Dear Caretakers,

I am impressed by the scope and vision of this programme of Caretakers of the Environment International and its potential for mobilizing the interest of young people in dealing with the issues so vital to their future. Moreover, I believe the Caretakers programme offers excellent opportunities to prepare young people for a responsible role in dealing with the critical environmental issues likely to face their generation. As you know, the question is often asked "What kind of world will we be leaving to our children?", and that is a very important question for which the incumbent generation carries a major responsibility. But the opposite side of that coin also carries an important question, viz. "What kind of children will we be leaving to the earth?" And it is here I believe Caretakers not only address this issue with energy and imagination but also seeks to provide solutions and answers.

In this connection, the United Nations salutes your efforts and would endeavour as far as possible to support this very important initiative. For our part, it is soundly conceived and should command broad attention and support.

Good luck with this important endeavour.

Yours sincerely, Dr Noel L Brown, Director UNEP.

Colofon

This magazine has been printed by the department of town management of the city of The Hague, The Netherlands. The Global Forum of Environmental Education is a publication of Caretakers of the Environment International. The Forum is to be published four times a year.

Contributions, articles, drawings, cartoons, pictures are actively solicited and suggestions are most welcome and invited. Any of the above or inquiries should be sent to The Global Forum of Environmental Education c/o CEVNO Nassauaplein 8 1815 GM Alkmaar, The Netherlands. Duplication of part of this magazine is allowed, provided it is properly referenced.

The board of editors consist of:

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Translations by Amalia Bosch Benitez, Spain

We are pleased to help the Caretakers of the Environment International with the publication of the Global Forum of Environmental Education this year. There is a firm link between our department of town management of the city of The Hague (The Netherlands) and Caretakers. Our department has a special division for environmental education.

Through our programs we try to increase men's involvement with and responsibility for the environment.

Four years ago we helped to organize Caretakers' first conference in The Hague. Other conferences followed. I hope that with our help this important magazine will be another beginning for promoting environmental awareness on a global level.
From the editor.

This is the first issue of a new magazine. We hope it will appeal to you. It is the result of a series of discussions during the last Caretakers of the Environment International conference held in Chicago. The magazine is an answer to requests for more information, more exchange of ideas between students and teachers who share a concern for the quality of the environment worldwide. It may also be an extra stimulus for students and teachers to participate in environmental education.

We have a number of ideas of how the magazine should look and what should be the content of the magazine. We would like it to be a magazine that relates to students and teachers and that is written by students and teachers. It should give information on subjects that can be used directly in environmental education, like book reviews, review of computer software, video programs. It may also have themes like the rainforest, or the ozone layer.

We would like to introduce one country per issue. From that country we would like to have an article from one of the teachers describing the state of the art of environmental education in that country. We would like to have an article by students describing an environmental education project and the results of that project. Lastly we would like to have an article by a leading politician of that country on the ecological problems and solutions in the country.

In the next issue we plan to ask Peru to deliver these articles, because the fifth Caretakers of the Environment International conference will be held there.

Most of all we would like to know what you think of the magazine. We therefore urge you to send in the enclosed questionnaire with as much comment as possible. We also ask you to send in any material you think suitable for publication in the magazine, e.g. photographs, article's cartoons etc.

We are able to produce the first three issues with hardly any cost because of the cooperation of the department of town management of The Hague. However we will have to ask you for a contribution in the cost of the magazine. In the questionnaire we have outlined what the price will be.

Th abstracts of each article are translated into Spanish. We will try to establish a Spanish edition of the magazine in future. It will be a translation of the English version. Eventually articles can be sent in in Spanish or English.

We hope the magazine will provide an answer to the needs of many of you, and that it will be the starting point for a leading magazine in the field of Environmental Education, that will act as a stimulant and catalyst for the advancement of environmental education.

Jan Apotheke, chief editor.
Abstract. This article describes the evolution of Caretakers of the Environment as an international network of secondary schools that are active in environmental education. The aims and objectives as well as the philosophy of the organization make up the bulk of the article. It is suggested that the success and sustainability of the network depends on the grassroots development of environmental education projects at the school level and the willingness of participants to share their experiences on an international level. Caretakers can help in facilitating both processes by organizing international conferences, setting up sister school projects, establishing a computer network and a database of curriculum materials, and, finally, by distributing the Forum.

History.

