Chapter 11

Promotion of Formal and Non-formal Environmental Education

Introduction

One important characteristic of environmental education is the employment of a wide variety of methods. This chapter considers some approaches and methods that could be employed in the implementation, monitoring and evaluation of formal or school-based, and non-formal or community-based, environmental education in any given setting. It begins with a delineation of the key paradigms that inform the formulation of environmental education approaches.

Some Paradigms of Environmental Education

Both formal and non-formal environmental education programmes and their various approaches will be discussed. It is therefore necessary to delineate some environmental education paradigms in order to consider those that inform the formulation of each of the approaches under discussion. Firstly, what is a paradigm? Lynch (2005) defines it as a lens through which we view the world. Accordingly, different lenses entail different assumptions about the nature of the world and the ways in which we should attempt to understand it. There are many different lenses that exist for viewing and understanding it. Interpretivism, eco-centricism, anthropocentricism and ecofeminism are some of the paradigms that have emerged to shape and influence approaches to environmental education at both formal and non-formal levels.

Interpretivism

Lynch (2005) provides a succinct description of the interpretivist paradigm. In this paradigm it is considered impossible to separate facts from values. Inherent subjectivity in any research conducted in relation to people or the social world is accepted. Since knowledge is socially constructed, rather than an independently existing reality, the notion of causality is defined differently. From the interpretivist perspective, causal relationships are simply another, possible explanation for certain aspects of the social world that is being researched. They are not taken to be universal laws that govern people and their actions. Rather than following the notion of causality as one variable preceding and causing another, interpretivism sees relationships as more complex and fluid, with directions of influence being mutual and shifting, rather

than uni-directional and fixed. Relationships within the social world are external and independent of our attempts to understand them. Therefore, rather than seeking a 'true' match between our research observations and reality, the interpretivist paradigm understands reality as being constructed in and through our observations and pursuit of knowledge.

Eco-centricism

Eco-centricism (ecologically-centred) claims moral values and rights for ecological processes and systems, as an alternative to the biocentric view, which concentrates on the values and rights of individual organisms (Cunningham et al. 2003). In the eco-centric paradigm, the whole, for example, an ecological area or a species, is considered to be more important than its component parts, for example, an individual organism. A simple illustration given in support of this alternative view is that if you killed an individual organism you have only denied it a few months or years of life. But, if, on the other hand, you eliminated a whole landscape, you will have destroyed what has taken millions of years to create.

Anthropocentricism

This human-centred approach places the human above all other species, by virtue of the human being's intelligence, foresightedness and creativity (Cunningham et al. 2003). By extension, humans have dominion over all other species, and nature as a whole. This paradigm has its roots in the Bible. It is misinterpreted to mean that man has the right to exploit and treat nature as he pleases. It follows, therefore, that he can choose to protect only the species that serve his religious, cultural, scientific, economic and other interests. Of course, this has generally been applied. We may recall how often an insect, unfortunate enough to find itself on your arm, is crushed, even though you know very well that it can cause you no harm.

Eco-feminism

According to Cunningham et al. (2003), eco-feminism is a proposed alternative to the last two paradigms, which promote patriarchal systems of domination. Rather than concentrating on values, rights, obligations, ownerships and responsibilities, it encourages care, appropriate reciprocity and kinship. The rationale is that 'when people see themselves as related to others and to nature they will see life as bounty rather than scarcity, as cooperation rather than competition, and as a network of relationships rather than isolated egos' (Cunningham 2003:44).

According to Birkeland (1995), eco-feminism is a paradigm that is as broad as the patriarchal ones it seeks to supplant, positing nearly as many interpretations as there are eco-feminists. In a nutshell, however, it is the application of feminist theory to the ecological crisis. The basic notion is that social oppression and environmental exploitation are inextricably linked to fundamental social constructs that have co-evolved with patriarchal power relations. For example, in Western patriarchal thought, reality has been construed in terms of dualisms, such as culture/nature, reason/

emotion, subject/object, science/art, public/private, hard/soft, mind/body, and so on. These basic dualisms are gendered and hierarchical, one side of each opposition being associated with the feminine, and devalued in the culture. From an eco-feminist view, replacing this patriarchal, dominating culture with one of equality and mutual respect would yield greater benefits for all.

Formal Environmental Education Programmes

A formal or school-based environmental education programme considers results in the long- rather than the short-term. It is based on the assumption that the target population may grow up to become wise resource users, or informed policy- and decision-makers.

Where there is no syllabus for environmental education, the programme should start by involving some schoolteachers in the examination of existing curricula, with a view to identifying subject areas with environmental contents; that is subjects that have environmental issues. After this exercise, a syllabus or scheme of work should be prepared. At least one workshop should be organised to review the materials of the early draft, and an education authority should approve the final draft before it is put into use in schools. The approval of an education authority is to ensure that teachers are committed to the teaching of the subject. This brings us to another consideration: training workshops for teachers. It is generally bemoaned that environmental education is a new subject, which requires some level of teacher training in order to guarantee the effective teaching of the subject.

