NATIONAL ENVIRONMENT MANAGEMENT COUNCIL

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SITUATION, CHALLENGES AND PLANS FOR ENVIRONMENT STATISTICS IN TANZANIA

By:

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Introduction

Environment conservation and management task in Tanzania as it is in many other countries rely on timely and accurate environment data. Reliable data provides information which is correct and it can support planners and decision makers in issues related to environment.

This paper is focused on providing information on the efforts done so far in Tanzania, to ensure environment statistics data are gathered apart from being complex as they involves diverse variables from: biodiversity, land, soil, atmosphere, water and human settlement. Reasons which led to the establishment of a Department that deals with Environment Statistics at the National Bureau of Statistics and the importance of collecting environment data are provided. You will understand that a database titled "Social Economic Database (TSED)" was established under the National Bureau of Statistics. The main objective of TSED is to collect social economic data in which environment is one of the key indicators.

Reasons which forced National Bureau of Statistics to start a socio-economic database to store data related to social, economic and environment indicators. Also measurement units, the role of stakeholders, data sources, and constraints encountered are highlighted.

The Beginning of Environmental Data Collection in Tanzania

The idea about Environment data gathering in Tanzania started early in 1990s. In 1994 the "Statistics of Sweden" assisted National Bureau of Statistics (NBS) to produce the first publication titled "Environmental Statistics in Tanzania Mainland". However, the pamphlet had few environmental indicators but indeed, it was an important source of environmental information which was well organized to assist decision makers. Apart from its importance, the publication was static because National Bureau of Statistics lacked formal Section responsible for data collection, compilation, updating and dissemination to the general public. This problem forced National Bureau of Statistics to establish a department responsible for environmental statistics in 2004.

Environmental Policy (NEP)

People's awareness on environmental issues in Tanzania continued to grow when the National Environmental Policy (NEP) was drafted in 1996 and completed in 1997. The policy stipulated weaknesses in the legal and institutional framework for environmental management and problems facing the country.

The National Environment Policy highlighted major environmental problems in Tanzania which are: land degradation, lack of accessible good quality water for urban and rural inhabitants and environmental pollution. Other problems are loss of wildlife habitats and biodiversity, deterioration of aquatic systems and deforestation. Sources of deterioration of state of the national environment include inadequate land and water management at various levels, inadequate financial and human resources and inadequate terms of international trade, the particular vulnerable nature of some environments and the rapid growth of urban and rural population. More factors contributing to environmental deterioration are inadequate monitoring and information, lack of information systems and inadequate capacity to implement programmes. These factors continued to create pressure on natural resources because the country had inadequate capacity of implementing programmes, inadequate involvement of major stakeholders e.g. (local

communities, non-governmental organization and the private sector) to solve environmental problems. Also there was inadequate integration of conservation measures in the planning and development of programmes.

The National Environment Policy spelt out the need for data collection for monitoring and evaluation for the effectiveness of the policies to be used during the period. On the other hand, the Office of the Vice President (Division of Environment) and National Environment Management Council (NEMC) were given the mandate of data collection on environment issues.

The Current Policy framework of Environment in Tanzania

At the moment the Government of Tanzania is focusing on addressing the Millennium Development goals (MDGs) and its development vision (Vision 2025) to reduce poverty. Based on this vision Tanzania developed and implemented a poverty reduction strategy (PRS) from 2001/2002 to 2004/2005. It also continues on to prepare and complete a five-year national Strategy of Growth and Reduction of Poverty (NSGRP), which in Kiswahili language is known as (MKUKUTA). This started in July 2005.

The main objective of MKUKUTA is to ensure the growth and reduction of poverty in order to have sustainable reasonable growth. Based on MKUKUTA it is expected that the following will occur: reduced negative impacts on environment and people' livelihood, reduced land degradation and less loss of biodiversity, and provision of reliable and affordable energy to consumers.

In order to achieve the above challenges the importance of environmental statistics data collection continued to rise. The National Bureau of Statistics being one of the institutions responsible for the production of statistical data in Tanzania, continued to put emphasise on the collection of data from various sources to feed into the Poverty Monitoring system. At the moment, it is serving as both chair and secretariat for the Census and Surveys Technical Working group (C&STWG) and the Poverty Monitoring

Systems (PMS).

The Role Played by Bureau of Statistics in Environment Statistics Data Collection

The National Bureau of Statistics performs its activities based on the Statistics Act of 2002. Its main objectives involve collection, compilation, analysis and publication of statistics information on economic, social and cultural activities. It also conducts census in Tanzania and disseminate the information to the general public.

