NTEAP
Environmental Education and Awareness Program

Tanzania: Initial Country Environmental Education and Awareness Review 2005

K. M. O-saki
Faculty of Education
University of Dar es salaam

Abbreviations and Acronyms

ASCF	Annual Stakeholders Consultative Forum
BCS	Biodiversity Country Study Report of 1998
CBD	Convention on Biological Diversity
CBO	Community-based Organization
CSOs	Civil Society Organizations including local and international NGOs, as well as CBOs, groups of peoples organized for special purpose
COSTECH	Commission for Science and Technology
DEC	District Environment Coordinators
EAC	East African Community
EE	Environmental Education
EE&A	Environmental Education and Awareness
ESD	Education for Sustainable Development
IKS	Indigenous Knowledge Systems
ISC	Inter-ministerial Steering Committee
IUCN	International Union for Conservation of Nature
JET	Journalist Environmental Association of Tanzania
LGA	Local Government Authority
LSM	Learning Support Materials
MAFS	Ministry of Agriculture & Food Security
MCDWC	Ministry of Community Development Women Affairs and Children
MCT	Ministry of Communication and Transportation
MEM	Ministry of Energy and Minerals
MLHS	Ministry of Lands and Human Settlements Development
MNRT	Ministry of Natural Resources & Tourism
MEC	Ministry of Education & Culture
MoHEST	Ministry of Higher Education Science & Technology
MW	Ministry of Works
MWLD	Ministry of Water and Livestock Development
NAP	National Agriculture Policy
NEAP	National Environmental Action Plan
NECTA	National Examination Council of Tanzania
NEECS	National Environmental Education and Communication Strategy
NGOs	Non-governmental Organizations
NEMC	National Environment Management Council
NEP	National Environment Policy
NFP	National Forest Policy
NFiP	National Fisheries Policy
NWP	National Water Policy
OUT	Open University of Tanzania
PRSP	Poverty Reduction Strategy Paper (for Tanzania)
PA	Protected Areas
PO-PP	President's Office Planning and Privatization
PO-RALG	Presidents Office Regional Administration and Local Government
REA	Regional Environment Advisors
RWSSP	Rural Water Supply and Sanitation Programme
SADC-EEPI	Southern Africa Development Community EE Policy Initiative
SUA	Sokoine University of Agriculture

TCU	Technical Coordinating Unit
TAFIRI	Tanzania Fisheries Research Institute
TAFORI	Tanzania Forestry Research Institute
TANAPA	Tanzania National Parks
TAS	
TIE	Tanzania Institute of Education
UCLAS	University College of Lands and Architectural Studies
UDSM	University of Dar es Salaam
UNDoESD	United Nations on Education for Sustainable Development
UNCED	United Nations Conference on Environment and Development (1992 Rio –Brazil)
URT	United Republic of Tanzania
VPO	Vice President's Office
WCED	World Commission on Environmental and Development
WSSD	World Summit on Sustainable Development (2002 Johannesburg, South Africa)
WWF	World Wide Fund for Nature

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1.0 BACKGROUND

The United Republic of Tanzania (URT) is country comprising an area of 945,000km^2 with 21 regions (Mainland) and five in Zanzibar. Its diversity embraces the physiographic and climatic factors, including biodiversity endowments as well as cultural, social and economic aspects.

The Tanzania's natural resources are among the richest in the world. Protected area (PA) networks (national parks, game reserves, the Ngorongoro Conservation Area, game protected areas and forest reserves) cover about 40% of the total land area. Together, with the marine parks and reserves, they form a great potential for generating national income from tourism, hunting, fishing, lumbering and other activities (URT, 1998).

The country performs varied economic and social undertakings ranging from land-based to water-based activities. Main engagements include agriculture, industrial establishments, fisheries, livestock keeping, generation of energy, communications, transportation, provision of utilities, education and health services at different levels and many others.

In terms of culture, Tanzania is unified under one national language, namely Kiswahili and the interactions existing among the people. However, the existing diversity in culture is a manifestation of broad ethnicity most of whose livelihoods still depends. For example, the dependence on nature and its natural resources has for centuries made many Tanzanians entangled in its natural environment and idynamism.

Tanzania is faced with many environmental problems and issues which are a crucial challenge to sustained development. Thus according to the National Environment Policy (NEP) and the National Environmental Action Plan (NEAP), the country is faced with six major environmental problems. These include:
Land degradation;
Lack of accessible, good quality water for urban and rural inhabitants;
Loss of wildlife habitats and biodiversity;
Deterioration of aquatic eco-systems;
Deforestation and
Environmental pollution

2.0 POLICY AND INSTITUTIONAL FRAMEWORK

The Institutional Framework

In Tanzania, environmental and conservation issues are managed under the jurisdiction of the National Environment Management Council (NEMC) as an implementing arm of the Government. NEMC is an organisation under the Vice-President's Office which is charged with environmental management at ministerial level. Other sectoral ministries such as water and livestock development, natural resources and tourism, agriculture and food security and others are charged with managing their respective sectors. It is only when there are issues which are seen to be inter-sectoral that collaborative initiatives are made. The Vice-President's Office (VPO) with the portfolio as other ministries it is unwittingly regarded as a live ministry in this respect.

The environment is an assortment of many components which require different managers. Thus the Government of Tanzania has compartmentalized it into various ministerial portfolios. Apart from the VPO there are many stakeholders including ministries responsible for natural resources (forestry, wildlife and fisheries) and tourism, agriculture and food security, water and livestock development, industries and trade, transportation, works, land and urban development, and many others. This mode of environmental management has its merits and demerits. While it makes execution easy on the one hand, on the other hand it compartmentalizes the environment as if it is made up of discrete components. Taking the latter as a case in point, there is likelihood of leaving gaps or duplicating efforts and injudiciously using the meagre resources.

The overseers of education as a discipline are the Ministries of Education and Culture (MEC), from pre-school to higher secondary level, and Ministry of Science Technology and Higher Education (MSTHE) for tertiary and university levels as well as scientific and technological advancement. While the Tanzania Institute of Education (TIE) is charged with development of curricula for primary and secondary level, education at tertiary and university level is left with the academic institutions themselves to decide on what is 'viable education' for its learners, under sthe approving eye of the Higher Education Accreditation Council. In the same vein the National Examination Council of Tanzania (NECTA) is responsible for setting and overseeing examinations for primary and secondary school level students. Examinations at higher levels are handled by the hands of respective institutions, with its system of validation by external examiners from similar institutions across the region.

In terms of pedagogic education things may seem fitting but unless effectively coordinated and supervised the output for all the institutions responsible for basic and professional education may not be in the national interests. In the case of sectoral tertiary education institutions such as those responsible for financial management, administration, technological advancement, technical institutions and others, the coherence might not even exist. They address issues from a sectoral point of view, have their set and inflexible priorities, want to abide by respective ministerial plans and targets and as a leverage for survival they should deliver what they are expected of by 'mother' ministries.

Since there is a wide range of actors involved in the facets of environmental education (EE), a harmonized and coordinated framework for effective and efficient management of activities and resources is necessary. The VPO and MOEC at central government level and President's Office Regional Administration and Local Government (PO-RALG) are regarded by the National EE and Communication Strategy (NEECS) to be responsible for overall coordination of EE initiatives (for Vision, Mission and Objectives see Appendix 1). For effectiveness NEMC is expected to do the backstopping, oversee and monitor EE contents and implementation methods. Meanwhile the Local Government Authorities (LGAs) in regions and districts are expected to be responsible for coordinating EE for the primary level in their respective districts. These institutions will play a leading role of setting the right mechanisms to ensure effective implementation at national and lower levels. [The roles for various players as stipulated in the NEECS are shown in Appendix 2 and the detailed issues for coordination are shown in Appendix 3]

Meanwhile, through the Inter-ministerial Steering Committee (ISC) and the Technical Coordinating Unit (TCU) at NEMC, are responsible for bringing together, harmonizing and coordinating various players. The key ministries include, Ministry of Works (MW), Ministry of Communication and Transportation (MCT), Ministry of Lands and Human Settlements

Development (MLHS), Ministry of Community Development Women Affairs and Children (MCDWC), the President's Office Planning and Privatization (PO-PP) and Ministry of Agriculture and Food Security (MAFS), Ministry of Energy and Minerals (MEM), Ministry of Natural Resources and Tourism (MNRT).

The coordination mechanisms recommended for ISC constitutes Permanent Secretaries of the lead and collaborating Ministries and Heads of key institutions. The ISC will be having the supervisory role of the NEECS programmes including monitoring its implementation to ensure that the goals are being achieved. The TCU draws members from VPO, MEC and PORALG, that will oversee the daily NEECS implementation and also serve as the Secretariat for the ISC.

There is an Annual Stakeholders Consultative Forum (ASCF) involving all key stakeholders including civil society organizations (CSOs) and the private sector. The forums are expected to be organized by the VPO. The forum will review progress in implementing the NEECS and its path in achieving objectives. The emphasis is to review stakeholders' participation in implementing respective roles, improve networking and harmonize EE programmes. The Regional Environment Advisors (REA) from the Regional Secretariats are advisers for implementation of environmental programmes including the NEECS at regional levels. The REA will form a link between regions, PORALG and districts.

The District Environment Coordinators (DEC) have the role of planning and implementing NEECS related activities in the districts. The DEC works work with the relevant standing committees/sub committees responsible for environmental issues in the Council. It is expected that the chain will flow down through the Ward to the Village Committees where actual interventions will take place such as through the school committees, Village Environment Committees and others. This will involve designing and supervising the implementation of EE programmes, mobilizing resources (financial, human and technical) for local development programmes and supporting villages to stimulate sustained EE programmes. However, critical issues will involve multi-sectoral planning, coordination and implementation.

At the levels of regions and districts the NEECS stipulates the implementation of EE to be the role of the government machineries. This negates the fact that most of environmental management activities and EE inclusive are widely carried out by the CSOs at local and even up to national levels. What is important is to see that these are equal players that deserve similar recognition.

2.2 The Policy Framework

In Tanzania motives and initiatives for protection of wildlife began many years ago, during the colonial era. This was followed up in 1961 immediately after independence by the first President of Tanzania, who brilliantly drove conservation ideals towards the country's endowment as shown in Box 1 in the Conservation Declaration. In this regard the declaration did not prescribe the means for conserving these endowments but it was inherently perceived that education should be one of the tools to achieve the declaration.

Box 1: The Conservation Declaration

The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild creatures amid the wild places they inhabit are not important as a resource of wonder and inspiration but are an integral part of our natural resources and of our future livelihood and well being.

In accepting the trustship of our wildlife we solemnly declare that we will do everything in our power to make sure that our children's grandchildren will be able to enjoy this rich and precious inheritance.

Though globally the notion of EE, as perceived to-date began with the Inter-governmental Conference on EE which took place in Tbilisi, USSR in 1977, the conceptual framework started to emerge and ring bells in Tanzania in the early 1990s (Bakobi, 1994). It should again be emphasized that EE as nature study, conservation education, environmental science at sectoral levels had got a long history.