One fortunate thing about school-based environmental education programmes is the fact that it targets two controlled target audiences: the schoolteachers and the learners. These groups have a common interest, and a common position to defend their interests. The schoolteachers' interest is to ensure the success of the learners by doing effective teaching. The learners, on their part, struggle to succeed by studying hard. Many experts stress the need to carry out intensive environmental education programmes at primary school level. This is based on the fact that the primary school is a nurturing ground for children who are the future resource-users, as well as decision- and policy-makers. It is at this level that the teacher can inculcate proper environmental behaviour in children, who may then grow up to be wise resource-users. When placed in decision making positions, the children could make decisions that help conserve rather than destroy the environment. The primary school teacher, therefore, has a crucial role to play in improving the quality of the environment. She has the responsibility, and the ability, to mould children into citizens who are environmentally conscious, environmentally literate and environmentally responsible.

Approaches to formal environmental education

Although implementers of environmental education dispute the goal of this subject, since they often find themselves in situations that require different definitions, they tend to adopt one of the following approaches.

Separate subject approach

This means treating environmental education as a subject in its own right. The subject is included on the school timetable, and teachers prepare lessons and teach it as they do any other subject on the curriculum. The problem with this approach is that only few teachers are sufficiently well trained and informed to handle the subject. Another problem is that of curricula in many countries, that are already too crowded to permit the introduction of another subject.

Cross-curricular approach

This is known as the multi-disciplinary approach. It is the teaching of environmental education through all the subjects on the school curriculum. Existing school subjects are screened for topics of relevance to environmental education. Some Western experts advocate this approach. It satisfies those who see environmental education treated in a piecemeal and arbitrary manner in schools. Teaching the subject using this approach depends upon the interest of individual teachers and upon the imagination they bring into the interpretation of their subject syllabi (WWF 1988). If this becomes the popular approach, it should be noted that it involves a great deal of coordination with every subject teacher understanding their role, defining their input and ensuring that what each teacher complements the lessons of others, forming an overall coherent learning experience (Living Earth 1998).

Carrier subject approach

This is an abridged version of the cross-curricular approach. It uses one or two subjects to teach environmental education. It shares similar constraints with the cross-curricular approach.

Thematic approach

This is the teaching of environmental education through environmental themes, applied to the different school subjects. This approach can be quite demanding and needs highly skilled teachers, capable of developing, designing and managing a curricular content in an interdisciplinary fashion.

Project approach

This entails carrying out projects designed either to raise general environmental awareness or address identified environmental problems. Examples include the development of tree nurseries and the establishment of crop rotational farm plots, in the course of which relevant discussions relating to environmental care are carried out.

Methods for the promotion of formal environmental education

As has been noted elsewhere, environmental education ought to be all-embracing. This is reflected in the multiplicity of methods employed in the implementation of

the subject, even at the level of the school. The following methods, discussed below, are by no means the only ones that can be used; the author has limited himself to those he has personally tested in schools.

Lesson presentations

As is the case with any other subject on the school curriculum, lesson notes are prepared on environmental topics and delivered to children using any of the approaches discussed earlier. Examples of lesson notes are included at the end of chapter four. A lesson presentation, or teaching, consists of a number of basic skills: communicating, explaining, questioning and organising (Farrant 1980). Each of these can be improved through constant practice. Demonstrations, illustrations and use of audio-visual materials are very important aspects of teaching, and there is increasing emphasis on student participation in the process.

Informal discussions

Teachers can discuss with the children in small groups or individually during breaks. This enables the children to develop the habit of free expression. It also helps build confidence in the children. Through informal discussions, the teacher can gain insights into children's personal values, attitudes, behaviour and potential. This is also a useful means of exchanging ideas and information on environmental issues.

Debates

It may be argued that, given the nature of most of our primary schools, this method may only be applicable at the secondary school level. But it should be noted that children of the senior primary classes can communicate freely and will have developed their own points of view by that stage. They often engage in arguments on their way to and from school and during breaks. This is a form of debate. Debates are an expression of opinion or position. Through debates, children learn to respect the views of others and to look at things from different perspectives. This is a good way of preparing them to grow into adults who can make sound judgements and informed decisions on environmental issues.

Drama

The students could be organised to perform short and simple environmental plays. Drama is an effective and entertaining way of putting across messages. It is the re-enactment of stories and presentation of situations, which makes the audience learn, as if by direct experience, and then draw conclusions by themselves. At the end of a drama performance, the audience should be asked questions in order to reinforce the meaning of the play, and prevent misinterpretations.

Games

Games, like drama, present messages in an entertaining and practical way. The rules of the game should be carefully explained, and instructions should be short and

simple. As with drama, the children should be asked questions at the end of the game in order to reinforce the meaning, and avert misinterpretations.

Songs

Some groups of children could be organised to compose songs that convey specific environmental messages. These songs could be presented to the class during special lessons, to the entire school on special occasions, or to a wider audience during national and international day celebrations.

