

The Need to Institutionalize Life-Long Environmental Education in Botswana

Johannes Mutanyatta

Abstract

This paper strongly argues for lifelong institutionalization of environmental education both in formal education systems and non-formal adult education fashions. This should include the reactivation of indigenous cultural education rooted in the life style of the people. The paper provides pertinent learning and training strategies including social mobilization techniques, for raising people's awareness, popular participation and support systems. The paper concludes by observing that concerted efforts to achieve the country's policy on sustainable natural resources conservation and development will very much depend on the manner and degree of institutionalization of environmental education which covers the life span of every person in society. There is need for lifelong environmental education processes and programmes. In the face of changes in science and technology and the free market economic policies, sustainable environmental education will require imaginative, institutionalized, formal and non-formal, learning and training strategies to resolve disparities between political intentions and socio-economic realities.

Introduction

The issue is on consciousness raising on a global scale given that the environment is in peril. The contention that science and technology has enabled man to solve many problems, no longer holds true as it has at the same time resulted into harmful effects on a number of aspects of contemporary life. In essence, learning for adaptation, that is man's perception of the environment, goes beyond the awareness of sensory impressions to the acquisition of skills and knowledge and the development of attitudes, beliefs and standards. Thus, the issue is on the triangular relationship between people, economy and environment, masked by technological civilization.

Over the years, three-class typologies of human responses and attitudes regarding man's adaptation to the environment have emerged. These have been conceptualized in terms of *man-under-nature* associated with human attitude of passiveness and fatalism, *man-with-nature* associated with conservation oriented attitudes and *man-over-nature*, associated with technical interventionism (Burton et al, 1978). The implication is that each type of response and attitude lead to varying management strategies to the environment as for example, in the first category *man-under-nature*, man's survival as gatherers and hunters, was solely determined by nature. In the second category, man's relationship with the environment as a subsistence farmer, was that of harmonious balance or equilibrium linked to cultural adaptation and change.

The grave danger to environmental misuse became associated with the third category : *man-over-nature*. The implication is that technological development, all over the world, has contributed to environmental deterioration. Because during his 7,000 years of recorded history, man has had to tackle the environment and control it. But through carelessness, economic greed, or ignorance, he has at times impoverished it. The process of expanding economic growth saw man using fire for hunting and itinerant agricultural purposes, the consequences of which laid forests bare, together with the disappearance of grass

and other vegetation covering the soil. The results have been disastrous and in certain cases, irreversible. Known cases include soil erosion, deforestation, floods, drought, destruction of animals and plant life, and the turning of formerly fertile land into deserts.

Industrialization and population explosion saw the growth of cities and the exodus of rural people to towns and cities to escape from rural poverty. In the nineteenth century the harmful effects of rapid economic growth due to technology became significantly apparent. Since then life has been threatened by factors such as pollution and noises in cities which continue to upset dwellers causing psychological disturbances, fatigue, mental anxiety and frustration. Despite this, people are increasingly becoming insensitive to the dangers of cultural and ecological disequilibrium. To underscore this, Edgar Faure (1993) observed that technology has already produced harmful effects. It has jeopardized and is still disturbing the balanced relationship between people and the environment, between the nature and social structures and between human physiological constitution and their personality.

Irreversible ruptures are threatening humankind. What then is the cure? For Edgar Faure (1993) the job of confronting these multiple dangers falls largely on education. Work to remedy the situation involves an all-out attempt to prevent such divisions; and to forestall and counteract the dangers deriving from the technological civilization. Stimulating awareness of such dangers is a demanding new task for environmental education.

And for our paper we advocate measures that will constantly reinforce and sustain national policies on natural resources conservation and development. Naturally, people will continue to exploit the environment but this process should not be at the expense of environmental degradation. Thus, the focus is on the need to institutionalize life-long environmental education in all spheres of influence - be it social, economic and political. In this sense, we look at Botswana Government's environmental policy initiatives, as a case study.

The paper attempts to highlight the existing Botswana Government environmental policies on natural resources conservation and development, strategies and implementation; provide a brief evaluation of what has so far been done to implement the policy (1990 - 1994); list development constraints including a fragile ecosystem, drought, rapid population growth, (3.5% p.a.) illiteracy and rampant rural poverty; provide a rationale for the institutionalization of life-long environmental education and strategies and proposes research and evaluation agenda for entrenchment of environmental education.

