



United Nations

CEPAL



UNEP

Dist.
RESTRICTED

E/CNPAL/PROY.3/L. Inf.39/Rev.1
December 1979

ENGLISH
ORIGINAL: SPANISH

Meeting of Government-Nominated Experts
to Review the Draft Action Plan for the
Wider Caribbean Region

Caracas, Venezuela, 28 January - 1 February 1980

A PERSPECTIVE ON ENVIRONMENTAL EDUCATION IN
THE WIDER CARIBBEAN AREA*

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CONTENTS

	<u>Page</u>
1. Presentation	1
2. A brief review of environmental problems	1
3. The background of environmental education	4
4. Objectives, characteristics and potentials of environmental education	5
5. Some characteristics of the Caribbean Region	10
6. Tentative environmental education programme for the Wider Caribbean Region	13
(a) Suggestions for action at the national level	13
(i) Formal education	13
(ii) Informal education	17
(iii) Supplementary measures	19
(b) Suggestions for action at the regional level	20
7. Final remark	21

1. Presentation

In accordance with the interests expressed by the Governments of the Region and their respective mandates, the United Nations Environment Programme (UNEP) and the United Nations Economic Commission for Latin America (ECLA) agreed to carry out a joint project entitled Environmental Management in the Wider Caribbean Area. ^{1/} The principal objectives of this project are to study the essential characteristics of the environment in the Region and how these relate to its socio-economic development process as a basis for formulating and presenting a draft Plan of Action for improved environmental management, to the Governments of the Region.

In addition to the draft Plan of Action and its supporting basic documents, ^{2/} it was considered necessary to prepare a document which could provide a brief analysis of what environmental education is, how it could be carried out in the Region, what its fundamental features should be and how it could contribute to better environmental management. Although several countries in the Region have initiated environmental education programmes, so far they have usually been of an experimental nature and have not been able to provide systematic experience. Consequently, it was considered preferable to present a general overview of the subject rather than a study of the environmental education programmes that have been carried out in the Region to date.

2. A brief review of environmental problems

A brief review of environmental problems, of the environmental crisis, if preferred is appropriate at this point - in order to obtain a better understanding of why environmental education is necessary.

In this paper environment is understood as the global milieu in which man lives, which includes his natural physical and biological

^{1/} Project FP (1000-77-01(1250) UNEP/CEPAL)

^{2/} See the documents prepared in connection with the project referred to for presentation to the Governments of the Region.

surroundings, his artificial surroundings (made up of the technical structures he has created), and his social surroundings (constituted by the social and cultural interactions of men with one another). This concept constitutes a system that encompasses other interacting systems. It appears essential to consider man within the "environmental system" and not to consider only his interactions with his natural biophysical surroundings, since, as we shall soon see, it is precisely the manner in which he intervenes in the overall environmental system that is the cause of environmental problems.

In interacting in society with the rest of nature as an essential part of life, human beings have always interfered with natural laws and processes. However, nature, through its normal mechanisms for adaptation and homeostasis, has been able, in general, to compensate for such interference and maintain its dynamic balance. It is also true that this balance has been modified with the passage of time, either through human or natural actions. Thus, ecological evolution allows us to observe, for example, pasture land or deserts where forests once existed. It is important to note that the changes produced by human actions are not always to be considered negative. Where abundant forests once stood in Europe, fertile fields now exist. Species that have been transferred by man from their place of origin to new locations have at times flourished even better in their new habitat, as in the case of the eucalyptus tree brought to California from Australia. Many examples could be adduced to show that human interference in the ecosystem is not necessarily harmful or degrading.

Nevertheless, with the passage of time and because of factors such as the increase and improvement of technology, social and economic systems for exploiting natural resources, and the increase in population, the pressures on nature have markedly increased and have surpassed its capacity for recovery. Consequently, degradation has become more noticeable in the accumulation of waste matter (pollution), in the at times irreversible destruction of renewable natural resources (deforestation, erosion), in premonitory symptoms of the exhaustion of non-renewable natural resources and in many other perceptible effects on the biosphere. Without falling away to the predictions of doomsday

/prophets,

prophets, we must realize that nature has its limits - its so-called outer limits - and that unless it is carefully managed and subjected to planned use, we shall jeopardize the very possibility of sustained economic development. There is no need here to specify how the arrest of development would affect man and the world.