Nature clubs

Clubs provide a useful opportunity to not only develop environmental awareness in the children, but also to inspire them to take an active role in environmental conservation. The clubs could be organised to carry out activities such as clean-up campaigns, tree planting, and so on. Debates and drama could be organised by the clubs to raise environmental awareness in the entire community. Arrangements could also be made for the clubs to participate in national and international day celebrations, for example World Environment Day, during which simple but extremely important environmental messages displayed on placards and read aloud to the audience

Field visits

Field visits are an interesting means of bringing the schools in meaningful contact and dialogue with the environment. They provide opportunities for the pupils to purposefully explore and investigate some aspects of the environment, as well as appreciate its aesthetic values. They could be organised as follow-ups of lessons started in the classroom, or as bigger ventures involving members of school clubs, to explore themes of general interest.

Competition

Competitions can be a good way of encouraging or stimulating the expression of sensitivity towards the environment, and of developing skills that are useful for environmental conservation. They could eventually lead to spontaneous participation in environmental conservation activities. Competitions could be on environmental essay writing, environmental music, tree nursery establishment, tree planting, or even take the form of a quiz to test knowledge about the environment and environmental issues. Vefonge (2000) reports how a theatre competition on 'acting for the environment' was organised by the Mount Cameroon Project-Buea, to identify theatre troupes with the potentials to perform plays for the sensitisation of rural communities and the general public on environmental issues. Competitions could also be organised in the form of school projects. Projects are special activities carried out for particular purposes. They could be for fundraising, or to address or prevent common problems such as soil erosion. In the course of executing the

projects, children acquire the knowledge and skills that would be useful to them in later life.

Non-formal environmental education programmes

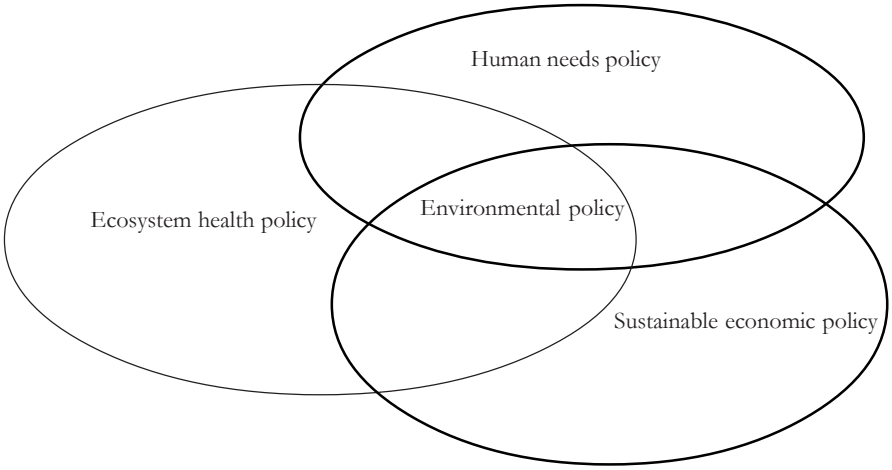
Most conservation projects vouch for non-formal or community-based environmental education. This is due to the fact that these programmes directly targets the users of the natural resources to be conserved. It is also common for such programmes to be limited to conservation, hence the name 'conservation education' that some projects adopt. The programme aims to achieve short-term results, since most of them are carried out by short-term conservation projects, with no long-term commitments or agenda. This is an eco-centric (or wildlife-centred) approach, which may be misinterpreted as placing wildlife and their habitats before humans. Experience has shown that a programme that stresses this approach, more often than not, meets with total failure, as communities, sooner or later, start questioning whether wildlife is to be conserved at the expense of the human community. This brings us back to the necessity of a holistic approach, which should be a subtle blend of anthropocentricism (or people-centred-ness) and eco-centricism, in consonance with the definition of 'the best environmental policies' (Cunningham et al. 2003). This is shown in Figure 11.1. An anthropocentric approach includes elements that have an immediately direct benefit to the human species and are seen as such. This may include income generation or development activities, which could be employed as a strategy for encouraging the acceptance and participation of the target communities. The local people are more likely to participate if an activity is closely linked to the perceived benefits, and will continue to participate with even greater interest and enthusiasm if they started enjoying direct benefits from the effort.

In view of the above, it is advised that a community-based environmental education programme should include a reasonable balance of materials drawn from areas such as ecology, natural resource management, agriculture, health and community development. There should also be political and economic dimensions, but these should be handled with care, in order not to generate problems that may escalate beyond control.

The role of an environmental educator in community sensitisation, is more challenging than implementing a formal environmental education programme. For the educator to succeed with the communities, she must exercise tolerance, tactfulness and time-consciousness, since the programme targets a wide range of uncontrolled target audiences, each with an array of common and conflicting interests, and often with strong and unflinching positions to defend their interests. Providing motivation to move a community as a target audience from its present 'position' (which could be uncooperative or antagonistic) to one supporting and participating in the new effort seriously begs a definition. It is different from with school pupils, where the expected change is inevitable, since they know, from what and how they are taught, that they will be assessed on the basis of their demonstration of change in knowledge and attitude, and their ability to 'act' skilfully and responsibly towards the

environment. Furthermore, they may be as yet too young to find themselves under the sort of economic and other pressures that could make such changes in behaviour difficult.