In 1967, when the Arusha Manifesto was pronounced by the head of state, the late Mwalimu Julius K. Nyerere, it had a strong bias of *Education for Self Reliance*. It had a motive of education for production in schools and some became centres of agricultural production and others attained artisanal skills in carpentry, masonry, livestock keeping and others but with less emphasis put on conservation aspects. Later on the realization of education that does not necessarily focus on consumption alone was brought in force.

In the Tanzanian context education, in its broadest sense, is recognized as a prerequisite for individual and national development and as an important tool for either maintaining or transforming the *status quo*[1]. The 1995 Education and Training Policy sheds light on EE and emphatically states that education should embark on sustained development by enabling learners to interpret developmental endeavours without compromising the environment.

The need to contain environmental problems has been addressed through various means. One of the methods is application of environmental education and awareness (EE&A). Many endeavours for actuating EE&A have been initiated and are on-going throughout the country. The Government promulgated different policies and strategies aimed at maintaining the natural resources for the survival of people (see the policy statements in Appendix 4). For instance, the development of the NEP, National Water Policy (NWP), National Forest Policy (NFP), National Fisheries Policy (NFiP), National Agriculture Policy (NAP) and other policies was done to guide utilization as well as consumption of the country's natural resources.

The NEP seeks to provide policy guidelines, plans and giving guidance to the determination of priority actions, and provide for monitoring and regular review of policies, plans and programmes. Furthermore it provides for sectoral and cross-sectoral policy analysis in order to achieve compatibility among sectors and interested groups and thus exploit synergies among them. One of the objectives which is key to development of this policy is:

"To raise public awareness and understanding of the essential linkages between environment and development, and to promote individual action"

Box 1: Examples of Relevant Statements in Other Policy Frameworks

1. Developmental strategy
   …. task of integrating environmental considerations with the development objectives requires a multi-sectoral approach, the involvement of people, and a strong commitment by the government, political institutions, non-governmental and international organizations ….

Composite Development Goal for the Tanzania Development Vision 2025

The development of the NEECS and its Action Plan should be seen as further endeavour to enhance, stimulate, harmonise players' activities. It should consequently be regarded as a national effort to utilise and maintain the natural resources base for future generation while increasing and sustaining the national development motives. Thus the NEECS should be able to provide a stimulus for positive engagement of all interested bodies and stakeholders. Thus it should fulfil this by:

defining and setting the goals, objectives and principles of carrying out EE in Tanzania
identifying and categorizing stakeholders and key players in EE
delineating key mechanisms for achieving the objectives of the NEECS
providing an operational framework for the NEECS
identifying and recommending institutional arrangements for the well-functioning of EE
providing a foundation for the general Action Plan and guiding production of key players' implementation plans

At international level Tanzania has been actively involved in international forums whose foci have bearings on EE. The forums have agreements that states are committed themselves to undertake. Important accords and forums include the Belgrade Charter of 1975, Tbilisi Principles of 1977, the NGO Forum Principles, Chapter 36 of Agenda 21 (1992), various agreements on sustainable use of natural resources, conventions on Biological Diversity (CBD), Climate Change, and Ramsar), Southern Africa Development Community EE Policy Initiative (SADC-EEPI) of 1995 and the Johannesburg Declaration and Plan of Implementation (2002) – the framework for action to implementation of Agenda 21.

Moreover the country's direction is governed by the Millennium Development Goals that address *inter alia*, eradication of poverty, ensuring environmental sustainability and promotion of gender equality. The World Conference on Education for All held in Jomtein, Thailand (1990) that was endorsed by the Dakar Framework for Action on Education for All, focuses on education for sustainable development (ESD). The themes for the UN Declaration on ESD (UNDoESD) include, *inter alia*, overcoming poverty, gender equality, environmental conservation and protection and health promotion. In all forums the requirements for conceited efforts towards

formulation of educational strategies and action plans for sustained development were agreed upon.

3.0 ENVIRONMENTAL EDUCATION: THE BROAD PERSPECTIVES

The field workers working for various ministries, to many sectors are seen as change agents. They are regarded as driving forces approaching communities who do not have motivations for changing to transform the latter towards 'better' knowledge. For instance, the sectors like forestry, agriculture and livestock they are called extension workers: that is extenders of knowledge to the communities who 'do not have' expected understanding. In most cases this has been proven wrong because communities are much aware of their surrounding environment than the 'experts'. Nonetheless to an environmental educationist these workers are regarded as enhancers of knowledge that is already accumulated and embedded within communities but only lacking motivational perspective.

Disregard for taping knowledge from communities and involving them necessitated for another approach which is environmental education. As pointed out this type of education, in its broad sense and insubstantial definition was carried out for many years through many sectors. The current EE initiatives in Tanzania began in the early 1990s through the programmes launched by NEMC, MEC, MNRT and later the World Wide for Nature (WWF) – Tanzania. Thereafter EE programmes have expanded to include many players. thus in order to embark on the functioning and EE projects it is better to visit its meaning and objectives as perceived in Tanzania and other countries.

3.1 Meaning of Environmental Education

Lucas (1980) reviewed the meaning of EE and identified four foci, namely education *about* the environment, *in* the environment and *for* the environment. Aho (1990) argued for the goals of EE to focus mostly on the development of values and attitudes towards changing bad practices.
Environmental education is a continuously evolving field of study with limited acceptance at the universal definition. Hence it is currently agreed to refer to *"environmental education processes"* rather than EE as an 'entity'. The addition of the word 'processes' draws attention to the multiple forms of EE, the evolving fluidity of the concept and the open-endedness of EE aims and methods[2]. In the milieu of Tanzania, EE could be view as:

> *"A life-long process whereby individuals and the whole Tanzanian society acquire knowledge and develop ethics and become environmentally aware/conscious, responsive and develop relevant ability in identifying, managing, monitoring, evaluating and solving environmental issues and problems".*

Conceptually EE is a life-long process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific, economic and social literacy for sustainable

[2] Le Roux 1997

development initiatives. Thus EE enables one to develop commitment to engage in responsible individual and co-operative actions that will ensure an environmentally sound and economically prosperous future.

3.2 Goal and Objectives of EE

The overall ***Goal*** of EE is to develop informed citizenry and stewardship that is environmentally conscious and motivated to actively participate in managing and developing its own environment and live in harmony with it. The ***Objectives*** of EE as far as the Nile Basin Initiative is concern could be suggested as:

Becoming aware and conscious of the environmental concerns raging around and along the Nile River and the neighbouring environments
Identifying and mobilizing resources to initiate or support self-sustaining EE initiatives throughout the course of the Nile River
Acquiring knowledge, methods and skills to make informed and environmentally sound decision for sustainable development for judicious utilization of resources along the Nile Basin.

3.3 Formal EE programme

At varying extent, schools and universities engage themselves actively in the conservation and EE activities. Whereas some of such activities are integrated and guided by school curriculum, a few are carried outside the classroom in the name of environmental clubs and societies. In tertiary institutions, some agencies such as JEMA of the University of Dar es salaam do also exist. However, the focus, areas of interest and the way EE and awareness activities are conducted in schools leaves much to be desired in terms of harmonising, provision of resources e.g. textbooks and training of teachers and allocation of time.

3.3.1 EE in primary and secondary school curriculum

School curricula in primary and secondary are known to contain a significant amount of EE stuff although in a compartmentalized form. Each school subject for such as Biology, Geography and Chemistry contain what seem to be appropriate for EE in that one subject at that given level (see Annex 8). These EE contents are taught to students during regular lessons. This is very conventional and entirely guided by National curriculum.

In some schools teachers with interest in EE have been organizing what they refer to as *environmental clubs*. Such clubs are well established in secondary schools such as Mzumbe, Kilakala (in Morogoro) Azania, Makongo, Tambaza, Loyola (in Dar es Salaam) and many others with more environmental clubs. Here children not only get opportunities for field visits/ tours to nearby degraded environment where they also get to compare with natural scenes or national parks but also conduct debates, presentations and construction of simple technologies like low-fuel consuming stoves.

A couple of organizations / agencies are involved in the running of environmental clubs in schools. Organizations such as the Wildlife Conservation Society of Tanzania (WCST), GreenCom, Wildlife conservation society – New York (WCS in Southern Highlands), Roots and

Shoots, Morogoro Environmental conservation agency (MECA group) and many others as summarized in appendix 7, are recorded to work with schools attempts to develop environmental concerns and awareness among school children.

Of interest to note here is that all this effort in schools is constrained by several problems and so have so far been not very successful. The problems range from incompetence of teachers, lack of adequate textbooks that reflect Tanzania context, lack of adequate in-service training on EE methodologies, overcrowded school curriculum to lack of appropriate mechanism that could harmonise what should be going on in schools in terms of EE in and out side classroom session. We still have a long way to go before EE is successful in schools. Appropriate support is required if EE and awareness activities in schools are to fully develop environmental consciousness and concerns to the school children. So far they seem to be ineffective and un-harmonized.

3.3.2 Environmental Education and Awareness at Tertiary Institutions

As noted for schools, two facets of EE and awareness programmes in tertiary institutions may be identified. First, EE is well featured in different courses. For example, Wildlife courses, Botany, geography and Chemistry are well parked with some amount of EE stuff. As a student excels though the course s/he gets an exposure of some environmental issues related to the subject/ course under study. Coverage and treatment of EE in different courses is quite different. Approaches used to teach the courses impart more knowledge and awareness to learners than development of attitude, values and practices. The contents of courses such as Master of Resources Assessment and Management and MSc (Environmental studies) may be covering much but it is all theoretical. Regular training of instructors, supply of books and development of mechanism to guide the teaching of EE in tertially institutions is inevitable.

The second facet is the involvement of some agencies/ practitioners for example the Joint Environment Management Agency (JEMA). Such agencies have been actively involved in the development of environmental awareness among the university communities through various activities. The regular activities have always included planting of trees and gardening, greening of campus. They have also been organizing some conferences, seminars and workshop for the public.

However, there is little evidence on the existence of similar agencies in other tertially institutions despite of the fact that there are greening of campus activities going on in such institutions. Efforts to initiate EE and awareness programmes in tertiary institutions require immediate attention.

3.4 Non-formal EE Programmes

Over 200 CSOs (community-based organizations (CBOs) and the popularly recognized non-governmental organizations (NGOs), both local and international, have awareness, sensitization, lobbying and advocacy programmes. In some cases they are carrying out training programmes which could be seen as EE in the wide standpoint. In the meantime the private sector has also been in the forefront to support or carry out EE related initiatives.

The CSOs are actively engaged in the conservation activities including EE. [Selected CSOs are shown in Appendix 5.] Throughout the country these are playing crucial roles in environmental conservation and delivery of a whole host of EE facets. Certainly there are great multiplicities in application and suggestions for utilizing resources, methodologies for carrying out EE, extent of coverage and intended audiences. The number and differences emerge from backgrounds (local or international backgrounds), extent of technical know-how, orientation coupled with experience and the objectives of an organization. Sometimes the choices of actions and audiences are governed by many factors. These factors include the prevailing political atmosphere, possession of funds and necessary resources, environmental situation of the area, the type and size of the audience including the level of comprehension and many others.

