas (excluding Dar es Salaam) and only 9% in Dar es Salaam.

Table 1: *Summary of Poverty Analysis of Tanzania*

Group	*Share of population with adjusted adult equivalent incomes below poverty line*	*Share of poor to total population*	*Depth of poverty*
Rural Villages	59.1%	85%	29.9
Non-Dar es Salaam Urban	39.3%	13%	15.1
Dar es Salaam	9.3%	2%	3.1
Tanzania	51.1%	100%	24.9

Also the incidence of poverty in the rural areas accounts for about 85% of the national incidence of poverty. The urban - rural duality is again exemplified by the fact that per capita average expenditure in urban areas (excluding Dar es Salaam) is about 60% higher than in the rural areas and in Dar es Salaam the expenditure is more than twice as much. There is a very strong cause and effect relationship between poverty and environmental degradation. Normally poor people live on a day to day basis and thus cannot afford the "luxury" of conserving for future generations. With the majority of the poor people residing in the rural areas and agriculture accounting for more than 80% of their incomes; the need to alleviate poverty as a pre-requisite strategy for improving environmental conservation cannot be over emphasized.

Macro Economic Policy Framework

In response to the continued decline in economic performance in the 1970s, the Government launched in 1980 a two year National Economic Survival Programme (NESP) aimed at boosting exports and mobilizing food production. However, the NESP was only an ad hoc measure and was not designed to resolve the fundamental policy issues. Thus in 1982 a more comprehensive approach was initiated under the three year Structural Adjustment Programme (SAP) which was followed by the Economic Recovery Programmes (Economic Recovery Programme I (ERP I) and Economic Recovery Programme II (ERP II)/Economic and Social Adjustment Programme (ESAP).

The major objectives of the economic and structural reform started in 1986 include, *inter alia:*

(a) to increase domestic production of food and exports;
(b) to restore efficiency in the mobilization and the utilization of domestic resources;
(c) to rehabilitate the physical infrastructure, in particular transport and communications in support of directly productive activities;
(d) to restore internal and external balances by pursuing appropriate fiscal, monetary and trade policies;
(e) to reduce the rate of domestic inflation;
(f) to revamp the industrial sector;
(g) to rehabilitate the social services by identifying and designing appropriate strategies and programmes that would enhance peoples participation in the operation and management of these services.

In order to realise these objectives the government embarked on far-reaching economic and structural reforms and a dramatic change in the use of policy instruments. The major policy actions of the programme include: exchange rate, trade and price liberalization; public sector restructuring and divestiture; cooperatives and financial sector reform; as well as improvement in infrastructure and environmental protection.

These measures and programmes also provide clear signals of the government's commitment to shift from a controlled to a market economy. In summary, current key policy directions may be summarized as follows:

Exchange Rate and Trade Liberalization

The government has pursued a very active exchange rate policy since the ERP was introduced in mid 1986. The Tanzanian shilling has gone through a series of adjustments from an overvalued rate of T.sh. 17 to United States Dollar (USD) in 1986 to a market rate in August 1993. At the same time, foreign exchange bureaux were licensed to operate since April 1992. The exchange rate adjustments were coupled with substantial trade liberalization. The "own funds" import scheme and the Open General License (OGL) were introduced in 1984 and 1988, respectively.

Both schemes have been improved and expanded thus increasing access

to imports. The export retention and duty drawback schemes also complemented the adjustment in exchange rate by offering further incentives to exports. The decision to liberalize trade has been implemented simultaneously with the de-control of prices of manufactured imports as well as those of domestically produced goods. The products under price control have been reduced dramatically from more than 400 items in 1986 to 23 in 1978/88 and only two (petroleum and fertilizer in) 1991/92. The liberalization of commodity prices was also accompanied by a more realistic pricing of financial resources. Interest rates were adjusted from negative to positive (in real terms) between 1986 and 1988. At the same time, the National Investment Promotion and Protection Act. was enacted in April 1990 and the Investment Promotion Centre (IPC), which is charged with the implementation of the investment promotion policy, established in July 1990.