Figure 11.1: Best Environmental Policies



Source: Cunningham et al. 2003.

Approaches to Non-formal Environmental Education

As has been noted earlier, community environmental education programmes generally seek to address local environmental problems. This strategy of local problem solving presents an opportunity to face real environmental problems, since the environmental educator can prioritise the most pressing problems faced by the community and avoid undue emphasis on global problems, which are so distant from daily local reality that they provide little or no motivation for action (Laryargues 2000). The local problem solving strategy permits two types of approach: it may be applied as an activity end-in-itself, or as a theme generator.

Activity End-in-itself Approach

This approach aims to resolve a given environmental problem, after considering the associated ecological aspects. But, as Lary (2000) argues, it might foster a pragmatic type of education that provokes an attitude of problem solving, just to see the end results, rather than achieve the aim of stimulating a broader discussion of the problem. The power to mobilise resources and confront an environmental problem does not necessarily guarantee that the target participant understands the complex interactions of the ecological aspects of the problem with the political, economic, social and cultural aspects. The danger is that this will hinder reflection on the need to

change society's cultural values. Put simply, there is no guarantee that once an environmental problem has been resolved by this approach, that he cause of the problem will not be repeated; since from this perspective, the ability to criticise the *status quo* has not been developed. This clearly supports Reigota's (1994) assertion that environmental education should prepare citizens to understand why something needs to be done, and, not merely, how to do it.

Theme Generator Approach

This approach evaluates the problem in a broader perspective. Instead of focusing only on ecological aspects, there is consideration of the political, economic, cultural and social factors inherent to the environmental problem. Although an understanding of how ecological systems work is necessary, if people are to understand the environment, a whole array of human factors, such as values, politics, culture, history and economics, must be explored if the current condition of the environment is to be properly understood (Martin 1990).

Methods for the Promotion of Formal Environmental Education

Meetings

Meetings are organised forums for discussions. They provide useful contacts with the target population. Once the first contact has been made, this should be maintained, regularly, as it helps to establish a solid foundation for mutual understanding, mutual trust, and good rapport, and to ensure a good working relationship with the target population.

Every meeting should have a purpose: it could be for planning, for sensitisation, for clarification of certain points, or simply for follow-up. Equally important is for every meeting to have something new to discuss, because discussing the same topic over and over again can be boring and may result in a drop in attendances during subsequent meetings. Discussions during meetings should, as much as possible, be participatory. Time should be given for participants to ask questions, or make comments, where necessary or indicated. Some questions asked can be thrown back at other participants to answer. This ensures active participation and reduces the tendency of some participants trying to place the educator as always in the answerable position.

Timing is a very important factor in scheduling meetings. The time of day, when it is most convenient for a wide range of participants to attend, should be taken into consideration. Organising meetings during periods when the communities are most busy, for example, when everyone is engaged in activities such as income generation or cultural events could be futile. The frequency of meetings during such periods should be reduced, and activities selected should serve to facilitate, or complement the current community activities. Furthermore, the purpose of the meeting should be clearly explained in a circular note, which should reach the target village at least a

week in advance of the scheduled date. These circulars should be clearly addressed to the appropriate authorities in the community.

One-to-one Communication

There are some members of the community who are shy or afraid to express their views in the presence of others, especially in front of those with some level of influence and social status. One-to-one or individual communication provides a useful means of procuring information. But tact is necessary in order to avoid the impression of being intrusive. One-to-one discussions should take place in a friendly and fun atmosphere in order to ensure a free-flow of information. An educator who speaks in a condescending fashion, for instance, will normally not obtain adequate and reliable information, or feedback. Firstly, he will make the target person feel that he or she has nothing to contribute. This happens where the individual is shy and withdrawn. In the case of some bold and aggressive member of the community, the condescending attitude of the educator may generate a protracted argument that may gradually degenerate into a quarrel. Once this happens, the educator should be careful, because further similar incidents may seriously jeopardise the future of the programme. It is important to obtain feedback through the method of one-to-one meetings, because what may be seen as popular opinion may be the opinion only of a few influential members of the community. This may not be useful in achieving the intended goal of mass education, but influencing the behaviour of an individual at this level of interaction could have enduring effects.

Focus Group Discussions

Focus group discussions involve a group of people who share a common interest, for example farmers, to talk about a particular topic. This sort of discussion takes advantage of group dynamics, and allows respondents to be guided by a skilled moderator to explore key issues in greater depth (Margoluis and Salafsky 1998).

Workshops and Seminars

A workshop is an interactive kind of meeting devoid of preaching or lecturing. Each participant actively, or passively, contributes to and gets involved in the discussions and activities. It should be stressed that a workshop should be more or less activity-based, with the educator or any other competent person simply acting in the role of the facilitator. The discussions should be properly and carefully controlled and directed so that the workshop does not lose focus. The activities chosen should be meaningful and relevant to the workshop. This ensures that the intended and more revealing results are obtained.

