

UNESCO-UNEP International Environmental Education Programme

ENVIRONMENTAL EDUCATION HANDBOOK FOR EDUCATIONAL PLANNERS

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Section I

INTRODUCTION

BACKGROUND

There was a time when we could take pride in the scientific achievements which gave us the capability to control, transform and exploit the natural environment to our will. But, today we are face to face with a severe environmental crisis essentially due to the indiscriminate use of this capability. Further more, the problem is not limited to any particular country or region; rather it is global. With the advent of modern science and technology, the world has not only shrunken but also become highly interdependent. The Three Mile Island, Chernobyl and Bhopal may be located in three different parts of the globe. But, the tragédies that struck these places had much wider repercussions on the whole ecology of the earth. In fact, the concern for environmental problems has never been so high as it is now. We are becoming more and more conscious that we have to reorient our attitude towards the use of environmental resources and reeducate ourselves to treat the environment with greater caution and control. It is this realisation that has given environmental education a place of prime importance.

The concept of 'environment', is often considered in a limited way to represent only the physical world around us. It is necessary to extend this definition to include not merely the bio-physical natural environment, but also the man-made physical environment as well as the political, economic, cultural, technological, social and aesthetic environment. It should be recognized that environmental conditions are not merely given but also created by the human beings themselves. It is, therefore, essential to conceive of environment in a wholistic manner as the total of all conditions and influences sum - physical, biological, social and cultural - that affect the development and life of organisms on this planet. The environment is to be viewed as a dynamic system in which the sub-systems are in constant interaction with each other and undergoing continuous change. to this broadened definition of environment, Corresponding environmental education should also be viewed in a comprehensive manner as "the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality." (IUCN Commission of Education, 1970)

While the potential of education as an effective instrument in tackling an impending environmental crisis has been recognised for long, concrete efforts to initiate programmes of environmental education have a relatively short history. The launched the Unesco first phase of its International Environmental Education Programme(IEEP) in the year 1975. Under this programme, initially an international survey was carried out identify the environmental education perspectives to and priorities, a series of international, regional and subregional

meetings were organized in different parts of the world; several experimental studies on environmental education were conducted and an information network on environmental education was set up. The activities under IEEP in the first phase culminated in the organization of the first Intergovernmental Conference on Environmental Education at Tbilisi, USSR in 1977. This marked the inauguration of an international programme of environmental education in the real sense by specifying the nature and scope of environmental education. It laid down the aims and objectives well as the repertoire of strategies to be adopted at the as national and international levels. The Conference called upon the Member States to incorporate into their educational systems and initiate measures therein related to ecological concerns, environmental activities and awareness. Reiterating the basic conviction that education can play a crucial role in preventing and solving environmental problems, it emphasized the need for making environmental education a lifelong process. Access to it was to be made available to all and in keeping with their real experiences, local needs, specific problems and aspirations. The mobilization and utilisation of all the educational resources and capacities available in the community was indicated.

Following these initial efforts at the international level, several countries took steps to formulate concrete policies on environmental education. Many countries have incorporated environmental education components into their existing school curricula and organized corresponding teacher education programmes. Yet, in most places, it was found that the efforts

in this direction were somewhat <u>ad hoc</u> and consequently, incapable of making any perceptible and tangible impact on the prevailing educational scenario. An important fact that emerged in the process was the need for preparing comprehensive plans for organizing environmental education activities having both shortterm and long-term goals. Equally important was the creation of effective mechanisms of management for not only implementing the planned programmes but also for redefining and redirecting the processes involved based on continuous monitoring and evaluation.

Environment remains in a state of constant flux. Nor are the environmental conditions consistent across the length and breadth of a country not to speak of the globe. Thus, the parameters that define environmental education in any country to go are themselves dynamic in character. It is this fact which makes planning for environmental education an extremely complex task, and at the same time, an essential requirement. This also implies that a static policy or programme which is unable to capture this dynamic character, fails to reflect the basic spirit of environmental education. In other words, an unimaginative centralized intervention by the State bureaucracy cannot serve purpose. Also, mere introduction of certain environmental this education inputs into the formal educational programmes will not suffice. Experience has shown that such efforts have an inbuilt propensity to become passive, non-responsive programmes and consequently lose their grip on the field in the long run. environmental education inputs have to become pervasive Rather, characterising all aspects of education - formal, non-formal and

informal, as a life-long process of learning. This is important because the success of EE lies not merely in developing an awareness about environment but also in ensuring a positive reorientation in the attitude of people by infusing in them a desirable environmental ethic. This is possible only if environmental education becomes a sustained movement which is supported by not just the government authorities or by a section of professionals such as teachers or educational administrators but by the whole community.

ABOUT THE HANDBOOK

The foregoing observations about the nature of EE point to the challenges involved in the task of planning for EE. Some of the pertinent questions an educational planner faces are :

- How does one formulate a comprehensive policy on EE which captures both global and local problems of environmental concern?
- What should be the nature of a plan for EE which attends to short-term as well as long-term perspectives?
- Who should formulate such a plan and for whom?
- What is the role of the individuals located at the grassroot?
- How are the programmes of EE to be matched to its basic concerns?
- What management mechanisms have to be created to effectively implement the EE plans and programmes and who should implement them?
- How does one ensure that the programmes are being implemented as per the plans?
- What types of monitoring and evaluation mechanisms are required for the purpose?

These are all questions which a planner of environmental education has to squarely face. An attempt is made in this Handbook to search for possible answers to these and related questions. It may be cautioned that planning for EE has necessarily to be derived from the conditions that locally prevail and therefore, the contents of this Handbook offers only a broad guideline. It is not to be taken as a rigid prescription. It hopes to provide the general outline for a planner to act. Ίt specifies the directions in which one can possibly proceed for creating an effective system of EE keeping in view the environmental conditions that characterise one's own country. The contents of the Handbook have been so selected and arranged that they broadly, represent the sequential steps to be followed by a planner of EE. It is visualised that the Handbook will serve as a companion volume for the series of publications brought out under the IEEP on various dimensions of EE such as teacher education, non-formal education, vocational education and so on. Along with these publications, the present Handbook should form а comprehensive set of manuals for the planner of EE.

Section II

ROLE OF EDUCATIONAL INTERVENTION IN ENVIRONMENTAL ACTION

It is quite self-evident that the whole humanity is, today, facing an unprecedented situation with respect to the global conditions of environmental degradation. Ironically, this is mankind^os own creation arising out of the thirst for establishing supremacy and control over the nature. History is replete with examples of flourishing civilizations which began decaying and crumbled under the weight of environmental pressures created by their own actions. But, we do not seem to have learnt from these experiences. In our pursuit of developmental goals, we have been acting in directions inimical to our own welfare and have landed ourselves into this crisis situation.

At the present juncture, the challenging question before us is : "What must be done if we are to create a planet which we can enjoy ourselves, and which we can pass on to the posterity with a guilt-free conscience ?" This demands us as the World Conservation Strategy specifies, to move towards the creation of a <u>sustainable world society</u>. The Strategy lists out three areas of priority :

- The first priority is to see that the essential ecological processes and life support systems of the earth are in good functioning order.
- The second priority for keeping the earth habitable is preservation of genetic diversity.

The third main objective is the sustainable utilization of species and ecosystems.

Many countries of the world have woken up to this crisis situation and have initiated actions to protect the environment through legal and executive measures. But mere legal mesures have been found to be inadequate to ensure the creation of an which the dichotomy of human life and environment in nature disappears; human beings learn to see themselves as part of nature and therefore accept the imperative of living in harmony with other component systems of the nature. Even measures to protect environmental conditions through executive actions may only be able to tackle and tide over the current crisis that a country is facing. But it will not guarantee any protection against recurrence of the same problem or a new one in the future. It may only provide temporary remissions. For instance, governments in many of the countries have made repeated attempts to stop illegal tree felling leading to deforestation through legal as well as executive measures. But forests continue to be demolished by the very same people who are to protect them and those for whom forests and forest products are the bases of livelihood. Similarly, governments themselves sometimes implement developmental projects, often for short-term popularity and political gains, which are known to jeopardize the ecological balance and thereby affect the life of the people in the long range. In addition to this, the global pressures of economic development, at times, force the governments to take apparently irrational steps jeopardizing their own environmental conditions. Such instances highlight the need for a national leadership with high level of commitment and conviction to the global environmental goals which transcend the narrow national concerns.

As the Belgrade Charter emphatically points out :

We need nothing short of a global ethic - an ethic which espouses attitude and behaviour for individuals and societies which are consonant with humanity's place within the biosphere; which recognizes and sensitively responds to the complex and ever-changing relationships between humanity and nature and between people.

But, for this to happen,

... millions of individuals will themselves need to adjust their own priorities and assume a personal and individualised global ethic - and reflect in all of their behaviour a commitment to the improvement of the quality of the environment and of life for the world's people.

shows that while legal and executive measures have a This very important role to play, they do not by themselves guarantee necessary actions on the field. Permanent solutions to the buorgeoning environmental problems demand a basic shift in the value system of the people so that they make conscious and consistent efforts in the larger interest of the posterity ignoring their own vested interests and immediate benefits. But this change of heart cannot come up merely by appealing to the conscience of those who perpetuate environmental atrocities or through punitive measures, however severe they might be. What it requires is a fundamental re-orientation in the conditioning process which the human beings undergo as they grow from infancy to adulthood. In other words, while it may not yield instantaneous results, the permanent solution demands а re-education of the human mind which is otherwise led to believe that we are free to deal the way we want with the nature as long as it serves our immediate purpose; this needs to be replaced by

an ethic which restricts all human actions which are likely to jeopardize the interests not only of other fellow human beings but also of the posterity.

We have no right to deprive our future generations of a clean and healthy environment because of our own greed to achieve greater material comforts in the immediate context. A new sense of humility must be imbibed into the psyche of the modern man. A strong conviction needs to be developed that conservation and sustainable development can, and must indeed, work hand in hand to avoid the destruction of natural resources which sustain life on this planet. Such basic reorientation in the values of the people can be brought about only by educating the whole humanity into a new way of thinking and living. Again as the Belgrade Charter' states :

The reform of educational processes and systems is central to the building of this new development ethic and world economic order. Governments and policy makers can order changes and new development approaches can begin to improve the world's condition - but all of these are no more than short-term solutions, unless the youth of the world receives a new kind of education.

Thus, education has emerged as the only effective tool which can provide a durable solution to the environmental problems faced by any country. But, what is the role of educational intervention in creating such a new environmental ethic among the people ? Ном extensive should this educational edifice be ? Which are the sections that should be brought under the purview of such educational arrangement ? What will be the specific responsibilities of formal and non-formal educational channels in this task ? An attempt is made in this section to answer some of these crucial questions. The purpose of this section is

essentially to provide a broad operational canvas to the educational planners and administrators so that they can properly perceive their roles and responsibilities with respect to environmental education.

THE NEEDED PERSPECTIVE

At the operational level, success of incorporating environmental concerns into the educational system depends on the extent to which they can be presented as indigenous requirements imperative for growth and welfare of the country. This would mean that EE has to be carved out not as a special element but as an integral part of the overall goals of education, namely, generation, preservation and dissemination of knowledge. Seen from this angle, activities in environmental education also consist of three major dimensions, namely, teaching, research and extension programmes. An examination of the developments in the field of EE has also to be made within this broad framework. Thus, the task of environmental education for planners and administrators is not limited to mere introduction of EE elements into the school curriculum but to ensure that EE becomes an essential component of the activities at all levels and of all channels of imparting education.

The direction in which steps have to be initiated with respect to EE have been clearly spelt out in the Recommendations of the Inter-governmental Conference on Environmental Education held at Tbilisi, USSR in 1977. The following were some of the important recommendations indicating concrete actions to be

initiated by educational planners and administrators in various

countries.

- Environmental education is a dimension of education, inter-disciplinary in approach, directed towards problem-solving and concerned with local realities, which needs to be integrated into all forms of educational processes, general and specialised, in-school and out-of-school.
- Determination of the bases for a strategy, at all educational and governmental levels - establishment of a new relationship between all those engaged together in the education process; to this end, legislative measures may be taken providing the state with a legal framework in which to draw up an environmental education system for the entire community.
- Environmental education be incorporated into programmes intended for all learners whatever their age Its subject matter should permeate every part of formal and non-formal programmes and constitute one and the same continuous organic process ... to attain by means of growing interdisciplinarity and of prior coordination of disciplines, a practical education oriented towards of the problems of solution environmental degradation.
- The training of qualified personnel is ... a priority activity. This holds good for both pre- and in-service training, for the purpose of familiarizing teachers in formal education and organizers of non-formal activities for young people and adults.
- All environmental education activities call for ... research and experimentation on the lines of emphasis, content, methods and instruments necessary for ... (this) education ... (as well as the) ... constant evaluation of the many innovations (in this field) ... in order to encourage and improve them and to extend them to other educational institutions and programmes.

While these recommendations specify the broad directions in which all the countries have to proceed, they need to be meaningfully interpreted keeping in view the varying contexts in which each country is placed. This is a challenge before policy makers requiring them to translate the recommendations into action strategies keeping in view the unique socio-political, cultural and economic conditions that characterise each country. is not an easy task to do in most of the countries This considering the severe economic constraints in which they are placed and also continuous dilemma they face in their efforts to preserve the traditional culture and modes of production and the achieve in aspirations to newer heights technological development.

A precondition for successful implementation of EE programmes is to make an assessment of the environmental situation in each country and develop awareness and readiness among the policy makers to take necessary actions. It is also necessary to develop conviction among the national leadership regarding the value of education as an effective instrument for achieving long range objectives in the field of environment. It is only after creating such congenial conditions that we visualise can meaningful integration of EE inputs into the educational system. Further, EE in its final analysis depends on effective community action at the grassroot level. It is, therefore, necessary to create a general awareness among the public and generate enthusiasm and commitment for voluntary action in a coordinated manner. To achieve these ends, it becomes essential to have a scientific approach to planning and management of EE in each country. A cursory review of the situation in different countries of the world reveal that while there is a broad understanding and

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acceptance of the need for initiating EE programmes, there is still a long way to go for planning and implementing concrete actions in this field in many of the countries.

THE SCOPE OF EDUCATIONAL INTERVENTION

The goal of environmental action is "To improve all ecological relationships, including the relationship of humanity with nature and people with each other." Correspondingly, education should aim at developing "a world population-that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones." In this context, the scope of educational programmes cannot have any limits either in its capability to reach different sections of the population nor can it exclude from its purview any method, medium or channel of education. The audience of such educational intervention is the general public, irrespective of their age and occupation. Obviously, such an educational intervention cannot be confined to any particular mechanism of imparting education. Ιn its global frame it should include both formal and non-formal education sectors.

Interventions in the formal education sector should include pre-school, primary, secondary and higher education students as well as teachers and environmental professionals in training and retraining. The non-formal education sector should include youth and adults, individually or collectively, from all segments of the population, such as the family, workers, managers and

decision makers, in environmental as well as non-environmental fields. It is in this perspective that a programme of environmental education has to be conceived which "will make it possible to develop new knowledge and skills, values and attitudes, in a drive towards a better quality of environment and, indeed, towards a higher quality of life for present and future generations living within that environment."

ACTION AREAS FOR EDUCATIONAL INTERVENTION

As has already been mentioned environmental education has to be a life-long process and cannot be limited to institution-based formal education programmes designed for a particular age group only. It is as important for the adults and the elderly as it is for the school going children and the college youth. Therefore, it becomes difficult to pin point any particular areas of educational endeavour as the appropriate ones for intervention with respect to environmental action. However, an educational planner will have to function within certain parameters defined by the currently prevalent educational arrangements and the potential they hold for effective environmental education. Past experience and analytical exercises at the global level give certain concrete indications in this regard. These are briefly presented in the following.