Financial Sector Reform

Since 1967 when the commercial banks were nationalised, virtually all the financial institutions in Tanzania have been wholly owned by the government. The operations of the banks were highly interfered with by the government, and completely lacked competition. As a result, the performance of the financial sector has been very unsatisfactory in almost every aspect. Due to financing of non-bankable activities (directed credit), the National Bank of Commerce (NBC) and the Cooperative and Rural Development Bank (CRDB), which are the main financiers of agricultural operations (inputs and crop finance), recorded a very high rate of non-performing loans.

In view of this, and recognizing the critical role of the financial sector in the economic recovery process as well in attaining macro-economic stability, the government decided to carry out a major reform in the financial sector which is based on the findings and recommendations of the Presidential Commission of Enquiry into the Monetary and Banking System released in July, 1990. This reform aims at establishing an effective and efficient market oriented and independent financial sector. The reform also aims at increasing efficiency in the sector by allowing entry of both foreign and domestic private sector in the financial sector as well as restructuring the existing bank institutions. Two private foreign banks started operations in 1993. The legislation for implementing the reform (Banking and Financial Institution Act 1991) was enacted in April, 1991. Preparations for the establishment of capital and stock markets are at very advanced stage.

Public Sector Management Reform

The government is committed to introducing a comprehensive programme of public sector management reform with a view to enhancing efficiency in allocation and utilization of public resources, strengthen national economic management, improve expenditure monitoring and control, as well as implementation of the Economic Recovery Programme. To this effect, the government is reviewing its expenditure priorities with a view to focusing on operation, maintenance and rehabilitation activities and improve project

selection. A Presidential Commission on Public Revenue, Taxation and Expenditure, which concluded its work early 1992, recommended the restructuring of the taxation system, disbanding of unnecessary government institutions and departments, and reducing the size of the civil service. Currently six government ministries are under review (operational and efficiency review), and a core public investment programme is being prepared.

The parastatal sector reform actions which began in the early 1980's would be deepened so as to remove budgetary pressure on the government, improve efficiency, and facilitate effective implementation of the financial sector reform. The government has classified the parastatals into commercial and non-commercial with a view to funding directly under budgetary allocation the non-commercial parastatals (government institutions) that would be retained.

In order to expedite implementation and ensure a systematic approach in the parastatal reform process, a Presidential Commission on Parastatal Sector Reform was appointed in January, 1992 to oversee and supervise the reform. The terms of reference for the commission include, *inter-alia*; scrutinizing parastatals with a view to determining their financial and economic viability and to advise the government on capital share diversification or liquidation. The commission would also advise the government on the appropriate procedures to be used in selling shares of parastatals. A Public Corporation Act (1992) which was passed in January 1992 to replace the Public Corporation Act (1969) and Parastatal Organization Management Act of 1976 aims at restructuring the parastatals and establishing new ones on commercial principles. The Loans and Advances Realization Trust (LART) Act (1991) is pivotal in providing the machinery and mechanism for fast restructuring of the parastatal sector.

Cooperative Sector Reform

The cooperative sector is very important in the promotion of agricultural production in Tanzania since it can organise procurement of inputs and marketing of agricultural produce at low cost. Prior to the reform there were 6051 primary cooperative societies affiliated to 27 cooperative unions. The performance of the cooperative sector in Tanzania has been very unsatisfactory due to excessive government and political interference.

The government dissolved the traditional cooperative system in 1976 and transferred its activities to the then agricultural crop authorities, the National Milling Corporation and village governments. In early 1980, the government re-established the cooperative societies under the 1982 Cooperative Act; and changed the crop authorities to marketing boards thus reviving the three tier marketing system abandoned in 1976. In 1990, the marketing boards were re-structured to become agents of the cooperative unions with the objective of reducing costs and giving more operational and financial autonomy to the cooperatives. All these measures did not address the fundamental problems of the sector which is lack of membership control. The new Cooperative Act (1991) was enacted in April, 1991. The cooperative sector reform is aimed at implementing the new Cooperative Act.

