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CHALLENGES OF ASSESSING AND AUDITING THE ENVIRONMENT AND NATURAL RESOURCE BASE OF TANZANIA

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Summary

The existing natural resources base, its exploitation and use, and environmental regulatory regime as well as various public reform processes all have a bearing on the environmental quality of life and development. Challenges posed by adoption of environmental audit practices and the roles of auditing in environmental management in Tanzania are central in the quest for sustainable development. The paper reviews and examines challenges that Tanzania faces in the management of its environment.

1.0 INTRODUCTION

Rapid and profound changes have taken place across our planet over the last few decades. Not only have our societies undergone rapid transformation as result of new economic and technological forces, but the physical world in which we live-our natural environment is also being transformed. In 2002, the United Nations Environment Programme (UNEP) released its third Global Environmental Outlook, also known as Geo-3. The outlook paints an alarming picture of our planet's condition. The World Summit (Rio+10) held in Johannesburg, South Africa in 2000 underscored the critical trends that need immediate intervention through the Millennium Development Goals (MDGs) and which were reaffirmed at the UN Summit in September 2005.

The Global Environment Outlook and other UNEP assessments show that there have been significant changes in our lives and environment over the last 30 years. While some notable improvements have been achieved, the overall state of the environment is more fragile and degraded than in 1972 (The first World Conference on Human Environment).

Tanzania's current state of the environment shows is deteriorating. Signs to this effect include; increased land degradation, lack of accessible, good quality water, environmental pollution, loss of wildlife habitat and biodiversity, deterioration of aquatic system, and deforestation (National Environmental Policy (NEP), 1997)). Furthermore, there is a decline in soil fertility; land is damaged by poor agricultural practices and the dumping of hazardous wastes, drinking water supplies are contaminated with disease-causing agents and toxic substances; 47% of rural households use unprotected sources of drinking water; air pollutants cause respiratory ailments; overexploitation of resources is putting many animals, livestock, and plants on endangered species list; and global warming has affected our climatic system and physical system.

These formidable challenges are rooted in economic and social conditions of our country. They occur at all levels from local, country, regional and at a global level. They require intervention by many players and over long and sustained periods of time.

2.0 THE ENVIRONMENT AND NATURAL RESOURCE BASE

Tanzania is endowed with abundant aquatic, terrestrial and other natural resources that are key to economic growth and development. These include, among others, wildlife, forests, fisheries and agricultural products, plus several minerals and gemstones. In terms of biodiversity, it is considered as one of the twenty-five "biodiversity hotspots" in the world. These resources require environmentally sound management plans to prevent over utilisation and subsequent degradation of environment.

The largest single resource the country is endowed with is its landmass. Tanzania has a total area of 945,090 square kilometres,

comprising of a land area of 600,090 square kilometres and 345,000 square kilometres of water bodies. The latter, include the Indian Ocean, and the great lakes Victoria, Tanganyika and Nyasa and other smaller inland lakes and rivers.

The environment and natural resource base of Tanzania includes the following:-

2.1 Agriculture

Tanzania is a country with a large great agricultural potential. At least 44 million hectares of the land are suitable for agriculture[1], yet only 23% are under cultivation. Agriculture accounts for about 46% of the GDP[2], and 63% of Tanzanians solely depend on agriculture for their livelihood, food security, and employment; on average provides 50% of export earnings. Many industries depend on agricultural products as raw material, directly or indirectly.

Agricultural performance is still at subsistence level, with smallholder farmers cultivating an average of between 0.2 and 2 hectares, and traditional agro-pastoralists keep an average of 50 herds of cattle[3]. Agriculture has been growing at the rate of 3% to 5% a year since the year 2000. However, current farming practises of slash and burn, less use of organic manure and poor soil and water conservation measures have long term negative impacts on the natural agricultural support systems.