A. School Education

School system provides the largest organized base for environmental education and action. With children in their plastic age, school offers an effective instrument for imbibing in them

the desirable environmental ethic. The major focus of EE at the school stage is not so much to impart environmental knowledge to the children as much as it is to influence their affective domain of development by creating a proper perspective of the environment and its relationship with human beings. Broadly, the spectrum of EE at the school level falls in four major, but interrelated components : Awareness, Real-life Situations, Conservation and Sustainable Development. These inputs will have to be suitably matched with different levels, namely, primary, secondary and so on (Khoshoo, 1986).

the primary level, awareness about the environment (the At immediate surroundings) should be integrated and should permeate through all the curricula. Maximum use of school surroundings as well as other educational settings such as parks, zoos, etc. have to be emphasized. The curriculum on the whole should focus on the basic needs like food, water, shelter, health and clothing in generate awareness about the environment and natural order to resources and appreciate the interrelationship between mankind and nature. At the secondary level, as the children move up in the educational ladder, they should be introduced to increased knowledge about real-life situations and should be provided with adequate opportunities for environmental action. Obviously, instruction in these areas cannot be confined to the classroom; out-of-school activities through nature and eco-development camps will become the main settings for effective learning leaving a relatively permanent impact on the growing mind.

B. University Education

EE at the university level has a dual role to play. On the one hand, EE has to be an important component of the general university education programmes and on the other, it has to become the instrument for training of specialists whose professional activities after graduation are likely to have an impact on the environment and its associated problems, their prevention and solution. The Tbilisi Conference has recommended that the Nember States should :

... encourage acceptance of the fact that, besides subject-oriented environmental education, inter-disciplinary treatment of the basic problems of the inter-relationships between people and their environment is necessary for students in all fields, not only natural and technical sciences but also social sciences and arts, because the relationships between nature, technology and society mark and determine the development of a society."

However, introduction of EE at the university stage when students become increasingly involved in specialised orientations raises a number of critical questions. Some of these questions were the subject of discussion in the European Regional Seminar on the 'Role of University in Environmental Education' convened jointly by UNESCO and the International Association of Universities in Hungary in 1983 :

- How can universities integrate teaching on environmental problems ?
- What should be the integrative approaches to the natural, applied and social sciences and to the humanities ?
- Should teaching be undertaken by teachers relating their own disciplines to environmental problems ?
- Should teaching be entrusted to specialist teachers ?
- Should teaching be done by an interdisciplinary team and if so, in what form ?

- How best to stimulate awareness of environmental problems ?
- What teaching approaches should be used to relate the student's primary field of study to inter-relationships of the environment ?

These are questions for which no standard solutions are available. Suitable answers will have to be generated by the university community itself keeping in view the overall goals and priorities in the field of environment at national and international levels.

Apart from incorporating EE elements into general as well as specialised teaching programmes, universities have also to provide leadership by conducting research environmental on and preparing scientists who would continue to generate problems relevant knowledge in the field. It should be recognized that in traditional disciplines should research endeavours be encouraged to develop greater concerns for environment related problems, the common tendency to erect disciplinary barriers need to be overcome.

Researches on environmental problems require not only a great depth in understanding a particular discipline but also a breadth knowledge dealing with interrelatedness of of environmental problems (beyond the horizons of natural sciences, engineering and medical sciences) which deal with socio-economic, cultural and legal aspects (Dwivedi et al., 1987). At present, although some research and experimentation on environment related problems is taking place at the university level in almost every country, there is a need for universities to focus their research activities on more specific environmental problems of long-term

development significance in their locality and to establish multi-disciplinary teams to work on them.

Another critical component of university level activity with respect to EE is extension work on environment related problems. It is needless to point out that the responsibility of the university community is not limited to generating and transmitting knowledge to students within the confines of four walls. This requires the university community, teachers as well students, to move into the real life setting as where environmental problems are a reality. Extension activities serve two-fold purpose. On the one hand, it helps spread current knowledge and skills on environmental conditions to the general public. On the other, it provides the university teachers and students with an experimental learning setting to understand the field level reality injecting the necessary elements of realism into their search for new knowledge and methods in their specialised areas of study.

C. Teacher Education

In the ultimate analysis it is the teacher who would be interpreting and transmitting the message of EE to the students, whatever be the level of education one is concerned with. A teacher properly equipped with necessary knowledge, skills and attitudes, becomes an essential prerequisite for successfully —introducing any programme of EE in schools and colleges. Thus, proper orientation of teachers into EE concerns is a matter of central concern. Considering the importance of this aspect the Tbilisi Conference recommended to the Member States that

environmental science and environmental education be included in the curricula for training of teachers; necessary steps are taken to make available inservice training facilities in EE to all teachers who need it; teachers in training should be given /an understanding of the widest possible range of educational materials and aids, with special reference to low cost materials and opportunities for adaptations and improvisation according to local circumstances; teachers and learners should be involved in preparation and adaptation of instructional materials for environmental education.

In order to become effective teachers of EE, teachers will have to acquire a wide range of competencies ranging from familiarisation with the content inputs (knowledge) to certain higher cognitive and affective dimensions such as evaluation, value clarification, investigative ability and so on. Thus teacher education programmes, preservice as well as inservice, should focus on two major aspects, namely, upgradation of environmental knowledge of the teacher both in the immediate and global perspectives, and building the capability for proper selection and effective utilisation of appropriate teachinglearning strategies. The overall goal is that the teachers through these inputs become not only committed to the goals of EE but also become proficient in effectively transmitting the EE message to the student community.

D. Technical and Vocational Education

With science and technology entering into almost every sphere of human life, the role of technical and vocational

manpower is also continuously increasing. At the same time, one is frequently confronted with reports of damage to environment due to indiscriminate application of technology; dangers arising out of inappropriate handling of technology is also increasing. This may not only damage the environment but it also has the risk of placing the safety of the technical personnel themselves in jeopardy. These factors have made proper environmental education to technical and vocational manpower an essential requirement for safe living on earth and yet enjoying the benefits of modern technological developments. Thus, it is necessary to introduce EE into all programmes of preparing technical and vocational personnel who have a strategic role to play in environmental protection; their actions can improve it or damage it.

Broadly, the EE inputs in this regard have to bring out the relationship between the "trade" and the "environment" - what are the specific hazards and the possible solutions. Estimating the needs of the various technical and vocational education systems in regard to the environmental curriculum and how best to implement it is a complicated task. This complexity arises mainly out of the diversity of the technologies this stream of education covers and the many levels at which it is provided. The variety is almost as great as the variety of income generating activities in the society. In order to tackle this complex task, we can classify the target group under three channels (Grabe, 1987). These are : (1) Adult training and retraining systems, (2) Extension wings of agriculture, health and engineering education centres, and (3) Public and private enterprises who in the end are related to every possible technology, either as producers of

inputs, users of output, or actual processes. Under each channel EE in the technical stream should relate to both outer environment (the world around the work place) and the inner environment (the workplace itself). The specific inputs of education should depend on how the trainees are concerned with the environment and what possibilities exist for them to influence it.

E. Non-Formal Education Programmes

Formal educational institutions provide a structured setting infusing into the curricular inputs the messages of environfor mental preservation and sustainable development in a systematic manner. But such a structured approach has its own limitations as well. Particularly in the developing world, the formal school is even beyond the reach of a large sections of population; also, being entrenched in a rigid age-grade structure, the formal system leaves out the older age cohorts from the purview of EE. If EE is to become a life-long process addressing all members of the society, it is imperative that it moves out of the confines of the formal educational institutions and becomes an essentially non-formal programme. Even those who get the benefit of undergoing formal school education need out-of-school exposures which would involve them in the natural processes of enquiring, exploring, conjecturing, comparing, inferring, evaluating and decision-making which facilitates a balanced understanding of , their own relationship with the environment. The processes of non-formal EE does not focus on information units, rather it is experience-based involving actual exercises of solving environmental problems.

In most countries. some sort of non-formal education programmes already exist in several spheres of activity. It is necessary to link up non-formal programmes in EE with these ongoing activities. For instance, environmental issues which are of immediate concern to the participants can be incorporated into adult literacy programmes. Educational activities in the spheres of agricultural extension and primary health services would also provide ample scope for effectively integrating EE messages. Thus, programmes of non-formal EE need not be conceived as activities to be sponsored by the education sector alone. Nonformal EE programmes may be government sponsored or they may be the outcome of voluntary action. Flexibility of approach is the most fundamental characteristic of non-formal EE programmes 80 that they are addressed to a variety of target groups placed in widely differing situations. The EE programmes would consequently adopt a wide range of communication technologies to impart the message, from the most modern electronic media to the traditional modes of interaction such as popular folk theatres.

F. Education through Mass Media

The need for increased environmental awareness amongst all has been well recognized for long as high environmental standards can be maintained only with the active support and involvement of an enlightened and well-informed public. But, the general public is an undefined group which, taken as a whole, is difficult to reach through the formally organized educational efforts which invariably focus on specific target groups. Therefore, the major instrumentality for reaching a large press of the general public

is through the mass media, through posters and pamphlets available in public places, through effective deployment of modern electronic communication systems and through traditional cultural events. However, if the mass media is to play an effective-public environmental education role, the media needs to be fully informed on the environmental issues and be embedded in a philosophy committed to the on-going global efforts for environmental protection and preservation. Increasingly, in rural areas, traditional media, in all its forms, should be used to get relevant environmental messages across to the general public or to specific target groups such as women, youth and community leaders.

OPERATIONAL IMPLICATIONS

The forergoing discussions help the educational planner and administrator to acquire a broad spectrum understanding of the area of environmental education and its importance in the overall educational efforts. It also highlights the complexity involved in effective operationalisation of a national programme of EΕ covering all the target groups and channells of education. In terms of its operational implications, two important messages emerge from the above description. One is that while the education system offers a very effective instrument for imparting the messages of environmental concern, the process of implementation demands a high level of proficiency in planning and organization. The magnitude of the task involved as well as the variety of actions required makes planning and management of EE a highly professional activity involving specialised knowledge and

skills. A second implication is that EE has to be essentially rooted in the action setting involving the people themselves. that planning and management of EE This demands be а participatory activity at all levels so that the diversity at the grassroot level both in terms of the environmental problems and the needed action strategies are properly perceived. It may also be mentioned that environment by fts very nature is a dynamic and consequently planning of EE demands from the reality professionals a high level of sensitivity to the ever-changing environmental setting and adaptability in the implementation approaches. Therefore, mere formulation of grandiose policies, plans and implemention strategies will not suffice. It is essential to have a continuous watch on the progress of implementation and ensure that on-course adaptation measures are continually effected. The forthcoming sections of the Handbook discuss in greater detail these implications for the role of educational planners with respect to EE.

Section III

FRAMEWORK FOR A NATIONAL ENVIRONMENTAL EDUCATION STRATEGY

problems Environmental know no national boundaries. Ecologically earth is one single unit subsumed in a broader phenomenon called nature. But, the existence of Nation States is also a reality. This man-made artefact has further compounded the environmental problems of different countries. It is realised that environmental conditions are not the results of mere physical constraints but of a complex interaction among social, political, economic and technological choices that a country makes. In this context, the role of EE becomes that of a strategic intervention which takes into account the global conditions and constraints as well as national choices and With increasing interdependence among different aspirations. of the world and a heightened peoples awareness that environmental degradation is a worldwide reality, the need for urgent actions to counter the ill effects of this situation has been abundantly recognised by all the countries. It is inevitable that every country gets involved in the process of environmental protection and regeneration in their own national interest as well as in the interest of the whole humanity. There is also the realisation that education is the right instrument through which these objectives can be effectively achieved. Thus, EE is considered to hold the solution for the problem. But, mere recognition of the importance of EE and making proposals for at the international level does not solve the introducing EE

problem. Rather, every country has to consciously and actively get involved in forging a worldwide movement for EE. This calls for the creation of a national EE strategy which takes into consideration not merely the national but also global concerns, welfare of the present as well as of the posterity. The national strategy for EE, therefore, must serve as the general framework for actions from policy making to programme formulation and implementation with respect to EE.

CONSIDERATIONS FOR A NATIONAL EE STRATEGY

Having accepted the need for a National EE Strategy the first question that a planner of EE confronts is that of basic considerations which should guide the formulation of such a strategy. These basic considerations should inform all actions of a planner of EE. Thus, these considerations become the ground rules and guiding principles whether the planner is concerned with policy making, plan formulation, curriculum building or management and evaluation of EE. The Recommendations of the Intergovernmental Conference on Environmental Education held at Tbilisi specify twelve such guiding principles which are presented in the following.

Environmental education should:

- Consider the environment in its totality natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic);
- Be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;
- Be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;

- Examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- Focus on current and potential environmental situations, while taking into account the historical perspective;
- Promote the value and necessity of local, national and international co-operation in the prevention and solution of environmental problems;
- Explicitly consider environmental aspects in plans for development and growth;
- Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- Relate environmental sensitivity, knowledge, problem-solving skills and value clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
- Help leaners discover the symptoms and real causes of environmental problems;
- Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
- Utilise diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience.

These specifications indicate the universal considerations a planner should keep in mind while formulating an EE strategy. But national environmental education strategy will have ล to specially reflect the conditions that characterise a particular country. Needless to say that the conditions that facilitate and barriers that constrain ΕE activities vary widely across different countries. It is the unique combination of these conditions that should form the county and culture-specific canvas within which a planner of EE has to operate, This has been

effectively highlighted by Stapp and Crowfoot (1980) in their paper, Suggestions for Developing a National Strategy for Environmental Education - A Planning and Management Process. They list five critical factors in this regard. The first factor is the level of interest and commitment to environmental education. This is to be assessed in terms of national policies or budgets in the areas of education, environment and natural resources and also in terms of ideas and behaviour of political and educational leaders, citizens, educational practitioners and environmental. professionals. The second key factor is the country's experience with national planning and management of educational efforts in general within which the national strategy for EE has to be operationalised. The third factor necessary for designing a country's strategy in EE is its past efforts and experiences with EE which will, naturally, vary greatly from one country to the other. The fourth factor is the availability and potential of resources for planning and implementing EE. This has to be seen in terms of leadership, implementation organizations, money and material, skilled workers and volunteer activists. The fifth factor to be assessed is the overall situation in the country with regard to existing barriers and facilitating forces for national level operations in EE.

COMPONENTS OF A NATIONAL EE STRATEGY

The guiding principles specified in the above paragraphs indicate to the EE planner the overall approach to be-adopted. They make explicit the broad parameters that determine the

framework for evolving a national EE strategy. Keeping the above considerations in the background, the planner will then have to answer such questions as "What are the component processes involved in arriving at a national EE strategy?', "In what sequence are these processes to be initiated?..., "Are these component processes independent or interrelated?' and so on. It is difficult and also not desirable to arrive at one set of answers which is applicable to the national strategy of every country. The broad direction in which one may approach these questions is discussed here.

A national EE strategy does not only reflect actions for implementing an already formulated EE programme. Rather, it should contain all actions to be initiated right from the time a country decides in principle to create and promote EE, to ensuring that the national goals and aspirations of the country with respect to EE are actually being realised on the field. The strategy will refer to a comprehensive set of activities ranging from policy making to monitoring and evaluation. The national strategy can be conceived to have at least six major components. These are:

- 1. Formulation of a National Policy on Environmental Education which explicates its commitment to the cause of EE and the approach to be adopted by the country for achieving the goals and objectives of EE.
- 2. Preparation of long-term and short-term plans for realising the goals of EE adopted by the country.
- 3. Formulation of specific programmes for implementing the EE plans.
- 4. Working out implementation strategies for operationalising the various programmes of EE.

- 5. Creation of necessary organizational and management structures at national and local levels for implementing EE.
- 6. Evolving a Management Information System (MIS) to oversee and ensure effective implementation of the EE programmes.