Under the new act which became effective in September, 1991,

cooperatives are private institutions and not government agents. Therefore, the government can no longer interfere in the operation and management of the cooperative societies. Cooperatives will be free to determine membership, geographic coverage, and activities. At the same time, unviable cooperative societies will no longer be registered. The existing government controlled cooperatives will be gradually replaced by democratic member-controlled grassroot-based autonomous cooperative institutions.

A comprehensive programme for implementing the cooperative sector reform has been prepared. This programme commenced with the production of a statement of the state of affairs (audit) of each cooperative society which was completed in August, 1992. The audits classified the cooperatives unions into viable, potentially viable and unviable. The potentially viable will be restructured while the unviable will face immediate liquidation. Todate, seven cooperative unions have been transferred to LART for liquidation and 2201 out of the 6051 primary societies registered under the 1982 Act, have been registered under the 1991 Act. At the same time, 5 cooperative unions have been registered raising the number of cooperative unions to 35. Also 5 apex organizations (coffee, cotton, cashewnuts, tobacco and cereals) have been established. In order to facilitate the reform programme the government took over past debts which were caused by its decisions and policies.

Infrastructure Rehabilitation and Improvement

A well developed and functioning infrastructure in Tanzania is critical for the realisation of the objectives of the ERP. In Tanzania the physical infrastructure (roads, railways, water transport, water supply) is highly dilapidated due to the protracted economic decline and lack of policy and priority on maintenance programmes. In order to alleviate these weaknesses the government has, in collaboration with the donor community, launched national and regional programmes for rehabilitating roads, railways and ports. The technical and managerial capacity of the public institutions responsible for this sector will also be strengthened. To avoid past mistakes, the government has established a road fund to be financed through user charges for meeting the increased maintenance budget.

In 1990/91, an eight year multi-donor US$ 871.1m. Integrated Roads Project (IRP) was launched. The project's core objectives include the rehabilitation of trunk and regional road networks, and institution building in the Ministry of Works, Communication and Transport. The project targets to have 60% of the trunk roads in good condition by 1996 from the current 15% and the regional roads to 50% from the current 10% in 11 of the most agriculturally productive regions. Also by the same date, the project would put into place regular maintenance on 80% and 60% of the trunk and regional roads respectively. Other infrastructural projects include rehabilitation and improvement of the railways and the Dar es Salaam Port.

Environmental Protection

The Government recognises the need to pursue development policies and strategies that are friendly to the environment in order to ensure sustainable development - particularly in the agricultural sector. Although nationally there

is no land pressure problem in Tanzania and only about 20% of the arable land is currently being used; soil and vegetation loss and destruction of watersheds is a serious problem. Recent estimates show that about 300,000 - 400,000 ha. of forest lands are lost annually. Existing land ordinance vests ownership in the state. Individuals and institutions can be granted title deeds of between 33 -99 years while those of villages are permanent. The government has started to survey village lands and issue title deeds in order to improve security and conservation. However, the exercise is enormous. Only about less than 20% of the more than 8,000 villages have been covered and is constrained by human and financial resources. Lack of a clear land policy makes enforcement of the ordinance very difficult. In order to address these problems, a Presidential Commission of Enquiry on Land Matter has submitted its report to the government which would form the basis for reviewing land policy and legislation. The preparation of the National Environment Action Plan, the National Environment Act and the land policy aims at providing the necessary policy, institutional and legal framework for promoting environmental conservation.

Social Services

Since the 1960's, Tanzania has pursued a consistent policy of providing basic social services. Targets for universal primary education, illiteracy campaigns, rural health care and universal access to clean water have featured highly in all the medium and long term national development plans. The results of this policy have been very impressive. Universal Primary Education (UPE) was achieved in 1978 and literacy rate is estimated at about 85% compared to less than 10% in the 1960's. Supply of safe water to the rural communities has increased from 17% (1974) to 46% (1992). Currently there are 174 hospitals, 276 health centres and 3014 dispensaries compared to a few in existence in the 1960's. However, due to the prolonged economic decline and recent emphasis of the ERP on the productive sectors; the progress made in the social services sector during the past two decades is in real danger of being lost.