A workshop could either be for training or for sensitisation. Whatever the purpose, there must be a well defined theme or topic. This should be communicated to the participants well in advance because they, too, have to make their own contributions. A good workshop should be able to expose participants to practical and logical

ways of obtaining or understanding important facts and concepts, and also to developing basic skills necessary for the implementation of possible solutions to be identified

A seminar is a forum for delivering lectures or papers with a view to sensitising and educating the participants. An important role of the educator in this regard is in identifying good and competent guest speakers or lecturers. She also acts as a moderator, introducing the seminar topics and the speakers. She may or may not have to deliver a lecture herself, but has the significant role of overall coordination.

It is important for every presentation to be followed by a discussion session during which participants are free to express their own views, make comments or ask questions. Discussions should be controlled and directed. This should be done tactfully; questions or views that have no relevance to the topic should be discarded politely.

Communication and Information Resources

A successful education programme requires adequate and appropriate materials. These are useful in disseminating information and raising awareness. Some may serve to maintain communication links between the target populations, especially where the educator finds it difficult to make regular visits. Some commonly produced materials are newsletters, brochures, fact sheets, calendars, t-shirts, fez caps, and keyholders. All of these should be communicative, and the language and content should be appropriate to the level and nature of the target audiences. In the case of calendars, each month of the year could carry a specific environmental message in the form of short phrases translated into local languages, or artistic drawings and pictures. The latter would be most useful for illiterate members of the population.

Use of the Media

There is no doubt that the media have played a major role in raising public awareness of environmental issues (Boulton and Knight 1996). It may be advisable to collaborate with local newspapers, as well as with radio and television stations, for the release of articles and news items, respectively, on the environment. This, however, should be considered after the results of a survey, conducted to find out the percentage of the target population that makes use of these media forms, and about their frequency of use. This is to ensure that the effort is not wasted.

Mount Cameroon Project-Buea, in Cameroon, established what was known as Green Page in a newspaper, which served as a forum for debates and exchanges on environmental issues. Technical staff on the project opened up the debate with an introductory article that attracted reactions and contributions from the public, in the form of comics, cartoons, comments and poems. Those with knowledge of a given topic shared this with the readership. Those who were less informed about it simply asked questions to get information. The strategy was to gradually reduce the cost

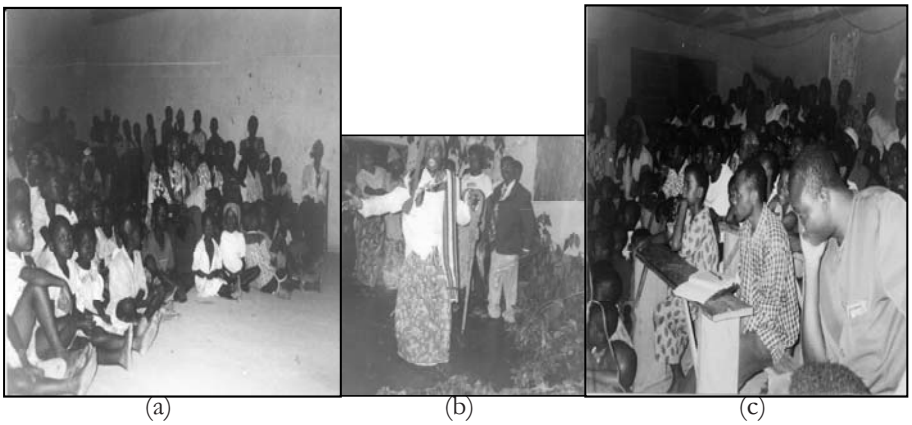
attached to the method, by making newspapers understand that environmental issues are interesting items for publication (Vefonge 2000). Radio and televisions stations have been known to independently report environmental issues. This can be used also to measure and monitor the increase in public interest about environmental concerns. For example, a survey could be conducted to find out how many items are being released on environmental issues monthly, and how many people listen to such programmes. This applies equally to the print media.

Use of the Arts

Some public awareness programmes make use of the arts, including street theatre, puppetry, fine arts, music and drama. Street theatre has been employed with tremendous success in India. It has been tried by the Cross River National Park environmental education programme in Nigeria, but with emphasis on the use of puppetry. Mount Kupe Project, Cameroon, is known to have employed fine arts. Paintings were made on the walls of an important building, depicting the local environment, where passers-by could see, admire, interpret and gain knowledge. A peace corps volunteer undertook a similar project by depicting various types of environmentally unfriendly activities on the wall of a nursery school building in Nguti, Cameroon. It was interesting to see how even passers-by, in a rush, stopped and spent time observing, especially if they were encountering the painting for the first time. The Wildlife Conservation Society in Cameroon once employed the talents of a local musician who composed and published conservation songs. This effort was emulated by Mount Cameroon (Vefonge 2000), and the Korup Projects; however their impact has not been assessed to reach any definitive conclusions as to its efficacy. However, given the role that music has played in political and racial campaigns, there is no doubt that the same results could be achieved in environmental education.