In the first issue of the Global Forum for Environmental Education it seems appropriate to describe the development and intentions of the organization that triggered this publication in the first place. Caretakers of the Environment dates back to the year 1985 when three concerned educators felt that it would be useful to have a network of secondary school from around the world that are active in environmental education. They contended that in a time when environmental problems transcend national boundaries, affecting virtually all people around the globe, we can no longer passively watch how the earth around us deteriorates with frightening speed. Today's teachers and youth - the inheritors of tomorrow's environment - can and should play a role in breaking the patterns of exploitation of the earth's resources, excessive waste generation, vanishing species, and economic growth at the expense of other people and/or at the expense of the environment.

With these thoughts in mind environmental educators in the Netherlands were contacted with the question whether they would be interested in organizing an international conference for secondary schools that are active in the field of environmental education. They indeed were, and within six months the City of The Hague, Cevo and students from the Agricultural University of The Netherlands had organized the first Caretakers of the Environment Conference. Over one hundred teachers and students from 14 countries from Eastern and Western Europe as well as from North America discussed the conference theme being "The Sea: Pollution and Protection" and looked for ways to incorporate environmental education into their regular classroom practice.

It became clear that teachers and pupils in many countries are concerned about the environment and are indeed trying to do something about it through their education. Furthermore, it was apparent that students and teachers are eager to share their concerns with their colleagues from other nations, not only to get new ideas but also, and perhaps foremost, to discover that they are not isolated in their attempts to improve the quality of the environment.

One of the participants of the first conference.
The two conferences that followed (Spain, 1988; U.S.A., 1989) have shown that interest in a global network of people who care about the environment is indeed worldwide. Schools and institutions from Asia, Africa and Latin America joined the network and the number of conference participants at the 1989 conference was almost triple that of the one in 1987. The success of the Caretakers has led to support from international organizations such as: Foundation for Environmental Education in Europe (FEEE), United Nations Environment Program (UNEP), International Union for the Conservation of Nature (IUCN) and the World Wildlife Fund (WWF). In the fall of 1989, Caretakers of the Environment International became official when the organization registered its statutes with a Dutch Chamber of Commerce under notary seal. In the statutes, the organization’s overall aim is: “to stimulate environmental education in secondary schools through the development of a worldwide network of teachers and pupils who share environmental concerns and who face environmental challenges.”

Building the Network

From the discussions at the conferences it became clear that the participants would like to be able to interact with one another not just through conferences but through other means as well. Furthermore, there seemed to be a need for a concrete document that would lay out the goals and objectives of the network, and its position with regards to environmental education in a way that would reflect the outcomes of the discussions held at the conferences. Members of the international board, therefore recently drafted a constitution which will be presented to the network participants at the 1990 conference in Bristol, United Kingdom. I will now present the goals, objectives and philosophy as they appear in the draft constitution of Caretakers of the Environment International. Readers of the Forum are encouraged to comment on the statements below and are invited to suggest changes and/or additions.

Goals and Objectives

- To develop a worldwide network of secondary school students and teachers who share environmental concerns and who face environmental challenges.
- To encourage delegates to think globally and act locally to protect the earth’s environment.
- To highlight the awareness that many environmental problems are common to many nations and that solutions are best achieved by international cooperation based upon a shared sense of responsibility.
- To develop strategies which enable delegates to act as ambassadors for Caretakers of the Environment International in their own country; to promote environmental awareness, and to develop national environmental education networks.
- To share successful and innovative environmental education programmes.
- To facilitate joint educational projects that encourage international data exchange and inter-disciplinary activities.
- To encourage the building of trust, friendship and cooperation among people of different cultural backgrounds.
- To develop links between environmental educators, curriculum developers, politicians, government representatives, and representatives from commercial enterprises.
- To develop among students a concern for the environment as well as the skills that will enable them to act as responsible citizens.

Position Statements

Caretakers of the Environment International regards environmental education as a comprehensive lifelong process. Environmental education can help people in leading a meaningful and environmentally sound life through gaining understanding of the major problems of the contemporary world, and developing attitudes, skills and alternative lifestyles, that may play a productive role towards improving and protecting the environment with due regard given to ethical values.

By adopting a holistic approach rooted in a broad interdisciplinary base, Caretakers of the Environment International believes it can re-create an overall perspective which acknowledges the fact that the natural environment and human-made environment are profoundly interdependent. Environmental education thus can help reveal the enduring continuity which links the acts of today to the consequences of tomorrow.