It may be mentioned that no national strategy can remain applicable for all times to come. Every component of the strategy has to be sensitive and responsive to the messages emanating from the field level operations and adapt itself to the changing demands. Thus, a crucial characteristic of the national strategy is that it is conceived as a system containing an effective inbuilt feedback mechanism. This requires strong interlinkages among different components of the strategy. Also, the strategy has to have an effective MIS in order to ensure that it is leading the environmental education efforts of the country in the desired direction.

The present section provides the planner with a gestaltic picture of what a national EE strategy would consist of and what actions are involved in formulating such a strategy. It is true that the components have to be perceived as parts of an integrated and interdependent system and not in isolation. Yet, a planner has to analyse and understand each component process in greater detail for identifying the concrete actions to be initiated at the operational level. Such an analysis of each component has been attempted in the sections to follow.

Section IV

FORMULATION OF A NATIONAL POLICY ON ENVIRONMENTAL EDUCATION

Policy making at the national level in any area of life has to be seen against the broader framework of national development. Policy making for EE has also to be considered within this perspective. In the context of development processes, environment is often, but mistakenly, viewed merely as a datum. Rather, it is necessary to view environment as an essentially endogenous variable involved in planning the development process. Thus, questions of environmental concern need to be dealt with in relation to the overall policy perspectives adopted by the governments with regard to national development. In other words, it is imperative that the countries adopt environmental education policies which are integrated into their general policy framework for national development, based on the national state of the environment.

Explicit statements of national policy on EE serve several important purposes. First of all, environmental concerns will acquire a place of continued importance in all development planning. This will also ensure a long-term commitment on the part of national leadership for the cause of environmental education. It will further recognise the fact that environment concerns all men and women in the country and that its preservation and improvement require the support and active participation of all sections of the population. Finally, this will reaffirm
the faith in the potential of education as an effective instrument for tackling the bourgeoning problems relating to environment in the country. This will, it is hoped, facilitate the implementation of EE in the long run.

Having accepted the need for evolving a national policy on EE, the planner is faced with such questions as :

- How is the national policy on EE to be formulated ?
- What exercises are to be carried out before arriving at a national policy?
- What are the essential ingredients of a national policy on EE?

Answering these questions become crucial when seen in the context of a particular country with its unique ecosystem of natural and human environment along with its ideological and historical dimensions. The EE policy must also reflect the temporal dimensions of the environment in the country. In view of the above points, a planner has to carry out at least two major exercises before arriving at a national policy framework on EE. These include а detailed situational analysis of the environmental conditions characterising the country and an analytical understanding of the existing planning and management structures operating therein with respect to formal as well as These exercises should nonformal educational channels. he followed by outlining the scope for and methods of integrating EE inputs into the on-going educational programmes. The framework for a national policy on EE has to emerge from these empirical exercises. Without the necessary empirical base, national policy frames remain very general and indeed far-fetched, consisting of

populist platitudes failing to give a concrete direction to field level operations in EE. The following paragraphs in this section contain a discussion of the basic components of such a national policy framework.

As mentioned earlier, the EE policy has to be countryspecific. Therefore, a general statement on the components can only give a broad indication of the essential aspects that should be contained in any policy framework on EE. Seen from such a broad perspective, the policy statement should include reference to two important aspects. One is that it should make clear the position of the country with respect to environmental action as a whole based on the national state of the environment. The second is that it should indicate the overall goal of all actions with regard to environmental education in the country. These two aspects have been specified succintly in the Report of the Workshop on Environmental Education held International at Belgrade in 1975. The Report states :

The goal of environmental action is :

To improve all ecological relationships, including the relationship of humanity with nature and people with each other.

There are, thus, two preliminary objectives:

- 1. For each nation, according to its culture, to clarify for itself the meaning of such basic concepts as "quality of life" and "human happiness" in the context of the total environment, with an extension of the clarification and appreciation to other cultures, beyond one's own national boundaries.
- 2. To identify which actions will ensure the preservation and improvement of humanity's potentials and develop social and individual well-being in harmony with the biophysical and man-made environment.

The goal of environmental education is :

To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

The national framework for a policy on EE should give a clear indication of the country's commitment and approach towards the cause of environmental education. Fostering awareness and concern among the citizens regarding the inevitable interdependence among different dimensions of human life 'economic, social, political and ecological, should be a basic policy orientation. The policy should accept the nation's responsibility to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment. The policy should highlight the role of environmental education in creating new patterns of behaviour of individuals, groups and society as a whole towards the environment. It may be mentioned that several countries have already evolved a national policy framework for A brief overview of these efforts inter alia can be found in EE. the publication, A Comparative Survey of the Incorporation of Environmental Education into School Curricula brought out under the Unesco-UNEP International Environmental Education Programme.

Section V

PLANNING FOR ENVIRONMENTAL EDUCATION

The dynamic nature of environment and consequently, of environmental education, makes planning for EE a complex task. The planner has to make a careful assessment of the country's environmental conditions and priorities and make critical choices for EE in an informed way. Planning for EE should also take into consideration, the country's educational history, its national priorities. and past and current environmental and social concerns. Even within a country, a grand strategy for EE may not be applicable to all parts and all sections of the population. It in such a fluid and complex context that planning for EE has is to be carried out. Preparation of Action Plans for EE at the national level has to, therefore, keep in view several parameters well as the framework provided by the national policy ลธ directives on EE.

PLANNING PARAMETERS FOR EE

The planning parameters or the background conditions which would determine the nature of Action Plans for EE will have to be independently identified by the planners in every country. However, it is worthwhile to list out the fundamental factors which should be closely examined for discerning the background conditions that would, in turn, guide the actions of a planner of EE. The following are some of the essential conditions which should be properly analysed within the context of every country.

- 1. The priority given to EE by the national leadership in the process of development planning, in general, and educational planning, in particular has to be ascertained by examining the extent to which environmental concerns and the related actions figure in the planning forums and documents at the national level. Preparation of EE plans not fully assimilated into the national developmental planning process tend to remain mere academic exercises rather than 'action' documents.
- 2. The extent to which resource support can be mobilised at <u>national</u> and <u>local</u> <u>levels</u> for <u>EE</u> activities is another important consideration. One has to examine the availability of not only financial resources but also professional staff time and institutional infrastructure. The experience of many countries in implementing a variety of programes supported by international agencies have shown that the programmes have quite often suffered due to inadequate technical and professional support at the field level. One has also to ensure the availibility of funds for creating minimum levels of human and physical resources for launching the EE Action Plan.
- 3. The <u>availability of voluntary action groups</u> for EE at regional and local levels is another crucial factor. It should be remembered that environment is a factor that influences the quality and conditions of life. Therefore, the success of EE cannot be ensured only by the involvement of governmental agencies. However, the availability of nongovernmental agencies and voluntary groups willing to participate in EE activities cannot be assumed in all the countries; nor can it be found uniformly in all parts of a country. At the same time, it is necessary to find out what roles the national political leadership is ready to assign for such non-governmental organizations.
- 4. Closely related to the above is the scope for adopting a decentralised participatory approach in the existing practices of educational planning. The planning strategy and the extent of involvement of non-governmental agencies in the planning process is obviously determined by the planning model adopted in the country. It is needless to emphasize that EE requires a radical model which involves planning from below if its implementation at the grassroot level is to be ensured.
- 5. Planners for EE should consider the <u>overall public</u> <u>disposition as well as that of the various professional</u> <u>groups towards environmental action.</u> In the final analysis, <u>success of environmental education depends on the extent to</u> which it becomes a people's movement. Thus, the level of sensitivity to environmental problems among the community and their readiness to imbibe an environmental ethic constitute basic indicators guiding the nature of an Action Plan for EE.

6. Past experiences in implementing environmental education activities is also a determining factor in designing the nature of a national plan of action for EE. Some sort of environmental action can always be found in almost all the countries. But, these actions are invariably sporadic and even ad hoc as they are largely the efforts of voluntary action groups. A national action plan for EE should try to build on these efforts, however unorganized they might be.

NATIONAL PLANNING GROUP FOR EE

The six parameters for planning EE as discussed above will assume different shape in different national contexts. Specifying these parameters and preparing an action plan requires careful data gathering and analysis as well as formulating alternative choice patterns for arriving at workable action plans. For this, it becomes necessary to create a broad-based group at the national level which is empowered with appropriate authority to take decisions. Constituting such a National Planning Group headed by the Minister of Education or any other appropriate authority will help start the initial planning activity for EE and also giv the necessary support personnel for plan formulation. However, in constituting the National Planning Group. it is necessary to bear in mind that planning for EE has to be a broad-based inter-disciplinary activity involving not only educational professionals but also representatives from other policy areas as well as representatives of different socioeconomic and ethnic groups. Involvement of people with such diverse background and orientations is essential to ensure that the components of the action plan are relevant to the environmental needs and priorities of the country as perceived by the very people whose lives are affected by the environmental problems.

PREPARATION OF ACTION PLANS

In preparing a national plan of action for EE it is necessary to bear in mind that the various objectives of EE cannot be achieved at one go. It is, therefore, imperative to identify certain objectives as immediate and the others as long-term goals. Accordingly, it is necessary to visualise the action plan both short-term and long-term, by building a suitable time-frame for achieving the various objectives of EE. Similarly, it is also essential to break down the overall plan framework into several functional units or component plans based on the different categories of target groups to be reached and the nature of educational inputs to be provided. These points bring into fore two important questions in the preparation of an action plan for EE. First, what are the basic processes or steps to be adopted in preparing an action plan for EE and second, what are the possible component plans of a national action plan for EE ? While answers to these questions will be different in different countries, certain broad lines of action can, however, be outlined.

Action Steps Involved in Planning for EE

Action steps to be adopted in plannig for EE should be in consonance with the general planning sequence adopted in other sectors of planning. This also should take into account the basic nature of EE as an area of educational activity. Broadly, the sequence of activities involved can be divided into ten steps.

Step 1 : Specification of Objectives

To begin with, the planner has to identify and adopt the long-range goals of environmental education as they emanate from the policy framework for EE adopted by the country. Within this long-term perspective for EE, specific shortterm objectives have to be identified. These may be determined separately for different targets to be reached and also-for the different action channels visualised for EE in the national plan of action.

Step 2 : Identification of Target Groups

Proper identification of different target groups is necessary for understanding the varying needs and priorities of different sections of the population and to plan targetspecific programmes with appropriate EE inputs. This is also necessary for setting forth the place of different target groups vis-a-vis others so that the component plans be made supportive to each other with the overall plan emerging as a coherent and internally consistent frame-of-action.

Step 3 : Conceptual Framework

While a planner may not be concerned with theoretical dimensions of EE, it is necessary to evolve and adopt a conceptual and functional framework to guide the planner in formulating workable plans for EE. The conceptual framework would help identify the specific goals and objectives of the instructional inputs to be provided to the learners of different target groups as also the modalities of providing them. The long-term dimensions of the plan may seriously suffer in the absence of a conceptual framework which indicates the direction in which the EE programmes should progress.

Step 4 : Programme Formulation

This is the most crucial step in the process of planning. The planner has to develop an operational framework for achieving the goals of EE. This has to be a comprehensive exercise which takes into consideration various dimensions such as role of formal and non-formal channels of education, place of mass media, training of personnel for EE at different levels, development of necessary instructional material and infrastructural arrangements. The Programme formulation process should be such as to delineate several components so suitable modalities for their field level implementathat tion can possibly be designed. It should be remembered that the programme formulation exercise must make a fresh beginning even if certain activities are already going on. It may be necessary to subsume them in its overall strategy so that the earlier initiatives are strengthened and extended and not ignored.

Step 5 : Institutional Arrangements

Working out mechanisms for translating the programme into field level reality demands of the planner great ingenuity for combining a futuristic vision with pragmatic assessment of the ground level conditions. The planner has to identify the existing institutional infrastructure for imlementing the programme and arrive at a feasible division of responsibilities for different implementing agencies. This exercise has to be made based on the operational demands at national, sub-national and local levels. Also the specific roles and functions to be performed by governmental and nongovernmental agencies must be clearly defined. The need for creation of additional institutional structures at various levels has to be carefully assessed. The objective should be to ensure facilities for maximum coverage of all target groups and areas but without getting saddled with redundant organizations. This is important since EE has to finally get integrated with the daily life style of the people. From this point of view, it should be desirble to create a cooperative network of existing institutions into a synergic alliance rather than burden the programme in the long run with a heavy institutional bureaucracy. An unimaginative expansion of institutional infrastructure invariably proves to be counter-productive for a life-long education programme such as EE.

Step 6 : Implementation Plan

Preparing an implementation plan involves the task of establishing a proper correlation among three different dimensions of the plan framework -- the short-term and longterm objectives of EE, the programme components identified, and the institutional arrangements. The implementation plan has to be based on a workable articulation of these three dimensions. Preparation of the implementation plan cannot be a unilateral action by the planners and administrators. Instead, it has to be a participatory exercise involving all the concerned agencies and individuals.

Step 7 : Inter-Agency Coordination Mechanism

The planning process should also ensure that proper linkages are created among the different partners involved in implementing EE programmes. If past experience is any indication, implementation of many of the programmes have suffered due to the absence of a suitable inter-agency communication system. In order to preempt such an eventuality, the planner has to ensure the creation of an efficient system of communication that links into a network the performers or implementers, the learners or recipients of EE, and those who monitor the programme at the systems level.

Step 8 : Management Information System

Since implementation of EE programme will necessarily depend on a wide network of institutions each of which will be dealing with different but interdependent components of the total programme, a close monitoring and evaluation of the programme implementation becomes essential.__In_other words the creation of an effective mechanism for information collection. processing and usage in implementation is necessary to ensure that the programme is progressing satisfactorily in terms of its inputs as well as time targets, and apply mid-course correction to the implementation process, if necessary. An effective management information system__will act as an auto-regulatory feedback mechanism built into the programme to ensure the achievement of both quantitative and qualitative targets of EE.

Step 9 : Resource Planning

Planning for mobilisation of necessary financial resources to operationalise the programme is perhaps the central task on which hinges the success of the programme to a great extent. The planner has to make a careful analysis of the scope for raising resources from various international, national and local level agencies. This can prove to be a demanding task as the planner has to take into account the basic ideological disposition of the national government for utilising international and local community resources. Considering the availability of the resources the planner is required to give a final shape to the programme. This will involve taking significant decisions as to the priorialso ties in terms of essential and non-essential components. It is needless to say that every country has been facing resource constraints. Mobilising resources for an area such as EE is really an uphill task, more so, when its impact can be assessed only after considerable lapse of time. In this context, mobilisation of local resources for education sector in general, and for EE in particular is emerging as an important alternative in financing the programmes.

Step 10 : Research and Development

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No plan for EE can be final and foolproof. The success of an EE programme depends on its sensitivity to the field level messages and the scope to redesign the programme parameters for making it more effective. Therefore, a good plan should have research processes incorporated into various dimensions of EE as an integral component so that programme planning becomes a continuous process. Research endeavour in EE has to be comprehensive, encompassing both system level and field level problems and issues. There should also be an efficient mechanism for timely dissemination of the research findings so that they are simultaneously absorbed into the operational set-up. One has to guard against making the R & D process a mere academic exercise or a fault finding mechanism.

PREPARATION OF COMPONENT PLANS

As mentioned earlier, the overall programme framework is to be divided into operational subunits or components. Thus, the total plan framework becomes a composite of a number of component plans. The contents of the component units of the total plan depends on the particular country, the existing educational provisions and channels such as formal and nonformal, as well as the already existing management system for education. It also depends on the existing institutional infrastructure and the extent of involvement of non-governmental agencies in the field of educational management.