The private sector like IPP and the Tanzania Breweries are as well engaged in EE delivery. In most cases they are engaged through provision of financial and material support to CSOs. Regrettably the CSOs are inclined to succumb to the dictations from the supporters. With this in mind the terms of agreement and conditions of work are usually predestined by donors and received by recipients without regard to the organization's objectives and the quality of EE to be communicated.

Communicating environment through media cannot be underestimated. There have been initiatives either by media themselves or from other sources. The major communication channels are use of radios and televising by televisions or written in newspapers. Many people have regarded the radio as the cheapest and potential means of getting information and thus ideal as an EE channel. This fact has been proven accurate through experience and discussions with people particularly in rural settings. To-date there is a number of radios and television environmental programmes which are either sponsored by media owners or environmental institutions and organizations. The same applies to newspapers where letters from readers, articles and features are written periodically.

In general terms, the Tanzanian community so far has become more environmentally aware than before. There have been several incidences where the public comes out clearly to demand explanations on why certain topical and crucial issues like soil erosion, destruction of catchment areas, sanitation, polluting factories or industries and other environmental concerns continue to affect them. The awareness is not yet fully exploited but still needs conceited efforts and demand-driven EE approaches rather than traditional methods that have been used all the time.

3.5 Environmental Education and Awareness Projects

3.5.1 On-going Projects

In Tanzania there are many environmentally-related projects that embrace components of EE either at sectoral levels or as cross-cutting undertakings. Nonetheless most projects are sectoral-oriented with big components of conservation and EE as their appendages. The projects are either executed by individual government departments and institutions and CSOs or in collaboration with other partners at national, regional, district and community levels. Depending on the target audience a project could be designed to cover the whole or parts of the country, regions, districts or communities.

a) Government on-going projects

The ***Lake Victoria Environmental Management Project (LVEMP)*** coordinated by the Vice-President's office aims at rehabilitating the lake's environment including the catchment area. Phase one of the project was concluded by Tanzania and Uganda while Kenya is in its final stages. Kenya has yet to complete its first phase. The former two countries are currently executing some activities while waiting for the second phase which will now be in the East Africa Community's (EAC) Secretariat office. All along the LVEMP, financed by the World Bank, has great EE component directed to communities and other stakeholders.

The ***Rural Water Supply and Sanitation Programme (RWSSP)*** financed by the World Bank is a programme that is coordinated by districts and overseen by the Ministry of Water and Livestock Development (MWLD). It aims at improving water supply, sanitation and hygiene and to combat HIV/AIDS in rural areas. The facilitation component looks at the project as *about people*; that is, people working together to plan, develop and manage their own water and sanitation facilities and improve their health.

Sida is financing conservation and development projects in three districts bordering Lake Victoria. The districts consist of Ukerewe in Mwanza Region, Bunda and Musoma rural in Mara Region. The programme has a strong component of awareness on the conservation of the resources near and within the vicinities of the lake.

The Lake Jipe Environmental Education and Communication is a project funded by IUCN focusing the lake as a wetland. The implementation is coordinated by the Department of Wildlife in the Ministry of Natural Resources and Tourism. As the title says, it aims at sensitizing communities surrounding the lake in order to support its conservation including the catchment area.

The NEMC is coordinating implementation of Lower Kihansi Environmental Management Programme which has a strong constituent on EE known as the Communication Strategy. The strategy aims at making the communities surrounding Lower Kihansi, and the Tanesco and newly commissioned hydro-electric power plant personnel to conserve the area with particular emphasis on the conservation of the Kihansi toad *(Nectophrainodes esperginus)* which is endemic to Tanzania.

The Kagera Environmental Management Project is a project with main objectives focusing on improving the environmental conditions of Kagera region including the Lake Victoria. Still the project focuses on the development of the people in the region through small-scale projects. The project is currently phasing out.

b) On-going projects by the CSOs and the Private Sector

As observed previously there are a multitude of projects and activities on EE and environmental conservation carried by CSOs and the private sector. Some of the projects and activities are implemented in collaboration and partnership with the government institutions or other agencies. Nevertheless most of the projects are executed independently depending on a number of factors. The factors include accessibility of funds and the donor preferences, the objectives and inclination of the organization, technical capability and availability of personnel.

There are concerns exhibited by CSOs throughout the country. For example, looking at the list it shows that NGOs working on the conservation of Lake Victoria in Mwanza is relatively big. Basically these agencies are engaged in the hands-on activities such as tree planting, soil and water conservation, water and sanitation issues, waste management, organic farming, conservation of plants, eradication of water hyacinth (*Eichornia crassipes*) and others.

c) Planned Projects

The VPO in collaboration with NEMC have launched a project that will mainstream environmental concerns and EE into the poverty alleviation initiatives. The environment as a cross-cutting issue has been found to be crucial in the endeavours towards the fight against poverty. The project is at present in the offing.

4.0 Opportunities and Constraints

4.1 Opportunities

The enactment of the **framework environmental law** is an opportunity for enhancement and strengthening of EE activities in the field. For a long time environmental conservation and management as a whole were going on depending on sectoral laws which are rarely holistic and all-embracing in nature.

Legal framework: the promulgated sectoral and environmental policies and laws governing conservation and management of the environment as well as formulation of different curricula, is an opportunity for enhanced EE programmes. There is direction and guidelines for designing and formulating curricula and teaching or training materials.

On-going and concluded EE projects: as shown earlier there many EE-oriented projects throughout the country. These are carried out by government machinery, CSOs, the private sector, and even organized or casual groups. Such projects are good as an arena to learn from, imitate and copy the excellent and suitable approaches use.

Schools and other learning institutions: these institutions have already started courses that have elements of EE either as stand alone or infused in certain subjects. With any project intending to introduce EE in the learning situation there is already prospects that could form a benchmark for formulating any curriculum.

Awareness levels: generally there is awareness on the essentials of conserving the environment. These might not be much specific but at least the public is aware as to why the environment should be well managed. Any new project has to take into account such chances and then dwell into the specificities.

4.2 Constraints

There are a number of constraints in the system including the following:

Inadequate human and financial resources: the Government institutions, CSOs and other players do not have adequate resources for running EE activities. The EE programmes require adequate resources in terms of skilled personnel, funds to support the programmes, production

and distribution of learning support materials (LSM) and other resources. Hence, development of environmentally-related policies, learning support materials, appropriate EE delivery methods and establishing vibrant EE network(s) and database(s) require ample supply of resources.

Compartmentalised approach: there are a great amount of elements on EE used and applied by many players. Of equal footing there are different approaches thus creating incongruence and fragmentation in its delivery. For example, many government ministries, almost 200 NGOs, as well as teaching and training institutions have EE components into their programmes. All these are geared towards individual orientations and sectoral endeavours to address respective issues. Although it is worthy having many players on EE discipline it is likely to have diverse methods, bringing about duplication of efforts, misusing the meagre financial and human resources and creating competitions rather than complementarity. It has been ascertained that this is possible in some cases to confuse the public.

Undue sectoral competition: another scenario is whereby some issues are left unattended due to negligence, lack of relevant knowledge, limited resources, lack of monitoring and coordination regimes of effective EE activities. These incidences are pronounced where sectors work as competitors for delivering their missions. There are seldom forums to report back and make all the deliverers determine the omitted areas of concern.

Top-down approaches: coupled with fragmentation and omission of certain areas there is evidence suggesting that issues affecting communities are often pre-determined before even meeting the intended audience. This way the notion for involving the communities is negated and consequently the intended audience paying no attention to what has been set aside for them.

Ineffective quality assurance mechanisms: notwithstanding the various players carrying out a number of EE initiatives, inadequate or insufficient quality assurance mechanisms are a setback in accomplishing EE tasks. It is difficult to gauge successes or even failures of EE initiatives because there are no laid down procedures and mechanisms to aid effectual quality assurance mechanisms.

*****Inadequate knowledge about the environment:** many people even those in power and ordinary ones do not perceive the term environment adequately. The interpretation is on most cases skewed towards ones orientation or field of expertise. For example a forester will look at the environment from the perspectives of trees, a ranger's interpretation will dwell on wildlife, and similarly an agriculturist will relate the environment more to issues relevant to crop production. There is very little focus on environment as an integration of several components and as well as human being actions on it.

Due to the absence of EE monitoring and evaluation mechanisms including other factors it has been **difficult to develop appropriate learning support materials** and effective programmes and projects. As observed above the situation poses a danger of communicating messages which are not appropriate for audience. Unlike other academic disciplines, EE is primarily a practical subject requiring application of all the five senses.

Cross-cutting issues: the environment cuts across almost all aspects of living that are usually not regarded as environmental in nature. The broad sectors are culture, socio-economic issues, politics, education, IKS and many others. In the Tanzanian perspective, poverty, which is impacting negatively on the quality of life and thus its eradication, is of paramount importance.

Without education for the populace to make informed decisions in use of environmental and natural resources, the fight to eradicate poverty would be futile. [Appendix 6 shows other cross-cutting issues that should be dealt with when applying EE & A]

5.0 Lessons Learnt Around Environmental Education and Awareness

There are a number of lessons learned from the study of EE and awareness process going on in the country. Some of these include the rising level of enthusiasm, problems of inadequate understanding of EE, and others.

Enthusiasm: many groups and the public at large are enthused by knowing what they can do to rescue the environmental problems. Any initiative that focuses on rational utilization of the natural resources is welcome by many people. Thus EE & A can very much be accommodated by many target audiences.

Inadequate EE understanding: it has been found out that there is very low knowledge on and about EE. The EE as a concept and the methods to disseminate it is a problem to many people as well as agencies using it as a tool for environmental conservation. Apart from grasping EE as a concept and the environment as an amalgamation of many facets. For example, teachers are very interested in learning the methods of using EE together with other subjects at school. The infusion of EE into discrete subjects calls for thorough training on the methods for delivering EE in line with existing approaches.