In summary, it is the present kind of interaction between the society of man and nature (or, if preferred, between man and his environment) in the process we call economic and social development that produces the symptoms and controversies mentioned. Founding their arguments on a number of interesting experiences, there are many who maintain that the damages that are being caused to the environment at the present time could be reduced and in many instances eliminated altogether without the need to interrupt development. This would be possible by applying already existing ecological knowledge - in addition to new knowledge when it becomes available - by means of sound environmental management and by modifying socio-economic systems for exploiting nature: in a word, by seeking, and subsequently structuring, a style or styles of development that will provide true alternatives to the style of development prevailing in the world today.

Alternative style of development means redefining the means and goals of development so that, founded on sound knowledge of ecological processes and socio-economic needs and processes, the best choice may be made at all times among possible options, that is, the one that promotes development without unnecessarily transgressing the outer limits of nature. To achieve this it will be necessary to consider what will take place in the short, medium and long term. It may be possible to retrieve some elements of long established styles of interaction between development and nature; however, it will be necessary above all to develop from within each society - in accordance with the socio-cultural and ecological characteristics of their surroundings -

endogenous approaches and technologies, and in the final analysis, endogenous patterns and styles of development. This is what has been considered to be ecocodevelopment in the literature of recent years on this problem.^{3/}

3. The background of environmental education

Educators have always been aware of the need for educating the population with respect to the characteristics and functioning of the environment, although the title of environmental education had never been applied as such to this field. In any case, the emergence of the environmental crisis as a subject of practically world-wide concern has made apparent the need for special environmental education that will further more harmonious relations between man and his environment as a means of solving environmental problems to some extent and in any case preventing the emergence of new and more serious ones.

The United Nations Conference on the Human Environment, held in Stockholm in June 1972, provided considerable emphasis to environmental education and public information, as may be observed in the text of Principle 19 of the Declaration of the Conference: "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 by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of 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."^{4/}

We may also find several recommendations in the Plan of Action approved in Stockholm concerning aspects of environmental education and public

^{3/} For further details on ecocodevelopment, see the works of Ignacy Sachs, particularly "Ambiente y estilos de desarrollo", in Comercio Exterior, Vol. 24, No. 4, Mexico City, 1974; also the articles published under the title "Memorias del Primer Simposio sobre Ecodesarrollo", UNAM-CONACYT, Mexico City, 1976; and Vicente Sánchez and Héctor Sejenovich, "Ecodesarrollo: una estrategia para el desarrollo social y económico compatible con la conservación ambiental", Revista Interamericana de Planificación, Vol. XII, No. 47-48, 1978.

^{4/} See the final Declaration in the Report of the United Nations Conference on Human Environment, A/CONF.48/14/Rev., United Nations, New York, 1973.
/information

information, particularly Recommendation No. 96, which includes a veritable mandate to the United Nations System directed especially toward UNESCO to hold the consultations necessary to establish an international environmental education programme "... interdisciplinary in approach, in and out of school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen living in rural and urban areas, youth and adult alike, with a view to educating him as to the simple steps he might take, within his means, to manage and control his environment".^{5/}

The activities in the field of environmental education of training of professionals and technicians and of public information carried out by the United Nations Environment Programme since its establishment in 1973 have fulfilled an important part of the above-mentioned mandate. The first Intergovernmental Conference on Environmental Education was held in Tbilisi (USSR) in October 1977, organized by UNESCO with the co-operation of UNEP. During this Conference, 66 Member States of UNESCO and observers from two non-Member States approved a Declaration of the Conference and 41 recommendations^{6/} constituting a Plan of Action for environmental education on a world-wide scale. Among these recommendations some refer to the function, objectives and guiding principles of environmental education; others to the strategies for its development; and still others, to the regional and international co-operation required to carry it out adequately.

The preparations for the Tbilisi Conference, which included the holding of preparatory regional conferences and various technical seminars, served to call attention to this topic and to encourage the initiation of pilot projects in environmental education in several countries of the world, including some of the Caribbean countries.

4. Objectives, characteristics and potentials of environmental education

The fundamental objective of environmental education is for human beings to protect, restore and improve the environment, which constitutes an important

^{5/} Action Plan, op. cit.