Basically, the planner has two alternatives for preparing the format of the component plans. The plans can be prepared in terms of the channel of operation for EE or in terms of the specific institutional arrangements. For instance, one has to prepare detailed plan components for operation through the formal or non-formal educational channels. Within the formal educational channel, subplans have to be drawn in terms of differnt levels as primary, secondary and higher education. Similarly, the plan for the non-formal education channel has also to be broken into subplans keeping in view the different target groups to be reached and the specific media and modalities through which this is to be accomplished. The component plans have also to specify

the roles and responsibilities of different governmental and nongovernmental agencies in the implementation process.

The other alternative of preparing component plans in terms institutional arrangements can also be worked out. of In this case, the details should include the methods and media that the various agencies should adopt for imparting EE for different target groups. Also, the plan should specify the mechanism to be followed for maintaining inter-institutional linkages at the implementation level. The arrangements for transmitting EE inputs that need to be provided outside any institutional framework have also to be worked out. This becomes particularly important in many of the third world countries where school education has yet to become universal. If particular attention is not paid to this aspect, a very large section of the population may remain outside the purview of EE programmes of any kind.

ACADEMIC PLANNING

An aspect of planning which often does not receive due is the planning of academic dimensions of attention the programme. While it may not be desirable to expect that a11 academic inputs required for the programme be made ready before launching the programme, it will be counter-productive to enter the field without making adequate academic preparation. A planner has to identify the right kind of institutions and individuals who can provide the necessary academic support for the programme in a continued fashion. For this, a series of curriculum planning exercises will have to be carried out keeping in view the nature inputs to be provided to different target groups. Academic 10

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planning cannot be a one time exercise just preceding the programme implementation. Rather, it has to be an ongoing process of developing rogramme inputs and revising them in the context of the feedback received from the field. Who should do these exercises? How should they be monitored? At what level, national or local, should these exercises be carried out? These are questions for which appropriate answers have to be found by the planner before launching the programme.

TRAINING OF PERSONNEL

Another preparatory action that a planner has to do before launching the programme is to ensure that the personnel who have to implement the programme are adequately trained for the task they have to perform. In many instances, it has been found that the programme implementation has resulted in chaos at the field level due to lack of proper orientation and abilities among the personnel involved. The personnel for EE consists not merely of those who hold management positions in the implementation arrangement but also those who have to impart EE to the learners. This is important since EE has yet to become an effectively integrated component of the curricula at all levels of education. Even the teacher education programmes in most places do not have EE as an essential component of the curriculum. The task becomes while dealing with personnel further complex from nongovernmental agencies or those belonging to voluntary action groups. Therefore, it is essential to prepare a national level strategy for training of personnel involved in EE activities at different levels and in different sectors of operation.

ALTERNATE IMPLEMENTATION PLANS

Various aspects of the task of preparing a national plan for environmental education have been discussed and the sequential steps to be followed by the planner of EE have been identified. Obviously, these steps specify only the direction in which the planner has to proceed; they do not give the details of the actions to be initiated for operationalising the plan framework. As Stapp and Crowfoot (1980) point out, for optimal effectiveness it is important to fit a country's activities in developing a national environmental education plan to the background conditions and goals of the country. What is required is a clear visualisation on the part of the planner regarding different alternative plan frameworks possible under the given conditions. A particular country may allow for the preparation of a shortterm plan only whereas certain other countries may provide scope for developing a long-term perspective plan for implementing a package of EE programmes. Each choice will demand a different set of actions from the planner. Stapp and Crowfoot (1980) illustrate this point very effectively with two alternative plan formulations for implementing EE at the national level. Even though the plan framework adopted by them is slightly different from the one suggested by us, these alternate plan formulations reproduced in the Appendix should serve as useful illustrations for the educational planners.

The conditions prevalent in certain countries do not allow scope for long-term perspective plans for EE. These countries may have limited resources available for EE and the planners may be bound by already established national priorities for education.

Countries with such background conditions may have to adopt a highly centralized, short-term, implementation-oriented planning and implementation process. On the other hand, the background conditions in certain other countries may be altogether different, with diverse local conditions and not much scope for initiating centrally planned and coordinated activities in EE. In such countries, one has to begin building national level capabilities for EE through decentralised, short-term action plans which should in turn serve as the basis for creating a long-term national plan for EE. In contrast to these, some of the countries which are relatively small in size and population may find it more convenient to have a somewhat centralised plan with a longterm perspective. Similarly, one has also to closely examine the appropriateness of particular management styles for implementation keeping in view the country specific conditions. Obviously, the question of whether one should have top-downwards or bottomupwards approach to plan formulation and implementation depends on the existing planning and administration culture characterising the country. It is important to note that these examples are only suggestive and final decisions about planning and management of EE in any particular country depends on a number of complex factors which only those familiar with the country can perceive.

Two crucial steps which need further elaboration are: creating an effective management mechanism and evolving a suitable management information system to ensure proper implementation of the planned programmes. These are discussed in greater detail in the following sections.

Section VI

MANAGEMENT OF ENVIRONMENTAL EDUCATION PROGRAMMES

an appropriate system for management Evolving of EΕ to be based on a number of fundamental programmes has The management mechanism has to be in consonance considerations. with the national policy directives with regard to EE. Also it has to facilitate the achievement of EE goals in a comprehensive manner considering the basic spirit of EE as an endeavour to promote the preservation and improvement of the living environthus improving the quality of human life as well ment, as preserving ecological systems. The task is definitely not limited mere infusion of EE inputs into the curricula of different to ongoing educational programmes. It is rather to facilitate access to appropriate EE knowledge and skills for every section of the population and on every aspect of the ecological system. As the Tbilisi Conference has recommended :

Environmental education should aim at creating awareness, behavioural attitudes and values directed towards preserving the biosphere, improving the quality of life everywhere as well as safegaurding ethical values and the cultural and natural heritage, including holy places, historical landmarks, works of art, monuments and sites, human and natural environment, including fauna and flora and human settlements.

Evolving and establishing a management system which is comprehensive enough to take into consideration all the implications of the above recommendation requires a careful analysis of the existing institutional infrastructure and also assessing the need for creation of new infrastructure for effective implementation of the programme. It should be borne in mind that management of EE does not merely involve the establishment of administrative and supervisory mechanisms but it also requires arrangements for developing academic resources. Thus, the management system for EE should have two important component subsystems. These are : (1) The Administrative Support System and (2) The Academic Resource Support System. It should be worthwhile to discuss the various roles and functions of these two subsystems in greater detail within the overall context of a national management framework for EE.

ADMINISTRATIVE SUPPORT SYSTEM FOR EE

As has already been stated, the administrative machinery and processes to be created for implementing EE programmes vary according to the national conditions. In some countries, the conditions allow little scope for any reorganisation in the existing educational administrative structure for implementing EE programmes and therefore, demand total rearticulation of the implementation parameters to suit the existing administrative machinery and processes. Also, the conditions may demand a highly centralised arrangement for implementation and monitoring which may facilitate more national level interventions in the implementation process. Further, the country's policy orientations may require a heavy dependence on governmental agencies with little involvement of local level voluntary organizations. The conditions in certain other countries may be characterised by a very different set of factors demanding a different set of administrative mechanisms and processes. Some countries may provide little

possibility for national level actions in a direct manner. Such a situation would demand the adoption of an essentially decentralised administrative arrangement for implementing EE programmes. At the same time, they may facilitate the involvement of local level organizations and volunteer activists to a greater extent.

Irrespective of the above variations in the background conditions it is essential to evolve certain coordination mechanisms at different levels for implementing the EE programmes. Some of the important steps to be initiated in this regard are as follows.

Evolving a National Management Framework

Taking into consideration the total geographical and demographic dimensions of the country, a national level framework for management of EE programmes has to be worked out. The framework may broadly consist of a three tier arrangement involving national level, state or provincial level and local level management mechanisms. Specific roles and management functions of the mechanisms at different levels have to be properly defined. It is necessary to identify the place of governmental also and nongovernmental organizations in the total framework. An important question to be considered is whether to devolve the financial control mechanism to the lower levels or to operate the finances in a centralised fashion. Decisions will also have to be made as to the extent to which the existing institutional infrastructures strengthened or new structures be created for taking on the be responsibility of administering the EE programmes.



Diagram VI.1

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Diagram VI-I

Establishment of Coordination Bodies for Management of EE

As has been pointed out, the need in most of the countries is not for creating exclusive institutions for management of EE programmes. Instead, a more desirable approach will be to identify suitable institutions from among the already existing and create a network. Thus the task at the national level ones be to create a management system which is network-based as will opposed to the usual institution-based arrangements. This obviously is a more challenging task. In order to ensure the functioning of such a network-based system it is necessary to set up coordination bodies at different levels - national, state or provincial and local levels. Due attention should be given to the constitution of these bodies. They should have representation from decision-making as well as implementing personnel; both administrators and activists should find representation in such bodies. The function of the coordination bodies will be to ensure that different participating agencies are able to perceive their roles and responsibilities clearly. These bodies would act as apex bodies at the respective levels supervising the activities of all the agencies and individuals involved in implementing the various components of the EE programme.

Interlinking Field Level Organizations and Activities

A cormon danger of many field based programmes involving agencies and individuals with varying background is that they tend to operate in an isolated fashion. This would result not only in duplication of efforts but also in field level actions that can be counter-productive. But linking the various agencies is not an easy task. Quite often, the volunteer activist groups

who have direct rapport with the field hesitate to participate in activities initiated by government supported organizations. The personnel from governmental organizations also, with their bureaucratic attitude, look upon with apprehension the participation of activists in their programmes. However, it is needless to state that in an area such as EE effective cooperation of all concerned at the implementation level is imperative. This demands real ingenuity from the planner to devise innovative mechanisms for effectively inter-linking all field level agencies and individuals involved in EE activities.

Micro-level Planning and Community Participation

EE does not merely mean the imparting of a certain set of knowledge and skills. Instead, it aims at imbibing in the community a new eco-centric ethic which would eventually result practical actions to solve concrete environmental problems; in the individuals and social groups should gain awareness of the quality of their environment and act with resolve to preserve or improve it. It is only such systematic action by the community that can make environmental education a people's movement. But. in order to develop such deep concern and commitment for EE action, it is not adequate to bring the community merely at the implementation stage. Involvement of the people has to be total and continuous from the inception to the completion of the This implies that for grassroot level action in EE. programme. planning and management cannot be done from a distance; it cannot be done by outsiders; and, it does not automatically emerge from macro level plan. In other words, when it is concerned with а

result oriented action on the field, planning and management processes have to be carried out at a micro-level in the action situation itself. Also, these have to be done by the very people who are themselves a part of the action setting. Thus, effective community participation becomes indispensable in all such microplanning and management exercises for EE. For this, the overall framework for planning and management should have enough leverage to encourage and absorb local initiative and variations in the programme parameters. It should promote genuine interaction between local educational institutions, environmental activists, if any, and the common members of the community. At no point of time should the programme implementation procedures make the community members feel that something is being imposed on them or that they are only passive recipients to some knowledge and skills being given to them by outsiders. After all, it is for the people to find out the conditions for living in harmony with nature, internal as well as external, in a state of ecological balance.

ACADEMIC RESOURCE SUPPORT SYSTEM FOR EE

If an educational programme is concerned with providing academic inputs to a well-demarcated target group of children or adults, and is to be operated through a pre-specified channel or institution, creating an academic resource support system may not pose a serious challenge to the planner. But, EE cannot be considered to fit such a description. Openness and flexibility are important characteristics of EE. While some components of EE may be provided through specified institutional channels, the

remaining has to reach the public through highly informal means. Further, environmental education is directed to the solution of the practical problems of human environment and not merely concerned with transmission of some new knowledge. Identifying relevant academic inputs for EE has to be an inter-disciplinary endeavour involving specialist professionals from different fields of knowledge. Finally, since the environment by its very nature is subjected to constant transformation, an education concerned with the solution of environmental problems must be able to effectively assimilate change; it has to be a lifelong process which can constantly readjust its sights and revise its content and methods in the light of new situations.

The above description of the characteristics of EE, makes it clear that providing necessary academic support in the form of development and timely supply of instructional material, preparing EE personnel for effectively transmitting the EE inputs to learners, and so on are complex tasks which have to be made the responsibility of a specialised institution. Keeping this in view, "he Tbilisi Conference recommended that specialised units be created in every country for the purpose of providing academic resource support to organizations and individuals involved in EE. It is not enough to create such a specialised institution only at the national level; such units will be necessary at state®regional and local levels also. The academic resource support has to come in terms of at least three aspects, namely, curriculum development for EE, training of personnel involved in EE activities and organization of R and D activities for EE on a continuous basis.

National Resource Centre for EE

This will be the apex body at the national level for policy formulation and coordination of all academic activities in EE. The specific functions of the National Resource Centre(NRC) will include:

- Development of curricula and instructional material compatible with the needs of the environment at the local, regional and national levels.
- Preparation of books and scientific reference works necessary for the improved curricula.
- Determining educational methods and media, including the audio-visual aids needed for the purpose of explaining and popularisng environmental curricula and programmes.
- Serving as a consultative body in environmental education at the governmental level.
- Acting as a clearing house and information centre in environmental education.
- Promoting collaborative relationships among environmental education associations, citizen's groups, and the scientific, research and education communities.
- Providing frameworks and guidelines for the establishment of environmental education action committees within the country.
- Assessing the need for research, development and evaluation in environmental education.
- Encouraging and facilitating the contribution to environment education programmes of non-governmental organizations, including voluntary bodies.

The above list of functions to be performed by the National Resource Centre makes it the main responsible organization for guiding all academic actions in the field of EE. In order to enable the NRC to discharge such major responsibilities, careful attention should be paid to its staffing and location. In this regard, two important considerations are to be borne in mind. One is that the NRC is a body of professionals who provide guidance and direction but do not exercise any control over the activities at the regional and local levels. Thus, the members of the NRC should be of very high academic calibre who can influence academic action at other levels through their professional work even without any controlling authority vested in them. Secondly, the work in EE cannot be carried out in an individualised manner as in other academic areas. This is because, EE is not simply another academic discipline. EE demands professional activities which have direct bearing on field level action. This makes it imperative that the NRC activities are carried out through team work involving personnel with varying background and orientations. A third consideration that is a corollary to the previous one is that the team of professionals at the NRC has to be an inter-disciplinary one. It should include professionals with experience in different areas such as environment and forests, housing, urban development, science and technology, pollution control, pedagogy, curriculum development, community health, and so on.

Alternative Models of NRC

Careiul consideration is also called for in deciding the location and organizational structure of the National Resource Centre. Again, the decision will have to be based on the country's geographical, demographic and socio-cultural dimensions. One model is to establish a national institution specially designed for this purpose. Such an institution will, obviously, be a multi-unit organization with an inter-

disciplinary team of professionals. A second model of organization is to create the National Resource Centre as a part of a larger national level educational institution. In this case, the NRC will consist of a relatively small core group of professionals concerned with EE on full time basis. The NRC will draw its inter-disciplinary inputs from other professionals working in the same institution where it is located as well as from other governmental and non-governmental organizations and activist groups. A third model of NRC is to conceive of the Centre as a network of organizations located in different parts of the country with one of them acting as the nodal body for coordination. Each institution in the network will function in a prespecified manner focussing on specialised areas such as curriculum development, mass media support, training of personnel, and so on. Advantage of this model is that it allows for greater participation of a larger number of experts and field workers in the task of generating academic resources. However, an effective coordination of the activities of the component organizations is very crucial without which the working of the whole system will be affected.

Academic Resource Support at the Field Level

As mentioned earlier, the National Resource Centre can only provide broad guidelines for action at regional and local levels. It can indicate the direction in which actions are to be initiated. It can facilitate inter-communication among the field level asencies and help them share and learn from the experience of one another. It can interpret the national policy directives.