Caretakers of the Environment International believes that we live in a finite biophysical environment which imposes constraints on human affairs. However, we tend to use raw materials faster than the earth can regenerate them and then
we return waste products the earth cannot assimilate. We often presume that technology can transcend the carrying capacity of the earth, but it is becoming clear that ecological laws cannot be superseded and that there are indeed limits to growth.

Although humans have exceptional characteristics such as culture, faith, technology and consciousness that set us apart from other life forms, we are only one of many species that interdependently exist in the global ecosystem. Our actions must be consonant with the earth’s functions if we are to survive and maintain a reasonable quality of life. Having this in mind Caretakers of the Environment International wants to promote the concept of sustainable development allowing for the delicate balance between mankind and nature to remain, and allowing for all people to share in the sustainable use and protection of the earth’s resources.

In linking schools from around the world through an international network and by promoting cross-cultural education, Caretakers of the Environment International aims to demonstrate the interdependencies among nations and the need for solidarity among all people.

Caretakers of the Environment International believes that being informed about the environment and having a positive attitude towards the environment are, although essential, not sufficient in resolving environmental problems. In order for people to be able to act upon their knowledge and awareness, they need to become acquainted with a variety of action skills.

Caretakers of the Environment International believes that environmental education is of fundamental importance in facilitating the development of a global citizenry that is capable and willing to act on existing environmental problems and to prevent new ones. Caretakers of the Environment International recognizes, however, that since environmental damage and the destruction of ecosystems takes place at various scales and at an alarming pace, there is little time. Caretakers of the Environment International therefore emphasizes the importance of raising awareness among decision-makers, policy-makers, legislators, businesses, consumers, and other groups whose decisions and actions have an immediate impact on the environment.

Caretakers of the Environment International stresses that since environmental problems affect people around the globe, environmental education should reach out to all people regardless of race, colour, nationality, age, religion, gender or class.

**Future developments**

With the above statements the spirit of the past three conferences has been sufficiently captured while the groundwork for the building of a network has been laid. One of the strengths of Caretakers is that it is a teacher and pupil initiated organization closely attached to the every day practice of schooling. A potential weakness, particularly in the early years, is its dependency on outside funding and its reliance on part-time volunteer work. The organization, with the establishment of an international board, a degree of organized continuity will be obtained which will make it easier to go beyond organizing annual conferences. Besides the Forum, Caretakers of the Environment International is exploring the following networking instruments: Supporting Regional Workshops,
Setting up a year round computer conference for participants.
Establishing sister school projects.
Establishing a database of environmental education materials/projects.

As a grassroots organization, Caretakers will only be able to sustain and expand its success when its participants become advocates of environmental education at the community level who are willing to contribute to the network on an international level. At this point the Forum and personal contacts are the communication channels that can be used for sharing new trends and insights, and for influencing the direction of the organization as a whole.

International cooperation in the field of environmental education is crucial in giving teachers and students everywhere the support, courage and energy to carry on in their efforts to improve the environment. As we head into the nineties, Caretakers of the Environment International can become a major educational world-wide force that will inspire more and more young people and their teachers to take action.

Michelle Hoggins, a pupil from a Scottish highschool, perhaps illustrated best the potential of the organization when she concluded after one of the conferences:

"...because water and air physically have no boundaries, one country's rubbish is another country's pollution...discussion between different nationalities helped to see how pollution occurred and how it could be reduced. The fact that different people from different countries can get together to discuss such an important topic gives hope for the future."

A song from the Portuguese pupils

**THE COLOUR OF HOPE**

If the sunshine disappears.
If the green turns into tears.
If the peace is built of fears.
What shall it be?
If the bird does sing alone.
If the tree turns into stone.
Tell me, where we're gonna live in the silence, in devil's harmony.
Where the wind blows a fire melody?
Tell me, where we're gonna live?
There's the colour of hope.
The salvation rope,
The green seeds of beauty.

Music and lyrics by

Helder Silvano.
Environmental education in Roussillon
By Marc Mozzi.

Abstract: In the article a description is given of the backgrounds and the way environmental education has developed in the school M Marc Mozzi teaches in Roussillon. International contacts are described, as well as the way environmental education is integrated into the schools' curriculum.

La Educación Ambiental en Roussillon, por Marc Mozzi.
Resumen: En este artículo se ofrece una descripción del transcurso y la manera en que se ha realizado la educación ambiental en la escuela en la que M Marc Mozzi imparte clases en Roussillon. Se describen tanto los contactos internacionales como la forma en que se ha integrado la educación ambiental en el currículum de las escuelas.