Of all the art forms, drama is by far the most widely used. Drama is a way of avoiding preaching that is either boring, or may breed suspicion, especially that of an obviously dogmatic nature. Drama provides a subtle and entertaining, but effective, way of communicating environmental messages. It is a way of re-enacting a story, real or imagined, not merely through words, but also with actions. This helps elevate the story to a concrete level, thus making the audience learn by direct experience, heightening their concentration (Figure 11.2).

Figure 11.2: Audience 'a' and 'c' Watching a Performance of The Sacred Forest by the Forest Pipers Drama Group of Nguti



(a) (b) (c)

These photographs were taken at Sumbe village in Southwest Cameroon.

Members of the audience may identify themselves with some of the characters and issues raised in the play. This can lead to a deeper understanding of the issues and messages conveyed. Inyang (2001) notes that communities have a strong motivation to attend drama, as most people see this as an opportunity for them to receive a rare form of entertainment; hence it is characterised by high attendances that include a wide range of target audiences. Similarly, it could have a positive impact on the community, since it provides an opportunity for a collective experience, which could lead to prompt, collective action.

An environmental play should not be too long, in order not to tire the audience and discourage them from attending subsequent performances. Also, the structure of the play should be simple and straightforward. There should be ample use of local idioms and metaphors; proverbs, songs, dance, and other traditional conventions (Inyang 2002) to give the play local colour and flavour. This facilitates communication and encourages audience participation. In terms of structure, the play should end in such a way that the 'possible worlds' encountered in the performance are carried back by the audience into the 'real' world, in ways which may influence subsequent action (Kershaw 1992). In other words, the play should permit and motivate the audience to 'complete' the performance, by implementing an action that they feel the performance has left undone (Inyang 2002). This is in violation of Hegel's and Aristotle's idea of a quiet somnolence at the end of the spectacle. It conforms to Brecht's vision that the end of the spectacle should be the beginning of action (Boal 1974).

The Use of Mobile Education Units

Mobile education units, though not very common, due to the costs involved, are an innovative method of taking environmental messages to the local communities and the general public. A vehicle is equipped with film, slides and/or video projection equipment, as well as with other educational and informational materials that could be carried or displayed on the vehicle for people to collect or view. Other equipment of the unit includes a small generator to provide electricity for the operation of the film, slides and video appliances.

Involvement of Local Communities

Commonly owned resources, in open access regimes such as forests, lakes and rivers, are difficult to manage, as each individual strives to maximise their profit from the common pool, with the concomitant destruction or degradation of the resource base (Hardin 1968). In such a situation the use of enforcement as a regulatory mechanism is often proposed (Lewis 1996). But using this strategy in the absence of other incentives would almost certainly result in 'passive' rather than 'active' conservation (Ferraro and Kramer 1995). Passive conservation means that the local communities might themselves desist from carrying out the illegal activities, for fear of being prosecuted. But they would not report cases of, let alone take action against, any such activities. This leads to the conclusion that many environmental problems cannot be solved without the participation of the local communities. Participatory approaches have the incredible advantage that they give the environmental educator a better understanding of local values, knowledge and experience. They win community backing for project objectives, and communities can help with the implementation of activities and resolution of conflicts over resource-use (World Bank 1992).

One important approach to community involvement is facilitating the formation of clubs and committees in village communities, with functions ranging from community health and sanitation to natural resource management. Inyang (2003) warns that in order for the communities to assume full responsibility for all major decisions about group formation, the allocation of tasks and implementation of activities should be based on their own careful reasoning. Furthermore, it is advisable for these committees to work under traditional councils, and in close collaboration with other traditional institutions, as well as with relevant local government institutions. This arrangement guarantees that the committees are recognised, empowered and supported in every way possible, especially if and when it is necessary for them to implement law-enforcement, or carry out activities such as tree planting and other environmental campaigns.

When members join a club, or any other type of organization, they have given up some personal freedom of action, as part of the price of membership. They are obliged to adhere to established norms, usually defined by internal rules and regulations. These, together with other tools and mechanisms, facilitate socialisation, which

Buchanan and Huczynski (1991) define as a process through which an individual's pattern of behaviour and their values, attitudes and motives are shaped to conform with those considered desirable in a particular organisation or society. Exposure to workshops and seminars is a good way of equipping the club or committee members with the necessary techniques and skills. The environmental educator might be required to assist in the drawing up of programmes. This ensures that the programmes are drawn to reflect the environmental situation, and that the activities are chosen take into account the needs of the target communities, as well as the objectives of the overall programme. Only this approach guarantees solutions with long-term results.