6.0 Indicators of EE awareness and development in Tanzania

A number of indicators point to progress in the development of environmental education, public awareness and training in Tanzania. Some of the indicators include the following:

a) **Development of a National Environment Policy**
This was approved a few years ago, and with it have been approved the National Environment Action Plan NEAP, and a draft National Environment Education and Communication Strategy has been developed and is at an advanced stage.

b) **Environmental Law** This law was enacted in 2004 and covers a large portion of the environment issues relevant for Tanzania.

c) **Education and Training Policy** (ETP) approved in 1996 has special emphasis on environmental education and public awareness in schools, tertiary and adult education institutions. Following the pronouncement of ETP the education sector has developed a n Education Sector Development programme, and subsequently a primary Educatioin Development programme (PEDP) that has a section emphasising environmental education and which is reflected in the revised curricula; a Secondary Education Development programme (SEDP) has been developed in 2004 and proposes a review of all secondary curricula to combine some subjects at lower levels e.g Physics and Chemistry and Physics into Physical Science, and the infusion of Environmental and conservation content into *EE carrier subjects* which include biology, chemistry, civics, geography, and general studies. In tertiary education, the Higher

Education Master-plan has been developed and curricula are slowly being developed to address EE at various levels.

d) Sectoral Policies are already developed in various sectors including, among others, the following:

- Cultural Policy
- Population Policy
- Tourism policy,
- Transport Policy
- Water Policy
- Wildlife Policy
- Livestock Policy
- Forestry Policy
- Energy Policy
- Land Policy
- Beekeeping Policy
- Industry Policy

In each policy, are situational analyses, visions, missions, goals, priority and action plans for the next couple of years in the respective sector.

e) Development of public awareness of existing policies, laws and regulations.

This needs to be done and there are no indicators that the school leavers, people in higher education, or the public are aware of the wealth of policies and they are in support of all of them. A sutvey needs to be done to evaluate public awareness, and also to develop a strategy to promote this awareness by those that these policies impact on a day to day basis.

f) Creation of effective enforcement mechanisms for existing laws and policies.

Existing mechanisms include the existence of Forestry extension officers, game wardens and other forms of government inspectors, however, little is known about the effectiveness of the enforcement mechanisms and the number of cases of defaulters caught in recent years, or the trend of defaulting over the last decade. Also important is the existence of incentives for law abiding citizens and environmental friendly investors in mining, fishing, agriculture, forest logging etc. Perhaps there is need to enact and enforce a Poluter Pays principle (PPP) which is yet to be enacted in Tanzania.

g) Community response and support in law enforcement

There is need to also assess the response of local communities in the law enforcement exercise by collaborating with the authorities to nab defaulters.

h) Level of attitude change

Little is known as to whether attitudes have changed from the feeling that the environment was a 'government problem' to that it is 'every ones problem'. This needs to be assessed also.

i) Level of skills of sustainable practices

The need to establish as to whether the practices of fishing, deforestation, overgrazing, water pollution, encroachment of catchment areas and so forth have improved and are now environment friendly is there. There are fer surveys in this area but work must continue, and programmes must be developed for schools and other institutions to teach these skills.

j) Community response towards EIA

Some examples of community awareness exist, such as the resistance by community members to allow the establishment of a prawns project along the Rufiji River Basin five years ago, or the resistance to the building of a pesticides factory in Moshi also a few years ago**.** The need to document all of these as lessons for others is paramount.

k) Environmental values as part of cultural, religious, moral fabric of society

There is currently a review of the teaching of religion in the school sector being done by the Ministry of education and Culture in collaboration with religious organisations. Among the important moral values being discussed include environmental values such as keeping water, air, soil and other aspects clear for others to use, being wise and saving of such resources as water food, and medicines, and refraining from drug abuse, war and so forth. This new curriculum might be a good avenue to pass on values that can help sustain the environment in the long term.

7.0 Conclusions and Recommendations

7.1 Conclusions

Tanzania is a diverse country in many features, including geographical, cultural, economic, spititual and most importantly, environmental. Its people are different not only ethnically but also in their habitations, cultural and socio economic practices and the type and nature of impact exerted on the environment. For example, the urban people, though fewer, have more requirements and higher consumptive tendencies than their rural counterparts. On the same note the resources used by the former are predominantly obtained from the rural areas although most people point fingers to rural communities as the culprits, which is not true. Such imbalance in demands and consumption coupled with skewed drift of natural resources from rural to urban settings leaves the rural populace poorer and poorer. In such a such situation the EE & A is very much needed and hence the approaches may be different in rural and urban areas.

As far as physiological and climatic patterns are concerned there are many variations. Some parts of the country have unimodal while others have bimodal patterns of rainfall. The amount of rainfall received; the extent of temperatures and humidity; the soil types, fertility, physical and chemical nature; the land configurations and other characteristics are different from region region.

Tanzania has and can continue to exert great influence so far as the River Nile Basin is concerned. One prime tributary of the river, known as the Kagera, passes through the country, and Lake Victoria for which 52% is owned by the Tanzania, is a major contributor to the Nile waters. The catchment areas for the river and the lake are quite enormous and can contribute negative impacts into the river's ecosystem. There are a lot of agricultural activities surrounding the lake and industrial establishments which are capable of introducing polluting chemicals into the lake and then ultimately into the river system. There are numerous human habitations throughout and their negative influences can be great to the life of the lake and hence the river.

The need for EE & A cannot be underestimated because the reasons for executing it are numerous and there is great enthusiasm from the public. Moreover, the government machinery is eager to see many interventions that can rescue the environment from degradation. As pointed out earlier the policy frameworks, strategies, and several initiatives in terms of programmes and projects produced and carried out either by the government, CSOs, communities and private sector necessitate the demand and urgency for EE & A at all levels.

There are efforts to reach the communities as well as the leadership at different levels. However, the nature and methods used to disseminate EE & A are varied, incongruent and at present not exactingly coordinated. The propagation and proliferation of EE & A by CSOs, the private sector government agencies and EE in schools is different and not yet adequate. Additionally the newly passed environmental management law and the NEECS have not reached many players throughout the country and thus their contents and requirements are not even known. Similarly a number of relevant policy frameworks and strategies do not reach many EE & A implementing agencies countrywide.

7.2 Recommendations

Already the country has guiding documents, the environmental management law and the NEECS, for delivery of EE & A.

- These should be popularized and made known to all the stakeholders throughout the country. The NEMC in collaboration with selected NGO(s) should shoulder the task to popularize the strategy and the environmental management law.
- A special EE & A programme is needed particularly focusing on the catchment areas, as well as deeper study on the EE & A actions taking place in and around the Lake Victoria to ascertain the coverage and the effectiveness in the areas;
- a programme should be formulated in partnership with most agencies carrying out the EE & A activities in the areas;
- coordinating mechanism needs to be established to harmonize the activities going on in the areas;
- relevant action plans should be established to cater for the entire catchment areas for the river Kagera and the lake Victoria and surrounding enrironment.
- Schools are crucial areas for empowering the future generations. It is recommended that: a review of curricula be done to determine the status and contemporary relevance and impact of the EE contents for secondary and primary schools; and necessary amendments be done in view of the dynamic environmental issues and problems;
- Currently there virtually not comprehensive text or reference books for schools on environmental conservation despite efforts by Primary Environmental Education Programme for Schools in East and Central Africa (PEEPSEA) and Family Life Education curriculum materials in Tanzania. Individuals or firms should be contracted to produce pertinent books and reading materials especially for secondary and primary schools

Gaps and challenges

There are many gaps in the knowledge of EE and A in Tanzania including:

- Little knowledge on the environmental actions that need to taught in various environmental action and values programmes such as tree management (which trees are best for various areas, how can farmers conserve water by the type of vegetation they plant, how to handle wetland construction in low cost housing programmes) this is

evident in the poor planning of small towns and the low level of awareness of village and district leaders;

- Poor teaching and learning strategies and teaching materials. Despite many efforts to produce reference materials and teaching media, still more is needed to teach the society about the environment of the country and Africa as a whole. Many need to know the great difference between life in the coastal area and in a forest area, in the savannah, in a river valley and so on. Good audio visual material is necessary.
- Poor teacher education and teacher trainer preparation for environmental awareness campaign, to the extent that untrained people take over and mislead the people, as in gardening, tree planting, coastal area management, etc.
- Enforcement of policies that already exist is still difficult and inadequate due to ignorance or leniency of enforcers, leniency of some laws and regulations such as those on hunting and water management.
- Lack of an environmental education activist group of professionals in science, geography, agriculture etc and instead existence of an army of enthusiast without sufficient professional support. Those that exist such as the WCS need further publicity and wider membership.
- Little cross border NGOs that focus specifically on the Nile and Great lakes, with the exception of recent initiatives that are still taking shape. We hope these initiatives will help to show how EE issues are not issues that can be confined to an inward country level policy and action but must go beyond territorial boundaries.

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Lucas, A. M (1980). Science and environmental education: pious hopes, self praise and disciplinary chauvinism. *Studies in science education* (7) 1-26.

Tanzania Government: Relevant EE and environmental conservation related Government Policies, Legislation, Strategies Plans and other Promulgations:

Agricultural Policy, 1997
Agricultural Sector development Strategy, 2001
Country Study on Biological Diversity, 1998.
Decentralization of Government Administration (Interim Provision) Act, 1972.
Education and Training Policy
Energy Policy, 1992
Forest Act, 2002
Forest Policy of Tanzania, 1998
Guidelines for Participatory Land Use Management in Tanzania, 1998.
Industrial Policy, 1991.
Land Acquisition Act, 1967.
Land Act, No. 6 of 1999
Livestock Policy, 1997
Local Government (District Authorities) Act No. 7 of 1982.
Mining Act No.5 of 1998, 1998.

National Beekeeping Policy, 1998
National Environmental Policy, 1997
National Forest Programme, 2001
National Land Policy, 1995.
National Parks Ordinance, 1974
Population Policy, 1992
Poverty Reduction Strategy Paper, 2000
Regional Administration Act No.19 of 1997, 1997.
Sustainable Industrial Development Policy 1997-2020
Tanzania Assistance Strategy, 2000
Tourism Policy, 1997
Transport Policy, 1987
Village Land Act No. 7, 1999
Water Policy, 1991
Wildlife Conservation Act, 1974
Wildlife Policy of Tanzania, 1998

Ministry of Water and Livestock Development (?) Facilitator's Manual

National Environment Management Council (?). Database of NGOs & CBOs involved in environmental management: Tanzania

The United Republic of Tanzania (2000). Directory of Tanzania Non-governmental Organizations - 2000

The United Republic of Tanzania (2000). Composite development goal for the Tanzania Development Vision 2025.

Appendix 1: The National Environmental Education and Communication Strategy and Action Plan (NEECS) – Vision, Mission, Goal and Objectives

Vision, Mission and Goal

Vision
Be a country with high level of environmental consciousness at all levels of the Tanzanian society in terms of knowledge and practice, in order to conserve the environment and achieve sustainable development.

b. Mission
Harmonized implementation of EE processes commensurate with operational environmental related policies and legal frameworks focusing on sustainable resource utilization.

c. The Goal
The general goal of the NEECS is *to facilitate effective implementation of EE related policies and processes*. This will be a basis for improved environmental management and therefore contributing greatly to poverty reduction and the overall economic growth.