In discussing each of the above five issues, the paper observes with concern two axiomatic principles that: (a) Evolution in education, including the requirement of environmental education, is closely linked to that of social and economic factors such that educational strategy can only play its part efficiently if it is constantly related to the totality of National aspirations, needs and resources; and (b) conflict of interests or incompatible goals can affect policies and their impact. The implication is that the proposed institutionalized lifelong environmental education would need concerted efforts, political will and commitment in order to resolve the disparity between government political intentions and desired concrete actions such as the provision of materials and human resources.

The National Conservation Strategies (NCS)

The Botswana Government has taken strides forward to initiate a National Policy on National Resources Conservation and Development as reflected in Republic of Botswana, Government paper No. 1 of 1990, approved by National Assembly on the 17th of December, 1990. Thus, when Parliament approved the NCS and its white paper No, 1, it committed the country to sustainable development as a goal which emphasizes both conservation and development.

Inevitably, conservation must be tied to human needs with a goal to achieve more equitable distribution of incomes and reward systems. This in turn must be linked to a change in attitudes of all members of society who use the

environment, to become aware of the need to conserve natural resources for future generations. Indeed, the Botswana Government attaches great importance to the wide range of natural resources and features which exist throughout Botswana including national parks, game and wildlife management areas, fresh air, clean waters, vegetation, livestock and soils. It is recognized that it is upon these resources that many people depend directly for their livelihood. Indeed, it is clear that many of these resources are under pressure, and the concern is that these resources may be unable to sustain the needs of future generation.

The main environmental issues in Botswana requiring solutions include.

- Growing pressure on water resources, resulting from increases in livestock and human population and urbanization;
- degradation of rangeland pasture resources, due to a variety of management and other factors like overgrazing and drought;
- depletion of wood resources, both in commercial harvest of forests and as the main source of domestic fuels in most settlements. Wood harvesting has been largely undertaken in an uncontrolled manner;
- over-use or exploitation of some veld products - damaging regenerative capacities to provide for both subsistence and commercial needs; and
- pollution of air, water, soil and vegetation resources. As a result human life support systems in both urban and rural environments are affected.

Indeed, for Botswana, the Government has long been committed to sustainable development'. In essence, sustainable development entails ensuring that:

- Present generations consume no more than the annual output or yield of those natural resources which are renewable; and that

- Future generations have access to capital stocks of natural resources, at least similar to those presently available.

To underscore the achievement of the above sustainable development objectives the Botswana Government has prepared a national conservation strategy (NCS), in full consultation with all levels of society in Botswana.

The Government white paper outlines future strategy for the conservation of natural resources. The strategy provides an overall framework for the policies and measures which will enable the key issues to be effectively addressed, as well as the opportunities to be realized. The approaches include: a continuation of government intervention under which a combination of laws, price incentives and fiscal reliefs in effect determine the dominant land uses; the continuation of the present system of resource allocation based on reasonable rationing and zoning such as National parks, game and forest reserves, TGLP (Tribal Grazing Land Policy) ranches, freehold and leasehold farms, mixed farming areas and designated 'wildlife management areas' and the multi-purpose (integrated) use and management of resources. In a nutshell, the government recognizes the importance of maintaining a strong livestock industry, in view of the overgrazing problems and emphasizes the diversification of the economy.

Equally significant is that the Government recognizes the importance of popular participation by all groups within the community towards implementing the NCS strategy. These include village elders and members, district councilors, local government, central government and parastatal officials, members of NGO community, private sector companies, teachers and researchers. Also, solution packages for the main environmental issues have been outlined; as well as expected benefits to various target groups, especially in livestock and arable farming. Furthermore, the government affirms that implementation of the NCS, involving all sectors of the community, will require the allocation and deployment of additional resources.

It thus, accepts responsibility for providing the necessary lead by contributing resources to:

- . The formulation and execution of all policies directed to the sustainable development and conservation of all natural resources: Water, rangelands, woodlands and timber, veld products and wildlife in particular;
- . the establishment of the proposed new institutions;
- . the provision of 'solution packages' for environmental problems and development opportunities;
- . the formulation and execution of projects at national, district and village levels;
- . the conduct of research and development programmes;
- . the provision of conservation orientated extension services;
- . the introduction of additional education and training facilities;
- . the formulation and implementation of Environmental Impact Assessment procedures;
- . the organization of promotional and information campaigns required in support of the NCS;
- . the advancement of environmental data systems;
- . the preparation of management plans for all National Parks, Game/Forest Reserves, WMAs and other important conservation areas and features; and

- the provision of support and appropriate assistance to conservation NGOs and private sector organizations in the execution of their responsibilities.