In view of this and taking into consideration the importance of human resource development in sustaining long term economic development; the government is committed to increase resources to the social sector. At the same time the government is formulating strategies to improve the delivery system, management of supplies, and cost recovery measures, enhance community participation and motivate staff. The aim is to strengthen the financial base for these services.

To support the reform actions in the social services sectors, the government started to implement in 1990 health and nutrition, and rehabilitation projects both funded by the World Bank and several other donors. All these are expected to contribute to better life in the rural areas which would improve agricultural productivity. A social services strategy is at a very advanced stage of preparation.

Economic Considerations in Environmental Management

As stated earlier the Tanzanian economy depends a lot on the exploitation of its natural resources, in particular land, forest and water resources. Agriculture, which is the main economic activity depends directly on the quantity and quality of these resources. Land and water resources which are in principle renewable are already declining at an alarming rate. The proliferation of land and water conservation as well as afforestation projects is a clear recognition of this problem in Tanzania. Economic activities which are closely linked to environmental issues include hydropower dams, communication infrastructure (roads, railways), mining, irrigation, land clearing, deforestation, industrialization, overgrazing, overfishing, and unregulated urbanization. These developments may lead to soil erosion, siltation, flooding, loss of biodiversity, depletion of water as well as health and sanitary problems.

In Tanzania, as is the case in many developing countries, environmental problems are closely linked with the sustainable management of natural resources.

Marginal Opportunity Cost as a Planning Tool

Marginal opportunity cost (MOC) is a very old concept and tool used in economics to determine the rules for efficient resource allocation and the measurement of scarcity values.

Natural resource depletion (NRD) process is said to occur when an economic/policy action results in depletion of non-renewable resource, that is it prohibits the natural regenerative process of the resource. In this case the resource can also be said to be managed unsustainably. The MOC can be used to determine whether a resource is being managed in a sustainable manner.

Just as in the traditional application of marginal analysis, the appropriate level of resource use would be that at which the marginal opportunity cost equals the marginal benefit derived from its use. If the marginal cost is greater than the benefit it means that the resource is over exploited (unsustainable use) and exploitation should be reduced. The reverse is also true, of course, but in practice the application of MOC in resource management is much more complex. Applying this concept in the exploitation of a natural resource MOC can be desegregated as follows:

$$MOC = MDC + MEC + MUC,$$

where

- MDC - Marginal Direct Cost of extracting the natural resource (labour)
- MEC - Marginal External Cost arising (in a natural resource base) due to utilisation of the natural resource
- MUC - Marginal User Costs (some future scarcity premium on the resources)

External costs are important when a resource is exploited on non - sustainable

basis. A typical example is deforestation which leads to soil erosion, river and dam siltation and ultimately decline in agricultural and power production and water quality. The user cost arises in the case of a non-renewable resource but can also be applied to a renewable resource where there is evidence of exhaustibility in its use (persistent non-sustainable exploitation).

A lot of data and information is needed to compute MOC. Where this is possible, the MOC concept can be used to identify the type of cost and benefits needed in evaluating investments to mitigate NRD. The calculation of MOC can also be indirect through foregone agricultural or electricity production caused by deforestation/soil erosion/dam sedimentation.

Economic Policy and Incentives for Sustainable Development

Currently, Tanzania is implementing several environmental projects. These projects range from rural community forests to the rehabilitation of urban sewage and sanitation. These projects are a result of pursuing unstainable development policies and strategies. They also serve to illustrate the limitations of project based approach in addressing environmental objectives.