Objectives and Strategies

Objective 1: ***Developing and Enhancing Environmental Knowledge, Skills and Practices Among the Stakeholders***

Strategies:
Update and make inventories all EE stakeholders
Initiate and enhance the effectiveness of ongoing and planned EE initiatives
Raise awareness, competency and skills of stakeholders

Objective 2: ***Enhancing and Improving Awareness and Sensitization of the Public at Large***

Strategies:
Update the state of environment and prioritize environmental issues and problems
Identify and categorize target audiences
Design and formulate relevant EE themes/topics and methods
Raise awareness as appropriate

Objective 3: ***Developing and Improving Human Resources on Environmental Education***

Strategies:
Assess and catalogue EE activities at all levels of formal education
Teach EE to pupils/students in schools and teachers' colleges
Train EE to students in tertiary institutions
Train EE to practicing personnel – in-service programmes
Develop and support school-community relationships
Sensitize heads of schools, inspectors and colleges
Train media personnel in environmental reporting

Objective 4: ***Enhancing support and Commitment in Environmental***

Conservation

Strategies:
Raise awareness of politicians
Raise awareness of the government systems, civil society and public at large
Raise awareness to heads of schools, colleges and other institutions.

Objective 5: ***Developing and Improving Learning Support Materials (LSM) on EE***

Strategies:
Appraise the state of affairs as regards to learning support materials
Produce, support and enhance production of learning support materials

Objective 6: ***Collecting, processing and disseminating information on EE***

Strategies:
Identify environmental education research reports and activities and disseminate them to EE practitioners.
Catalogue and document EE related information and data on environmental conservation as well as available methods
Disseminate information and data on appropriate environmental management methods and practices

Objective 7: ***Coordinate, Monitor and Evaluate EE activities in the country***

Strategies:
Determine suitable frameworks for implementing EE activities
Establish and initiate coordination mechanisms
Develop and operationalize EE monitoring and evaluation mechanism
Develop meta database of EE practitioners in the country

Box 1: Environmental Education Approaches

- Interactive/Participatory – debates, discussions, meetings, role play, drama, theatre, music, story-telling/traditional folk tales, use of traditional leaders or well-informed people
- Large scale forums – media (radio, television, newspapers), seminars, workshops, conferences, symposia;
- Practices – demonstrations, projects, field study, exhibitions, surveys and researches, exchange programmes, laboratory work, sketching and drawing, tableaux, searching e.g. use of internet
- Conversional – teaching, lecturing, tutoring, colloquiums, exercises including tests and examinations, paper writing,
- Training course – short, medium and long term training courses

Appendix 3: Co-ordination of the NEECS

Priority Issues Addressed by the NEECS
The NEECS contains critical innovative features that consider the sectoral crosscutting nature of environmental education in the country. These include:

Strengthening institutional framework for planning and implementing EE in the country with a *focus on effective coordination, collaboration and networking which is critical in terms of having the roles, responsibilities, functions and resources available for various interventions*. The strategy attempts to clarify the roles of different actors including research and training institutions, central and local government and the public.

The development partners including multilateral and bilateral organizations and agencies supporting EE through different government and community programmes will have an important role to play. The financial and technical assistance provided under the Tanzania Assistance Strategy (TAS), and the move towards Basket Funding/ Sector-wide approaches favours EE programmes in light of the cross cutting nature of the EE.

Capacity building and governance of actors in EE especially the local government and the CSOs to effectively participate in EE processes is crucial. Inadequate human resources in all sectors remain to be a major constraint in planning and implementing EE interventions. Issues to be looked at community levels will include improving knowledge on access to land, water and other natural resources which dictate their livelihoods and hence the way they manage their environment. Improving on knowledge and skills will also include recognition and development of their indigenous knowledge and best practices. Community based organizations (CBOs) such as farmers' and livestock keepers' associations and other users and interest groups are instrumental at local levels.

The CSOs are important players, mainly in participatory work at local levels. Most of these are involved in lobbying and advocacy for policy changes and development, mobilizing resources for community-based interventions and providing services in terms of implementing EE programmes. However, they are mainly faced with limited resources (financial and technical), weak coordination amongst themselves and networking with Local Government Authorities (LGAs) and sectoral ministries, and limited experience in planning and implementing EE programmes. Strategic interventions designed to in the EE involve improving the capacity of the private sector and CSOs including providing favourable environment for their operations.

The role of the media is crucial for information dissemination and public education. The training of journalists has been either discipline-specific or generalized. On the other hand when practising they usually find themselves tackling a number of issues including the environment. Sometimes it becomes difficult to address many issues at the same time otherwise they decide to leave out 'un-newsworthy' information. Moreover the tendency of screening information in the news rooms coupled with inadequate knowledge on scientific and environmental issues has left media entrenched more in political arena than other fields. The NEECS has a great responsibility in training media barons, editors and journalists on environmental problems and appropriate methods of reaching the public.

Strengthening capacities for monitoring of EE processes is currently not effected properly within the framework for "Assessing EE Performance". The NEMC in partnership with other institutions and organizations have to play a leading role in providing the technical input in developing the monitoring framework. Providing the necessary skills and facilities for proper monitoring cannot be overemphasized.

Mainstreaming EE in planning processes for development initiatives in other sectors is of prime importance. As environmental issues are intertwined with livelihoods especially in the rural areas almost all sectors have to focus on sustainable development. Environmental education is strongly interplay of varied stakeholders with different interests, priorities and approaches and the mandates for executing it fall outside the lead sectors (i.e. Education and Environment). Mainstreaming EE in the sectoral initiatives particularly the district development plans will be a critical entry point to ensure ownership of roles and sustainability.

Information development: EE is a process, which demands a high degree of accurate information flow at local, national and international environmental issues to issues on the immediate needs of the public. Access to information on the environment, current practices inside and outside Tanzania, existing environmental or EE activities will be important for the effective and efficient implementation of EE for sustainable development.

Information development in terms of collection, packaging and dissemination will be the focus. An Information, Communication and Technology Working Group are to be set up to coordinate research, information development and dissemination to respective target groups involving key stakeholders. Strategic interventions will involve strengthening and mainstreaming data collection and dissemination by sectoral ministries, other institutions, NGOs and primarily the LGAs in order to establish and manage databases. These will facilitate the preparation and monitoring of EE programmes and putting in place mechanisms for networking and access to information managed by individual sectors and institutions.

Mainstreaming gender in the NEECS: As mentioned above gender issues and in particular women's roles in the overall social-economic development is characterized by a traditional gender imbalance. Creating an enabling environment for women and men to fully play their roles in the EE especially the marginalized and disadvantaged groups is the focus of this strategy. This will include identifying key problems and opportunities for an effective participation of all members of the society in EE processes especially in relation to the management of resources and their utilization in addressing incomes, eradicating poverty and improvement of the living standards.

Provisions in the *Gender Policy* through the Ministry of Community Development, Women and Children (MCDWC), presents a strong basis for coordination and collaboration with other sectors. In the NEECS, gender issues will be integrated in all interventions. Development of special programmes targeting women, youth and disadvantaged groups will have a preference.

Strengthening EE and management practices. A critical issue threatening sustainable development for which environment plays a leading role is unsustainable agricultural production, depletion of natural resources and economic development. High and ever growing human and animal populations have resulted in craving additional land for agriculture and livestock development. Unsustainable practices have lead to increased soil erosion, deforestation and soil, and water contamination. Cases at hand were spelt out in the NEP and NEAP and form the basis for this strategy attempts to redress the situation through the education window. The NEECS therefore draws synergies from the provision of the NEMC Act of 1983, and other sectoral policy and legal provisions including strategies and programmes.

Partnerships and networks are important in carrying out EE programmes. Areas that require closer collaboration include research and environmental assessment, developing new EE themes

and methods, monitoring and assessment, integrated programmes, planning and implementation of issues related to extension and outreach activities.

Potential Resources for Strategy Implementation

The overall resources required for the Strategy implementation include human resources, technical support and finances. The Strategy will run over 5 years and the resources indicated draw from envisaged programmes, which will be executed in many sectors and institutions.

Commitments from players,
Nature of EE programmes to be carried out,
Nature of Action Plans and activities,
Geographical areas to be covered,
Resources (financial and human) to be available from within, and others.

Appendix 2: Key Stakeholders of Environmental Education and the roles and functions in the Tanzanian context

Stakeholder	Main roles and functions
Vice President's Office - Division of Environment	Overall Authority on Environmental Policy Framework Facilitate NEECS approval Oversee and facilitate implementation of NEES
Ministry of Education and Culture	Authority on Education and Training Policy Implementation of NEECS Monitor and evaluate NEECS implementation Approve Education/training materials Develop Materials for schools and Teachers College Develop and implement Training Programmes Undertake research on Environmental Education Disseminate information on Environmental Education
TIE	Curricula development Undertake Training Monitor and undertake research Identify and develop training materials
NECTA & NACTE	Examine Environmental Education Monitor and evaluate Environmental Education
National Environment Management Council	Facilitate NEECS preparation Coordinate NEECS implementation Implement NEECS Training Disseminate the NEECS Monitor and evaluate Environmental Education implementation Resource mobilization for NEECS implementation Facilitate networking on the NEECS Clearing house for EE materials received from outside the country Prepare Environmental Education materials Undertake Research on Environmental Education
Line Ministries:	Harmonize Environmental Education related policy

Stakeholder	Main roles and functions
Ministry of Natural resources and Tourism **Ministry of Energy and Minerals** **Ministry of water and Livestock Development** **Ministry of Health** **Ministry of Lands and Human Settlements Development** **Ministry of Agriculture and Food Security** **Ministry of Higher Education Science and Technology** **President's Office, regional Administration and Local Government** **Ministry of Community development, Women and Children**	proclamations Develop and implement sector specific EE related activities
Research and Training Institutions: (SUA, UDSM, UCLAS, OUT, MUC, TAFIRI, TAFORI, COSTEC).	Undertake research and training Monitor and evaluate Environmental Education Disseminate best practices Develop Environmental Education materials Documentation of research findings
Civil Society Organizations	Undertake research and training Implement Environmental Education activities Monitor and evaluate Environmental Education practices Carry out Lobbying advocacy work Documentation of research work Identify/develop and share best practice Disseminate Environmental Education materials Resources mobilization Mobilize and participate in Environmental Education related activities
Development Partners	Resources provision (Technical and Financials)
Private sector	Provide resources for implementation of Environmental Education activities Facilitate/implement EE activities Facilitate sustainable use of resources Rehabilitate/Restore degraded environment
Communities	Implement Environmental Education activities in their respective areas Manage natural resources Contribute information/ knowledge Indigenous technical knowledge manages and executors of best practices Monitor and evaluate EE activities in their localities Formulate and enforce environmental related laws in their

Stakeholder	Main roles and functions
	areas Network with other players in Environmental Education
Politicians and decision maker	Facilitate publicity and dissemination of Environmental Education Mobilize communities involvement in Environmental Education Approval of policies and legislation Resource mobilized
Schools/Teachers' colleges	Learning centres Change agents Undertake Environmental Education publicity Implementers of Environmental Education

Appendix 3: Elaborate information on policies and laws with great bearing on EE

NEMC Act: The URT enacted the NEMC Act in 1983 as the first step in environmental conservation. One of the objectives for establishing NEMC is to create an enlightened Tanzanian society by undertaking awareness and sensitization programmes, acquisition and dissemination of information, and training

Ministry of Environment: Creation of environmental desk in the Ministry of Lands, Urban Development and Housing (MLUDH) which housed NEMC in the late 80s, followed by the Department of Environment in the Ministry of Natural Resources and Tourism (MNRT) and then to the VPO brought thrust to environmental conservation initiatives

Sectoral policies:

The education sector policies include **Education and Training Policy (1995), National Higher Education Policy (1999) and Science and Technology Policy (1996)**. The provisions of these policies form an overall goal of education sector, which is to ensure provision of quality education. It also addresses issues of access and equity at all levels of education. One of the general aims of Education and Training Policy, which is relevant for developing this EE strategy, is ***"to enable a rational use, management and conservation of the environment"***[3]**.**

The **National Forest Policy (1998)** focus is conservation and development of the forest sector in the country. The policy acknowledges that *'public participation and education and environmental management must be everybody's responsibility'*[4]. It further expounds: ***"To ensure increased awareness and skills amongst the people on conservation, management and***

[3] Ministry of Education and Culture, 1995, p.2

[4] National Forest Policy, 1998, p.5

utilization of forest resources, the capability of the forest extension services will be strengthened".