Government accepts that implementation of the Strategy calls for the provision of significant additional resources, covering four specific requirements:

- First, these are resources required for both the establishment and operation of both the NCS Advisory Board and NCS Co-ordinating Agency.
- Second, there are the additional funds required to cover the adjustments within existing Government organizations, in order that they can play their full part in the implementation of the NCS.
- Thirdly, there will be the need for resources to undertake the special training, research and development, data collection, monitoring and promotional programmes.
- Fourth, a programme for the implementation of projects phased over a five year period, will need to be funded. In total, 42 priority project proposals have been recommended by the respective Ministries, in the course of preparing their NCS Technical Reports.

It is recognized that, in implementing the Strategy, Government resources will need to be complemented by contributions from the private sector and the donors. It is intended to implement the Strategy through an Action Plan, which will be monitored as part of the National Development Plan (NDP) process. So far we have tried to highlight major concerns on Botswana NCS. It is noteworthy to next provide a brief evaluation of the NCS since its inception in 1990 to date.

The Evaluation of the Botswana NCS (1990 - 94)

Probably, in view of the normal Governmental bureaucratic system and red tape, it is too early to provide a comprehensive evaluation of the Botswana National Policy on Natural Resources Conservation and Development. This is because of the short period of four years since its inception, and therefore the observation to make is that it is still in its embryonic stage.

However, from the discussion above it is clear that the Botswana Government has taken tremendous strides to establish national goals and objectives pertaining to a number of issues on environment and development. The white paper, No. 1 of 1990, has detailed several strategies in relation to National Policy on Natural Resources Conservation and Development. It has established a National Conservation Advisory Board which became operational in March 1992 following approval of the membership by Cabinet and the appointment of the executive secretary.

The Board has statutory advisory powers with the major responsibility of coordinating the implementation of the NCS. The coordinating role of the Board entails the following:

- Consulting and cooperating with all institutions in ensuring that the objectives of the NCS are achieved;
- promoting the coordination of environmental policy formulation and implementation;
- liaising and supporting non-governmental institutions undertaking conservation projects;
- promoting the review and harmonization of existing environmental policies and legislation;

- promoting coordination in the implementation of the NCS Action Plan;
- promoting and coordinating environmental information and data collection; and

In addition, the NCS coordinating agency, has the secretariat, as the implementing arm of the Board. The executive secretary has been in post since August 1991, but, due to slow bureaucratic process of Government, offices were acquired in February 1992. Currently, the secretariat has seven professionals and several other supporting staff, but it is notable that the senior most posts below the executive secretary have not yet been filled (Republic of Botswana, Conservation Botswana Newsletter, March, 1994). The secretariat is divided into two; namely Educational Research and Policy/Programme. The Education/Research division is charged with carrying out environmental education and promoting environmental research and information gathering. The Policy/Programme division promotes the formulation of NCS projects, programmes and policies and the implementation of EIA.

To date, the achieved implementation by the NCS institutions include:

- The briefing of local authorities throughout the country on the approval of the NCS as well as the crucial role they have to play in its implementation.
- In terms of environmental awareness building, the NCS agency has been involved in making presentations at workshops organized by both Government and Non-Governmental organizations.
- Involvement in the reviews of environmental policies and legislation coordinated by different sectoral Ministries/Departments.

- The agency has played a leading role in the assessment of the hazardous wastes problems and formulation of legislation on environmental impact assessment. this work has been accepted as part of the planning and implementation of several major projects, despite the legislation still being formulated.
- The NCS agency has prepared a more comprehensive environmental education programme which it has started to implement e.g. the production of "Conservation News Botswana" a newsletter (see Vol. No. 1, 1994).
- Also the NCS agency is involved in discussion with the Ministry of Finance and Development Planning to secure funding for the preparation of an NCS Action Plan aimed at translating the NCS policy measures into projects for implementation.

To be noted with serious concern is that the implementation of the NCS policies cannot be the prerogative of the NCS agency alone, but will continue to require the full participation of other government organizations and NGOs. In short, the Government has established institutions which already have started to address the National policy on Natural resources conservation and development. The humble start is indeed very encouraging. But much still needs to be done by the NCS agency to sensitize the public and to enact relevant legislation and laws.

It must be noted that NGOs have taken a more active lead in environmental education with specific targeting. For example, Wildlife clubs target school children; Fansag (Forum for Sustainable Agriculture) looks for methodologies; Environmental Watch Botswana targets decision-makers in terms of awareness and direction; and Kalahari Conservation Society aims at rural communities. Indeed, the involvement of NGO institutions is crucial to the successful implementation of the NCS. Thus, the NCS agency has already established working relationships with NGOs in the country. NGOs are already represented in the NCS Board.