On the edge of the 20th century as we look back at a hundred years of history we are immediately reminded of the evidence that we live in a world in movement, in motion, a motion that is growing in speed. The latest events in Eastern Europe are decisive pieces of evidence. But this motion is not linear nor unidirectional. It goes through crises, regression as well as evolution and revolution.

It is not easy to have a correct global view because we do not know which of these elements is or will be determinant.

The only assessment possible of any situation as a whole is its complexity must be through a global approach: that is to try to think globally and regard problems as "weave problems" as Peter AIERNER defined them in "The Society of Space". We must no longer think only in terms of "causes to effect" but in terms of interaction. The development of a dynamic and global vision of things and interaction must lead to a worldwide consciousness.

We must try to grasp the full meaning and significance of that more complete vision of society that is being changed both from the inside and the outside. New technologies develop a new technosphere through the ever growing role of the computer. Technological devices and inventions give birth to a new infosphere: more and more information, data, diversified mass media and leisure... A new technosphere and a new infosphere naturally bring about deep changes in the social structure, networks and habits of a society which leads to the birth of a new sociosphere.

It stands to reason that we must observe, with a critical eye and an open mind, that a society in which everything is going too fast is getting dislocated and dismembered. Humanities Marc Mozzi teaches English at the College Pierre Fourche, 06130, Alpes sur Tel, France.

are opposed to the scientific culture, the media only have a day to day approach of events. In between are the people that have to cope with new standards.

The mission of intellectuals, teachers, scientists, journalists and artists must consist of refusing to be caught in partitions, ghettos, hyperspecialization and in promoting the openmindedness of those that will be tomorrow's policy-makers and citizens. They can do this by widening in them the consciousness of the natural environment, the socio-cultural environment, and the technological one. Even if technology weighs heavily on political and economical choices.

Two concepts emerge as triggering elements for the widening of a worldwide consciousness:
- Information
- Communication

A complete objective information is one of the basic factors of democracy and can bring people to exert pressure on the government or political parties (CFC, garbage, nuclear energy).

On the other hand we do not have the right to forget the role information and TV played in the repression in China. The point is that because of the quantity of images, pieces of information, of news that follows each other in close and quick succession we must continuously renew our stock of images, clothes, our landmarks and reference system. We must find our own way our own mode of thinking according to our own background and experience.

"Demassification" is the new and next stage of the evolution of our society, after decades of mass consumption and conformity. Because of the diversification in the media and the emergence of satellite TV, the manyfold influences and models from abroad make it difficult to find one's own identity and one's roots. It is obvious that the mental and physical landmarks of the generation to come will be more complex and diversified than ours. We will all have to move and live in a different physical environment. The presence of satellites and computers makes possible the interaction with more and more people from different backgrounds. We will have to live and work together. We will
have to cooperate or demassification will lead us towards confrontation. The growing influence of the "National Front" in France and of extreme right-wing movements throughout Europe shows clearly that as the national identity, culture and background are being challenged in a recovering society coping with unemployment, feelings of selfdefence, anger and aggressiveness may emerge. Such feelings tend to lead to racism and exclusion and even oppression.

One of the main challenges of the nineties for Europeans - as in the EEC we are all 1992-minded - is to find a way to integrate everybody economically, socially and culturally. This is a most important issue teachers as well as politicians have to deal with.

The changing world as described above as well as our commitment to the former European Environment Education Network, made part of the staff in our school realize we had the opportunity to set up a multidisciplinary project on two levels:
- a local level
- an international level

1. The local level.

Roussillon is situated in the south of France on the Spanish borderline. It possesses a strong Catalonian culture strong traditions and a specific set of mind, rather narrow and inward looking. After being depressed for ages, forgotten by the central power in France it is now one of the crossroads and turnstiles of the European Community. On the other hand it is the wind's eye where nothing ever happens, situated in the centre of a triangle formed by three important active and rich towns Barcelona, Montpellier and Toulouse. The rate of unemployment remains one of the highest of France. The young have to move, thus creating an increasing brain drain. But more and more people from Northern Europe come to live here when they retire. They enjoy the Mediterranean sunshine, the absence of serious pollution even though acid rains and waterpollution have recently appeared and been reported.

The absence of industries, unemployment, the growing number of companies that have gone and agricultural problems have all weighed for a long time on the pupils and have been a triggering factor for fatalism.