It can identify expertise in specialised areas and bring their involvement at various levels. But, the nature and contents of specific academic inputs that should go into field level actions have to be determined and generated on the field only. It is therefore essential that suitable mechanisms are created to provide academic resource support for EE as near the action situation as possible. Thus, in addition to the national level institutions, it is necessary to establish state and local level mechanism: for generating academic resources for EE.

Functions of these local level resource centres will be similar to those specified for the NRC. But, in this case, the actions are guided more by field level needs and realities rather than general theoretical and policy considerations. Some of the specific functions will include :

- Conducting field surveys for identifying the EE needs of the local population.
- Adaptation of exemplar curricular material keeping in view the local needs.
- Development of local specific learning packages in EE for different target groups.
- Identifying the training needs of different EE personnel such as teachers, administrators, development workers, etc.
- Organizing training programmes for different EE personnel.
- Providing technical support and guidance to field level agencies and individuals.
- Evaluating field level actions and diagnosing the problems faced in implementation.
- Conducting small scale action research studies in EE.

Unlike the establishment of a special set up at the national level for generating academic resources, creation of separate institutional infrastructure for this purpose may not be

necessary at the field level. The endeavour should be to utilise and build on the already existing institutional infrastructure. Instead of fitting the resource support system into a rigid institutional framework, it should consist of a loosely-knit network of a number of institutions. Particular considerations should be given to the possibility of involving teacher training institutions as they have the capability to reach a large number of teachers who in turn can take up the task of EE in their respective institutions. It is also important to bring into the fold of the network the various non-governmental organizations, social action groups and individual activists operating at the grassroot level.

R and D Actions for EE

The frame of reference for understanding environmental conditions is ever changing and dynamic. So is it for environmental education. What may appear as an environmental problem may actually be a symptom of a more deep-rooted malady characterising the whole society. This makes it doubly difficult to identify curricular inputs for EE in an objective manner. Further, what may appear to be most appropriate curricular inputs in a particular place and time may prove to be totally unsuited in a different social and historical context. These and many such points related to EE require to be properly dealt with and clarified through specific research activities if the EE programme has to be effective. In fact, no EE programme can ever be considered completely developed and final. The conceptual as well as action dimensions have to continually undergo change and

improvement through Research and Development cycles, Considering the importance of carrying out research in EE, the Tbilisi Conference r.commended that the Member States, "...examine the potential of appropriate institutions to carry out research into the curricula and programmes in environmental education and necessary initiatives, including encourage institutional cooperation." Being an inter-disciplinary area environmental education lends sufficient scope for professionals with varying background to participate in research programmes related to EE. An important point to be remembered in this regard is that EE is not just an academic area of study; the research and development programmes in EE should, therefore, be essentially problemcentred and action-oriented.

Evolving a Communication Strategy for EE

EE has to be a movement of the people which includes in its purview every section of the population. This makes EE not only huge in its magnitude but also highly diverse in its operational mechanisms. A large number of institutions and individuals with differing perspectives and primary concerns are bound to get involved at the operational level. Schools, colleges, universities, mass media, social action groups and so on, invariably, are guided by different sets of basic objectives. Nevertheless, in the interest of EE it is essential that they all work in unison in spreading the messages of environmental preservation and sustainable development. Bringing together such diverse institutional structures and individuals - highly organized institutional mechanisms and basically open, loosely organized



Diagram VI-2

environmental action movements - on a common operational plane is a big challenge before the EE planner. To meet this challenge effectively, the EE planner has to evolve an effective communication strategy for EE.

It is difficult to prescribe a communication strategy which can be functionally effective in all countries. But certain basic considerations are to be borne in mind in evolving the communication strategy, in view of the fact that EE necessarily has to be a movement flowing outwards to the common public even though the operations may be channelised through organized educational structures with specific target groups.

The most frequently adopted model of communication consists of an arrangement that provides for linear hierarchical flow of information with unidirectional or bidirectional linkages as in Diagram VI-2. This model is beset with two main problems. One is that it is prone to serious distortion of the messages in the flow of information from the national leadership to the field level activists as well as in providing objective feedback about the field level reality. A second problem is that it does not provide for effective lateral linkages across different institutions and individuals working at any particular level. This becomes a serious handicap since one is likely to find a multiplicity of agencies operating at every level; effective communication among themselves is imperative.

An alternative model which is, perhaps, more suited to the requirements of the field of EE focuses more on horizontal linkages at each level with built-in scope for upward transmission of information. An approximate representation of such a



Diagram VI-3

model will be as in Diagram VI-3. The main strength of this model is that it provides for direct linkage between planning mechanisms at all levels without going through the bureaucratic channels. This greatly reduces the possibility of communication distortion as well as loss of precious information from the field to the national level planners and administrators.

The communication strategy indicated in Diagram VI.3 is undoubtedly a more appropriate communication model for EE. However, it is also complex and presents considerable difficulties to operationalise in many countries. This is because, the existing educational system in each country would already be functioning with certain communication parameters and initiating an altogether new model of communication which may not be in consonance with the existing arrangements may lead to resistance from the administrators and in the final analysis may prove to be ineffective. Secondly, communication strategy for EE cannot be put on ground in an isolated fashion; it has to be a part of the overall system of information management adopted for EE.

Various dimensions of EE management discussed in this section do not fall into a well-knit, neatly formulated system. They only indicate the various components that should be included in the management system to be developed in any country. But, the right organization of these various components is a matter that has to be independently evolved in the context of each country. As discussed in the section on Planning for EE, certain countries may allow considerable scope for decentralized management of the EE programme. Certain other countries may find it necessary to

adopt a more centralised management system in line with the general administrative machinery operating in the country. It is the responsibility of the national leadership to identify the appropriate combination of the component elements and build a practical model of management operations in the respective country. Another factor equally important in this context is to develop the necessary readiness and orientation among the educational planners and administrators to understand the place of EE in the broader framework of educational programmes and also perceive in concrete terms their own roles in planning and implementing EE programmes at micro as well as macro levels.

Section VII

TRAINING OF EDUCATIONAL PLANNERS AND ADMINISTRATORS IN ENVIRONMENTAL EDUCATION

Environmental education is a relatively new area demanding a new set of knowledge and capabilities for those involved in its implementation. It would be difficult to presume that these inputs are being provided through the already existing traditional programmes of orientation and training. Therefore, a pre-requisite for successful implementation of EE is to ensure that the personnel involved are suitably trained with regard to various dimensions of EE. This raises a number of questions.

First of all, we have to identify who are the personnel concerned with planning and management of EE. In other words, we have to clearly specify the different target groups who require orientation and training in implementing EE programmes. A second question relates to the specific scope of the training or orientation to be given to different categories of planning and management personnel. One has to specify detailed outlines of the content inputs - knowledge, skills, attitudes - that have to be incorporated into various orientation/training programmes. The next requirement is to identify the training resources in terms of human as well as physical and financial resources necessary for organizing the training programmes in an effective manner. One has also to closely consider the design and nature of the training programmes suitable for different categories of personnel. Different questions such as whether the programmes

short-/term or long-term, whether they have to should be be recurrent or just an one time affair and so on have to be thoroughly examined. Methods and material appropriate for the specific training programmes constitute another factor requiring considerable attention. Lastly, considering that a large variety of personnel are involved in the planning and implementation of FF it becomes necessary to create an effective mechanism for monitoring and coordination of the various training and orientation programmes.

This section attempts to deal with some of these points. While decisions regarding training of educational planners and administrators have to be made essentially based on the objective environmental conditions prevalent in a particular country and its socio-political philosophy, certain broad dimensions can be indicated which remain relevant in almost all the countries.

TRAINING PERSPECTIVE

The recent past has witnessed rapid scientific and technological changes influencing the styles of living and working of the people the world over. This has consequently led to rapid changes in human settlement patterns accompanied, quite often, by haphazard changes in the ecological conditions. One can also see, in many countries, a fast deterioration in the status of agricultural land coupled with soil erosion, diminishing green cover and a threatened existence to wild life. Air and water pollution . has increased both in urban and rural areas. It has, therefore, become essential for every nation to take cognizance these factors and organize effective action to cope with the of
growing environmental problems. The potential of education to achieve success in these endeavours has also been recognized. The role of educational planners and administrators in the development of environmental education has to be visualised within this perspective. Seen from this angle, one can identify several major dimensions of activities where educational planners and administrators at national level have a significant role in developing and implementing EE programmes in the country.

It may also be noted that Environmental Education represents a new kind of responsibility and the planners and administrators many countries are not fully familiar with the demands of in developing and implementing EE programmes. It is essential that educational planners and administrators are properly equipped with a basic understanding of the philosophy of environmental It is not uncommon to come across individuals education. occupying positions of crucial importance in the decision making set-up who view ecological concerns and developmental concerns running counter to each other. This misconception needs to be replaced by a conviction that sustainable development derives its strength from a positive view of ecological considerations. Such a change in the perspective demands the inculcation of a new "world view' which is informed by a new ethic of living in harmony with nature and not that of controlling and conquering it. It is, therefore, necessary to develop a different kind of leadership and commitment among the educational planners and administrators.

Another factor to be noted is that EE by its very nature demands an integrated approach to organization of various

activities and programmes. The traditional concept of education as largely limited to school-based processes has to be abandoned. Planners and administrators have to view education in a broader framework which includes school-based as well as out-of-school educational activities in a wholistic manner. Thus, planning and implementation of EE demands close coordination among various components of the system within the education sector as well as among the various other sectors which have a direct bearing on educational activities. For example, the Réport of the Consultative Meeting on the Training of Curriculum Developers, Teacher Educators and Educational Planners in Environmental Education (1985) lists six kinds of coordinated efforts necessary for effective implementation of EE. These include coordination not only between education and other sectors of the broader social system but they also specify the various dimensions of coordination necessary to be developed within the education sector. It is easy to see that the traditional organization of the -planning and administrative machinery, in most of the countries, do not provide for such an inter-sectoral perspective supported by effective coordination mechanisms. This is another important factor to which educational planners have to be properly sensitized as a precondition for implementing EE.

TRAINING GOALS

The foregoing discussion on the training perspective highlights the fact that EE planners and administrators require a new set of knowledge, performance capabilities and attitudinal disposition. Within this perspective, what are the broad goals of

providing training and orientation to educational planners and administrators ? Specific answer to this question will vary from one country to another. Nevertheless, the following statement of goals indicate the broad framework for developing EE programmes for educational planners. The general goals of training will be :

- To develop in the educational planners a clear awareness of economic, social, political and ecological inter-dependence as a global reality and the need to develop the habits of living in harmony with nature.
- ii) To help them acquire a basic understanding of environment in its totality - natural and built, technological and social and its associate problems.
- iii) To orient them in the techniques of planning, implementation, monitoring and evaluation of programmes and projects in Environmental Education.
- iv) To help them acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in programmes of environmental improvement and protection.

As mentioned earlier, these statements only provide a broad framework and direction. Specific objectives for individual training programmes will depend on several factors such as the professional status of the participants, their extent of involvement in the implementation of EE programmes, their level of operation such as national, state or local levels, specific areas of EE with which they are concerned such as school education, university education, teacher training, media usage, public awareness development, and so on. One would invariably come across administrators holding crucial positions influencing the decision making process even though they are not directly involved in educational operations. Development of proper environmental awareness among them is equally important. In fact,

awareness development programmes are quite relevant even for politicians and community leaders. Therefore, training and orientation programmes for educational planners and administrators cannot be viewed under a single model approach applicable to all types of functionaries. The need is for a variety of programme packages which are flexible in their objectives and scope. The most important factor to be remembered is that planners and administrators have to possess not merely the knowledge component but more importantly the capability and will to act for environmental protection and preservation. The training goals have to be fixed keeping this fundamental factor in mind.

IDENTIFICATION OF TARGET GROUPS

Before designing specific courses for educational planners, it is necessary to identify the different target groups that constitute planners and administrators involved in implementation of EE. This will have to be done in two stages. In the first stage, it will involve identification of planners and administrators at different levels, (a) national level (b) state or regional level (c) district/local level, from within the existing system. This is a relatively easy task which can be carried out ronce the parameters of planning and administering EE in the country is decided. However, care should be taken to ensure that the identification process goes beyond the education sector and include those from other sectors of operation who may directly or indirectly influence activities and programmes in EE. The second stage of the identification process consists of searching and locating individuals who have the potential to take the tasks of

planning and management from the non-governmental organizations. This is important since EE has to be essentially implemented by the community itself. Merely depending on official channels for planning and implementation of EE may result in sterile actions only purveying information without corresponding field level actions.

DEFINING THE SCOPE OF TRAINING

The scope of training programmes has to be decided based on a survey of the training needs of different functionaries and keeping in view the current status of environmental problems faced by the particular country. However, it is necessary to remember that EE essentially inheres in it a futuristic perspective; it is preparation of the present generation to effectively tackle the environmental contingencies and ecological problems they are likely to face in the future; the purpose is to equip the generation with the knowledge, capabilities and attitudes necessary for avoiding any future ecological crisis, ameliorate the problems that may still arise and apply corrective measures to rectify ecological imbalances that may ensue. Therefore, training programmes will have to be quite broad in their scope to incorporate elements related to both present and future possibilities with respect to environment.

It is also necessary to design training programmes which help the planners and policy makers to appreciate that environmental problems are essentially global in nature. The administrators will have to come out of their narrow confines of national boundaries and learn to see EE in a world-wide

perspective. The national leaders will, therefore, have to develop such capabilities which will facilitate interaction on relevent ecological issues with their counterparts in the neighbouring countries, in particular and in the international realms in general. It is necessary to develop in the policy makers, planners and administrators the conviction that EE is basically a mission for human harmony and cooperation and an approach of contestation and confrontation has no place in it.

In deciding the scope of new programmes of orientation in EE, it should be appropriate to make an assessment of the present status of EE training for educational planners and administraalready observed, it should be meaningful to give a tors. As broad orientation to all the facets of the EE programme. However, with regard to skill development dimensions it is more desirable to design the programme inputs specifically in relation to the tasks to be performed by the particular groups of planners and administrators. Therefore, it is necessary to make a careful of the roles and responsibilities analysis of different functionaries with respect to planning and implementation of ΕE programmes.

Preparation of perspective plans to bring into the purview of EE all sectors of the population is an important task to be performed by all EE planners. While the focus of the orientation programmes may be on implementation of EE using the already existing channels of education including mass media, it should also highlight the importance of making special efforts to bring in specialists as well as lay persons who are operating in the non-education sectors. This will require the EE administrators to

move out of their traditional areas of operation and establish effective linkages with other areas of development activities.

SUGGESTED TRAINING CONTENT

A core component related to development of awareness and proper understanding of the various dimensions of environmental conditions and the related problems will be a part of all training programmes. While certain aspects of the core input may be global in nature, the remaining parts will have to be designed keeping in view the bio-physical and socio-economic conditions of environment prevalent in the particular country. The core components may be evolved in each country and provided in all training programmes, more or less uniformly. However, content inputs regarding planning and management dimensions of EL will have to vary from group to group depending upon the positions they hold and the specific roles and responsibilities they are to perform in implementing EE programmes. It should also depend on the organizational structure adopted in a particular country for implementing EE programmes and the particular level national, state or provincial - at which the the particular set of trainees are operating with respect to EE.

Thus, the core component of the training programmes will have to be evolved after a thorough analysis of the environmental conditions characterising the particular country. For instance, as Sapra and Sharma (1988) have indicated, in Afghanistan, the core component may focus on such problems as soil erosion, deforestation, problems of potable water, destruction of wildlife and pollution. In Bangladesh, the core content will include

problems of drought, soil erosion, deforestation, pollution of rivers, and problems of potable water, rural sanitation and malnutrition. Again in Sri Lanka, floods, soil erosion, deforestation, wildlife destruction, scarcity of drinking water in dry areas and industrial pollution will be the major environmental problems requiring to be included in the core component. Ιn India, apart from including all these elements, the core component will also focus on problems of water and air pollution, lithospheric pollution, insanitory conditions of urban and rural settlements, droughts and water-logging, and salinity and esturian pollution. Some of the complex but fundamental concepts such as eco-system dynamics, decay chain, green house effect, sustainable development, etc. will also form part of the core content of training in all the countries.