The **National Beekeeping Policy (1998)** concentrates on enhancing sustainable contribution of the beekeeping sector for socio-economic development and environmental conservation. It also articulates trained extension services to increase awareness and skills

Among the objectives of the **National Land Policy (1995)** is to ***"promote sound land management. Protect land resources from degradation for sustainable development".***

The EE components in the **National Fisheries Sector Policy and Strategy Statement (1997)** include training and education, community participation and fisheries information management.

Although the **Wildlife Policy of Tanzania (1998)** and **Tanzania National Parks (TANAPA) Act** centre on wildlife protection, the module for protected areas (PAs) is involvement of communities, private sector and other stakeholders through EE.

The popular apex workshop "**Warsha ya Kitaifa Kuhusu Hifadhi ya Mazingira na Kuondoa Umasikini"** held in Dodoma in 1998 emphasized the need for sensitized citizenry on environmental conservation and poverty alleviation issues

One of the elements to achieve *A Strong and Competitive Economy by 2025* is stated by The Tanzania Development Vision 2025. It is envisaged; *inter alia,* that fast growth will be pursued while ***"effectively reversing current adverse trends in the loss and degradation of environmental resources and the accumulation of hazardous substances"***[5]. It accentuates that development mindset and empowering culture will be realized *inter alia* by 'education as a strategic change agent'.

While the agriculture and livestock sector policies address extension services, the population, water, mining, energy, industrial, transport and health policies speak of awareness and sensitization on various environmental issues.

In order to address environmental issues squarely, several programmes and strategies such as Public Service Reform Programme (PSRP); Civil Service Reform Programme (CSRP) and Public Service Reform Programme (PSRP); and The Local Government Reform Programme (LGRP) require a number of strategies, NEECS being one of them.

Appendix 4: List of selected CSOs whose activities have a bearing on EE (and where they are based)

Local NGOs and CBOs

AGENDA for Environment and Responsible Development (AGENDA) – Dar es Salaam
Biirabo Rural Transformation Scheme Trust Fund – Muleba
Environment Management of Lake Victoria (EMALV) – Mwanza
Environmental Technology Association (ENVITECH) – Dar es Salaam
Foundation for Sustainable Rural Development (SURUDE) – Morogoro
Journalist Environmental Association of Tanzania (JET) – Dar es Salaam
Kagera Arts and Cultural Heritage Promotion Conservation and Development Group – Bukoba
Kagera Community Development Trust – Bukoba
Kagera Environment Foundation – Dar es Salaam
Kagera Press Club – Bukoba
Karagwe Rural Women Association (KARUWA) – Karagwe
Kolping Society of Tanzania (KOLPING) – Bukoba

[5] The Tanzania Development Vision 2025, 2000, p. 14 & 19

Lake Nyanza Environmental Sanitation Organization (LANESO) – Mwanza
Lake Victoria Ecological Society (LAVESO) – Mwanza
Lake Victoria Environment Care Organization – Mwanza
Lake Victoria Environment Network (LAVEN) – Mwanza
Lawyers Environmental Action Team (LEAT) – Dar es Salaam
Malihai Clubs of Tanzania – Arusha
Mwaloni Market Traders Development Society (MWADESO) – Mwanza
Mwanza Environment Protection Group (MEP) – Mwanza
Okoa Mazingira Tanzania (OMATA) – Dar es Salaam
Ryangubo Irrigation Farmers' Association (RIFA) – Tarime
Social and Environment Development Trust Fund – Dar es Salaam
Socio-economic Development and Environment Programme (SEEP TANZANIA) – Karagwe
Sustainable Habitat Environment Training Foundation – Mzumbe, Morogoro
Tanzania Association of Foresters (TAF) – Arusha
Tanzania Association for Professional Women in Agriculture and Environment – Dar es Salaam
Tanzania Association of NGOs (TANGO) – Dar es Salaam
Tanzania Home Economic Development Association (TAHEA) – Dar es Salaam
Tanzania Media Women's Association (TAMWA) – Dar es Salaam
Tanzania NGOs Environment Network (TANEN) – Dar es Salaam
Tanzania Society of Fisheries and Conservation of Nature (TAFCON) – Mwanza
Tanzania Traditional Energy Development and Environment Organization (TaTEDO) – Dar es Salaam
Tanzania Tree Planting Foundation – Mkata, Segerea
Tanzania 4H Organization (4H Clubs) – Tanga
The Environment Preservation and Sanitation Improvement in Tanzania (EPSI-T) – Dar es Salaam
The Jane Goodhall Institute for Wildlife Research, Education and Conservation – Kigoma
Wildlife Conservation Society of Tanzania (WCST) – Dar es Salaam

International NGOs

Care – Dar es Salaam
East African Communities Organization for Management of Lake Victoria Resources (ECOVIC) – Mwanza
East African Society for Parasitologists – Dar es Salaam
Eastern/southern African Mineral Resources Development Centre – Dar es Salaam
Eastern Africa Support for NGOs (EASUN) – Arusha
International Union for Conservation of Nature (IUCN) – Nairobi
OXFAM-Tanzania – Arusha
Plan International – Dar es Salaam
Swiss Foundation for Development Cooperation – Dar es Salaam
World Wide Fund for Nature (WWF) – Dar es Salaam
World Vision-Tanzania – Arusha

Appendix 5: List of Government institutions with EE components

Commission for Science and Technology

Local Government Authorities
Ministry of Agriculture & Food Security
Ministry of Community Development, Women and Children

Ministry of Education & Culture
Ministry of Energy and Minerals
Ministry of Health
Ministry of Higher Education Science & Technology
Ministry of Lands and Human Settlements Development
Ministry of Natural Resources & Tourism
Ministry of Water and Livestock Development
National Environment Management Council
Open University of Tanzania
Presidents Office Regional Administration and Local Government
Sokoine University of Agriculture
Tanzania Fisheries Research Institute
Tanzania Forestry Research Institute
Tanzania Institute of Education
Tanzania National Parks
Tumaini University
University of Dar es Salaam
Vice President's Office

Appendix 6: Other cross-cutting issues embedded in the application of EE

Poverty[6] **–** is regarded as having limited access to resources for basic needs[7]. Poverty is perceived by many as both a cause and consequence of environmental degradation. People who lack adequate resources have little alternatives and are likely to over-use their environment. Therefore, the issue is ***how poverty impacts the environment and how a degraded environment reinforces poverty are two mutually interrelated processes***. The current thinking of Education for Sustainable Development (ESD)[8] capacitates people to refrain from depleting natural resources and is aimed at empowering them to restore degraded areas. Accordingly, it builds the capacity of people to look for alternative sources of livelihoods, improving their welfare and managing their natural resources.

Indigenous Knowledge Systems (IKS) – the IKS are not simply handing down customary wisdom or passively accumulated knowledge that has been collected throughout generations in the course of arbitrary variations of trials and error but is a considerable proportion which comes out of experiential changes, adaptation and local testing. In 1987 the World Commission on Environment and Development (WCED) proclaimed that indigenous people were *"repositories of accumulations of traditional knowledge and experience"*. The Tbilisi Principles also prioritise perspectives that embrace culture and history in addressing today's pressing environmental issues[9]. The EE should thus take cognizance of IKS as a component of social processes of

[6] **Poverty alleviation and eradication** has been given prominence by many forums e.g. Agenda 21 (1992), Millennium Development Goals, WSSD – the Johannesburg Declaration and Plan of Implementation (2002), World Conference on Education for All and the Dakar Framework for Action on Education for All
[7] Basic needs include food, shelter, clothing, health and security
[8] ESD is a new thinking that emanated from the World Conference on Education for All, Jomtein, Thailand (1990) and endorsed by The Dakar Framework for Action on Education for All
[9] Source: UNESCO-UNEP, 1977

linking humanity with its ancient origins – carrying forward the treasure of knowledge to enhance and facilitate sustainable utilization and conservation of natural resources.

Health – the standard of living of any society is influenced by the health of its people. The occurrence of diseases, especially those directly associated with the environment, is a sign of low knowledge on environmental issues. Diseases like cholera, malaria, sleeping sickness, dysentery and schistosomiasis are related to environmental dilapidation. EE should be able to assist people in getting rid of such diseases and avoiding the future occurrence.

The HIV/AIDS pandemic is a global problem that has so far failed to get effective cure. It is associated with effects to all people especially the young and thus reducing manpower in all sectors of human well-being, which ends up to intensification of poverty. The consequences lead into a hoop of huge number of problems worsening efforts to take care of the environment.

Water – the availability of quality water for various uses is an issue that affects health and development activities. Moreover the availability quality of water is a problem affecting social, agricultural and industrial production. EE helps to conserve water resources and facilitate search for alternative means of getting more water and related technologies like water harvesting, as well as keeping it clean and safe.

Gender – traditionally in many Tanzania's communities, women are still responsible for most of the household chores. Gender issues and in particular women's role in the overall social-economic development of the country has been recognized and features strongly in the political and socio-economic agenda. Rural and peri-urban areas are however, characterized by a traditional gender imbalance in terms of men having an upper hand as regards to ownership and use of resources, user rights, decision-making processes and benefit distribution in relation to natural resources.

Furthermore, most women have had fewer chances of getting suitable education and opportunities for facilitating their quality of life and their socio-economic development over years. In this regard, they have been impacting and getting more impacts from environment and natural resources degradation than other groups of the society. These problems have persistently made their livelihoods remain backward. EE is expected to take on board gender equity in its totality and expose different gender groups to the dilemmas of development and conservation and the role that they can play in addressing them.

Energy – generation and use of energy is affecting many sectors. Energy is essential for household survival, in industrial production, communication, hospital processes, schools and many other developmental activities. Conversely energy sources, generation and use processes can have devastating impacts on the environment if not well planned and mitigation measures well thought to minimise the impacts. Then the role of EE in energy processes cannot be underrated as a crosscutting issue.