It is now widely accepted that the environment is part and parcel of social, macro-economic and sectoral policies. It cuts across agriculture, energy, industry, mining, fiscal, monetary and trade policies, local and foreign investment as well as income distribution. In view of the aforesaid, environmental management should be brought out of the mainstream social and economic policy formulation, planning and budgeting.

Todate, Tanzania's responses to environmental management have been limited to the traditional direct investment in project by project approach. It is envisaged that the adoption of the National Environmental Policy and its Action Plan will lead to an integrated approach to the solution of, or intervention in, environmental problems.

In order to make this integration meaningful it has to be supported by appropriate improvements in physical data to provide a sound understanding of the physical relationships as well as the economic, social and institutional linkages. Also necessary is the adoption of a broad based multi-sectoral/multi-disciplinary approach in policy formulation (economists, sociologists, political scientists, anthropologists, legal institutional and conservation experts). For example, many environmental problems are complex in nature and manifest themselves at a distance (erosion/sedimentation) or in the future (depletion in soil fertility, greening effect, etc.)

Subsidies and taxes are common policy interventions which can have a positive or a negative impact on the environment. Subsidized production inputs and credit, tax holidays, export rebates/financing under-pricing of water and forest products all encourage over exploitation of natural resources.

In Tanzania, agricultural subsidies have been eliminated while tax holidays and export rebates have expanded since the Economic Reform Programme (ERP) was launched in 1986. This is due to the policy stance on cutting down government expenditure and promoting exports and private investment. In addition to economic incentives, other measures are also necessary to mitigate environmental deterioration. They include income and

wealth distribution, agrarian reform, property rights, population policy and the role of women. If distribution of income and assets in a society is highly skewed it will force the disadvantaged poor to pursue unsustainable use of natural resources. They will be pushed into fragile marginal lands. Similarly, very poor communities cannot afford to invest in future generations. At the same time unsustainable high population growth rates would aggravate poverty and lead to natural resources degradation. In Tanzania, women are very important in agricultural production. Their involvement in formulating policies for sustainable utilization of natural resources is, therefore, critical.

Environmental and Natural Resources Accounting

The most widely used methodology for measuring economic performance (growth) is the national income or Gross Domestic Product. Broadly defined this is a measure of the value of goods and services produced in a country during a specified - period, normally one year. Tanzania, like other United Nations (UN) member states, uses to a large extent, the UN System of National Accounts (SNA) in computing its national accounts. While GDP measures reasonably well the value of market transactions, it unfortunately excludes non market activities. Thus, even where data is readily available there are some limitations in using the GDP as a sufficient measure of welfare in the society. In developing countries, including Tanzania, the limitations of GDP indicators are aggravated by the paucity of data. For example, it is argued that the official GDP per capita in Tanzania could be more than double the estimate of about US$ 110.

In addition to excluding important activities and social values that are not captured in market transactions, the conventional way of computing national income also overlooks the costs of environmental degradation as well as depletion and degradation of the natural resources. In other words, as currently used, GDP does not represent a true sustainable income. This is because most production and consumption activities do have some impact (side effects) on the state of the environment. Such impact may be on the quality of the environment (pollution) or the quantity of environmental assets (deforestation, soil erosion).

These costs (environmental protection and depletion/ degradation or natural resources) are not captured in the current system of national accounts. Therefore, GDP figures need to be adjusted to reflect these costs. Of course, the practical application of the concept is very difficult even in the developed countries. What is important here is to recognise the limitation of GDP indicators and to systematically integrate environmental considerations in policy formulation (macro and sectoral and planning).

Economic Analysis of Projects and Environmental Effects

Most countries apply economic analysis of projects to determine the most efficient process for the allocation of resources in order to achieve goals and objectives on social and economic development. The most commonly used tools in project analysis and appraisal include cost-benefit analysis (CBA), net present value (NPV), and internal rate of return (IRR).

Generally, economic analysis of projects should take into account all costs and benefits. However, this has not been the case with respect to environmental impact. The reason advanced is the difficulty of measuring, in physical and monetary terms, the environmental impacts. So far decisions are based on perceived intangible costs and benefits which cannot be incorporated in the analysis. In view of the serious environmental problems caused by the implementation of investment projects, more effort is needed to address the problems of environmental impact valuation in order to integrate them in economic project appraisal.