All data collected at Bureau of Statistics is kept in one database called Tanzania Social Economic Database (TSED). The database is complex because it involves data on economic, social, cultural and environmental indicators. Due to this point, National Bureau of Statistics decided to involve various stakeholders e.g. Ministries, Sectors and NGOs in data collection. To achieve this goal National Bureau of Statistics organised various workshops to train key stakeholders on how to collect accurate social economic data. In year 2000, National Bureau of Statistics in collaboration with 17 Ministries and Government Institutions and supported by UNDP, UNICEF and DFID established the Tanzania Social Economic Database. In phase II which started in 2003, a number of other Ministries joined the TSED activities. The main objective of TSED is to allow an overall, up-to-date on the socio-economic situation in Tanzania and to facilitate use of data for analysis by policy makers and other users. TSED gathers quantitative data coming out of the Poverty Monitoring System, established in the context of the Poverty Reduction Strategy Paper (PRSP). The database was created as an important tool for National Bureau of Statistics to assert itself as the key institution for socio-economic data collection, management and dissemination.

The TSED is source of information which was used in the first publication on "Environment statistics in Tanzania" in 2005 from National Bureau of Statistics. The publication tried to update the first one published by the "Statistics of Sweden". The publication has information on agriculture, forestry, Fisheries and Wildlife, Energy, Landuse and Pollution. Others are Environmental Quality, Environmental Protection and

Environmental Health and Sanitation.

Contribution of NEMC to the Tanzania Social Economic Database

The National Environment Management Council (NEMC) was established in 1983 when the Government of Tanzania enacted the National Environment Management Act No. 19 of 1983. NEMC was established because there was high demand of a national institution to supervise environmental management issues. Also to implement the resolutions of the Stockholm Conference (1972) which requested all nations to establish and strengthen national environmental Councils responsible for advising governments and the international community on environmental matters. More efforts to strengthen NEMC came into being when the enactment of Environmental Management Act No. 20 of 2004 (EMA, 2004) by Parliament in October 2004, repealed the National Environmental Management Act No.19 of 1983 to re-established NEMC.

Environment Management Act No. 20 of 2004 provides for a legal and institutional framework for sustainable management of the environment: Prevention and control pollution, waste management, environmental quality standards, public participation, environmental compliance and enforcement. In addition, it gives NEMC mandates to undertake enforcement, compliance, monitoring and review of environmental impacts assessments, research, facilitate public participation in environmental decision-making, raise environmental awareness, collect and disseminate environmental information. Due to its responsibility, NEMC is one of the National Bureau of Statistics stakeholders. NEMC is responsible for providing Pollution and Prevention data to TSED.

Compiled Indicators in the Tanzania Social Economic Database

The National Bureau of Statistics and stakeholders continues to collect Environment statistics data daily. Unpublished data is not accepted by the National Bureau of Statistics for input into TSED. Accepted data is stored and made accessible to the general public through the National Bureau of Statistics Website. The database is compiled by number

of stakeholders. In addition there are other supporters e.g. UNDP, UNICEF, UNFPA, and Department for International Development (DFID) and Research on Poverty Alleviation (REPOA). The Tanzania Social Economic Database is done in collaboration with Zanzibar Ministries and Departments since its commencement.

The development of TSED started gradually but it continues to grow depending on the demand. New ideas on how to improve it continued to emerge leading sometimes some indicators to be shifted from one institution to the other. This happen because Environment is a crosscutting issue which appears in almost every Ministry and Institution. This problem was solved in 2006 when information on who should collect what type of environment indicator according to policies set by each of them was accepted in a meeting.

Data sources

Currently there are over 20 Ministries and Government Institutions which are supported by some International Organisations, (already mentioned) involved in data collection. The list of stakeholders is attached in annex 1. Techniques for collecting Social economic data vary from cadastral mapping, GIS data analysis, censuses, remote sensing and sample surveys.

The social economic data indicators which are collected in Tanzania are almost similar to those collected in USA and United Kingdom. They focus on: Inland water quality, coastal and marine waters, environmental protection and expenditures by industry, global, atmosphere, ecosystem status (landuse and land cover), and introduction to toxic or hazardous substances, climatic research, noise, radioactivity waste, recycling, wildlife and public altitudes as is indicated on table 1.