Population – understanding population dynamics and their impacts on socio-economic development and natural resource base quality are prerequisite for attaining balanced sustainable development of any given country. Tanzania mainland has 33.4 million (2002 census) up from 23 million in 1988, 12.3 million people in 1967 and 9 million at independence (1961). About 75% of the population lives in rural areas where poverty is widespread coupled with poor social services and poor production technologies, which lead to rural urban migration.

There is a direct correlation between population growth and resources consumption. The higher the population the more demand for resources; both natural and man-made. The place of EE in enhancing the quality of people's life, strengthening family planning motives, and consequently regulating population growth has to be taken on board in plans of all sectors.

Politics and democracy – Tanzania cherishes good governance and the rule of law in the processes of development and social welfare of the people. However, conservation of the environment in its holistic terms is a new paradigm that is yet to be fully comprehended. There are important issues to consider in terms of environmental governance:
Full articulation of environmental concerns by all Tanzanians
Political will at all levels – from the lowest planning level (village and hamlet) to national apex
Involvement of people in all matters pertaining to their welfare
Availing and providing knowledge through information, development of skills and environmental values
The right to know- all Tanzanians to understand and use their right to demand for any information so that they can make informed decisions.

Empowerment through participation – the notion of community empowerment revolves along in most of the national policies. Thus, for people to attain power over their natural resources and get actively involved in environmental management they should participate in planning, execution and evaluation of actions on their environment. Effective conservation and change of people's livelihoods will require EE at its time-span. Before people actively participate acquisition of knowledge and skills (EE) as well change of attitude (which EE does) play a major role.

Science and technology – Tanzania like all global states is living in a technological changing world, undergoing steady metamorphosis. In every field of life there are always new technological inventions, studies and researches coming up with new findings and the dynamic nature of the environment. The NEECS needs to cope up with such drastic changes in terms of inventions, transfer of available technology, findings and environmental changes in order to participate full in bringing about sustainable development at all levels.

Appendix 7

EE ACTIVITIES OF NGOS AND THEIR TARGET AREAS

No.	Practitioner	Product	Content	Where used
1.	WWF/NEMC/MoEC/UDSM	1. A Book, Titled EE for Teacher educators	Environmental concepts Environmental Issues and Problems in Tanzania Rationale for EE in Tanzania EE Approaches Teaching and learning strategies in EE.	NF, F, (Rarely used)
		2. Elimu ya Mazingira - Maji - Misitu - Wanyamapori	Vyanzo vya Maji Matumizi ya Maji Mzunguko wa Maji Njia za Kuhifadhi Maji Vyanzo endelevu vya Maji Uchafuzi wa Maji Faida za wanyamapori, Hasara zake, Kutoweka kwa wanyamapori, usimamizi endelevu wa wanyamapori	NF, F (Rarely used) NF
2.	Craig Ferla, Seif Kiango Clare Olinsky Salum Ngungwini Hilda Maya Jerome Kimaro Bonifasia Mapunda and Stanley Basheka	1. A Book Titled Environment is Our Life	Environment-related stories for children	NF

No.	Practitioner	Product	Content	Where used
3.	Agenda for Environment and Responsible Development	1. AV Materials Titled Mazingira yangu Mazingira yetu 12 volumes	Air pollution Health Agriculture Industrial pollution Forest fires Soil erosion Deforestation	NF, (Rarely used)

			Desertification Wildlife Aquatic life	
4.	O-saki, K.M	1. Study Material for EE course of the O.U.T, Titled OED……	Concepts related to Environment and EE Theoretical frameworks Research findings and Directions on Environment/EE EE Approaches	F
5.	GreenCom – Tanzania Programme	1. A Book on EE for primary school Teachers 2. A Book Titled Encounter with Wildlife	Lesson plans and Role plays on: Importance of Trees and Forests Environmental cleanliness and Auditing Interactions in the Environment Environment – related stories for children (Particularly about wild Animals.)	NF

No.	Practitioner	Product	Content	Where used
6.	WCST (Wildlife conservation society of Tanzania)	1. A Book Titled Hifadhi ya Misitu ya Pugu na Kazimzumbwi 2. Birds of Dar es Salaam	Historia ya Hifadhi ya misitu ya Pugu na Kazimzumbwi Maliasili zilizopo katika misitu hiyo Utunzaji endelevu wa Misitu hiyo A guide book for identification of Common Birds found in DSM.	NF NF, F
7.	WCST and Dr. Charles Mlingwa	1. A Book Titled Birds of Tanzania	A guide book for identification of common Birds in Tanzania	NF, F
8.	Peace Corps – Tanzania Program	1. A Book Titled EE Activities for schools	Lesson plans on Wildlife Weather and climate Wetlands protection and management Aquatic life forests	NF
9.	MoEC/TIE	Subject – specific Textbooks for Geography, Biology, Civics, General Studies, (These books have discrete information about Environment).	Ref. Annex 1	F
10.	Friends of Ruaha society (FORS)	1. A Book titled EE for Primary schools in Tanzania. (on Press)	Lesson plans that reflect Environmental stuffs from primary school syllabuses. (Ref. Annex 1)	F
11.	Miombo			
12.	Kunguru			

GEOGRAPHY

Environmental Content in syllabus	**What most teachers do**	**Reasons**	**What more they can do given help**
The Environment Solar System Animals, Marine and Wood products Minerals Industrial products Awareness on the physical constraints that prohibit the utilization of Natural resources Culture – Land - Livestock Environmental conservation and management	Teach by giving explanations Direct students to pick burn papers Giving explanations on how to use and preserve natural resources Guide students to fill the pit holes with bags of sand Plant trees - Watering the trees especially during dry season	The time allocated for teaching is not enough for practicals or projects. - No teaching materials. - Number of students is so big to arrange for study tours. It is cheap and easy to get the sand around the school - for Decoration - prevent soil erosion - wind breakers - shade for students to sit and study	Recycling if given a capital for collecting papers and a truck Trips to mines - Mererani - Morogoro Rain water can be harvester & kept in tanks for watering New species and grass – as crop cover could help to prevent soil erosion. - Reliable water supply. Given exposure to ranches, zooes - Trips to coasts
CIVICS			
- The importance of the environment for the social and economic development - Helping to preserve the flora and fauna of his/her country - Awareness and appreciation of cultural heritage - Maintain our traditional	- Give explanations - Burning of papers - Digging pits and covering them - Nursery of free seedlings - Watering the trees fruits - Planting trees pruning - Volunteering to plant - Explanations - Appreciate and explain the use	- Easy and simple way - Making it as a culture - Done by boarders for shade and beauty - Use fish pond for teaching and food for boarders. - Time limit no enough time to exercise some activities	- Recycling of paper if & truck and fund for collectors is given. - Assistanceship from Fishmeal – to increase species - MES –a former Makongo Environmental society – could have been improved through – formal registration, seminars workshop, trips as it started when the WWF was sponsoring.

values	of fish pond - Cleaning the class rooms – sweeping - Make drainage system when it rains - Picking of papers everyday-evening - Plant little flowers	concerning environmental education - Teachers believe it now well known and common to all students environmental should be taken care of -	
GS – ADVANCED LEVEL			
Environmental Content in syllabus	**What most teachers do**	**Reasons**	**What more they can do given help**
Science & Technology in Development The Environmental Issues	Discussion Explanations about - Pollution - Degradation - Urbanization - Guide students to fence the fish pond - Survey the school compound - Picking papers	Time limit for activities Topics are so many for practicals to be done To avoid alligators - Students know this concept hence no need for doing the activities - Is a rule, order of the day - Given as punishment - Teachers are just bored with the whole system-of-education, no incentives from administrators	- Visit to areas like WAZO HILL if given transport - Visit the dampo - Campaign for cleanliness - Design a recycling project of bottles and paper in a school. - Ideas should come from 'down-top' and teachers be empowered to practice environment education in real situation.

Group/NGO	Practitioners	
Makongo 1. Environmental Society (MES) 2. Shoots and Roots	Muchwampaka, B. was a Coordinator – Finded by WWF. It was not registered	- used Books, pamphlets

NB: MES was very active in the beginning until when the WWF stopped sponsoring it – due to some unknown reasons.

Students used to exchanged ideas, within schools by conducting seminars, doing workshops, making and volunteered in clearing and picking wastes

History teachers – suggested environmental education should have a topic in history where the animals and their products were taken away since the period when invaders came to our country.

Subject: Biology F1 – 4

Environmental content in syllabus	What most teachers do.	Reasons	What more they can do given help.
THE ENVIRONMENT - General concept - Balance of nature - Human population growth & control - Natural resources - Conservation and improvement - Environmental degradation	• Teach by giving explanation on: - The importance of conservation - Methods of conservation • Survey school surroundings • Guide students to: - Plant trees - Dig garbage pits - Pick pieces of paper & plastic bottles putting • Them in appropriate places	- Difficult to organize study tours due to large number of students and financial constraints. For example at Makongo S. S. there are 700 students in Form 4, and 4 teachers only teaching biology - Double sessions lead to overloaded timetable thus interruptions in other lessons if out of classroom activities done. - Saturdays occupied with	- Visit and observe natural habitats such as UDSM reserved areas, beach, & Bagamoyo - Organize study tours to National Parks, Mining areas such as Kunduchi, lakes, mountains areas - Visit areas where there is a lot of human activities contributing to environmental degradation eg. Tegeta & Kunduchi - Invite

	• Arranged with people involved in recycling to collect the plastic papers & bags.	tests and exams - Unaware of places materials can be secured eg. Video cassettes & films related to the topic - This is a last topic therefore teachers busy preparing/invigilating exams.	guest speakers such as environmental specialists. - Visualize charts, video, films showing different aspects of environmental conservation.

Subject: Biology F5 – 6

Environmental content in the syllabus	**What most teachers do**	**Reasons**	**What more they can do given help**
ECOLOGY - Ecosystem - Methods of studying ecology - Population by dynamics - Sustainable use of environmental resources.	Teaching is mainly theoretical by: Explaining the: - Components of the ecosystem & how they interact. - Methods of studying ecology eg. Sampling - Types of communities & their global distribution - Population explosiors & their consequences Discussion on: - Need for sustainable use of environmental resources - Ways of recycling resources. Undertake measures of protecting the	Lack of initiatives from teachers due to: - Overloaded timetable i.e double session - Lack of accountability since the topic is covered in several subjects - Teachers are after tuition after classes & other personal affairs. - Large no. of students - Unavailability of video cassettes, & films on environmental issues. - Lots of activities after the normal school routine even on Saturdays as they are involved in tests, exams, projects.	- Students could view video or films on different environmental issues - Undertake projects to protect & improve the nearby environment such as planting trees - Establish tree nursery beds - Organize local visits e.g to other schools - Replace the old trees - Visit industries where materials are recycled - Teachers could be educated about the sources

	environment.	- No library	of information (teaching facilities) and importance of study visits.