Membership of the clubs and committees should be voluntary. But it would not be a wrong approach to do some campaigning, by explaining the functions and importance of the clubs and committees. No one will join an organisation whose functions are not understood. There should be a registration fee, however small. This serves as a sort of pledge for active membership and commitment. It is recommended that membership cards be made, and every member given one upon registration, if possible. It may also be advisable to register the clubs and committees with the relevant government institutions, in order to give them legal backing. Once a club or committee has attained an appreciable level of development, it should be allowed to operate independently. This guarantees continuity. But engendering this independence requires maximum care; hence the need to monitor the progress of the club or committee for a reasonable period of time, after the first signs of its ability to operate independently. This is the stage in the club or committee's development, when some inherent problems will be brought to light, as we shall see below.

Unlike economic interest groups whose efforts directly benefit group members – since they offer private or individual goods that must be paid for by non-members, the efforts of non-economic groups such as environmental clubs and committees discussed above largely benefit everyone in the community. This is so because these groups more or less offer public or collective goods, giving rise to what is referred to as the free-rider problem (Patterson 1993; Baden 1998; O'Toole 1998). This describes a situation where some group members become inactive since they, like non-members, can benefit from the goods provided, without paying for the costs. By withholding their contributions to the group's efforts, these free-riding members are likely to be ahead of the other members since they can invest their contributions of time and effort in some other personal business (Baden 1998). In order to deal with the free-rider problem, there should be powerful incentives for active participation. Such incentives include opportunities for active members to enjoy the privileges of securing jobs, or being appointed to some important positions in the community (Patterson 1993).

Monitoring and Evaluation of Environmental Education Programmes

Monitoring and evaluation is an important aspect of many programmes, albeit often neglected or inadequately developed. It is like setting an alarm warning system to alert when things are going wrong or moving in the wrong direction. In order for a programme to succeed, a monitoring and evaluation system should be incorporated into it at the planning stage. At this stage, the goal and objectives of environmental education and the indicators of success should be clearly defined. All the activities of the programme should together achieve the five environmental education objectives, already discussed. Therefore, it is important to know which activities serve to achieve which objectives. In many cases, environmental education programmes have failed to be convincing to donors and managers of projects and institutions, largely because of the absence of well developed and well defined monitoring and evaluation programmes.

Policy-making stakeholders tend to place much emphasis on tangible results from environmental education initiatives, as justification for their usefulness, without necessarily considering how long it might take for such results to materialise. But, as Encalada (1992) warns, the effectiveness of environmental education cannot be only perceived in relation to direct changes in the environment. It must be observed in the way individuals and institutions are applying methods, procedures, and mobilising actions, known to bring changes in the environment.

It is important to note that although monitoring and evaluation are two sides of the same coin, they each serve slightly different purposes. Monitoring is a continuous and systematic process of checking whether activities are carried out as planned. It is a regular or periodic collection, by the staff, of information that can be used to make incremental adjustments to the programme or project (Stone 1997). Evaluation, on the other hand, is a process through which information is collected and analysed with the purpose of judging how well programmes have achieved, or are achieving, their objectives. It occurs usually in the middle, or at the end, of a project. Baseline information is necessary, as this provides the basis for determining changes. It is conducted either by the staff, or people outside the organization. It is based, to a large extent, on the results of monitoring. Its aim is to make major changes to the programme. The following are some of the methods commonly used in carrying out monitoring and evaluation of environmental education programmes.

Literature Review

Depending on the availability of relevant literature on the area, conducting a literature review is the first important step in information gathering. Information from the literature may give a fair picture of the biophysical situation of the area: soil and vegetation types, the drainage system, the wildlife resources, etc.; the socio-political structure and nature, including the important traditional institutions and their functions; and the predominant economic activities, such as farming, hunting and harvesting of timber and non-timbers forest products. In a school setting, this may

consist of collating records such as teachers' lesson notes, and students' progress reports. It is also of absolute necessity to find out the types of questions that the students are asked, or about the activities in which they are engaged, for the **a**ssessments because numerical scores alone are not sufficient to give the sort of picture needed to draw informed conclusions.

Information gathered from literature points to what is expected, and not necessarily what prevails, at the given moment, because, depending on the age of the literature, events and time will have changed the picture. Conclusions cannot be drawn based entirely on information obtained from literature. It is expedient to cross-check this information with firsthand experiences, before drawing definitive conclusions. Another important piece of advice is that no matter how much you will have learnt about the area from literature, you should endeavour to approach your target community with an open mind, in order to have the opportunity to gather information that reflects the *status quo*.

Observations

Observation can be defined as a personal assessment of a situation, activity or behaviour in order to obtain basic information. This may take as long as a couple of years, and as little as a few minutes, depending on the type of information being gathered. There are two types of observation: direct observation and participant observation. Direct observation refers to independent assessment carried out without probing anyone for facts. This is usually done without the knowledge of the person or thing being observed, and usually happens by chance. It provides suitable means of obtaining information that is reliable, because of its potential to uncover the real situation, as those observed are going on with their activities naturally.