Table 1: Social Economic Indicators in Tanzania in 2006

No	Module	Class	Available Indicators
1	Agriculture	1	6
2	Communications	2	4
3	Demography	3	48
4	Economy	5	81
5	Education	7	97
6	Environment	*Energy Use (14-indicators)* *Natural Resources (11-indicators)* *Sanitation (8-indicators)* *Water (11-indicators)* *Pollution (5-indicators)* *Protection (2-indicators)*	51
7	Government	4	10
8	Health	7	74
9	HIV/AIDS	2	25
10	Households	6	69
11	Labour Force	6	81
12	Nutrition	4	14
13	Transport	2	5

Source: (National Bureau of Statistics, 2005)

Information sharing

The TSED database has been designed using Microsoft Access and programming done using Microsoft Visual Basics. It is integrated with Microsoft Office and it contains customized wizards to generate 3 types of presentations dynamically linked to the database e.g. maps, tables, and graphs. The use of Microsoft Office to design the database was considered because of the user-friendliness of the tools, as well as the availability of these tools in almost all computers in the country and also to ensure that no new software

tools are required for the database to run. In addition, a version of ArcView has been fixed into the database, and this helps to generate maps. Data is linked to the shape files using a unique geo-code. In this case TSED is a user friendly database designed to be shared by all without extra efforts.

Units of Measurement

The units of measurement depend on the type of variable collected.

Periodicity of Data Collection

Collection of data for the TSED is normally collected in daily basis. What is important is that stakeholders are required to provide published data to National Bureau of Statistics.

Table 2: Example of a form used in Social Economic Data collection

Data entry form	
Sector	*Environment*
Class	*Pollution*
Indicator	*Pollution load to surface water resources*
Unit	*Kg/day*
Time	*2005*
Area Id	*AFRTZA001*
Area Name	*Mainland*
Datavalue	
Subpopulation	*Total industrial Effluent, Pit latrines, septic tanks without facilities, suspended solids, dissolved solids..*
Source	*National Bureau of Statistics*

Source www.tsed.org

Method of Collection

The National Bureau of Statistics provided one computer and printer to every stakeholder to facilitate data collection and access. This was done after a special training organised by National Bureau of Statistics to educate stakeholders on how to collect social economic data and who should collect what type of data to avoid duplication of efforts. In this case, each stakeholder collects data on indicators assigned to their institution. Collected data is then analysed and published. The published information is sent to the National Bureau of Statistics by each independent stakeholder where is approved for input into Tanzania Social Economic Database. After authorization the same data is returned to the responsible stakeholder who collected it. At this stage, the stakeholder is allowed to input into the computer which is linked to the main server located at National Bureau of Statistics headquarters. After such process data is ready for use by stakeholders, general public or National Bureau of Statistics.

The Secret of Successes in Data Collection

Strong collaboration among institutions involved in data collection is very important to achieve the goal. Every stakeholder plays its part in a committed manner to avoid data gaps. Problems are sorted out soon when they arise. In this way improvement continues to occur as stakeholders gained experience in data collection, input into the computer, analysis and report writing.

Limitations

Some constraints which contributed to slowing down the process of gathering Social Economic Data vary from one institution to the other. In NEMC power fluctuations renders malfunctioning of some equipment, limited number of sites and short sampling period. These factors contributed to slow down the compilation of results and analysis of air pollution data which are required to in the TSED. In this case although the Environmental indicators within the social economic database are collected by different

stakeholders NEMC has not been able to provide data due to some problems. For instance, the Socio economic database requires data which covers the country, but NEMC has various data which covers few regions or district only. This is a challenge to NEMC that they should solve this problem.

Future plans

Future plans for National Bureau of Statistics is to collect data on all suggested social economic indicators. The data will be analysed and reports disseminated to the general public. On the other side, NEMC is planning to establish a Central Environment Information Systems (CEIS) which will be located in NEMC in the financial year 2007/2008. Development of CEIS at the National Environment Management Council is in accordance with Section 174 of the Environment Management Act (EMA) No. 20 of 2004. The idea behind the establishment of a Central Environmental Information Systems operating among other tools in NEMC is to enable it to achieve its mission and vision. The CEIS will support the day to day operations of all the NEMC departments as well as make the Tanzania environmental information available and accessible to all stakeholders within Tanzania and abroad.

The establishment of a CEIS in NEMC will follow the following steps:
- Develop the environmental information system at NEMC for managing the environmental information of the NEMC departments
- Take Stock of the existing environmental information in various sectors and develop a metadatabase
- Develop standards and formats that will allow environmental information and data sharing and exchange.
- Coordinate and facilitate establishment of sector environmental information system (EIS)
- Link the sector environmental information systems to form a Central Environmental Information System – CEIS.