^{6/} See Final Report of the Intergovernmental Conference on Environmental Education, (ED/MD/49), UNESCO Paris, April 1973.

basis for sustained economic development and for improving the quality of life. We have seen that achieving sustained development depends on better interaction than that existing at the present time between organized human societies and nature. Among other elements, in-depth knowledge of ecosystems is required that will lead to their better utilization and substantial modification of the modalities of exploiting natural resources.^{7/} The latter could be achieved by changing attitudes and reorganizing socio-economic systems for exploiting nature. Greater knowledge of the realities of the environment, changes in the attitudes of human beings and new forms of organization for coping with problems, imply an education aimed at achieving these objectives.

Accordingly, the following definition of environmental education proposed by the International Union for the Conservation of Nature and Natural Resources (IUCN) is of particular interest: "Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelationship between man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality."^{8/}

The Tbilisi Conference enumerated the objectives of environmental education as follows: (a) To create awareness of the environment and its problems; (b) to provide knowledge that will make it possible to deal with the environment appropriately; (c) to create and modify attitudes that will make true participation of individuals in protecting and improving the environment possible; (d) to create the skills required for solving environmental problems; (e) to create the capacity for evaluating measures

^{7/} For further details, see "Principles regarding Environment and Development" in Final Report of the Fifth Inter-Secretarial Consultative Meeting on the Environment for Latin America and the Caribbean, (UNEP/ROLA/ICM 5/8), October 1979.

^{8/} Final Report of the European Working Conference on Environment Conservation, IUCM, Morges, 1972.

and programmes in terms of ecological, political, social, economic, aesthetic and educational terms; and (f) to ensure extensive social participation that will in turn ensure appropriate action to solve environmental problems.^{9/}

In this light, environmental education must perforce be of a transdisciplinary nature and form an integral part of the educational process. It would be pointless for it to be considered as an additional and specific discipline under the title of environmental education; rather it would be necessary to introduce the environmental theme or dimension in each subject matter. We have seen that the characteristic feature of environmental problems is the interdependence existing among facts belonging to various sectors that may, consequently, be approached through different disciplines. Only by reorienting and adapting educational disciplines and experiences will it be possible to achieve an integrated perception of the environment and coherent and rational action on its behalf.

The economic and social development process, which is essential to achieving any substantial improvement in the quality of life of two thirds of mankind, is also trans-sectoral in nature and is the product of the interaction of diverse variables, one of which is the environment. Environmental education must therefore be strongly centred on the interaction between the environment and development. The prevailing pattern or style of development in the world today has been extremely anthropocentric in that it has considered man to be the centre of the Universe, and all the rest - the subhuman world - to have no value in itself above and beyond its usefulness to man. The development of modern technology has represented precisely the materialization of this idea. However, the environmental crisis shows us and ecology seems to demonstrate it that a world view of solidarity with nature would be more appropriate.^{10/} Therefore, a fundamental theme in environmental education is: economic development, with a change, however, in the anthropocentric attitude prevailing at the present time.

^{9/} Recommendation No. 2, in Final Report of the Intergovernmental Conference on Environmental Education (Ed/ID/49), UNESCO, Paris, April 1978.

^{10/} For further details on this subject, see Vicente Sánchez, Papel de la educación en la interacción entre estilos de desarrollo y medio ambiente (E/CEPAL/PROY.2/R29), Santiago, September 1979.

A fundamental requisite in environmental education, particularly for the developing countries, is maintaining close contact with local and socio-cultural realities. The teaching of natural sciences, geography and the social sciences in relation to problems that directly affect the community better prepare the individual to deal with his environment. It is thus easier to understand the laws governing natural and social phenomena on the whole and to make such teaching also more accessible, more useful and more stimulating in centring it on realities that affect people directly. At the present time it is easy to note in a large number of the Third World countries how study programmes and texts contain more information and examples regarding what occurs in the temperate and cold areas of the world, where most of the developed world is located, than what occurs in the humid tropics, in arid zones or in the island ecosystems typical of the Caribbean region.

In order to achieve the objectives described it will be essential for environmental education to be integrated into the educational process by means of modifications and additions with respect to both content and form. With regard to the latter, it should be recalled that for some time now an attempt has been made in many developing countries to make education more vivid by reducing the time devoted to classes or lectures and proportionately increasing the time devoted to practical activities in close contact with the local environment and with all kinds of local problems. Many more of these educational methods will have to be organized in the future in order to achieve true environmental education.