In order to ensure proper matching between content inputs and field level action, the content inputs in EE should be divided into three parts -- Inner Environment (school. institution Outer Environment and the home). Global or Environment. The inner environment must hold the most significant place and be action based. The outer environment should be participation oriented, supplemented by audio-visual materials and some text. The global environment would be presented mostly through text and some audio-visual materials.

Content inputs which will be group specific will have to be determined taking into consideration the job specifications of different functionaries with respect to implementation of EL programmes. For example, those who are mainly concerned with policy-making and planning will have to be equipped with the

methods of reviewing the existing policy framework and evolving further long-term policy perspectives on EE based on available empirical evidences. They have also to be trained for the tasks of preparing short-term and long-term plans for implementing EE programmes both at macro and micro levels. A large set of functionaries who will be involved in implementing the EE programmes at various levels will need orientation in developing alternative operational strategies for implementation and monitoring of the planned programmes and projects in EE. This will include functionaries operating at national, state, district and sub-district levels as well as heads of institutions operating in formal as well as non-formal channels of education. Since EE has to be continuously adaptive to the changing demands of the grassroot reality, the administrators concerned with EE should be able to conduct continuous evaluation of the impact of the programmes on the environmental setting as well as on the learners at various stages of education. A second capability required in them is to mobilize and sustain community involvement in implementing the EE programmes. This is essential as EE has to become a mass movement and not be confined to the four walls of school and college classrooms.

A broad outline of the contents of training for educational planners and administrators in EE will include the following themes :

- environmental awareness (natural, socio-cultural, historical and physical dimensions); focus on global environmental problems - destruction of wildlife, genetic degradation, soil erosion, air, water and noise pollution, natural calamities such as cyclones, droughts, floods, etc.;

- demographic dimensions of environment;

- ecology and development; technological progress and environmental problems;
- use of global commons such as air, water, land and so on; ecological implications of indiscriminate use of the global commons;
- education and ecology; role of educational intervention in tackling environmental problems;
 - basic concepts concerning EE such as interdependence, multidisciplinary approach, socio-cultural accounting, environmental determinism, social forestry, cyclic and noncyclic resources, renewable and non-renewable resources, etc.;
 - changing environment and the future of mankind; role of EE in promoting world peace and international understanding;
 - planning for EE; techniques of macro and micro level planning;
 - evolving alternative operational strategies for implementing EE programmes;
 - centralised and decentralised mechanisms for planning and administration of EE;
 - creation of horizontal and vertical linkages among different components of the implementation system; evolving interdepartmental and intra-departmental coordination mechanisms;
 - methods and techniques of generating and sustaining community participation;
 - human resource developmeent for EE; creation of training systems for personnel involved in EE;
 - designing and establishing an effective management information system for EE; effective communication, group dynamics and human relations in implementing EE programmes;
 - mobilization, allocation and utilization of resources for implementing EE; international support, allocation in the national budget and mobilization of community resources;
 - role of research and development activities in EE; social action and action research in EE as sources of life-long learning;

The above-mentioned themes for training inputs are only suggestive of the type of curricular experiences to be provided.

Programme designing is a professional activity to be done by curriculum specialists in the respective countries. This will have to be done keeping in view the environmental conditions characterising the particular country, the management model adopted by it for implementing EE, and the findings of need surveys conducted with respect to EE.

IDENTIFICATION OF TRAINING RESOURCES

The basic requirement for launching an effective programme of training for educational planners and administrators in EE is the identification of a Resource Team which can project a coherent image of the national concerns with respect to environmental problems and focus on the areas demanding effective educational intervention. Such a team would obviously consist of members with an inter-disciplinary perspective and include both experts and grassroot level practitioners. To illustrate, the team members would include environmentalists, educational planners, development planners, curriculum specialists, experts from agriculture, health and such other sectors, school principals and other institutional heads, as well as activists operating at the grassroot level.

A second set of resources to be mobilised for the training programmes is in the form of instructional inputs. EE is a relatively new area of study and one does not come across adequate literature relevant to the training of educational planners and administrators. The situation may, of course, vary from one country to another. Initially, one may have to depend considerably on the material produced by the Unesco and other

international agencies. In order to meet the demands of instructional material required for training in EE, each country may create a National Resource Centre as described in the previous section which can act as a clearing house for EE at the national level.

Organizing training programmes for educational planners in a systematic and comprehensive manner requires allocation of necessary financial resources also. Necessary budgetary allocations have to be made in national as well as state level budgets for this purpose.

NATURE OF TRAINING PROGRAMMES

Considering that educational planners and administrators function at different levels and with varying degrees of responsibilities towards EE, it becomes necessary to design a number of short-term and long-term training programmes. The programmes have to be made totally need-based and integrated into the regular functioning of the participating functionaries.

Orientation course of short duration could possibly be appropriate for policy planners at the national level. The programme may be broad-based highlighting the environmental conditions of the country and indicating the areas where policy interventions are called for.

-Similarly, intensive courses of about two weeks duration may be suitable for senior level planners and administrators directly concerned with EE. Inputs in this case may focus on the mechanisms for effective planning for EE at the national and state levels, creation of suitable administrative structures for

establishment of necessary technical and academic support EE. systems and evolving strategiesand initiating necessary actions for effective involvement of community members and grassroot activists in the implementation process. leve] Long-term programmes may be designed for those planners and administrators would be directly involved in the implementation process. who becomes necessary as most educational administrators This functioning at present may not have received any systematic introduction to the field of EE.

Training for EE planners and administrators cannot be seen just as an one time affair. It is also necessary to evolve arrangements for retraining of the functionaries through suitable refresher courses. It is only through such in-service refresher programmes that one can ensure continuous adaptation of the EE programmes to the changing demands of the environmental conditions and their implications for the nature of EE inputs.

TRAINING MATERIALS

EE is such an area that it cannot be based merely on bookbased knowledge, however authentic and effective it might be. It is essential that the training inputs include field based experiences which complement the knowledge component provide through print media. Identification of suitable field experiences for EE planners and administrators is therefore an important prerequisite for developing training materials.

It is also necessary to develop films and other audio-visual material necessary for the training programmes. It may be necessary to take the help of other professional groups for

designing and producing such relevant audio-visual packages. In fact, a large fund of such material relevant for EE may already be available which may not, however, have been developed with the explicit focus on training for EE. It should be worthwhile to develop a repertoire of such material which can be used in the training programmes. This is important as production of exclusive audio-visual packages is quite expensive and it may not be possible to raise the necessary resources from within the education sector.

One of the best ways to develop necessary skills and attitudes for EE is to present to the trainees real models of EE which are successfully functioning within the country or outside. It should be worthwhile, therefore, to develop case studies of environmental action taking place at the grassroot level in each country.

Apart from exposing the trainees to the existing models of EE, the course design particularly the long-term ones should provide scope for carrying out exercises involving preparation of original designs for incorporating EE into the educational programmes. This has to be done not merely keeping in view the current educational programmes and environmental conditions; such an exercise has to be carried out with a futuristic perspective.

An important component of the training inputs for educational planners will relate to orientation on monitoring and evaluation. Special exercises on programme evaluation and monitoring with particular reference to EE projects in the respective countries should be built into all the training programmes for educational planners and administrators.

TRAINING METHODS

As has been amply highlighted, EE is not just an area of classroom study. Therefore, the methods of imparting training in EE should not be merely dependent on transmission of knowledge through lecture method. Depending on the type of participant groups involved, a variety of instructional methods should be adopted such as lecture-discussion, panel discussions, group work, case method, syndicate work, simulation exercises, role play and so on. The main consideration is to make the training programme participatory learning experience so that the inputs help develop necessary conviction in the trainees.

Adequate provision should also be made for practical work in the community involving environmental action in real life. The exercises should involve actual actions on the field for conservation and renewal of natural resources, conducting environmental surveys, involvement in afforestation campaigns. This will make the learning experience-based and will have the potential to create the necessary attitudinal dispositions in the participaeducational planners and administrators. Such ting field experiences may have to be coordinated with library-based assignments and field trips for first hand observation and understanding of the environmental conditions in the particular countries.

A significant point to be noted is that as planners and administrators, the participants should also be able to develop adequate capability to document their observations and experiences and utilise them in their decision-making, planning

and administrative responsibilities. Specifically in long-term orientation programmes, the participants may be required to carry out project work on a relevant aspect of planning and management of EE.

MONITORING AND COORDINATION OF TRAINING PROGRAMMES

In order to ensure that the training arrangements are optimally utilised and training inputs are received by all sections of the functionaries, it is necessary to develop mechanisms for monitoring and coordinating the training programmes on a regular basis.

It may be worthwhile to develop and maintain a directory of planning and administrative functionaries involved in EE activities at different levels. This would help avoid duplication of efforts and also make the programmes need-based. This task may be assigned, depending on the requirements of individual countries, to national and state level resource centres who may conduct periodical need surveys and evolve action plans for organizing training programmes.

It is to be recognized that training of EE planners and administrators will have to be a joint responsibility of governmental as well as non-governmental agencies. Therefore, coordination of the training activities of various agencies is very important to optimise the use of available resources.

Section VIII

MANAGEMENT INFORMATION SYSTEM FOR EE

Success of any action oriented programme depends on the which actions are guided by objective information extent to regarding the field level realities. This is true of environmental education programme also. The need for an effective information system is particularly heightened in the case of EE due to the complexity of the programme in terms of target groups to be reached, the organizational network for implementation and the ever-changing nature of the curricular inputs in EE. Creation of such an information base serves two important purposes with regard to EL. One purpose is to monitor the efficiency and effectiveness with which the pre-planned programmes are being implemented. The other is to evaluate the total programme of EE including the programme objectives keeping in view the policy directives and the demands of the changing ecological conditions. It should be noted that the information base required in case of EΕ is not limited to the pre-specified programme parameters. Rather it is essential to collect and process information relating to global as well as local environmental conditions. Also, the whole process of information creation and utilisation should be seen in a systems perspective effectively integrating into it the various monitoring and evaluation activities in EE. Three dimensions of such a Management Information System important (MIS) need further discussion. These dimensions are : (1) Information Base for EE. (2) Information Usage Cycle. (3) Channels of Information Flow and Feedback.

INFORMATION BASE FOR EE

Effective planning in EE which involves a complex interplay of a number of human as well as physical variables depends greatly on the nature of the information base available to the planner. A planner of EE whether the concern-is-macro or micro level planning is required to make choices of critical importance in an informed manner. This demands that the planner has a quick and direct access to reliable information on a number of aspects of the EE programme. Some of the important elements of such an information base for EE are:

- the environmental conditions characterising 1. Data on different parts of the country is the basic component of the information base for EE. The data will be both quantitative environmental and qualitative describing the specific problems of different parts and sections of population of the country. Qualitative information on the economic, sociocultural and historical contexts of these regions and population groups should also be available. For instance, in a country like India it will be essential for the planner to know the location of different tribal groups, their economic conditions, cultural moorings, and traditional occupational patterns. It is particularly important to collect information about the work habits of people and their dependence on natural resources for their routine requirements of daily life. On the whole, the information base should provide the planner with a panoramic view of the ecological map of the country facilitating a global macro-level as well as a micro-level target specific perspective for decision making.
- 2. Empirical information regarding the needs and priorities for EE should also be readily available with a planner. Such information is required in a classified manner with reference to different variables such as cultural groups, geographical areas, occupational categories, educational channels, and educational levels. Concrete information on these dimensions will give direction to all actions of the planner whether it is concerned with programme formulation or implementation or its monitoring and evaluation.
- 3. Implementation of EE is dependent on the involvement of a of institutions which have to work in close number coordination. The information base should contain details of different agencies involved in the activities of implementing the EE programmes. This is necessary for

- effective inter-communication among these institutions and also for the dissemination of information among the general public. Such information will further help monitor the functioning of various participating institutions.
- 4. It is not adequate to have information base only on the institutions participating in the official network of implementing agencies. Special efforts should be made to develop an authentic information base on the voluntary action groups and individuals involved in EE activities. This is necessary as in many cases these organizations which are invariably non-governmental tend to remain outside the purview of officially sponsored programmes. Nevertheless, being grassroot level organizations they are likely to have a better insight into the field level realities and the interventions required.
- 5. EE programmes from their conception to implementation depend on the involvement and support of committed professionals and institutions with varying disciplinary affiliations and background. But it is not easy to come across individuals with requisite qualification and experience who are ready to commit their time and energy to the task of providing academic and technical support for EE programmes. EE being area, an action-oriented mere academic expertise in environment related issues and problems will not suffice; it requires adequate understanding of field level actions also. It is necessary to identify such professionals from among professional educators as well as field activists and maintain up-to-date information about them so that their be effectively utilised in various service can ΕE activities.
- . 6. The most important component of the information base is the data on programme implementation process. It is needless to say that a close watch on the functional efficiency of different components of the programme be maintained through regular data collection from the field level operations. One may find varying degree of success for different components of the programme. For instance, in certain cases it may be fairly easy to implement EE programmes within the institutional framework of formal education. In certain other cases one may face fewer problems in operating non-formal educational programmes in EE. Data on implementation process should also include information on the achievements of the programme in terms of time and physical targets. However, the emphasis should not only be on quantitative information. The information base should also qualitative dimensions capture the of implementation process including its progressive impact on the quality of life and the environmental conditions of the people in general.

information base should contain detailed data on 7. Thedifferent learner groups, their characteristics. age specifications, institutional affiliations, their specific requirements and so on. This becomes necessary for the creation of academic resource support in a need-based manner. This is also required to keep track of the implementation of different components of the programme and their relevance to the learner groups. In the final effectiveness of the EE programme has to be seen analysis, in terms of behavioural and attitudinal changes in the learners. Therefore, collection and maintenance of comprehensive information on the learners on a continuous basis becomes imperative. This may be a complex process as coverage under EE is not limited to institution-based learners; it extends to all sections of the population irrespective of their age and occupation.

INFORMATION USAGE CYCLE FOR EE

The value of the information base for EE is directly dependent on the extent to which it is meaningfully used. It is not unusual to come across situations wherein planning is carried out in an arbitrary manner without any consideration to the available empirical data on various aspects of the programme. On the other hand, the planner may also feel handicapped due to nonavailability of relevant information from the field. In order to overcome such anomalies, it is necessary to effectively integrate information base into the processes of planning the and administration of EE programmes. Thus, collection of information and their utilisation by the planner and administrator should not be seen as independent actions. Instead, building of an information base and its usage for planning and administration of different levels and at different points of time should EE at form an integrated cyclical process, as shown in Diagram VII1-1.

In its full form, the information usage cycle for EE will be a highly complex one involving a large number of variables and



Diagram VIII-I

considerations. What is presented, here, is a simplified version indicating only the major dimensions of such a cycle. The basic elements of the cycle are:

1. Environmental Background Conditions

- 2. Policy Framework for EE
- 3. EE Programme Dimensions
- 4. Implementation Processes
- 5. Programme Evaluation
- 6. Impact Studies of EE.