Some Techniques for Measuring Environmental Costs and Benefits

In order to value environmental impact, we need to measure the physical impacts and relationships, of the value impacts. As stated above, both measurements are not easy to make because of the complex physical relationships and environmental behaviour in an ecosystem. In some cases, the measurements are easier than others. For example, it is much easier to measure solid waste production by a factory than deforestation or soil erosion. Determination of the physical impacts and relationships requires a multi-sectoral and multi-disciplinary approach.

Once the physical impact has been determined then valuation can be attempted. The conceptual approach is that environmental impact may manifest itself in measurable terms either in production or quality of the environment. Therefore, the main valuation techniques include the following:

(i) *Direct*	- Change of productivity - Loss of earnings - Defensive expenditures
(ii) *Surrogate Market values*	- Property value - Wage differences - Travel costs - Market good as proxy
iii) *Willingness to pay*	- Replacement costs - Shadow project - Contingent valuation

It is not the intention of this paper to discuss these techniques because that will go beyond the scope of the paper. Suffice it to mention that the technique to be applied would depend very much on the nature of the environmental impact and availability of data.

Structural Adjustment Programmes (SAPS) and the Environment

Sectoral and structural adjustment programmes in developing countries have expanded rapidly since the early 1980's. The main focus of SAP's has been to increase economic efficiency and growth through removal of macro-economic

imbalances. The main policy instruments used are fiscal, monetary and trade. The policy actions/outcomes include reduced public expenditure, credit squeeze, high interest rates, devaluation, retrenchment, privatization and trade liberalization. Inspite of some success in bringing about higher levels of economic performance, SAP's have been criticized for failing to address long term sustainable income/environmental consideration and social objectives. These weaknesses are now being addressed in follow-up programmes although much still remains to be done.

Lack of resource mapping and resource inventory in Tanzania makes it very difficult to assess comprehensively the environmental impacts of SAP on the natural resources. However, potential cases of environmental damage include land degradation and river water pollution caused by artisanal gold mining, over-fishing and pollution in Lake Victoria, over-harvesting of certain timber species, etc. A lot more research is needed to assess the situation in order to determine the impacts and formulate appropriate mitigating policy measures.

Summary and Conclusions

The economy of Tanzania depends heavily on the sustainable management of its natural resources. With agriculture contributing about 50% to the GDP and 80% of employment, fuel wood accounting for about 90% of the energy source, and a majority of the poor residing in the rural areas, the need for managing the natural resources sustainably cannot be over emphasized. Depletion of natural resources is taking place at an alarming rate.

Demand for fertile land and fuel wood is estimated to account for a loss of about 300,000 - 400,000 ha. of forest cover per year. In some regions (Singida, Kilimanjaro, Arusha, Shinyanga), soil erosion is very serious. Water sources are drying up and unregulated livestock migration and destruction of coral reefs, and beach erosion are on the increase. At the same-time health and sanitary conditions in the urban areas are deteriorating at an alarming rate due to the rapid expansion of unregulated settlements (slums).

So far, Tanzania has done a lot to protect its natural resources and the environment in general. About 230,000 km2 nearly 26% of the total land area has been set aside as protected and conservation areas (national parks, game controlled areas, game parks and Ngorongoro conservation area). Furthermore, about 13 million ha. (29%) of the 44 million ha. under forest area is reserved. Several environmental programmes and projects are also under implementation.

Inspite of these impressive efforts, environmental problems are on the increase due to lack of a coherent environmental policy and effective mechanisms for integrating environmental issues in the mainstream of policy formulation, planning and budgeting. This is also complicated by the fact that most environmental problems in Tanzania arise from a cumulative effect of millions of independent small operators. It is only recently that serious efforts were made to recognise environmental issues in policy and planning. The National Environmental Management Council (NEMC), the National Land Use Planning Commission, the Division of Environment (DoE) in the Ministry of Tourism, Natural Resources and Environment, are recent establishments.