It should be added to the above considerations that in order for environmental education to become an integral part of man's education, it should be a lifelong process and should consequently be present at all levels of formal education and to a significant extent in informal education as well. As is expressed in the Declaration of Tbilisi, the

means of social communication have the great responsibility of placing their enormous resources in the service of such an educational mission.^{11/} The expression "at all levels of formal education" means primary or basic education, according to the system in question, secondary education, technical education and higher or university education. Furthermore, it means the carrying out of specific training activities or specialized training for those technicians, professionals or others who consider their education and training terminated but who should take part in special programmes in order to face and solve environmental problems in their own daily tasks, such as engineers, planners, sanitary inspectors and teachers.

In order to evaluate the potentialities of adequate environmental education, it is necessary to bear in mind that all education models are in some way subsidiary to the general model of socio-economic development prevailing in a given society. It was noted at the beginning of this paper that all appears to indicate that it is precisely the pattern or style of economic development prevailing in the world today that is the principal cause of the environmental problems that are threatening the sustainability of such development. It might therefore be imagined that a new educational model, imbued with what we are calling environmental education, would suffice to change the style of development and solve the environmental crisis to a large extent. This is hardly realistic and is actually wishful thinking.

A mere change in the educational model will not produce a change in the style of development, that is, in the interaction between society and nature, which rather depends on a number of economic, social and political factors that dynamically control its persistence or change.

Greater or lesser changes in the prevailing style of development will, however, be reflected in modifications in the educational model. Nevertheless, it should not be inferred that this will take place mechanically. As changes take place in the prevailing style of

^{11/} See the Declaration in the document referred to in footnote 6.

development in the direction of more appropriate interaction between society and nature, environmental education will serve to reinforce such positive change by training individuals to instrument it properly.

Whatever the case may be, it appears that it would be most suitable to attempt to reform the prevailing educational model by incorporating environmental education into it. On the one hand, changes in attitudes and knowledge on the part of human beings will lead to more appropriate use of the environment and consequently to long-term sustained development and improvement of the quality of life for the population. On the other hand, the changes achieved in the educational model in the direction of environmental education - although they may be dissonant with the system and consequently rejected - may very well stimulate more basic changes in the prevailing style of development that will truly improve the relationship between society and nature.

There is even greater possibility of promoting the changes mentioned in the educational model in the developing countries. A number of habits and improper forms of relationship with the environment, which are firmly established in the developed countries that have exported the prevailing style of development, still represent only aspirations that are being inculcated among an elite minority in the developing nations. Consequently, environmental education in the Third World inserted into the normal increase of educational coverage - which hopefully will continue and increase - may have a significant effect. Furthermore, the seeking of solutions and the formulation of policies to avoid and solve the environmental problems that are presently increasing in the developing countries, in association with appropriate environmental education, may as a whole make a very significant contribution to better interaction between society and nature for the benefit of all.

5. Some characteristics of the Caribbean Region

A significant portion of the efforts carried out under the UNEP/CEPAL joint project entitled Environmental Management in the Wider Caribbean

Area has consisted of the preparation of documents analyzing the situation and problems in various sectors. These and other documents, in addition to a draft Plan of Action for proper environmental management of the Region are being presented to Governments in order for them to take whatever decisions they consider appropriate. For detailed information on the environmental situation in the Caribbean, the reader should refer to these documents. Nevertheless, the following paragraphs will provide a brief description of the characteristics of the Region that are most directly related to the need for establishing environmental education for its inhabitants.

Although the Region is a geographical entity constituted by States and territories displaying occasionally marked differences in their economic and political structures, their social systems, their supplies of resources, their ecological and environmental characteristics, and in their potentialities, they are nevertheless linked together by important characteristics they share in common. Firstly, with the single exception of the United States, they are all developing countries that have repeatedly expressed their aspiration to increase and accelerate their socio-economic development in order to achieve greater independence and improve the quality of life of their inhabitants. Ultimately, this implies that impacts on the environment - particularly those deriving from industrialization and urbanization - will increase in frequency and in extent. It will therefore be of prime necessity to have detailed knowledge on hand and an excellent understanding of environmental problems in order to select the best options in the development process in consideration of the environmental impact in the short, medium and long terms.