2.2 Livestock

There are 50 million hectares of land suitable for livestock development. Only 50% of this area is currently being used. The sector contributed about 4% of the GDP in 2004, mainly from beef, milk, small

1 Source: Agricultural Sector Development Strategy (ASDS). 2001
2 Economic Survey. 2005
3 ASDS, 2001

stock and poultry production. Unsustainable practises of livestock management, deforestation in Shinyanga, Tabora, Mwanza, Singida and Dodoma, and overgrazing in Dodoma region have led to severe land degradation in these areas.

Subsequent land restoration measures have been instituted in the past. These have included HASHI, HADO[4] and more recently the formulation of the Strategy on "Strategy for Urgent Actions on Land Degradation and Protection of Water Catchment (2006)".

2.3 Forestry

Forests and woodland cover about 33 million hectares of the land surface[5]. Of this area, 1.7% is covered with closed high canopy natural forests, while the remaining area covers miombo woodland. There are 815 forest reserves with legal status and the rest are scattered throughout the country. The mangrove forests cover the coastal stretch.

Forests such as those found in the Eastern Arc have high biodiversity and ecological values in terms of provision of ecological services such as timber and non timber products, water, carbon sequestration and medicinal plants[6]. The Eastern Arc Mountains (EAM) are biodiversity hotspots and have areas of high floral and fauna endemism, especially in the Udzungwa, Usambara and Uluguru mountains.

2.4 Wildlife

Tanzania's wildlife resources are among the richest in the world. The protected areas network (national parks, game and forest reserves and conservation areas) cover about 40% of the total area, of which about

4 HASHI (Hifadhi Ardhi Shinyanga) and HADO (Hifadhi Ardhi Dodoma) are restoration measures that have brought about positive changes in environmental management
5 Vice President's Office. 2006. State of Environment Report (Draft)
6 Biodiversity Country Study. 1998

25% is dedicated to the predominant wildlife fauna, mainly found in the savannah grasslands. Important wildlife areas include the Serengeti ecosystem, which encompasses Serengeti, Ngorongoro, Manyara, Tarangire (Tanzania), and Maasai Mara in Kenya.

It is estimated that 10% - 15% of the 11,000 plant species found in the country are endemic to Tanzania. Estimates of species endemisim in Tanzania include, among others the following 4 out of 20 species of primates, 2 out of 34 species of antelopes, 19 out of 1060 species of birds, 75 out of 290 species of reptiles, 40 amphibians, and 122 out of 213 species of butterflies.

2.5 Aquatic resources

Both marine and freshwater systems have abundant resources, which include several species of freshwater and marine fish, the endangered marine species such as the *Coelecanth,* marine mammals such as dugong and dolphins, sea turtles and seagrass species. Marine fisheries contribute about 15% of the total fish production in the country. All in all the contribution of this sector to the GDP is around 5%.

Marine Parks and Reserves Authority was established under the Marine Parks and Reserve Act Number 29 of 1994, it is managed by the Board of Trustees whose role is to oversee the management and administration of marine parks and reserves to ensure sustainable use of the marine resources. Current marine protected areas include the following: The Dar es Salaam Marine Resrves; Maziwe Island Marine Reserve; Mafia Island Marine Park; and Mnazi Bay - Ruvuma Estuary Marine Park.

2.6 Minerals

Tanzania has a big mineral potential. Minerals include gold, base metals, diamonds, ferrous minerals and a wide variety of gemstones.

Coal, uranium, and various industrial minerals such as soda, kaolin, tin, gypsum, phosphate and dimensional stones are also part of this mineral potential.

There are a number of processes that involve use of chemicals during the extraction of minerals such as gold. Toxic chemicals like *cyanide* used by large mining companies to extract gold from the crushed ore can pollute surface and ground water bodies.

A number of artisanal miners are heavily engaged in the mining of minerals such as gold, and gemstones such as tanzanite. However, they use very crude extraction techniques thus resulting in pollution of water and land degradation, without any plans for restoration of degraded areas. Mercury poisoning is common in artisanal gold mining areas.