More encouraging is the steps taken by the Ministry of Education to infuse environmental education into school curriculum. The process, so far, includes five stages as indicated below:

Environmental Education Needs Assessment

A needs assessment has been completed for all school levels in the formal education sector and the findings reported to the Ministry of Education officials, teacher training college lecturers and University of Botswana (UB) Faculty of Education staff members. A list of recommendations were made which prioritized activities for the year. The needs assessment for the non-formal sector has been completed and a composite report compiled. Draft copies have been circulated to the Environmental Education Reference Committee and to the Department of Non-formal Education as the first steps in the review process.

Teacher Education

Teacher education workshops have been held with selected groups of teachers and teacher trainees. The Teacher Training and Development Department in-service education officers have met with the Curriculum Development Unit personnel to set up plans for in-service environmental education workshops for all teacher trainers and education officers. Teacher training college and college of education staff have continued their environmental education curriculum review. Subject leaders from the Primary Teacher Training College (PTTC) have nearly completed their review of syllabi and other curriculum materials associated with environmental education. A meeting was held with all curriculum development officers to report on the progress made in the review of the primary school syllabi.

Curriculum Materials

The final editing and layout of a Teacher's Resource Handbook for Environmental Educationism almost completed. A group of student-generated environmental stories, poems and drama have been edited and will be printed by the Teaching Aids Production division of the Department. A planning workshop has been held to generate teaching activities and other materials for an environmental school calendar to be published for the 1995 school year.

Environmental Education (EE) Audio-Visual

The *Curriculum Development Division/Television Trust for the Environment Project* to produce videos that support Botswana's National Conservation Strategy is nearing completion. Rough cuts of five learning videos have been completed and a model set of teachers' notes written. A bibliography of EE publications, teaching materials and videotapes has been initiated and a trial set of materials have been purchased for evaluation and eventual distribution to schools and teacher training institution libraries.

Conference and Workshops

Natural Resources Management Project (NRMP) co-funded a major national environmental education planning conference in 1991. The recommendations from this conference have served as the foundation for EE development plans throughout the Ministry of Education. Six other, more specialised, training workshops were held in 1992-4 at the Gaborone Game Reserve for primary school teachers and Department of Wildlife and National Parks (DWNP) game scouts which prepared the participants to more effectively use the Reserve with school children. Most recently, the workshops have focused on the use of environmental topics in project method teaching and the use of the Educational

Guide to Gaborone Game Reserve, (Ministry of Education, Department of Curriculum and Evaluation 1994).

The lead taken by the Ministry of Education, is also found in other Government Ministries. For example, the Ministry of Agriculture is currently involved in making operational the policy that has major implications on land management. Also the Ministry of Agriculture is involved in the review of forestry legislation and the strengthening of the Agricultural Resources Board in order to promote improved management of forest resources, rangelands, etc. The Ministry of Health has been involved in the initiation and formulation of the waste management policy. A workshop towards this goal was organized in 1993 as a prelude to preparing the policy. The achievement of the NCS goals cannot be discussed in isolation of the objective reality of the country. Thus a look at development constraints in Botswana is in order here.

Botswana's Development Constraints

The discussion focuses on some salient factors that seem to hamper the smooth attainment of the Botswana NCS. Desertification is a characteristic feature of most of the western part of the country the Kalahari desert. Rainfall is variable and the country experiences severe drought. This semi-arid or arid ecosystem poses severe environmental hazards and degradation. This leads to obvious problems of crop failure, grazing and water shortage, as well as the scarcity of preferred types of veld products. And as observed by Raban Chanda (1993), problems of arid ecosystem, lack of rainfall etc., relate to the low productivity of the main subsistence resource systems, and therefore correlates positively to food crisis in the traditional economy.

There are already land use conflicts between livestock, wildlife and arable farming. These imply land use planning problems. The issue of rapid population growth, at 3.5 per annum, adds another problems of exploitation versus conservation or sustainable resource management in future. The crucial

issue is that of a high percentage of citizens (70 per cent) living and working in rural areas characterized by illiteracy, lack of know how in science and technology and more disturbingly surviving in poverty, or absolute poverty (Republic of Botswana, UNICEF Report, 1989). This is despite a high per capita income of P5000 which is among the highest in Africa. (See UNDP Human Development Report, 1994).