But things have been changing in the last few years. Especially in our school thanks to a combination of manifold elements. The stress put by the media on academic achievement in a world dominated by technologies and the need to communicate. The necessity to know the cultural, natural and economical resources of one's place has been underlined by everybody, especially the teachers involved in environmental education (in biology, the humanities, French and the foreign languages). And together with surveys, studies and actions oriented towards the local environment our commitment to the European network developed a growing interest in the other European schools, especially those situated in French or English speaking countries.

2. The international level.

Language study trips combined with survey of the new foreign environment led to the making of a specific methodology: "Environmental education and foreign languages teaching". Our trips to New York (1983) and Washington (1990) are or will be the direct result.

M Marc Moizi teaching a class

Besides French, English and Spanish are the other languages used in the program as well as Catalan, the local language spoken on the other side of the border line in Northern Spain and in Barcelona.

For five years our school project has been a combination of different individual projects focusing on environmental issues.

Specific aims have been selected:
- academic achievement
- the forming and education of the citizen of tomorrow
- communication
- opening of the school

To reach these aims the objectives are:
- to develop the notion of "school project"
- to involve local specialists and partners in the project
- to make a survey of one's reference environment, its positive and negative aspects, its potentialities through a specific methodology based on multidisciplinary observation and comparison
- to emphasize languages create a deeper change in local attitudes and turn of mind.

As for the implementation:

The historical studies of the area and the town led to the creating of an urban trail and guided visits, by our pupils (aged 12-13) between 1985 and 1988 in French, Spanish and English. These guided visits of the older part of town were oriented towards the local people and the tourists. They had some cultural impact since they were the starting point of the rehabilitation of a derelict hospital that was converted into a Museum of Sacred Arts. It was inaugurated by the minister of Culture.

A review has been written and printed by a
The global forum for environmental education. Volume 1, number 1.

After a few years of experiment and practice it follows that a few actions turn out to be rather successful and a methodology can be developed that combines both curriculum oriented objectives and extra curricular projects. On the other hand, other subjects and teachers at first partially or completely involved in the environmental education project are no longer part of it.

The main causes of giving up have been clearly grasped:
- Problems of structure (curriculum, timetables, forms, coordination, etc.)
- Family reasons: most of the work in environmental education implies a great deal of volunteering (on Wednesdays, or at lunchtime)
- Leadership problems that may lead to a break or confrontation between some of the teachers.
- A natural trend to privilege and put forward one’s own action and project at the expense of the others. In spite of the fact that individual projects are a part of and depend on the school project as a whole. This attitude may lead to confrontation and aggression.
- Lack of curriculum material as a result of the problem of dissemination as far as environmental education is concerned in particular.
- No official support from the national authorities so far.
- No real financial support for actions that cause the need for the cooperation of parents, students and teachers to find money and sponsors. This means a tremendous amount of time and energy for just a little.

And yet, environmental education with all that it implies is an endless source of individual and collective enriching and opening into the world and people. Because of the necessity to observe, to communicate, to cooperate, it can develop a global and dynamic vision of things and manifold interactions a vision that leads to a worldwide consciousness.

If specialists, scientists, technicians have a major role to play in the process of getting skills in technological and scientific fields, then teachers, philosophers and artists must promote skills in languages, arts, communications for a necessary human dimension. A human dimension: this review can convey together with a more scientific approach of environmental conservation and issues.

This Bulletin can become a podium for conveying a more scientific approach to environmental conservation and issues that coexist with the humanity that binds all of us, the Forum, as well as Caretakers of the Environment International network can and must be a privileged place of meeting, of exchange of information, methodologies and evaluation techniques.
Environmental Education and physics.

By A. Ryzhenko PhD.

Abstract: This article argues the necessity of environmental education. It describes the role of the natural and social sciences, and pleads an integrated study of ecology. It states that especially in the physics and technological studies more attention should be given to the natural environment.

La educación ambiental y la física, por el Dr. Alexander Ryzhenkov.

Resumen: Este artículo versa sobre la necesidad de una educación ambiental. Describe el papel que desempeñan las ciencias naturales y sociales y hace un llamamiento en favor de un estudio integrado de ecología. Afirma, que se debe prestar más atención al medio natural, especialmente, en los estudios físicos y tecnológicos.

Nowadays one of the main priorities of the world educational strategy has become the focusing on ecology in educational subjects. That is necessary to not evoke anyone’s doubt. There is the problem however of how to realize this task in the study of subjects not related to biology and geography. The need to realize environmental education by means of subjects such as physics, chemistry, electronics and the technology of materials, is predetermined by the fact that the basic reason for the degradation of nature is the excessive pressure on the biosphere of technology. Physics as the basic of the technological sciences turns out to be at the beginning of man’s pressure on nature.