2.7 Energy sources

Biomass resources in the form of forest and agricultural residues comprise of the largest source of energy. Tanzania's energy consumption is estimated at 15 million tonnes of oil equivalent. Of this, wood fuels (fuel wood, charcoal and agricultural residues) account for 92%, while electricity and petroleum products account for 0.8% and 7.2% of primary consumption, respectively[7]. This high dependency of biomass energy puts enormous pressure on the forest ecosystems. Charcoal burning and tree cutting to meet energy demand accelerates the rate of deforestation.

2.8 Water resource

There are nine major water basins in the country. These include Pangani, Rufiji, Wami/Ruvu, Lake Nyasa, Lake Victoria, Lake

7 Vice President's Office. 2003. Initial National Communication on Climate Change.

Tanganyika, Lake Rukwa, Ruvuma, Mbwemkuru and Southern Coast Rivers, and the Internal Drainage Basins (Lakes Manyara, Eyasi and Natron). At least 50% of the surface runoff flows into the Indian Ocean.

2.9 Wetlands

Wetlands cover about 10% of the country's land area. As a signatory to the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention on Wetlands). Tanzania has designated four key wetlands, with a total surface area of 4.9 million hectares as Ramsar sites. These include the Kilombero valley floodplain, Lake Natron basin, Malagarasi-Muyowosi and Rufiji-Mafia-Kilwa. Other sites being considered as Ramsar sites are Lake Manyara, Usangu Plains and Lake Nyasa. Threats facing these wetlands include their conversion into agricultural and grazing lands, thus reducing their ecological values.

2.10 Human settlements

Unplanned settlements in urban areas are a common feature of major towns of Tanzania. Municipalities such as Dar es Salaam, Dodoma, Arusha, Tanga, Mbeya and Mwanza have experienced a rapid population increase, beyond the capacity of local authorities to provide basic infrastructure and social amenities. This has led to the development of squatter areas accounting to about 60% - 70% of urban population. This rapid urbanisation has led to the provision of inadequate services such as drinking water, poor sanitation, uncollected solid waste, over-crowding and overall degraded urban environment[8].

To make the aforementioned environmental resource base contribute sustainably to economic growth there is a need to mainstream the environment into the national economy.

8 Mato, R. R. 2002. Groundwater Pollution in Urban Dar es Salaam, University Press, Eindhoven University

3.0 MAINSTREAMING ENVIRONMENT INTO THE ECONOMY

Tanzanian's economy depends on a robust and a healthy environment to support income-generating activities and to provide essential resources. The environment is thus a critical element directly affecting the livelihoods of the people. They depend on environmental resources in their daily life, from food to housing, energy, and medicines. Even services that support daily activities, such as infrastructure and related transport, are sensitive to the environment. The first Public Expenditure Review (PER) for the environment (VPO 2004) and studies undertaken by the World Bank (World Bank 2005), have revealed the significance of people-environmental links and their economic impacts.

Mainstreaming the natural environment into development/economic planning is about the integration of environmental issues in the development planning process. It essentially involves making the environment feature in decision-making, and in the formulation implementation and evaluation, of policies, strategies, programmes and projects.

Economic Reform Programmes (ERP I & II), the Economic and Social Structural Adjustment Programme (ESAP) and Structural Adjustment Programmes (SAPs), initially emphasized maximization of economic benefits. Adequate account of environmental concerns was not taken. However, recent initiatives that include programmes such as the Poverty Reduction Strategy (PRS) and the National Strategy for Growth and Reduction of Poverty (NSGRP) have incorporated environmental concerns. A number of recently enacted policies, strategies, programmes and legislation have addressed environmental concerns.

3.1 Environmental Policy Instruments

There are a number of tools that ensure integration of environmental concerns in the planning process.