Another area of concern is the failure of mechanization in the Mpandamatenga area. Thus, the impact of mechanization (use of tractors) and drought power is yet to be established in Botswana. This has implication for extension education and attitudes of rural people to modernize arable farming methods and techniques. The answer may be in the use of appropriate technology, and change in perceptions of people towards social development. Naturally the success of the NCS will have to take into account the culture and values of people in development. In view of the above brief outline of development problems facing Botswana in its efforts to achieve NCS, it is pertinent to provide a rationale for institutionalization of life-long environmental education.

Life-long Environmental Education

It must be noted that degradation of rangeland pastures has occurred due to overgrazing which is attributed to maldistribution of livestock and poor management of the range. Depletion of wood and resources has been experienced around major settlements mainly because of poor management of the resources, and high population growth and increasing urbanization. The exploitation of veld products is a problem that has been occurring as a result of commercialization and poor harvesting methods. The other issues include pollution resulting from littering, dumping of wastes, etc. All these issues relate directly to people's survival.

Thus, to achieve its aims the NCS involves all citizens irrespective of the age groups. It is observed that people fulfil themselves through constant learning and

adaptation to the natural environment. The implication of this is that education takes place at all stages of life, in all situations and circumstances of existence. Consequently, education as a life-long process, needs to be seen as a phase in the education of a changing human being, starting with childhood through adolescence, youth and adulthood to old age. Furthermore, education is to be seen as a phase in the continuous provision of tools for social thought and action. Thus, life-long education is total, and transcends the limits of institutions, programmes and methods viewed from the formal educational system. Viewed in that sense, we underline the need to institutionalize life-long environmental education both in formal and non-formal educational systems, including in NGOs, parastatal and private sectors.

All community development projects should have environmental education entrenched in all spheres of influence. Educational centres, Rural Training Centres, etc. should be involved in environmental education awareness and NCS implementation. The strategies include all types of training and planned social mobilization techniques. In formal education system we already indicated the process of infusion of environmental education in the school curriculum in all forms and levels from primary to University levels.

The Role of Mass media in promoting environmental education need not be emphasized. In a nutshell, the need to institutionalize life-long environmental education in the interim and long-term education policies is paramount and requires constant commitment and political will. We now turn to the needed research agenda as a conclusion to the paper.

The Research Evaluation Agenda for NCS

In view of the above discussion on the NCS, concern is on the triangular relationship between people, economy and environment masked by technology. Problems of environmental degradation are identified in terms of those due to nature and those which are man-made. The basic human needs for survival

continue to depend on nature. The NCS recognizes these needs of human survival. And since there is a relationship between conservation and human needs development, then the research agenda should be targeted to the manner and extent of how the major identified environmental issues are to be addressed and resolved. Major research areas to be targeted include:

- . Indigenous people's life-styles, cultural values and aspirations in relation to land use management;
- . Livestock development sector in relation to the problems of overgrazing and rangeland; management waterlands and ground-water for future usage;
- . Poverty income generating activities and the eradication of illiteracy;
- . Gender, informal sector businesses, as well as in arable farming where low productivity is a major concern;
- . Extension outreach education and the impact of technology; and attitudes of people towards the NCS, the impact of environmental education campaigns, projects and programmes.

In conclusion, the task to implement and achieve success for the Botswana NCS is enormous and complex. Steps taken so far are encouraging and signify positive future prospects.

Bibliography

Burton I, Kates, R.W. and White, G.F.

1978 *The Environmental as Hazard*, OUP - New York.

Chanda Raban

1993 'The Relevance of Human Attitude and perception Surveys to Desertification control - The Case of Botswana' Department of Environmental Science University of Botswana.

Faure, E.

1992 *Learning to be the World of Education today and tomorrow*, UNESCO Paris.

Republic of Botswana/Unicef

1989 Report in Children, *Women and Development in Botswana A situation Analysis*.

Republic of Botswana

1990 Botswana National Policy on Natural Resources Conservation and Development - Government White Paper No. 1 of 1990 Approved of Parliament on 17/12/1990. Government Printer, Gaborone.

Republic of Botswana

1994 Conservation Botswana Newsletter, Vol. 1, No. 1, March, 1994

Republic of Botswana

1994 Conservation Botswana Newsletter, Vol. No. 1, Gaborone Printers, Gaborone.

Republic of Botswana

1994 Ministry of Education, Department of Curriculum and Evaluation: Topic in Project Method Teaching, Using Educational Guide to Gaborone Game Reserve for Primary Schools, Government Printers, Gaborone.

United Nations Development Programme

1994 Human Development Report, New York, United Nations.