Various stakeholders indicated in figure 1 and Departments within NEMC namely (Directorate of Environmental Information Communication and Outreach (DEICO),

Directorate of Planning and Research (DEPRI), Directorate of Environment Impact Assessment (DEIA), Directorate of Environment Compliance and Empowerment (DECE), Legal and Internal Audit) will provide data for the CEIS. Figure 1 also indicates the structured flow of environmental information among stakeholders. The arrows show information flow from Sectors to CEIS and from CEIS to Sectors and the general public.
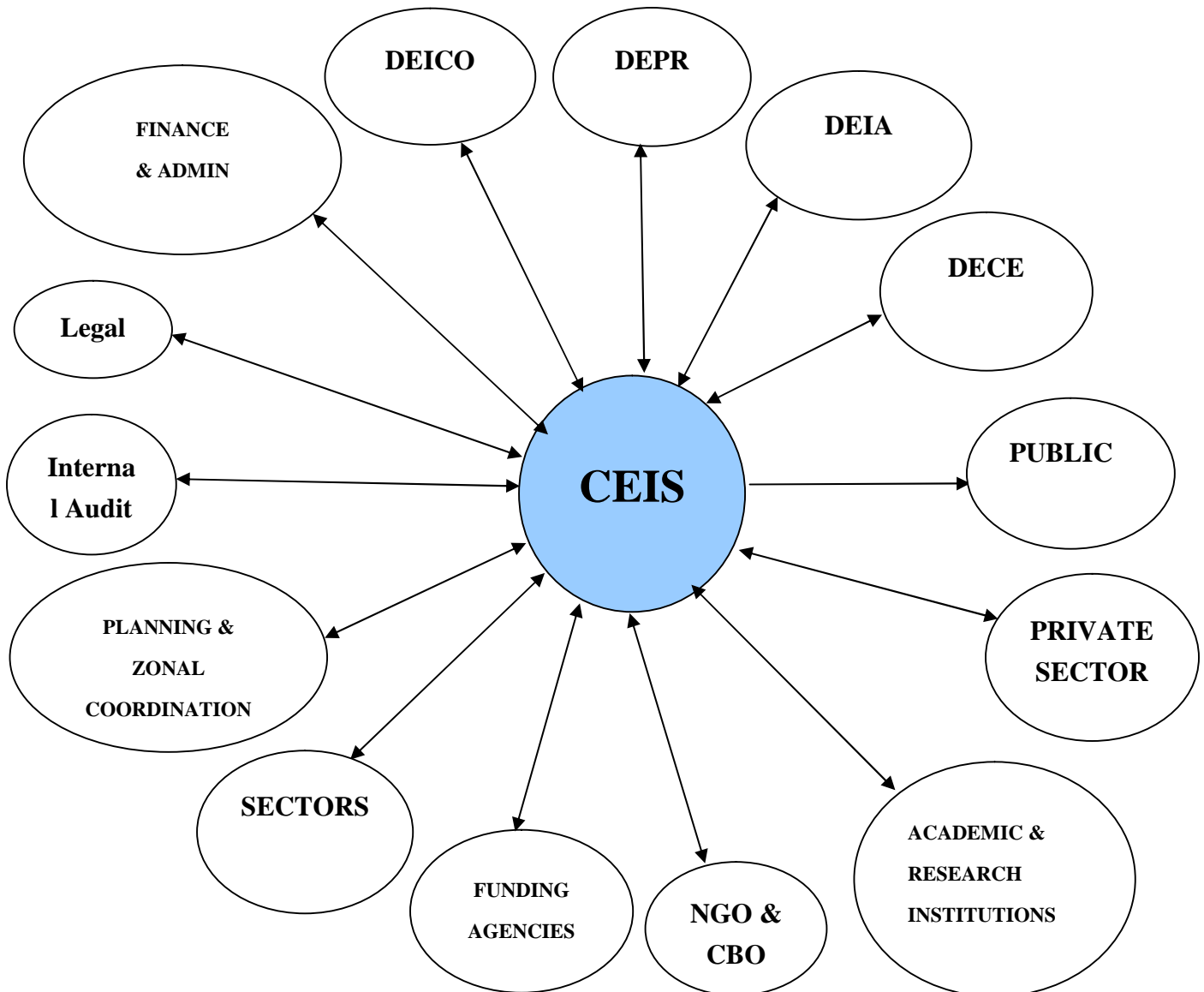

Figure1: Structure of a Central Environment Information Systems to be established in NEMC

Conclusion

Tanzania like many other countries in Africa started to work actively on the collection of environmental statistics data immediately in 1990s to assist in monitoring and assessing the environment. Unfortunately each institution was collecting data independently and finally there were different datasets scattered in various parts of the country. Data collection practices in such manner some times contributed to duplication of efforts in which the same type of data was collected by different institutions at the same time leading to wastage of resources unknowingly. In order to overcome this problem the National Bureau of Statistics organised a meeting where new ideas on how to collect environment statistics data in a joint manner was discussed. From that time a Social Economic Database located at National Bureau of Statistics was created. The success in data collection is based on strong collaboration among the responsible institutions.