3.1.1 The National Budget

Perhaps the greatest tool available to the government in order for it to implement policy is the budget. How effectively the environment is mainstreamed into various budgetary provisions implicitly or explicitly is ultimately the measure of how effectively or otherwise the government can effect environmental conservation. In the 2006/2007 national budget, which was effectively dubbed as a "green budget" a provision was made for TShs.9.2 billion to support the national strategy for the conservation of land and water catchments. These funds were allocated directly to various ministries and agencies by the Treasury, under the famous classification of 'other charges'. It has been a near impossible exercise for the coordinating unit to verify the use of the funds for specified tasks. It has also not been easy for the recipient agencies to confirm receipt of the funds under the 'other charges' classification. The Treasury has been requested to come up with a line item on environment in each ministry/agency. A number of revenue measures in the 2006/2007 and the 2007/2008 national budget are bound to have a positive impact on environmental protection and conservation in the near medium, and long term.

3.1.2 Environmental Assessment

Another such policy instrument, which facilitates the balancing imperatives of the economic development and environmental conservation, is Environmental Assessment (EA). EA is observed at two levels; the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA).

a) **Strategic Environmental Assessment (SEA)**

Strategic Environmental Assessment is a formalized, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or programme and its alternatives. It includes the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision-making[9]. It is in other words, and put simply, the EIA of policies plans and programmes (PPP). It should, however, be borne in mind that the processes of evaluating environmental impacts at a strategic and project level are not necessarily the same.

The Environmental Management Act (EMA), 2004 stipulates that *"when promulgating regulations, public policies, programmes and development plans shall include a Strategic Environmental Assessment statement on the likely effects of such regulations, public policies, programmes or development plans may have on the environment".*

In Tanzania, some assessments have been undertaken resembling SEA. For instance in 1998, the Tanzania National Parks (TANAPA) carried out Programmatic Environmental Assessment of roads within the national parks. In 2004 the Division of Environment in the Vice President's Office commissioned a study on Strategic assessment of the reforms of the "Cotton and Coffee Boards". Likewise, the PRSP of 2000 was subjected to SEA. This led to the inception of a project which addressed mainstreaming of environment into PRSP and NSGRP, popularly known as *MKUKUTA*. *MKUKUTA* has 15 targets that address environmental issues. There are also ten environmental indicators included in the MKUKUTA monitoring system.

9 Therivel et al. 1999

The major challenge now is how to ensure that all Parliamentary Bills, Policies, Plans, Regulations, Agreements and major programmes in the country comply with EMA 2004 and institute SEA as appropriate.

b) Environmental Impact Assessment (EIA)

Principle 17 of Agenda 21 states that; *"EIA as a national instrument shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority" (UNCED Agenda 21 Report: 1993: 14)*

EIA is a formal study to predict environmental consequences of proposed undertakings before their implementation. It is a planning tool or a methodology through which possible ill effects of development interventions (projects, policies and programmes) can be ascertained and mitigated or prevented before the intervention is undertaken. It aims at ensuring that potential environmental problems and related conflicts are foreseen and addressed at an early stage in project planning and design.

EIA is therefore an important environmental management tool for improving long-term viability of projects and for achieving sustainable development. Projects, which incorporate EIA at an early stage, tend to be more effective and cheaper when compared with long term costs of not undertaking EIA[10]. It is thus one of essential tools for mainstreaming environment into the economy.

The objectives of an EIA include:

i) Protection and management of the environment for sustainable development;

10 Therivel et al. 1999

ii) Integration of environmental management and economic decisions of an undertaking at an early planning stage so as to ensure that potential problems are avoided;

iii) Prediction of the consequences of a proposed undertaking from the environmental, social, economic and cultural perspectives and to develop plans to mitigate any adverse impacts, resolve conflicts and enhance positive ones;

iv) Comparison of various alternatives which are available for a particular activity and determine the optimum mix of environmental and economic costs and benefits; and

v) Provision of avenues for the involvement of the public, proponents, private and government agencies; interested as well as affected people in, the assessment and review of the proposed undertaking in an open, transparent and participatory approach.

To be able to achieve the stated objectives, the process for conducting EIA needs a clearly stipulated procedure so as to guide developers on the systematic road map to implementing investments. The Tanzania Investment Centre (TIC) provides a one stop centre where requirements of EIA are introduced to potential investors.