Table 2: *Population Density and Household Size by Region 1967, 1978 and 1988*

Region	*Land Area*	*Density*			*Number of Households*	*Household Average Size (Persons)*		
	(Sq.Kms)	1967	1978	1988	1988	1967	1978	1988
Dodoma	41,311	17	24	30	244,684	4.4	4.7	5.0
Arusha	82,306	7	11	16	249,436	4.8	5.3	5.4
Kilimanjaro	13,309	49	68	83	205,302	5.0	5.3	5.4
Tanga	26,808	29	39	48	249,147	3.8	4.7	5.1
Morogoro	70,799	10	13	17	227,705	4.2	4.7	5.3
Coast	32,407	13	16	20	128,218	-	4.3	4.9
Dar es Salaam	1,393	256	605	977	314,304	-	4.1	4.3
Lindi	66,046	6	8	10	138,070	3.7	4.4	4.6
Mtwara	16,707	37	46	53	198,726	3.8	4.3	4.4
Ruvuma	63,498	6	9	12	146,874	4.0	5.2	5.3
Iringa	56,864	12	16	21	248,479	4.5	4,5	4.8
Mbeya	60,350	12	18	25	297,636	4.8	5.0	4.9
Singida	49,341	9	12	16	148,937	4.1	4.6	5.3
Tabora	76,151	7	11	14	180,129	4.5	5.0	5.7
Rukwa	68,635	4	7	10	130,759	4.7	5.1	5.3
Kigoma	37,037	13	18	23	146,961	4.5	5.5	5.8
Shinyanga	50,781	18	26	35	279,690	5.7	5.8	6.3
Kagera	28,388	23	36	47	269,626	3.9	4.5	4.9
Mwanza	19,592	54	74	96	292,962	5.7	6.0	6.4
Mara	19,566	28	37	50	143,246	6.0	6.2	6.7
Mainland	881,289	14	19	26	136,397	3.5	4.2	4.7
Kaskazini Unguja	470	124	169	206	23,347	3.2	3.9	4.1
Kusini Unguja	954	47	62	82	15,284	3.1	4.1	4.5
Mjini Magharibi	230	428	640	906	42,142	3.7	4.2	4.9
Kaskazini Pemba	574	157	232	239	29,324	3.5	4.4	4.6
Kusini Pemba	332	226	242	385	26,300	3.5	4.5	4.8
Zanzibar	2,460	149	201	260	136,397	3.5	4.2	4.7
Tanzania	883,749	14	20	26	4,377,288	44	4.9	5.2

Inhabitant/Sq:Km, According to the relevant area and in the particular year.

Source: URT/1988 Population Census: Preliminary Report Bureau of Statistics, MFEAP, Dar es Salaam.

Formulation of National Conservation Strategy for Sustainable Development (NCSSD), the National Environmental Policy (NEP) the National Environment Action Plan (NEAP) and the Environment Legislation are on-going activities. All these measures are a pre-requisite for effective holistic integration of environmental concerns in national planning and development. Since environmental issues are multi-sectoral, it is very important that integration (policy, planning and budgeting) takes place at all levels and in all sectors in order to achieve overall national integration.

Even with the policy and legislation in place, integration is not going to be easy, however. There are a number of reasons for this. First, traditionally sectoral and institutional performance is biased by the direct output of goods and services such as agriculture (production of food and export crops), hydropower (electricity), mining (exports), forestry (timber) etc. So, because sector performance excludes the impact on the environment those responsible are unlikely to give environmental consideration the emphasis it deserves. Second, policy analysts, planners and decision makers lack the necessary orientation and sensitization on environmental issues. Third, the data base on environmental impact and its valuation has to be improved. Fourth, more financial and human resources will be needed to carry out environmental impact assessment. It is expected that NEP and NEAP will spearhead these changes.

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