Participant observation depends on the collaboration of others to obtain the necessary information. The observer arranges to accompany the person to be observed to their area of activity, and observes how the activity is carried out. Usually the person under observation is informed about it, in the hope that this might prevent any modification of behaviour or activity, due to suspicion. The observer poses a series of probing questions in order to obtain additional, relevant information about the activity. Again, this should be done tactfully in order not to raise suspicion. However skillfully the observation is carried out, there is always the danger that, being aware of what is happening, the person being observed may still alter his or her behaviour: to appear more competent, more enthusiastic, more diligent, just to help the observer. As a result of these 'reactive effects', observations may be artificial, or unreal, and, therefore, a false reflection of the true nature and behaviour of the observed (Buchanan and Huczynski 1991).

In carrying out any of the two forms of observation, it is advisable that the observer is open-minded and unbiased. There should be no application of preconceived ideas, when drawing final conclusions. Furthermore, in planning the exercise, consideration should be given to the seasonality of activities in the communities, which form part of the monitoring units. This is to ensure that it is the right moment

to conduct the observations. Seasonal events and activities calendars, which can be prepared during Participatory Rural Appraisal (PRA) sessions, with the communities, are useful tools in guiding planning decisions in this regard.

Questionnaires

A questionnaire is similar to an interview, since it is concerned with getting feedback from target audiences. The only difference is that questions are written or typed on sheets of paper, which are then distributed to the members of the target audience for whom the questionnaire is intended. It might be advantageous to bring the members together in a group, and explain the *raison d'être* of the questionnaire, before distributing the papers to them. Where there are illiterate members, some trustworthy literate members could be asked to assist. But care should be taken to ensure that the responses are sincerely those of the respondents. Some questionnaires are prepared and administered in a special way, with a view to assessing environmental attitudes, and are generally referred to as attitude surveys. For a questionnaire to be administered effectively, the questions should be simple and straightforward, requiring choices from a list of options, or for short answered to be provided, and should have variety in type and structure. The sequencing of the questions is also of vital importance, and should be well thought through. This is to ensure that, as much as possible, the respondent is encouraged to give honest and clear answers, which do not present difficulties in data analysis.

Semi-structured Interviews

This is an informal type of interview, conducted to gather useful information on a given subject. It takes place in a cordial and fun atmosphere, and allows for the free expression of the interviewee. Starting with an ice-breaker, to bridge the gap between the interviewer and the interviewee, could help create a conducive and enabling atmosphere.

The interviewer may make use of a set of open-ended questions, referred to as an interview guide. But this should not be used in a manner that destroys the purpose of the interview. An interview should be allowed to progress in a natural and conversational fashion. Some people are often tempted to record interviews on tape; this can be dangerous in certain situations. If the atmosphere becomes too formal, the interviewee may become nervous, inhibiting reasoning and impeding effective communication. It may also raise the suspicions of the interviewee, thereby preventing him or her from giving honest answers, or accurate facts. Information collected from interviews is usually more in-depth and richer, but more difficult to analyse, than information collected from questionnaires.

Written Tests

These mostly apply to the formal environmental education programme. A set of environmental questions can be developed, and the pupils are asked to provide answers in an examination setting and atmosphere. This is mostly used where envi-

ronmental education is a free-standing subject on the school timetable, and is one of the subjects in which the students are being officially assessed. However, even where this is not yet the case, conservation or other projects in the area that help with the promotion of the subject could encourage teachers of participating schools to conduct periodic written tests. Depending on the techniques used in setting the questions, tests can provide a useful means of measuring not only pupils' knowledge, but also their attitudes and behaviour towards environmental concerns.

As a general principle, tests may be administered at the beginning of the school year (pre-test) to obtain baseline information about the target classes, and at the end (post-test) to measure how much the participants have learned. However, in-between, periodic tests are necessary for the purpose of monitoring progress.

Practical Tests

These are applicable to formal education programmes. They are exercises designed to test the student participants' new knowledge and skills in a real, or quasi real, context. They can take place during field visits, or through simulations in the classrooms or school compounds. The examinees may be asked to perform tasks ranging from, for example, enumeration of some of the natural habitats, and identification of the associated environmental problems, to analysing the problems, and suggesting and describing practical activities to address the identified problems. The simplicity or complexity of the tasks involved in the practical tests depends on the level of the examinees. As with written tests, practical tests could be used also to assess environmental attitudes and behaviours. If conducted in atmospheres free of the, often inhibiting, 'examination fever', the students will be able and motivated to express and conduct themselves in ways that portray their level of passion for the environment. However, assessing attitudes using this means is rather subjective for any conclusions to be drawn; and needs to be supplemented with the results of recent attitude surveys.

Revision Questions

1. Differentiate between a non-formal and formal environmental programme, and discuss the approaches and methods of each.
2. What tools can be used in the monitoring and evaluation of an environmental education programme?

Critical Thinking Questions

1. What measures can you propose to bring about the integration of environmental education into the school curriculum?
2. Discuss how the following environmental education approaches are influenced either by eco-centric, anthropocentric and ecofeminist paradigms:
   a) project approach, b) theme generator approach, activity-in-itself approach, and d) cross-curricular approach.

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