The impact of man on nature has become dangerous not so much because of the degradation of the environment but because of the degradation of human values. Human society is, when evaluating its attitude to nature, rather inclined to change the environment then to change its own ideas about civilization. This situation demands a new type of knowledge about natural sciences and awareness of the processes in the environment of which we are an integral part. These should be studied with the human society.

As noted by V. Vernadsky man can be considered as a geological force. Hence man became the subject of study in this new science together with other natural phenomena. A. Fedoseev suggested to combine this new knowledge with knowledge from other clusters of human activity. This would make possible an efficient study of the natural environment. It is the task of human society from the physics point of view to study the natural environment and to educate people about its role in human life.

More and more the life of modern man takes place in the artificial environment of artificially made landscapes, artificial materials and even artificial emotions. Under these conditions the study of the artificial environment prevails over the study of the natural environment. When studying human society from the physics point of view one has to study its main subjects: natural phenomena and their relationship to man.

If however, one analyses the content of courses in mechanics, molecular physics, thermodynamics, optics, electrodynamics, nuclear physics it becomes clear that the subjects of research and study are as a rule artificial systems and bodies like machines and their designs such as automobiles and aircrafts, missiles and spaceships, gas in engine cylinders, liquids in pipes and vessels, propagation of light in optic devices and elementary particles in accelerators etc. At the same time topics such as optical and electromagnetic phenomena in the atmosphere, earth’s magnetism, and mechanics of the human body tend to disappear out of textbooks and school curricula. Physics seems isolated from the natural environment as well as from the people who inhabit it and has become the servant of a scientific-technological
revolution.

As a result of this separation between research and society and because in evaluating results no attention was given to the influence on society, science seemed successful. Control over the science has become more and more problematic. The following examples may serve as proof for this proposition:

problems to control the development of military technology, nuclear weapons, nuclear energetics, hydroelectric power.

The consumer character of modern society has resulted in the isolation of physics and technological sciences from the natural environment and vice versa.

The study of ecology and human society by physics and technological sciences is important in two aspects, on the one hand it means the returning of physics to the natural phenomena and to the interaction of man with nature, and on the other hand this is a foundation to form a principally new technological policy based on the rational use of natural resources.

The most important parts of the introduction of environmental aspects in physics subjects is at first the planning of the educational word, secondly the determination of the content of the environmental information, and thirdly the form and methods of environmental education.

The role of education in the process can hardly be overestimated.

The strategy of action in the field of environmental education has for the first time been elaborated at the Tbilisi UNESCO conference on Environmental Education (1977). It has been further developed in the Moscow UNESCO-UNEP Congress on Environmental Education and Training in 1987.
Environmental Education and the Depletion of Rain Forests in Brazil.
By Walter Leal Filho.

Abstract: The article describes the necessity of environmental education as a possible solution for the problem of the depletion of the rainforests. It gives strategies of how a programme of environmental education could be implemented. It stresses the need for cooperation by governments.

LA EDUCACION AMBIENTAL Y LA REDUCCION DE LOS BOSQUES TROPICALES EN BRASIL, por WALTER LEAL FILHO.

Resumen: Este artículo menciona la necesidad de una educación ambiental como posible solución a la reducción de los bosques tropicales. Ofrece estrategias acerca de cómo se puede ejecutar un programa de

It is widely known that the conservation of the rainforests is one of the world's most urgent problems. Few environmental problems have grown as fast this century. In Brazil it is more intensive than anywhere else in the world. Every hour 10 square km of forests are destroyed together with the fauna associated with it. The dimension of this problem can be grasped if we consider the fact that in the last thirty years approximately 50,000 square kilometers have been destroyed. That is an area equivalent to the size of Portugal. Most of the destruction took place in the legal Amazon, which is part of the Amazon rainforest located within Brazilian territory. It is clear that if current trends are kept up the disappearance of rainforests will take place in less than a century. Rainforests' destruction is outpacing man's capacity to study and to understand the deepest secrets of these ecosystems, where the answers for many diseases may remain.

Despite the growing decrease of their area the rainforests play an important role in the maintenance of the world's ecological balance. Their destruction will result in serious changes in life as we know it. Besides the wide number of trees and other plant life it contains, rainforests house at least 70% of the planets living beings. In a patch of rainforest of the size of a soccerfield one can find about 125 different species of plants, 40 types of mammals, 100 types of birds, 25 different reptiles and at least 15 amphibians. In addition each tree supports more than 400 insect species.