From another standpoint, beyond certain diversities, generally speaking, the Region has very similar climatic and ecological characteristics typified by the humid tropics, and ecosystem of great wealth and complexity of which little is known with respect to its rational exploitation. Man has usually limited himself to devastating the tropics

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- and particularly the rain tropical forest - to apply temperate zone farming techniques. Nevertheless, this type of ecosystem shows promises of great potentiality, particularly if we consider the possibilities of using its biomass for the production of energy.

The Caribbean Region is largely composed of island ecosystems of great fragility and therefore vulnerable to intensified environmental impacts from human activities that in other areas would do much less harm. The management of the coasts, which are particularly wealthy areas, requires special knowledge and care. Although this must be borne in mind with respect to the entire Caribbean area, it is particularly true with regard to island States and territories, since practically the major part of their territories form part of the coastlines.

Several other common characteristics should also be emphasized. For one, the growing pollution of the Caribbean Sea, especially because of the dri-ling of oil and its transport by sea, a phenomena that adversely affects marine resources - which represent an important source of protein - and damages the beaches that constitute an enviable opportunity for productive activities such as tourism. To this must be added accelerated deforestation and soil erosion, both unfortunately common environmental problems in the Caribbean basin and both the manifestation of the inadequate environmental management that has brought about the loss of valuable resources for the Region. Natural disasters also frequently scourge the Region, principally in the form of hurricanes and earthquakes. Although natural disasters themselves cannot be avoided by man, a substantial portion of their damaging effects depend on good or bad environmental management, as, for example, in the case of the existence or non-existence of woodlands.

Lastly, the Carribbean Region presents a variegated mixture of the problems typical of underdevelopment combined with those usually symptomatic of affluence, the latter particularly evident in the highly industrialized and urbanized areas of coastal countries. In any case, at least, awareness exists among the Governments in the Region that collaboration is necessary to tackle their problems and achieve high

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levels of development. This common will has already been manifested in the establishment of the Caribbean Development and Co-operation Committee within CEPAL and in the activities this Committee is beginning to undertake. The need for collaboration and joint efforts is particularly acute as a means of solving many of the Region's environmental problems. Marine pollution caused by oil, natural disasters, the state of marine resources, and many other environmental problems with respect to management and the means for dealing with such problems reach beyond political borders. In order to achieve closer regional collaboration and the economic development desired with the least possible damage to the environment, environmental education must reach all the inhabitants of the Region.

6. Tentative environmental education programme
for the Wider Caribbean Region

(a) Suggestions for action at the national level

The need appears quite clear for the countries of the Caribbean Region to make the necessary efforts and take measures to establish environmental education programmes as an integral part of the education of their populations or to improve or extend programmes of this nature that they have undertaken in the past. In this manner it will be possible to contribute to solving the Region's environmental problems and prevent the consequences of economic development that threatens to be even more intensive in the future. It will doubtless be necessary for the environmental components that will be integrated into education to be closely co-ordinated with the general development policies of each country and with the general educational policies related to them.

(i) Formal education

From a methodological standpoint, it is of fundamental importance for formal education at all levels to be imparted in very close association

/with local

with local natural and socio-cultural realities. This will also make it possible to concentrate on nearby and real problems and will lead those receiving the education - in addition to providing them with the necessary information they acquire - to increase their creative faculties and obtain experience in how to solve the problems around them. It will also be easier to overcome the traditional dichotomy between the social sciences and the natural sciences by providing education with the transdisciplinary character it requires, as previously noted, to understand and cope with environmental problems. Flexibility will also be required in formulating and structuring future educational programmes. The environmental problems associated with development are characterized by changes, often substantial in the forms in which they occur or in the aspects they emphasize, as, for example, in the case of the energy problem. If the educational process is not flexible, we run the risk of educating for the past, which has frequently been the case so far.

New environmental education should include content that has generally been lacking in most Latin American and Caribbean education.^{12/} It can already be stated that some of the methodological changes in education of the type noted in the previous paragraph will bring about changes in a good portion of the content. For example, in concentrating on specific problems, students will be able to acquire ecological, economic, social, cultural and political knowledge that will enable them to understand, for example, the functioning of a hydrographic basin, a port, a human settlement or a forest. Consequently, they will be learning to exist rationally and productively in their environment. It would be desirable if an exhaustive list could be made of the content that should be included in environmental education; however, this is not possible in the present paper. Nevertheless, the following paragraph will provide examples of

^{12/} See the publications of UNESCO/CEPAL Project (PNUI) Development and Education in Latin America and the Caribbean, Buenos Aires, 1972; and Lawrence C. Carrington, "Education in Four Caribbean States", Perspectives, (UNESCO), Vol. VIII, November 1978, Paris.

some of the general topics that should be present in all educational programmes at every level of formal education in accordance with the ages and previous training of the students.