The perennial debate about Environment and Development has received greater attention recently due the realization that patterns of development in the past have had significant and far reaching negative consequences on the environment. A need to reverse the trend is therefore necessary, so as to conduct development activities in a way that preserves the natural capacity of resources to replenish their stock and to honour the principle of intra-generational and inter-generational equity. This is the essence of Sustainable Development.

One of the most challenging tasks facing decision makers in a natural resource based economy like Tanzania's is to decide whether or not a particular development activity is in the best long term interest of the country, for enhancing economic prosperity, alleviating poverty, improving social welfare and environmentally sound. Economic development and environmental protection should not be considered as mutually exclusive. The concept of sustainable development encapsulates both. SEA and EIA are tools that ensure the concept is captured at policy, strategic, programmatic and project levels.

In the light of the aforegoing, capacity building in EIA is imperative, and should involve various actors and at different levels in Central and Local Governments, Ministries and Departments, to Non-Governmental Organisations (NGOs), Community Based Organisation (CBOs), Parastatals/Institutions and the Private sector and the public at large. Others are training, research, consultancy organisations. Databases of EIA experts are an essential component of capacity building.

3.1.2.1 The Status of EIA implementation in Tanzania

According to Mwalyosi *et al.* the first 'formal' EIA in Tanzania was undertaken in 1980 for the Stigler's Gorge Power Project[11]. Since then EIA practices have been increasing gradually and development undertakings have been steadily subjected to the processes. The formulation of the National Environmental Policy (1997), and the formulation and revisions of the other policies have all taken into account the environment. The enactment of the Environmental Management Act (2004), and the EIA and Audit Regulations (2005) are important milestones, which should guide the country towards sustainable development. It is stipulated that "*no licensing authority*

11 Rufiji Basin Development Authority (RUBADA). 1980

under any law in force in Mainland Tanzania shall issue a permit for any project for which an environmental impact assessment is required, unless the applicant produces to the licensing authority an EIA Certificate issued by the Minister responsible for environment". The institutional framework for the implementation of the Act is also clearly defined. Specifically, the National Environment Management Council (NEMC) is charged with the task of carrying out reviews of EIA reports of various projects.

Before EMA, 2004 only few development undertakings were being subjected to the EIA process. After enactment the number has increased. For instance since 2005, NEMC has registered and reviewed more than 100 projects and has recommended to the Minister the approval and issuance of EIA Certificates to more than 25 proposals.

The main challenge with respect to operationalization of the EIA activities is the limited awareness on the part of some investors and also the general public. Another challenge is lack of integration of resource valuation in the impact assessments. This is due to limited expertise in the country. Another challenge relates to several projects that became operational before enactment of EMA 2004. According to the Act such projects should be subjected to Environmental Audits, and many of these present biggest legacy unsound environment management.

3.1.2.2 Challenges and lessons learnt

- Some investors are not aware of the EIA process. It has been noted that investors take EIA as the last step in the overall process when registering investment with TIC. The tendency has been to reduce the *process* to a mere request for a ***permit***

- In many EIA reports the component of public participation has been inadequate
- To date foreign EIA experts dominate the EIA consultancy field
- The EIA process is handicapped by a smaller number of trained available and competent staff
- Developers present Environmental Impact statements which invariably support the case for project approval
- Insufficient information relating to the proposal and environmental impacts
- Poor baseline information/omission of relevant information which leads to deficiencies in analyses
- Too much reliance on opinion rather than substantive scientific evidence
- Failure of EISs to meet requirements stipulated in the Regulations
- EIAs containing extraneous or non essential information
- Lack of commitment of co-opted members of the Technical advisory Committee to the review process.
- Some key components in the EIA studies e.g. Cost-Benefit Analysis and resource valuation are not covered adequately in most reports. Likewise, advanced techniques of impact evaluation are rarely applied.
- EISs are prepared using consultants hired by proponents. This process is essentially flawed

- Developers consider the EIA process as stringent
- Developers use EIA essentially in order to get some other permits to allow projects to start. Once an EIA certificate is obtained, the EI statement is shelved.