The effects of deforestation are widely known by the scientific community. Forecasts that can be made are not very optimistic. From the biological point of view, deforestation is associated with the extinction of species, soil erosion and an increase of the already felt greenhouse effect. From the social and economical point of view deforestation is closely related with poverty, hunger and violence.

The greenhouse effect.
reverse the pattern of deforestation requires not only an ecological consideration but also economic, educational and political actions. Before any attempt is made to solve the problem of deforestation it is essential to consider the nature of the problem and its origins. Doing so it is useful to mention the studies developed by Watt (1972), who enumerates some items that prove how difficult it is to solve an environmental problem of such a magnitude:

1-Specifically, it is not widely understood that constant growth in the use of resources inhibits rather than promotes growth in economy and standard of living. Because of that the political constituency for rational economic and environmental policies has been small to be politically effective. Too few people have grasped the full cost of bad policies.

2-Governments have gone beyond the role of being mediators between constituencies in environmental matters. Governments often take an active role themselves and either distribute inaccurate information or suppress accurate information.

3- Someone's view on environmental matters is typically based on information.
rather than on direct observation. This has made it possible for special interest groups to spread distorted views of environmental issues by manipulation of the availability or content of information.

Environmental education is a process aimed at recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the relations between man, his culture and his biological surroundings (Martín, 1979). Environmental education represents one of the most effective methodologies that can reduce the current levels of deforestation in the world. Especially in Brazil where the depletion of such ecosystems is in many cases related to lack of knowledge in using the natural resources in a rational way.

The seriousness of the problem of deforestation in countries like Brazil, Malaysia, and Indonesia amongst many others, shows that a different line of approach should be adopted in order to reverse its pattern. But what can be done in order to reduce the high speed with which such a problem is growing? One of the means it can be tackled is through environmental education strategies. In establishing conservation initiatives aimed at the protection of rainforests it is necessary to illustrate the need for harmonious conservation and protection strategies for such ecosystems by taking into account the need for its exploitation as well as the maintenance of its ecological balance. Environmental education can make a contribution in that respect. It can change people's attitude towards such an important ecosystem.

Local people should be made aware of the fact that besides trees and other plants with medical uses, rainforests also produce many other products that are commercially valuable, such as spices, fruits gums, oils, exudates, aloes and even pesticides. It is also important to show local communities that once the forest cover is removed, its role in hydrological regulation, soil protection, climate balance and heat maintenance, as a source of fuel (mainly firewood and raw materials) as well as being a habitat for at least one third of the planets living beings, will cease.

4. The human brain has evolved not only to use information from the sensory organs but also to act as a filter. Otherwise the sheer volume of incoming information would overwhelm us and make it difficult to act in the interest of day to day survival. Information about problems developing slowly and irregularly tends to get filtered out of the conscious worldview of most people.

Such strategies may include:
- inclusion of "rainforests depletion" as a topic in the approach of subjects such as geography, science, biology and humanities as well as mathematics, chemistry and physics. This would enable to give students an overall view of the problem and its various consequences;
- preparation of rainforests maps and charts to be designed by students and/or members of the communities, showing the increase in the levels of forest depletion in small specific regions or wide areas;
- discussions conducted by community leaders with the participation of local groups in which the need of a rational use of the rainforests could be emphasized as well as the harm that their indiscriminate use may lead to;
- training schemes involving farmers in order to give them the possibility and knowledge for ecologically sound farming practices;
- campaigns aimed to tackle the problem of burning (one of the most widespread forms of deforestation), showing its ecological
The Global Forum For Environmental Education Volume 1 number 1.

consequences and the negative impact upon agriculture:
* a programme of public information through the media in which the problem of deforestation and other environmental issues associated with it could be approached regularly;
* training of local communities for the use of alternative rainforest-products as a source of income thus alleviating the pressure put on tree exploitation. Products such as honey, medicinal herbs, fruits and materials for handicraft are only some examples of a big list of rainforest products that can bring in extra cash for local communities.

In reaching their complete effectiveness the above suggestions need a strong support from governments on a world wide scale. It is essential that not only Brazil but also Colombia, Peru and Venezuela as well as Central American, African and Asian countries make their best effort to enable their populations to acquire a basic knowledge with which they can make well considered decisions about environmental issues that affect them and society.