The general topics to be included are:

(a) The characteristics of ecological processes, such as the cycles of nutrients and energy in nature; the phenomena of resilience (tolerance capacity of ecosystems), plasticity and adaptation; the effects of the growing complexity of ecosystems or, on the contrary, their simplification, as exemplified by monoculture;

(b) The characteristics of the functioning and potentialities of specific ecosystems, particularly with respect to the ecosystems closest to those being educated;

(c) The manner in which man is an integral part of natural ecosystems, that is, a part of nature and not as he appears to be judging from the anthropocentric concept in vogue, which demands that interaction between the two should be understood better so that it will be beneficial to both;

(d) The effects of various human activities on the environment, regarding which a great deal is known today, for example, the impact of the abusive use of fossil and nuclear fuels; the effects of certain agricultural practices and deforestation, the impact of the construction of infrastructure works such as highways, ports, airports and human settlements, and the impact of industrialization (in the context, knowledge of modern technology, its characteristics, and its advantages and disadvantages is of great importance);

(e) The structure and functioning of the socio-economic systems man uses to exploit nature, how they are interrelated and what possible alternatives exist; and

(f) The fact that we live in a finite world and we must therefore make rational use of renewable and non-renewable natural resources to avoid their depletion or extinction and the consequent serious effect on necessary socio-economic development.

/The need

The need has been stressed on several occasions for changes to take place at all levels of formal education. There is no doubt that primary education, whose coverage should be extended a great deal more, is the level that reaches the most individuals at an age at which it is still possible to forge basic attitudes and habits that will remain with them throughout their lives. Kindergarten or pre-primary education, which has been relatively uncommon in Latin America to date, should also incorporate environmental content as it develops and expands, since the same arguments adduced for primary education may be applied to this level, particularly as concerns the creating of basic attitudes toward the natural environment. The secondary or intermediate level is also of great importance for the introduction of much of the content required and for transdisciplinary education centred on specific problems.

Technical and university education, which trains the technical and professional personnel required to carry out national development, should also include a significant amount of environmental education.

At this level, environmental education may be understood to mean the elements required to understand environmental problems in general, in addition to detailed knowledge of environmental problems as related directly to the sector or sectors involved in the professional or technical field, the former, because of the need for those who in some manner or other participate in decision-making regarding the development process to understand related environmental problems as a whole; and the latter, because it is of fundamental importance for professionals and technicians - engineers, for example - who plan and construct the technical structures of contemporary culture, which often seriously interfere with the functioning of ecosystems, to acquire the knowledge that will enable them to cause less damage and solve environmental problems without seriously compromising their goals and objectives. It is important to add that basic and applied scientific research should also be developed in parallel manner in the case of the technical and higher education level in order to provide new knowledge and approaches to local and regional environmental realities, as, for example, with respect to the tropics.

/The foregoing

The foregoing could solve the problem of new technical and professional personnel; however, it is of the utmost importance and urgency to establish training programmes on environmental topics for professionals and technicians who have already completed their training and who are carrying out their daily tasks without the environmental knowledge and new attitudes that would be enormously useful to them in dealing adequately with the realities of environmental impact, in avoiding errors and providing suitable examples to the personnel entering production activities. Although all professionals and technicians should be able to benefit from courses and other training activities in this field, special attention should be given to engineers of various kinds, economists and planners, mass communication experts and teachers at all educational levels. There is little doubt that unless true efforts are made to train teachers for implementing educational programmes, there is little possibility of integrating environmental education into the regular educational process and thereby creating new education.

(ii) Informal education

In the world of today, the largest portion of informal education is provided by the mass communications media, particularly by radio, which reaches millions of people. Nevertheless, its direct relationship with the prevailing style of development constitutes an impediment to its use for environmental education. "Where commercial considerations dominate the selection of material and the outlook of mass media, their role in environmental education may be limited. The learning of behaviour patterns and the acquisition of values directly detrimental to sound environmental development is an interesting aspect of this subject."^{13/}

^{13/} See "Review of the Area Environmental and Education and Training", Report of the Executive Director, UNEP/REPORT No. 01, 1978.