Initial assessment of the background factors characterising the environmental conditions determine the nature of policies to be adopted for EE. Therefore, a comprehensive set of empirical data on the status of the human and physical environment in which the EE programme is to be implemented becomes the central link in the whole process. Specific dimensions of the EE programme have to be formulated based on the policy directives. Analytical information have to be obtained on what the national policy framework determines with respect to the nature of various programme parameters, namely, institutional involvement, target group coverage, field level operations and so on. The next link in the information cycle is the data on the actual implementation process. This is the crucial link as it refers to the functioning of different components of the total programme, roles and responsibilities assigned to different participating agencies and individuals, the size and nature of different target groups and the mechanisms arrived at for reaching them, nature and extent of community participation, and physical and human resources involved at different levels of the implementation process. The

next link in the usage cycle is the programme evaluation data. The data base in this case consists of vital information regarding the operational efficiency and effectiveness of the implementation system created for achieving the programme objectives. This will also include diagnostic data on the encountered implementing problems in various programme components. This component in the information base gets linked in short cycle with the previous two components thus forming an а internal monitoring system for possible mid-course correction and in the programme planning redirection and implementation processes. The final link in the information cycle refers to the data on the overall impact of the EE actions. This will include information on effective changes in the learners in terms of their environmental awareness, knowledge, behaviour and attitudes. However, the success or impact of EE inputs should finally show itself in terms of descriptive information on desirable changes in the life style of the people and in the form improvements in the quality of life and environment as a of whole. Thus the long-term cycle of assessing the environmental conditions, identifying the needs and priorities for EE action and formulating and implementing suitable EE programmes continues within a constantly moving framework.

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CHANNELS OF INFORMATION FLOW AND FEEDBACK

The previous paragraphs have described the nature of an MIS for EE in terms of the nature of information base to be created and the ways of using the information base for monitoring and evaluation purposes. Yet, the planner has to find answers to

several questions as to what are the sources and modalities of creating such an information base; what institutional arrangements are required for this purpose; and what feedback channels are to be created for effective usage of the information base for improving the system.

In identifying and inter-connecting the channels for information flow and feedback it is necessary to ensure that the data obtained are not only reliable and valid but also the modalities adopted optimise the usage of the information units. Multi-organizational and multi-level administrative arrangements involved in implementing EE programmes make the task quite complicated. The fact that EE purports to bring into its fold every citizen of the country irrespective of age, place and occupational, considerations increases the complexity of the process. The need for EE arises due to the environmental problems perceived by the people, who are themselves the recipients of EE Thus, the basic source of information about EE consists' inputs. of people who form the target groups for various kinds of EE programmes. Information originating at this level has to flow through various institutional and individual channels of the Management Information System providing the necessary feedback at appropriate points.

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Diagram VIII-2 gives the structure of MIS for EE indicating the channels of information flow and feedback in terms of different levels of operation. One can broadly identify five levels in the EE implementation framework at which information collection, analysis and transmission processes take place.



Diagram VIII-2

Level 1 :

Viewing the system from the action setting, learners will form the first level in the information system. The nature of information emanating at this level is basically of two kinds. One set of information refers to the actual learning outcomes measured in terms of changes in their knowledge, attitude, behaviour and values. The other set consists of the perceptions of the learners about the relevance and effectiveness of the EE inputs provided to them as well as the organizational arrangements adopted for that purpose. The data are obtained through suitably designed instruments from different target groups of learners, namely, school children, university students, different professional groups such as doctors, scientists, engineers, teachers, and the general public.

Level 2 :

The second level in the system consists of field level agencies and individuals involved in implementing different components of the EE programme. For instance, this will include schools, colleges and voluntary organizations as well as individual workers who are instrumental in imparting the various curricular inputs to the learner' groups. The personnel and institutions involved at this level will be collecting the relevant information on EE from the learner groups. Part of the data obtained from the learners will be processed and utilised as feedback by the institutions operating at this level. The remaining information is transmitted for further analysis at the third level. Institutions and individuals functioning at this level are also a crucial source of information on the efficiency and effectiveness of the implementation process. Importance of this source lies in the fact that these functionaries are in direct rapport with the learners, and they are responsible for properly transacting the curricular inputs which are often prepared elsewhere.

Level 3 :

The main components of the administrative and academic support system at the local level form the institutional channels for information collection and transmission at this level. Thus, the local level agency which functions as the Resource Centre for academic inputs and the institution which functions as the coordinating body for EE would the data transmitted from the receive fielu level implementing organizations. These data alongwith information should be collected from several voluntary action that groups may not be directly involved which in the implementation process serve as the source of feedback at this level. Information base at this level will also include

data on a number of teacher training institutions and other agencies involved in imparting training to functionaries. such as teachers and volunteer workers operating at the field level.

Level 4 :

This level includes State or Provincial level institutions identified to function as Academic Resource Centres and State Level Coordination Bodies. They would collect and process information about the functioning of the local level resource support and coordination mechanisms. Necessary corrective measures will be incorporated in the programme inputs utilising the feedback received from the third level organizations. Processing of information regarding the involvement of several state level institutions in EE will also be done at this level.

Level 5 :

The institutional channels at this level consist of the national level apex bodies concerning planning, coordination and academic resource support. Apart from acting on the feedback received from the State level bodies involved in EE, the national level bodies will collect and process data on implementation process at the State levels. Based on these analyses, decisions regarding overall programme dimensions and arrangements for their implementation are to be taken which get transmitted to the state level bodies appropriately. Thus, the flow of information and feedback will be in both the directions.

The above description presents the outlines for one possible model for organizing a Management Information System for EE. This may not become applicable in all the countries. The model needs to be suitably modified and adapted according tο the environmental conditions and other factors prevailing in the respective countries. It may be mentioned that while some EE efforts have been initiated in almost all the countries, not much thought and action has been devoted to the task of creating an effective system for monitoring the planning and implementation processes. This may partly be because, EE is largely limited to school based programmes, and the scale of activities in most of

the countries is relatively small. But, with increasing concern for environment all over the world, EE activities are bound to expand covering a larger section of the population and utilizing a variety of channels for transmitting the messages of environmental education.

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Section IX

Developments in modern science and technology have opened up new vistas of knowledge and progress for the mankind. At the same time, continuous and somewhat indiscrete exploitation of the has also put the mankind in a dire straight nature ot environmental crisis. Tackling this complex situation demands development of a new environmental ethic among all the people which can ensure a more sustainable and harmonious relationship between mankind and natural resources. Imbibing such a new environmental ethic requires the humanity to unlearn their present habits and adopt a new way of life. The role of education in this process of rebuilding human behaviour and attitude needs no special emphasis. But the task involved is not a simple one. Recognizing the crucial role of education in environmental action the Unesco has been initiating a number of educational activities in the member states under the banner of International Environmental Education Programme (IEEP).

While the importance of educational intervention in environmental action has been accepted in principle almost universally, explicit actions to initiate a systematic programme of environmental education has yet to materialise in many countries. But introduction of EE into the educational system also poses a number of problems in many countries. EE is not just another subject to be taught in schools and colleges. Rather it has to become an all-pervasive feature of the whole educational endeavour in formal and non-formal channels. This presents a challenging task for the educational planners and administrators to reorient the existing curricula and practices and yet not seriously affect the stability of the system. It is impossible to prescribe any set of actions which would help the educational planners in all the countries to tackle this complex task. What has been presented in this <u>Handbook</u> is a general overview of the various tasks involved in planning and implementation of EL programmes at the national level.

The fundamental requirement for introducing EE in any country is a proper understanding by the educational planners and decision-makers as to the powerful role that education can play in environmental action. The role of educational intervention is not limited to simple curricular infusion of EE concepts at school and college levels. The message has to be taken to every individual and perhaps through out life. Thus the scope of educational intervention cannot be conceptualised within the traditional boundaries of operation of the education system. May that education alone cannot achieve all the goals be of environmental action. Nonetheless, the tremendous capacity of education and training to influence the overall styles of living of the people should be fully recognised.

Before an educational planner can initiate any concrete action with respect to EE, it is necessary to ensure effective commitment on the part of the national political leadership to the goals of EE. This requires that the country adopts a clearly stated policy perspective for implementing EE programmes. Planning for EE will have to be done at the national level within

the broad parameters indicated by the policy perspective. Having obtained such a policy commitment from the national leadership, the educational planner will have to initiate a series of somewhat sequential tasks for operationalising an EE programme at the national level.

The first task is to prepare an action plan for the ΕE programme. This is a complex task as it involves not merely the formal education set up but also the loosely defined non-formal education channels. The planners will have to keep in view the existing parameters of educational operation and try to integrate the EE components into them. This may require at times redefinition of the parameters and redesigning the basic components of the system. This poses major problems for the educational planners in most of the countries. Also planning for EE is not just an one time affair. Rather it has to be a continuous one with built-in potential to adapt itself to the changing demands of the environmental conditions ٥f the particular country. Thus, the educational planner will have to evolve short-term action plans as well as a dynamic selfcorrecting long-term perspective for EE in the country.

The next set of tasks relate to evolving a suitable management system for implementing the action plans evolved. This involves identification of appropriate entry points in the existing system for integrating the EE components. It may also involve creation of new structures for providing the necessary organizational and academic support for implementing the EE programmes. A major task is to create such a system which can

effectively bring into its purview various field level institutions and activists already in action. This requires great ingenuity on the part of the educational planners to achieve a workable combination of planning and management strategies which incorporates effective vertical as well as horizontal linkages among different agencies and individuals. The key element is to mobilize and sustain community participation in all EE programmes whether they are operated through formal or non-formal channels. This is imperative if EE has to be freed from the usual problems involved introducing educational innovations through in bureaucratic organizational structures that are hierarchical, typical of the educational administrative arrangements in most of . the countries.

As can be easily seen from the above description, the tasks involved in planning and administering EE demand new orientation on the part of educational planners and administrators. This is required not only for national level functionaries but also for state and local level functionaries who, in fact, act as the link-pins for iterpreting national level plans for EE, for ensuring that the action plans developed at the national level are effectively implemented and for providing continuous feedback to the national planners regarding the field level realities. It therefore, essential to develop necessary knowledge, skills is, and attitudinal dispositions among the key functionaries working at various levels of the educational planning and administrative machinery.

EE has to be a movement of the people if it has to be allpervasive and a life-long affair. But in implementing such

programmes, one is likely to face a number of difficult if not unsurmountable problems. A major one is that the programmes may degenerate into highly defused activities whose effectiveness cannot be properly measured and accounted. In the final analysis, it is the educational administrator who is held accountable for the effective implementation of all educational programmes including the EE. In order to guard against this danger the educational planner will also have to build a strong system for information management which can help monitor the implementation processes at all levels and also act as a mechanism for incorporating on-course corrections in a continuous manner.

The sequence of tasks indicated above should not lead anyone to the conclusion that actions for EE are non-existent and fresh beginnings have to be made for policy formulation and planning in all countries. On the contrary, wide-ranging actions have already been initiated with regard to EE in several countries of the world. The contents of this Handbook may be used by the educational planners in these countries in a selective fashion in order to strengthen the on-going activities. Nevertheless, there are a number of countries where no systematic efforts have been made for initiating EE programmes at the national level. In such cases, the contents of the Handbook can act as a comprehensive guide in reorganizing the existing educational arrangements to integrate EE programmes into them. Yet, these are only guidelines and suggestions. They have to be suitably modified and adapted to meet the unique challenges posed by the environmental conditions characterising each country.

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Appendix A

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ALTERNATE PLANNING AND IMPLEMENTATION ARRANGEMENTS FOR EE

Alternative One (Part One) - Highly centralised, short-term, Implementation-oriented planning process								
Background Conditions	Key Assumptions	Start-up Committee						
Other already established national priorities	Use existing structures and pro- grammes to greatest possible extent	<u>Composition</u> - small committee made up of protessional policy- makers and educators who are						
Minimal money, professional time, etc. available for national environ- mental education planning	Centralize planning Minimise cost on developing first national environmental	mentation of national environ- mental education plan and national leaders with interest in environmental education						
(National Ministry of Education (Natural Resources or other Minis- try) and national private organiza- tions of educational professionals with at least minimal familiarity	Start-up slowly the process of national planning and implemen- tation of environmental	Resources - money and staff from existing governmental appropria- tions and organizations						
with environmental education Some environmental education pilot programmes already developed on a limited basis but more widespread	education Priority on short-term plan Provide for high interrelation-	Activities - develop a draft short- and long-term environmen- tal education plan - with empha- sis on short term goals						
dissemination and testing needed to mobilize interest and gain experience in environmental education	ship between people and organi- zations involved in planning and implementation	Plan national conference to "test out" the draft plans; in- vite key people for short-term implementation as participants						
National Ministry of Education (or other) committed to getting started on national environmental education in a small way to gain experience for subsequent larger scale and more comprehensive efforts	National level participants have sufficient understanding of nation's existing environmental education programmes and their problems and potential to bring about short-term improvement of environmental education	ldentify and obtain implementa- tional commitments from relevant national governmental and non- governmental organizations						

* Reproduced from Stapp, W.B. and Crowfoot, J.E. <u>Suggestions for Developing a National Strategy for</u> Environmental Education - A Planning and Management Process, Unesco, Paris, 1980. Alternative One (Part Two) - Highly centralised, short-term, Implementation-oriented planning process

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-	Planning	Activities	Implementation Activities	Strengths and	Weaknesses

based on the national conference

Goal

Gain support for the draft plan and get input for necessary modifications

Participants

Key leaders who will be critical for implementation

Activities

- Large group presentations in central location with questions and answers solicited; short conferences with minimal travel and conference costs

Follow-up activities

Press releases and other media coverage of the conference and the fact that a national environmental education plan (first one) has been endorsed which includes respossibilities and authority for implementation Plan prepared for widespread dissemination, including endorsements Responsibility for coordination of implementation of national plan delegated to one agency and final authority with one person

National plan modified as necessary Strengths

Implementational responsibilities of other organizations spelled out in writing and subject of plan and approval of coordinating body

Design of evaluation of short-term plan and its outcomes delegated under the supervision of coordinating body

Plans for improving the long-term national environmental education plan developed by co-ordinating body along with a time line adjusted to completion of the short-term plan Minimal resources used

Short-term implementation optimised

Continuity between planning and implementation

Weaknesses

Interested and relevant local resource people not utilised

Potential lost opportunities and misdirection because of shortterm emphasis

Minimal leadership development

Potential vision and key ideas lost because of emphasis on implementation within existing structures

Local commitment not tested or mobilized
	Alternative Two (Part One) - Decentralised Short-term Implementation Plan and beginnings of Centralized Long-term Plan		
-	Background Conditions	Assumptions	Start-up Committee and activities
9	Country possesses major local cul- tural differences	Strengthen regional environmen- tal education efforts through short-term planning and identifi-	Composition - small (8-12) highly committed people with commitment to environmental education, time
	Some environmental education is occurring and there is local leader-	cation of longer range needs	to work as volunteers in this effort and status for local environmental educators and
	ship which could advance environ- mental education further	and demonstructed before significant national attention is given to	others interested in environmen- tal education
	Low likelihood of environmental edu- cation being a top national priority in the immediate future	environmental education Focus first on short-term imple-	Resources - "loan" of staff person from a private or public
	Several influential leaders in edu- cation and environmental affairs desirous of t aki ng next steps in	mentation oriented plans and use them as basis for first longer range, nationally oriented plan	mittee along with minimum funds for materials, communication and travel
	environmental education despite un- favourable national climate	Keep national level co-ordination and planning small and inexpen- sive and rely on local initiative skill and resources	Activities - assist local areas in creating planning committees for local, low budget conferences
	titioners interested in meeting, exchanging informationa nd solving environmental problems	Local environmental education practitioners and education and	it the problems and opportunities of environmental education
	Either government ministry or pri- vate organization willing to free part of time of one or two staff	environmental leaders have the interest and skill to organize at the local level	have "linking pairs" (2 national committee people) working with each local area on designing, carrying out and following up on
	members and some money for mate- rials, telephone and minimal travel	A minimal level of national assistance will link national	their national conference
	by staff members	long-range planning to shorter range regional work	Prepare materials on environmental education and recommended guide- lines for local meetings
	·	National level leaders with status in the eyes of local leaders	Ensure that one session of the local meeting is on the national tuture of environmental education
			and that assessment of needs, goals and targets is done linking pair attend local com- ference, conduct session on
			future, document results of the