Since the International Conference on Human Environment in Stockholm, Sweden in 1972 (UN, 1972) when the discussion about environmental issues was virtually initiated, it became clear that educational activities should be developed parallel to political and economical ones in order to reduce the high levels of environmental degradation facing developed and developing nations.

Environmental education was, since its establishment as a conservation strategy, recognized as an effective way of stimulating the sense of environmental awareness among the population. Wherever it was practiced it proved to be effective. But in order to offer results ecological education programmes should be taken seriously. The messages should be passed on precisely otherwise they may be misunderstood and the results may backfire.

REFERENCES:
GLOBESCOPE

What's happening around the globe.

What's happening around the globe.
On May 9 and May 10 1991 the Praidninus Gymnasium Groningen will organize a
course on the Swallows, a wetland region stretching from Holland's northwest coast up to
Denmark. During the conference the participants will go on the swallows and investigate. They
will also discuss the problems with local politicians. More information can be obtained from
Jan Apotheker,
c/o Praidninus Gymnasium;
Turfsingel 82;
9711 VX Groningen; The Netherlands.
Electronic mail address:
Bitnet: APOCATRE@ROGNL
Memoserv: 128 NIV002

The fifth Caretakers of the Environment International conference will be held in Peru. The
theme will be Environment and Development. The conference dates have tentatively been set for
August 6-12, 1991. For more information contact
M.Sc. Eduardo Giilmore
National University of Cusco
Apartado Postal 921
Cusco, Peru.

IUCN, the International Union for Conservation of Nature together with a number of Czech
organizations will hold an international conference on The management of protected
areas under the impact of atmospheric emissions in the northern temperate zone.
The conference will be held in Rknoose (giant mountains) National Park, Czechoslovakia from 3
to 6 June 1990, followed by working meetings of the IUCN's commissions on National Parks and
Protected Areas (CNPPA) and on Education and Training (CET) on 7 and 8 June.
The cost will be covered by the participants themselves, but there are possibilities of travel
grants from IUCN and cooperating organizations.
For further information contact:
1990 Rknoose Conference organizing committee
SUPPOP,
Valdisjesnak Nam. 1
CS-11601 Praha 1, Czechoslovakia

Legacy International Training Programs
P.O. box 265
Bedford Virginia, 24523
USA
organizes in the summer from June 27 through
August 12, 1990, a number of training programs
among which the YES-program, Youth for
Environment and Service. Students attend a six-
week summer training program at Legacy
International in South Virginia. Participants from
a number of countries will take part. The training
covers leadership training, understanding of
human impacts on the environment, the global
environment, environmental skills and project
organization.
Tuition varies from $ 1775 to $ 3400 depending
on the chosen program. More information at the
above address.

BOOKREVIEWS

Mr Ryzenkov has published a book called
"Physics and Ecology". "Prometey.-Moscow.-
1989.
The basis for the book are lectures delivered
by the author to physics and
engineering students of the Pedagogical Institute.
The global ecological situation and in the USSR
in particular is discussed in connection with the
development of the scientific-technological
revolution. The physical processes in
atmosphere, hydrosphere and lithosphere and the
impact of anthropogenic pressure on them are
observed. The achievements of comprehensive
physics are discussed for the solution of
ecological problems in the monitoring, purification
of wastedischarge, resources recovery and
recycling, and in the development of alternative
transport and energetics. The book is addressed
to students and teachers, and to all those
interested in problems of human-nature
interaction.

CARETAKERS of the ENVIRONMENT
Farrum International Conference for Secondary Schools
Churchill UK, June 1990
CARETAKERS of the ENVIRONMENT
Farrum International Conference for Secondary Schools
Churchill UK, June 1990
CARETAKERS of the ENVIRONMENT
Farrum International Conference for Secondary Schools
Churchill UK, June 1990

The fourth Caretakers conference will be held in
Bristol, UK, from June 25 through June 29, 1990
The theme will be "Co-operation or Conflict".
For further information apply at the above address.

On December 24, 1988 The Socio-Ecological
Union was set up in the Soviet Union as a non-
governmental non-party public organization.
Its targets are the survival, the people's physical
and moral health, the preservation of
environment, the stand contrary to the actions
and projects damaging the surroundings.
They work together with the Greens in Germany,
and the Natural Resources Defense Council
from the USA. They would to cooperate with
others.
If interested contact:
Centre for Coordination and Information
Director Dr. Svatoslav L.Zabelin
25, Sretenskaya, Moscow USSR 125319.