Despite this, the necessary efforts must be made to: (a) achieve sound training on environmental problems of professionals in the field of mass communications media; (b) formulate and provide environmental education programmes for the general public, and (c) diminish gradually commercial messages or those of any kind that are harmful to the environment. Briefly, the communications media should be in a position to provide permanent environmental education and not only pay lip service to serious problems as they have been doing for some time.

Governmental organizations can and should provide environmental education as part of their normal function of informing the public objectively on problems and on the plans and programmes designed to combat them. This is possible in all sectors, such as health, public works and industry, and should be supplemented with simple indications regarding what the population itself can do to prevent or resolve specific problems. Non-governmental organizations also have an important role to play in this respect. Certain of these organizations, particularly in more recent times, have had among their objectives that of increasing awareness of the environmental situation; others with different primary objectives could carry out educational programmes on the environment related to their specific tasks. The role of governmental and non-governmental youth organizations should also be stressed, since young people represent the majority of the population of Latin America and the Caribbean and it is therefore appropriate that their organizations should become vehicles for environmental education. In any case, any of the organizations mentioned can serve as media for offering and extending environmental education programmes so as to reach as much of the population as possible.

Related to the topics discussed in the preceding two paragraphs, but deserving of special treatment, are those we might call special events. Reference is made here to the organization of special events concerning environmental problems, their management, characteristics and means of solving them, events that by drawing the attention and arousing the

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interest of the population increase levels of awareness and knowledge concerning environmental problems and their solution. Examples of such events are: (a) days set aside to commemorate a specific or general theme, such as the World Environment Day established by the United Nations and celebrated each year on 5 June; (b) weeks set aside to commemorate or publicize an environmental theme; (c) exhibits on environmental themes; (d) photography, design, painting and literary contests on environmental themes; (e) the awarding of national or international prizes to individuals who have made significant contributions to solving environmental problems; (f) the awarding of local or national incentives or prizes to industries that have best solved environmental problems, and others.

(iii) Supplementary measures

As a means of making the above-mentioned environmental education programmes possible or more effective, the following activities are recommended:

(a) At the present time a storehouse of ecological and environmental knowledge exists in highly technical language. Consequently, there is an urgent need to make this knowledge accessible to other professionals and technicians not only to specialists in order to form interdisciplinary teams and to reach a broader based public;

(b) It is essential to initiate and strengthen scientific research at all levels focused on local realities as an important tool for solving environmental problems and contributing to useful environmental education;

(c) The need is becoming increasingly apparent to facilitate the exchange of experiences among the developing countries, and especially within regions possessing similar ecological characteristics, with the aim of jointly finding and sharing solutions to problems that differ in nature from those in the economically highly developed countries;

/ (d) Any

(d) Any environmental education programmes that are formulated and implemented should, from their very beginnings, possess the mechanisms required for evaluating them, which is the only means of avoiding repetition of useless programmes and unnecessary expenditures;

(e) Lastly, one of the most important supplementary measures is the preparation of audio-visual material to be used in formal and informal education. In this connection, it is of fundamental importance to stress the use of local and regional realities in the preparation of audio-visual material. Furthermore, this kind of material should be prepared especially for different age groups and, obviously, for different cultures or subcultures that may exist in a given country or region. The most well-known audio-visual aids are diagrams, drawings, photographs, films, filmstrips, video-cassettes, cassettes, posters and publications of all kinds. The possibility should also not be discarded of preparing toys for very young children that may in some way or another carry messages that will promote the creation of useful attitudes or the correction of erroneous attitudes and information. In this connection, with respect to adults, we should also bear in mind the possibility of more complex games, for example, simulation, which may be useful in general education and in training technicians and professionals.

(b) Suggestions for action at the regional level

The various national activities involving new education to include environmental considerations in the Wider Caribbean Region could be supplemented and strengthened by the joint action of groups of countries or all the countries of the Region. Moreover, some activities could be better carried out and at less cost if they were carried out on a regional level. There is no intention of making a detailed analysis of such possibilities here, and in any case it is incumbent upon the Governments

/ of the Region