3.2 Environmental Audit and Monitoring

3.2.1 Monitoring

Monitoring involves measuring and recording of physical, social and economic variables associated with development impacts such as traffic flows, air and water quality, noise, employment levels (Glasson et al. 1999). The activity seeks to provide information on the characteristics and functioning of variables in time and space, and in particular on the occurrence and magnitude of impacts.

Monitoring can improve project management. It can be used, for example, as an early warning system, to identify harmful trends in a locality before it is too late to take remedial action. It can help to identify and correct unanticipated impacts. Monitoring can also provide a database which can be useful in mediation among interested parties. Thus, monitoring of the origins, pathways and destinations of, for example, dust in an industrial area may clarify where the responsibilities lie. Monitoring is also essential for successful environmental impact auditing, and can be one of the most effective guarantees of commitment to undertakings and to mitigation measures (Glasson et al. 1999).

It is stipulated in EMA, 2004, that: *the Council shall in consultation with the relevant sector, Ministry or Government Agency, monitor all environmental criteria and phenomena with a view to making an assessment of any possible changes in the environment and their*

possible impacts; and the operation of any project or undertaking with a view to determining its immediate and long term effects on the environment.

In monitoring it is essential to note that parameters to be monitored are indicated in a matrix plan showing frequency of monitoring, institutional arrangement and the monitoring costs in the EIA reports.

In the case of Tanzania only a few projects have been monitored since the enactment of the environmental law. Now that the mechanism for the review of EIA reports is in place, NEMC has been instructed to institute a mechanism for the monitoring of the implementation of projects that have been issued with EIA Certificates.

3.2.2 Environmental Audit

Environmental Auditing has two aspects: *Environmental impact auditing* involves comparing the impacts predicted in an Environmental Impact Statement (EIS) with those that actually occur after implementation, in order to assess whether the impact prediction performs satisfactorily (Therivel *et al.* 1999). The audit can be of impact predictions (how good were the predictions?) and of mitigation measures and conditions attached to the EIA certificate.

Environmental management auditing focuses on public and private corporate structures and programmes for environmental management and the associated risks and liabilities.

Environmental auditing is about the systematic, documented, periodic and objective evaluation of how well an organization, management and equipment are performing in conserving the environment (EMA 2004). In EMA 2004 (Section 101) it is stipulated that, "*the proponent or operator of a project or undertaking for which an EIS has been made*

shall keep accurate records and make annual reports to the Council describing how far the project conforms in operation with statements made in the Environmental Impact Statement". And in sub section (4), it is stated that *"the proponent or the operator of a project or undertaking shall take all reasonable measures to mitigate any undesirable effects not previously anticipated in the EIS and shall prepare, for submission to the Council, a comprehensive report of those measures, on an annual basis or as the Council may, in writing, direct".*

The exercise of auditing invariably leads to the preparation of an Environmental Management Plan (EMP). Following such an audit a project developer is duty bound to implement the EMP. Auditing should reduce time and resource commitments to EIA by allowing all participants to learn from past experience; they should also contribute to a general enhancing of the credibility of proponents, regulatory agencies and EIA processes.

EIA and Audit Regulations, 2005 stipulate that, *"a control audit shall be carried out by the Council whenever the Council deems it necessary to check compliance with the environmental parameters set for the project or to verify self auditing reports".*

3.2.2.1 Status of Environmental Audit in Tanzania

Before enactment of EMA, 2004 there was no project that had been subjected to an environmental audit. Following the enactment some projects have complied with it and have undertaken self, internal, audits. For the financial year 2006/07 five (5) ongoing projects were subjected to internal, self-audits. NEMC is also mandated to carry out control audit. In 2006 NEMC carried out seven (7) control audits of on-going projects.

4.0 Accounting for Emissions that cause Climate Change

Tanzania's environmental resources upon which people's livelihood and the productive and growth sectors depend, are in the main, climate sensitive sectors. Tanzania's economy can therefore aptly be described as a climate sensitive economy. The vulnerability to impact of climate change is increasingly becoming a national and an international concern[12].