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conference and what is occurring locally in environmental education

Alternative Two (Part Two) - Decentralised Short-term Implementation Plan and beginnings of Centralized Long-term Plan

Planning Activities	Implementation Activities	Strengths and Weaknesses
Coal - Hold local conferences to do short term planning and begin data gathering for longer term plan. Start up committee	National committee members share with each other the results of local conferences. Serve as resources to each other in working	Strengths Low budget and other resources Builds local support through
synthesizes first, effort at a national plan	on local challenges and opportunities	improving environmental education at these levels
Participants - In regional conferences - environmental education practitioners, interested	Develop Newsletter or other com- munication devices so that partici- pants in local conferences can	Emphasizes self help and sharing of resources
potential practitioners, local environmental and educational leaders and local experts in educational innovation Design and Activities - Identifica-	learn about what happened at other local conferences and maintain contact with national committee National committee members and staff collect and synthesize	Emphasizes implementation and first steps which fit existing conditions and avoids ineffective "paper" plans unsuited to actual conditions
tion of successes and failures and what needs to be done to improve. Develop short term plan. Begin ana- lysis of national needs, objectives	information from local conferen- ces pertaining to future national directions of environmental education	lncreases knowlege and skills at local levels Weaknesses
and targerts. Use small working teams to continue work after the conference.Organize teams around evidence.organize Make large for	Committee members supplement infor- mation on future national direc-	Low quality long range national environmental education plan
work and communication after the conference within the local area and ongoing communication with the national committee. Identify	Committee prepares a draft national environmental education plan to	Comprehensive, in-depth national level environmental education study, analysis and planning not done
key regional resources and develop a resource directory as a step in implementation of the plan.	share with local areas Committee and staff plan for even- tual national conference and par- ticularly how to get resources for this conference	Low level national attention to environmental education and probably low level exposure and involvement of national leaders in environmental education
• •	Committee and staff provide whatever resources it can to assist local areas with short term plans - if possible facili- tating the involvement of national organizations and inter-community sharing	Could exacerbate local differ- ences in relation to environ- mental education {

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Appendix B

STOCKHOLM CONFERENCE 5-16 June 1972

The United Nations Conference on the Human Environment

I. Declaration on the Human Environment

Proclaims that

1. Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights - even the right to life itself.

2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and duty of all Governments.

3. Man has constantly to sum up experiences and[®] go on discovering, inventing, creating and advancing. In our time. man's capability to transform his surroundings, if used wisely, can bring to all peoples the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.

4. In the developing countries most of the environmental problems are caused by underdevelopment. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. For the same purpose, the industrialized countries should make efforts to reduce the gap between themselves and the developing countries. In the industrialized countries, environmental problems are generally related to industrialization and technological development.

5. The natural growth of population continuously presents problems for the preservation of the environment, and adequate policies and measures should be adopted, as appropriate, to face these problems. Of all things in the world, people are the most precious. It is the people that propel social progress, create social wealth, develop science and technology and, through their hard-work, - continuously transform the human environment. Along with social progress and the advance of production, science and technology, the capability of man to improve the environment increases with each passing day.

A point has been reached in history when we must shape 6. our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well-being depend. Conversely, through fuller knowledge better life in an environment more in keeping with human needs and hopes. There are broad vistas for the enhancement of environmental quality and the creation of a good life. What is needed is an enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining frecdom in the world of nature, man must use knowledge to build, in collaboration with nature, a better To defend and improve the human environment for environment. present and future generations has become an imperative goal for mankind - a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of world-wide economic and social development.

To achieve this environmental goal will demand the 7. acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future. Local and national governments will bear the greatest burden for large-scale environmental policy and action within their junisdictions. International co-operation is also needed in order to raise resources to support the developing countries in carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm. will require extensive cooperation among nations and action by international organizations in the common interest. The conference calls upon Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity.

II. Declaration of Principles

States the common conviction that

Principle 1 Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.

<u>Principle 2</u> The natural resources of the earth including the air, water, land, flora and fauna and especially representative samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.

Principle 3 The capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved.

Principle 4 Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat which are now gravely imperilled by a combination of adverse factors. Nature conservation including wildlife must therefore receive importance in planning for economic development.

Principle 5 The non-renewable resources of the earth must be employed in such a way as to guard against the danger of thier future exhaustion and to ensure that benefits from such employment are shared by all mankind.

Principle 6 The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of all countries against pollution should be supported.

Principle 7 States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Principle 8 Economic and social development is essential for ensuring a favourable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life. <u>Principle 9</u> Environmental deficiencies generated by the conditions of underdevelopment and natural disasters pose grave problems and can best be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance as a supplement to the domestic effort of the developing countries and such timely assistance as may be required.

Principle 10 For the developing countries, stability of prices and adequate earnings for primary commodities and raw material are essential to environmental management since economic factors as well as ecological processes must be taken into account.

<u>Principle 11</u> The environmental policies of all States should enhance and not adversely affect the present or future development potential of developing countries, nor should they hamper the attainment of better living conditions for all, and appropriate steps should be taken by States and international organizations with a view to reaching agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

Principle 12 Resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate form their incorporating environmental safeguards into their development planning and the need for making available to them, upon their request, additional international technical and financial assistance for this purpose.

Principle 13 In order to achieve a more rational management of resources and thus to improve the environment, states should adopt an integrated and coordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve the human environment for the benefit of their population.

Principle 14 Rational planning constitutes an essential tool for reconciling any conflict between the needs of development and the need to protect and improve the environment.

Principle 15 Planning must be applied to human settlements and urbanization with a view to avoiding adverse effects on the environment and obtaining maximum social, economic and environmental benefits for all. In this respect projects which are designed for colonialist and racist domination must be abandoned.

Principle 16 Demographic policies, which are without prejudice to basic human rights and which are deemed appropriate by Governments concerned, should be applied in those regions where the rate of population growth or excessive population concentrations are likely to have adverse effects on the environment or development, or where low population density may prevent improvement of the human environment and impede development.

Principle 17 Appropriate national institutions must be entrusted with the task of planning, managing or controlling the environmental resources of States with the view to enhancing environmental quality.

Principle 18 Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.

Principle 19 Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct bv individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is that mass media of also essential communications avoid contributing to the deterioration of the environment but on the contrary disseminate information of an educational nature on the need to protect and improve the environment in order to enable man to develop in every respect.

Principle 20 Scientific research and development in the context of environmental problems, both national and multinational, must be promoted in all countries, especially the developing countries. In this connection, the free flow of upto-date scientific information and transfer of experience must be supported and assisted, to facilitate the solution of environmental problems, environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the developing countries.

Principle 21 States have, in accordance with the charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

Principle 22 States shall co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction.

Principle 23 Without prejudice to such criteria as may be agreed upon by the international community, or to standards which will have to be determined nationally, it will be essential in

all cases to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

Principle 24 International matters concerning the protection and improvement of the environment should be handled in-a-co-operative spirit by all countries, big or small, on an equal footing. Cooperation through multilateral or bilateral arrangements or other appropriate means is essential to effectively control, prevent, reduce and eliminate adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all states.

Principle 25 States shall ensure that international organizations play a co-ordinated, efficient and dynamic role for the protection and improvement of the environment.

Principle 26 Han and his environment must'be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.

Appendix C

DECLARATION OF THE TBILISI INTERGOVERNMENTAL CONFERENCE ON

ENVIRONMENTAL EDUCATION

The International conference on Environmental Education, organized by Unesco in co-operation with UNEP, convened in the city of Tbilisi reflecting the harmony and consensus achieved there, solemnly adopts the following Declaration.

In the last few decades, man has, through his power to transform his environment, wrought accelerated changes in the balance of nature. The result is frequent exposure of living species to dangers which may prove irreversible.

The Declaration of the United Nations Conference on Human Environment organized in Stockholm in 1972 proclaimed: "to defend and improve the environment for present and future generations has become an imperative goal for mankind". This undertaking urgently calls for new strategies, incorporated into development, which particularly in the developing countries is a prerequisite for any such improvement. Solidarity and equity in the relations between nations should constitute the basis of a new international order, and bring together, as soon as possible, all available resources. Education utilizing the findings of science and technology should play a leading role in creating an awareness and a better understanding of environmental problems. It must foster positive patterns of conduct towards the environment and the nations' use of their resources.

Environmental education should be provided for all ages, at all levels and in both formal and non-formal education. The mass media have a great responsibility to make their immense resources available for this educational mission. Environmental specialists as well as those whose actions and decisions can have a marked effect on the environment, should be provided in the course of their training with the necessary knowledge and skills and be given a full sense of their responsibilities in this respect.

Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values. By adopting a holistic approach, rooted in a broad interdisciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment

and man-made environment are profoundly interdependent. It helps reveal an enduring continuity which links the acts of today to the consequences for tomorrow. It demonstrates the interdependencies among national communities and the need for solidarity among all mankind.

Environmental education must look outward to the community. It should involve the individual in an active problem-solving process within the context of specific realities, and it should encourage initiative, a sense of responsibility and commitment to build a better tomorrow. By its very nature, environmental education can make a powerful contribution to the renovation of the educational process.

In order to achieve these goals, environmental education requires a number of specific actions to fill the gaps that, despite outstanding endeavours, continue to exist in our present education systems.

Accordingly, the Tbilisi Conference:

Appeals to Member States to include in their educational policies measures designed to introduce environmental concerns, activities and contents into their education systems, on the basis of the above objectives and characteristics;

Invites educational authorities to promote and intensify thinking, research and innovation in regard to environmental education;

Urges Member States to collaborate in this field, in particular by exchanging experiences, research findings, documentation and materials and by making their training facilities widely available to teachers and specialists from other countries; and

Appeals, lastly, to the international community to give generously of its aid in order to strengthen this collaboration in a field which symbolizes the need for solidarity of all peoples and may be regarded as particularly conducive to the promotion of international understanding and to the cause of peace.

Appendix D

THE BELGRADE CHARTER

A Global Framework for Environmental Education

A.Environmental Situation

Our generation has witnessed unprecedented economic growth and technological progress which, while bringing benefits to many people, have also caused severe social and environmental consequences. Inequality between the poor and the rich among nations and within nations is growing and there is evidence of increasing deterioration of the physical environment in some forms on a world-wide scale. This condition, although primarily caused by a relatively small number of nations, affects all of humanity.

The recent United Nations Declaration New for а Economic Order calls for a new concept International of development - one which takes into account the satisfaction of the needs and wants of every citizen of the earth, of the pluralism of societies and of the balance and harmony between humanity and the environment. What is being called for is the eradication of the basic causes of poverty, hunger, illiteracy, pollution, exploitation and domination. The previous pattern of dealing with these crucial problems on a fragmentary basis is no longer workable.

It is absolutely vital that the world's citizens insist upon measures that will support the kind of economic growth which will not have harmful repercussions on people; that will not in any way diminish their environment and their living conditions. It is necessary to find ways to ensure that no nation should grow or develop at the expense of another nation and that the consumption of no individual should be increased at the expense of other individuals. The resources of the world should be developed in ways which will benefit all of humanity and provide the potential for raising the quality of life for everyone.

We need nothing short of a new global ethic - an ethic which espouses attitudes and behaviour for individuals and societies which are consonant with humanity's place within the biosphere; which recognizes and sensitively responds to the complex and ever-changing relationships between humanity and nature and between people. Significant changes must occur in all of the

* Reproduced from Connect Unesco-UNEP Environmental Education Newsletter, Vol.1, No.1, January 1976. world's nations to assure the kind of rational development which will be guided by this new global ideal - changes which will be directed towards an equitable distribution of the world's resources and more fairly satisfy the needs of all peoples. This new kind of development will also require the maximum reduction in harmful effects on the environment. The utilization of waste materials for productive purposes, and the design of technologies Above all, it which will enable such objectives to be achieved. will demand the assurance of perpetual peace through coexistence cooperation among nations with different social systems. and Substantial resources for reallocation to meet human needs can be through restricting military budgets and reducing gained competition in the manufacture of arms. Disarmament should be the ultimate goal.

These new approaches to the development and improvement of environment call for a reordering of national and regional the Those policies aimed at maximizing economic output priorities. without regard to its consequences on society and on the resources available for improving the quality of life must be Before this changing of priorities can be achieved, questioned. millions of individuals will themselves need to adjust their own priorities and assume a personal and individualized global ethic - and reflect in all of their behaviour a commitment to the improvement of the quality of the environment and of life for the world's people.

The reform of educational processes and systems is central to the building of this new development ethic and world economic order. Governments and policy makers can order changes, and new development approaches can begin to improve the world's condition - but all of these are no more than short-term solutions, unless the youth of the world receives a new kind of education. This will require new and productive relationships between students and teachers, between schools and communities, and between the education system and society at large.

Recommendation 96 of the <u>Stockholm Conference on the human</u> <u>Environment called for the development of environmental education</u> as one of the most critical elements of an all-out attack on the world's environmental crisis. This new environmental education must be broad based and strongly related to the basic principles outlined in the <u>United Nations Declaration on the New</u> International Economic Order.

It is within this context that the foundations must be laid for a world-wide environmental education programme that will make it possible to develop new knowledge and skills, values and attitudes, in a drive towards a better quality of environment and, indeed, towards a higher quality of life for present and future generations living within that environment.

B. Environmental Goal

The goal of environmental action is:

To improve all ecological relationships, including the relationship of humanity with nature and people with each other.

There are, thus, two preliminary objectives:

1. For each nation, according to its culture, to clarify for itself the meaning of such basic concepts as "quality of life" and "human happiness" in the context of the total environment, with an extension of the clarification and appreciation to other cultures, beyond one's own national boundaries.

2. To identify which actions will ensure the preservation and improvement of humanity's potentials and develop social and individual well-being in harmony with the biophysical and manmade environment.

C. Environmental Education Goal

The goal of environmental education is:

To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

D.Environmental Education Objectives

The objectives of environmental education are:

l.Awareness: to help individuals and social groups acquire an awareness of and sensitivity to the total environment and its allied problems.

2.Knowledge: to help individuals and social groups acquire basic understanding of the total environment, its associated problems and humanity's critically responsible presence and role in it.

3.Attitude: to help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement.

4.Skills: to help individuals and social groups acquire the skills for solving environmental problems.

5.Evaluation ability: to help individuals and social groups evaluate environmental measures and education programmes in terms of ecological, political, economic, social, esthetic and education factors.

6.Participation: to help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve those problems.

E. Audiences

The principal audience of environmental education is the general public. Within this global frame, the major categories are:

1. The formal education sector: including preschool, primary, secondary and higher education students as well as teachers and environmental professionals in training and retraining;

2. The non-formal education sector: including youth and adults, individually or collectively, from all segments of the population, such as the family, workers, managers and decision-makers, in environmental as well as non-environmental fields.

F.Guiding Principles of Environmental Education Programmes

The guiding principles of environmental education are:

1. Environmental education should consider the environment in its totality - natural and man-made, ecological, political, economic, technological, social, legislative, cultural and esthetic.

2. Environmental education should be a continuous life-long process, both in-school and out-of-school.

3. Environmental education should be inter-disciplinary in its approach.

4.Environmental education should emphasise active participation in preventing and solving environmental problems.

5. Environmental education should examine major environmental issues from a world point of view, while paying due regard to regional differences. 6. Environmental education should focus on current and future environmental situations.

7. Environmental education-should examine all development and growth from an environmental perspective.

8. Environmental education should promote the value and necessity of local, national and international cooperation in the solution of environmental problems.