Chemistry F1 – 4

Environmental content in the syllabus	**What most teachers do**	**Reasons**	**What more they can do given help**
- Soil Chemistry – F4 - Advantages and disadvantages of fertilizer as compared to manure	- Explain about soil reaction - Categorize the essential plant nutrients into macronutrients and explain their functions and disadvantages - State advantages of manures and fertilizers	- Overloaded timetable does not allow out of class activities - Large number of students - Double sessions	- Practice making of composite manure in different ways and apply on different plots then observe difference in plant growth.
POLLUTION Air Water Land - Identify human activities which cause different types of pollution and visit factories to see how they deal	Explain and discuss on:- - causes - effects and - remedial measures of air, water & land pollution	- Lack of financial support - Large number of students Ext. At Makongo there are 500 F4 students	- Visit industries and factories to see how they deal with their gaseous and liquid effluent.
With their gaseous and liquid effluent - Discuss how environment is destroyed by careless dumping of rotting garbage, non-biodegradable plastic bags & bottles	"	"	"

Chemistry F1 – 4

Environmental content in the syllabus	What most teachers do	Reasons	What more they can do given help
THE NATURE & PROPERTIES OF WATER: - Occurrence - Nature of water - Physical & Chemical properties - Importance of water - Water treatment & purification	Describe the occurrence and nature of water Explain importance of water in industry and daily life. Describe processes of domestic and urban water purification	Lack of initiatives from teachers due to financial instability - Remoteness of schools from cited stations to be visited - Unavailability of visual aids and other practical facilities	Prepare a small water filter using said, charcoal and gravel - Visit a large scale water treatment station - Visualize charts showing diseases caused by untreated water
ENVIRONMEANTAL CHEMISTRY - Though cited in the organization of the syllabus as one of the topics which has been added has not been incorporated in the syllabus	Not taught	-	-
HYDROCARBONS - Classification - Alkenes - Alkenes - Alkynes - Benzene and Homologue - Hazards of hydrocarbons	Describe the hazards of polymers for example those found in cigarette, smoke, causing cancer, stroke and heart attacks	- Laboratories not appropriate for carrying out the experiments - Labs not well equipped - Unavailability of wall charts, video and films	- Prepare some of the hydrocarbons - Install and purchase appropriate fixtures and materials to allow these practicals to be carried out
POLYMERS - Concept of polymers - Types - Properties - Preparation - Suferthetic rubber - Hazards of	Explain the hazards of polymers. Ex. dangers causes by disposal of plastics & burning plastics	“	- Prepare some of the polymers - Visualize charts, videos, films showing the hazards of polymers and hydrocarbons

polymers	- Sensitize students on cleanliness e.g. disposal of plastic bags & containers		

Appendix 9: Terms of reference for the task

NTEAP
Environmental Education and Awareness Program

Initial Country Environmental Education and Awareness Reviews

Terms of Reference

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1. Project background

The Nile Transboundary Environmental Action Project is one of the eight projects under the Nile Basin Initiative Shared Vision Programs (SVP). The main objective of the project is to provide a strategic environmental framework for the management of the transboundary waters and environment challenges in the Nile river basin. Specifically, the project will:
Improve the understanding of the relationship of water resources development and environment;
Provide forum to discuss development paths for the Nile with a wide range of stakeholders;
Enhance basin-wide cooperation and environmental awareness and
Enhance environmental management capacities of the basin-wide institutions and the NBI.
The project has six components (i) Institutional Strengthening to Facilitate Regional Cooperation (ii) Community-Level Land, Forest and Water Conservation (iii) Environmental Education & Awareness (iv) Wetlands and Biodiversity Conservation (v) Water Quality Monitoring and (vi) Monitoring & Evaluation.
The Environmental Education and awareness component within the Nile Transboundary Environmental Action Project will focus on creating awareness on the River Nile environmental threats, while stimulating behavioural change at three levels; the general public, secondary schools and tertiary institutions of learning.

The programs objectives will be achieved through enhancing awareness on the nature of environmental inter-relatedness within the Nile basin and effects on communities. Focus will be put on developing or strengthening transboundary partnerships and networks of environmental education and awareness practitioners. This will be achieved through; building practitioners' capacities, introduction and building transboundary cooperation and demonstration (through pilot activities) the feasibility of developing and delivering a variety of environmental education and awareness programs at basin-wide level.
In order to design an environmental education and awareness component, it is important to begin with a sense of the history of the environmental issues, knowledge of the key institutions and individuals, and an idea of which options are possible. Successful and sustainable EE&A initiatives are usually built on a combination of all stakeholders, especially project recipients and beneficiaries ideas.

In that vein, the NTEAP intends to recruit a national consultant to obtain a rapid assessment of a country's EE&A – quick, clear snapshot of the existing state of environmental education and awareness.

2. Description of the services to be rendered (Objectives of the assessment)

The main objective of the reviews is to come up with a clear snapshot of the existing state of environmental education and awareness within the Nile Basin for each riparian country. Specifically the review will:-

Determine the state of both formal and informal EE and A activities within the country. The policy and institutional frameworks at national level and transboundary activities within the basin;
Determine the state of EE and A within all levels of learning institutions especially secondary schools;
Assess the number of tertiary institutions offering EE either as a course or a module;
Identify active practitioners and/or products (film, books, radio programs, campaigns, brochures, posters, etc.) within the basin on public awareness and environmental education. Document their modes of delivery, intuitional set-ups and sources of funding;
Based on collected information, project and other documents, personal experiences, identify activity gaps and suggest opportunities and constraints for transboundary environmental education and awareness activities within the basin in each country;
Based on collected information suggest main SMART indicators for measuring progress.

The proposed review will address the policy and institutional framework at the national level and projects and programs at the basin level. In countries with federal states like Ethiopia the study will cover the five states which are within the basin.

3. Consultants main tasks

The consultant will carry out the following tasks;
Conduct desk and website reviews starting with both Project (PIP, TEA, PAD) and Nile Basin documents and websites;
Develop a short checklist of questions to be administered in each sample group;
Information gathering using participatory methodologies;
Information analysis and report writing;

a) Information gathering

It is fundamental that a participatory approach be used for collection of meaningful information from various sources – exiting documents, in-depth interviews, focus group discussion or direct observations. Time will be taken to do both desk and web search reviews. To ensure a more complete picture, the consultant will seek out representative comments and viewpoints at all levels of a given organization, as well as among stakeholders, beneficiaries and groups that will be affected. Emphasis will be put to elicit viewpoints and comments from both men and women. The draft report will be circulated to a broader focus group (National Environmental Education and public awareness working group) for further inputs.

b) Interview sample group

Given time and budget constraints, interviewing all groups will not be possible, however the consultant will ensure that a representative sample of people from each major category. Emphasis will be put in all categories of stakeholders and beneficiaries including but not limited to: -

Government desk officers assigned to environmental education, participation or outreach programs specifically the Ministries of Environment, Education and Water Resources (at national, regional, or community –level);
Institutional/project managers, supervisors and administrators of projects that are working or intending to work on environmental outreach , school modules within the basin;
Influential leaders or opinion makers from the private sector, NGO community, CBOs, and religious organizations;

School instructors, teachers, extensionists working with school clubs;
Farmers and low-skilled workers;
Representatives of environmental journalist at the national, regional , or local mass media (print, radio, and TV as appropriate);
Community members, students, or well defined groups like women groups, youth groups, scout movements, etc.;
Institutional /project beneficiaries, recipients, or constituents;
Environmental, humanitarian and development NGOs within the basin;
Bilateral and Multilateral donors working or planning EE&A activities including UNDP, WFP, CIDA, GTZ, SIDA
International NGOs agencies like IUCN, WWF, AWF, etc
In Rwanda and Ethiopia NELCU and ENTRO respectively to determine their future plans, needs and possible linkages on EE &awareness activities.

4. Coordination arrangements

The consultancy will be coordinated at two levels. At PMU, the EE&A lead specialist will coordinate the contractual obligation; the National Project Coordinator will coordinate the activities at the national level.

5. Reports and/or data to be submitted to PMU

The consultant will submit a checklist intended for information collection to the PMU for review. After the study the consultant will submit the draft reports to both the PMU the Nile secretariat and the NPC (to circulate to EE&A national working group members) for comments.

6. Time frame

With limited resources – notably financial and time, the assessment is expected to be completed between 10 -19 working days depending on the situation within each country (Table 1). This activity is planned for the month of October 2004 in all countries.

Table 1 *Suggested workplan for Initial survey*

#	**Tasks**	**Approximate Max No. of days**
1	Conduct desk and website reviews starting with both Project (PIP, TEA, PAD) and Nile Basin documents and websites	2.0
2	Develop a short checklist of questions to be administered in each sample group and send to NTEAP for review	2.0
3	Information gathering using participatory methodologies	10.0
4	Information analysis and report writing	2.0
5	Finalize report after the circulation for comments NTEAP, Nile-SEC, UNDP, WB	2.0
	Preparation and presentation of the final approved report to the 1st National Working group workshop	1.0
		19 days

7. Standards

The initial review doubles as a baseline survey for EE&A status in each country. It is expected that the consultant will highlight a few SMART indicators to enable the program achieve M&E objectives.

8. Document and services from PMU

The PMU will provide the project documents (PIP, PAD, TEA) for use as reference materials. In addition the project and Nile secretariat websites are encouraged to visit.

9. Monitoring /progress control

Monitoring or tracking progress will be done at two levels. At the national level, the NPC will monitor daily progress. The PMU will from time to time consult with both the NPC and the consultant to monitor progress and/or difficulties encountered.

10. Expected main outputs

The main outputs from the assessments are;

Country Status –the current state (snapshot) of environmental education and awareness (both formal and informal, including institutional and policy framework) at national and within the basin in all riparian countries is determined;

Identification of key players –key environmental education and outreach players current and planned within the basin will be identified, documenting their modes of delivery, institutional set-ups and sources of funding;

Opportunities – opportunities and constraints for transboundary environmental education and awareness activities for the basin in each country will be identified.

Dissemination – The report will be presented to the 1st National Environmental Education and Awareness working group workshop;

Baseline – The report will highlight a few SMART indicators for M&E, in addition to being used as a desk reports for the formulation of the main project M&E strategy. It will also form part of the regional status report on environmental education and awareness.

11. Reporting requirements

Contents

A detailed but reader friendly format, free of technical or academic jargon report is expected. The report will include recommendations and present them as a series of options for developing EE&A activities rather than prescriptions of what must be done. For easy of comparisons between countries and capturing the main project subcomponents, the following report format is suggested;

Executive summary;

Background;

Policy and Institutional framework;

Formal EE programs;

Non Formal EE programs;

EE and A at tertiary institutions;

Recent projects & programs and planned environmental education and outreach program within the basin;

A list of opportunities and constraints for Transboundary environmental education and outreach program;

Summarize lessons learned around EE and A project experiences at national and transboundary level;
Set of main indicators and how the indicators can be measured;
Conclusions and recommendations.

Format
The report will be submitted in both hard and electronic copies. The electronic copy will be in Ms Word.