In future, the National Environment Management Council will establish a Central Environment Information to handle environmental information and data produced in the country. Data will be provided by Environmental Officers in all Ministries and Departments as is stipulated in EMA 2004. Others will be stakeholders from other institutions as it was agreed in a meeting which was organised during the study on the establishment of a Central Environment Information System in NEMC. The study on how to go about this is complete. In the financial year 2007/ 2008 CEIS will start slowly and grow depending on demand and lesson learned.

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www.nemctan.org
www.tsed.org

Annex 1: List of various institutions involved in Tanzania Social Economic Database

No	Institution
1	Planning and Privatisation, P .O Box 9242, Dar es Salaam. (Attn: Director, Micro Economy Division)
2	Permanent Secretary, Vice President's Office, Poverty Eradication Division, P. O. Box 5380, Dar es Salaam.
3	Permanent Secretary, President's Office, Regional Administration and Local Government, P. O. Box 1923, Dodoma. (Attn: director, Planning Policy
4	Permanent secretary, Ministry of cooperative and Marketing, P.O. Box 291, Dodoma. (Attn: Director of Planning and Policy)
5	Permanent Secretary, Ministry of foreign Affairs and International Cooperation, P. O. Box 9000, Dar Es Salaam
6	Permanent Secretary, Ministry of Agriculture and Food Security, P. O. Box 9192, Dar es Salaam. (Attn: Director of Planning and Policy)
7	Permanent Secretary, Ministry of Finance, P. O. Box 9111, Dar es Salaam. (Attn: commissioner for Policy analysis)
7	Permanent Secretary, Ministry of Water and Livestock Development, P. O. Box 9153,

	Dar es Salaam. (Attn: Director of Planning and Policy)
8	Permanent Secretary, Prime Ministers Office, P. O. Box 3021,
	Dar es Salaam. (Attn: Director of Planning and Policy)
9	Permanent Secretary, Ministry of community Development, Women Affairs and Children, P. O. Box 3448, Dar es Salaam. (Attn: Director of Planning and Policy)
10	Permanent Secretary, Ministry of Health, P. O. Box 9083, Dar es Salaam. (Attn: Director of Planning and Policy)
11	Permanent Secretary, Ministry of Natural Resources and Tourism, P. O. Box 9372, Dar es Salaam. (Attn: Director of Planning and Policy)
12	Permanent Secretary, Ministry of Education and Culture, P. O. Box 9121, Dar es Salaam. (Attn: Director of Planning and Policy)
14	Permanent Secretary, Ministry of Labour, Youth Development and Sports, P. O. Box 9014, Dar es Salaam. (Attn: Director of Planning and Policy)
15	Permanent Secretary, Ministry of Science, Technology and Higher Education, P. O. Box 2645, Dar es Salaam. (Attn: Director of Planning and Policy)

16	Permanent Secretary, Ministry of Home Affairs, P. O. Box 9223, Dar es Salaam. (Attn: Director of Planning and Policy)
17	Permanent Secretary, Ministry of Industry, Trade and Marketing, P. O. Box 9503, Dar es Salaam. (Attn: Director of Planning and Policy)
18	Permanent Secretary, Ministry of Infrastructure Development, P. O. Box 9144, Dar es Salaam. (Attn: Director of Planning and Policy)
19	Permanent Secretary, Ministry of Energy and Minerals, P. O. Box 2000, Dar es Salaam. (Attn: Director of Planning and Policy)
20	Permanent Secretary, Ministry of Lands, Housing and Human Settlements Development, P. O. Box 9132, Dar es Salaam. (Attn: Director of Planning and Policy)
21	Chief Executive Officer, East African Statistics Centre (EASTC) P.O. Box 35103, Dar es Salaam.
22	Director General, National Environment Management Council P. O. Box 63154, Dar es Salaam. (Head of Information Systems Management Department)
23	Managing Director, Tanzania Food and Nutrition Centre, P. O. Box 977, Dar es Salaam. (Attn: Head of MIS Department)

24	The Governor,
	Bank of Tanzania,
	P. O. Box 2939,
	Dar es Salaam. (Attn: directorate of Economic Policy)