The World has warmed up by an average of 0.7 °C over the last 200 years, essentially due to the anthropogenic atmospheric build up of greenhouse gases. If the present trend of emissions continue the resultant climate change will be irreversible. Scientists estimate a temperature rise of between 3 °C and 5 °C in the next 100 years. The question is no longer weather climate will change but rather what is and what would be the magnitude, how fast in terms of the rate of change, and where, in terms of regional patterns[12]. What is beyond dispute is that developing countries are most impacted by climate change, and they contribute least to the phenomenon.

In conformity with the relevant provisions of the United Nations Convention on Climate Change (UNFCCC), Parties are supposed, and do regularly report using a standardized methodology, emissions by sources, and removal by sinks, of greenhouse gas emissions. Accounting for greenhouse gas emissions is an important and necessary step in the mitigation of climate effects. Developed countries are legally bound by the Kyoto Protocol to reduce emissions to levels of 1990, by the year 2012. Proper and correct accounting for greenhouse gases has an added and important dimension.

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12 Prof. Mwandosya M. J. Mainstreaming Environment and Climate Change concerns in National Planning in Tanzania, September, 2006

The Clean Development Mechanism (CDM) is a Kyoto-based cooperative mechanism that allows Developed Countries to earn certified emission reductions (CERs) by investing in sustainable development in developing countries.

Innovative and somewhat novel market-based mechanisms have sprung up in the last ten (10) years in order to facilitate Developed countries meet their obligations under the Kyoto Protocol. Incidentally the writer of this paper was, together with others, instrumental in the adoption of the Kyoto Protocol. For, he chaired the Group of 77 and China, spoke for the Group of 77 and China in the negotiations that led to the Kyoto Protocol[13]. It is estimated that the Global Carbon Market traded over US$.30 billion in 2006, having risen from a mere US$ 1 billion into 2004.

Accounting for greenhouse gas emissions and auditing of the same has taken a global significance, in order to minimize possibilities of phenomenon such as "hot air", leakages, and perverse incentives in the mitigation of the gases.

5.0 CONCLUDING REMARKS AND RECOMMENDATIONS

The paper has discussed the resource endowments of the country. It has highlighted the environmental profile indicating the natural resource potential and its contribution to economic development. Challenges of and threats to this potential have been outlined. Initiatives in the form of key policies and strategies that relate to the promotion of environmental management have been discussed.

One might ask what do auditors have in common with the state of the environment? The use of performance audit tools in environmental

13 Prof. Mwandosya M. J. 1999, Survival Emissions, A perspective from the South on global Climate Change negotiations. Dar es Salaam University Press/CEEST (Publishers)

evaluation should improve governance and accountability in the exploitation and use of natural resources and enhance environmental management.

By way of conclusion, the following recommendations could be considered:-

a) Need for increased awareness with respect to environment economy linkage for economists, accountants and auditors.

b) Capacity building in the area of environmental accounting and auditing should be given priority.

c) Mechanisms should be established to integrate natural resource accounting into the National Accounts.

d) Economic instruments (fees, charges, and other payments) for environmental services should be developed.

e) Links among financial and environmental institutions should be strengthened. Environmentalists and auditors could consider forming "Clubs" that would provide a platform for information exchanging and sharing

f) Financial accountants and auditors need to be trained in EIA and EA methodologies.

The United Nations Environment Programme (UNEP) has defined Cleaner Production (CP), a now widely use concept *"the continuous application of an integrated preventive environmental strategy applied to processes, products, and services to increase overall efficiency and reduce risks to human and the environment"*. This is a departure from pollution control which involves use of end of-pipe

technologies or control after-the-event. It is a "react and treat" (reactive) approach. Cleaner production is forward-looking, an anticipate-and-prevent (proactive) philosophy.

Auditing, including environmental auditing is generally perceived, perhaps, wrongly as being rooted in the react-and-treat approach. The overaching challenge is therefore how to integrate environmental assessment and auditing through use of the proactive cleaner production anticipate-and-prevent approach.

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