

PROPOSAL BOOKLET

**Environmental Education:
6 proposals for action by citizens**

**The Environmental Education Workshop of the Alliance for a Responsible, Plural and
United World**

Co-ordination:

Polis – International Network for Environmental Education

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- the co-ordination team that organized the work and carried out the painstaking work of writing this text, illustrated by all the experience files gathered at Syros.

We hope that all of them without distinction will recognize themselves in the following list of persons from every continent!

COMMENT

The proposals booklet was written by the forum co-ordination team, responsible for formulating the synthesis, on the basis of Internet discussions and the Syros meeting. Although the participants share the same basic principles regarding the objectives and methods of Environmental Education, several points provoked heated discussions that failed to achieve consensus. Therefore, some of the positions expressed in the synthesis involve only the co-ordination team. The illustrative files were written by the participants of the forum and the meeting and sometimes express different opinions.

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FOREWORD: THE WILL TO ACT

An essential aim of Environmental Education is to train responsible citizens

"Our planet is currently suffering from three concomitant fractures: that between human beings and nature, between humans beings and other human beings, and that between societies". This is the analysis set out in the *Platform for a responsible, plural and united world* and it constituted the basis of the approach used in this booklet.

This is the perspective in which we intend to widen the scope of Environmental Education (EE), beyond knowledge of the concerns related to environmental problems and resource management. The roots of Environmental Education go back to nature protection movements (for example, the Sierra Club and the vast natural parks in the USA and the forest of Fontainebleau in France). Environmental problems came to the fore later following the international conference at Stockholm (1972) which saw the founding of the United Nations Environment Program (U.N.E.P.). This program included an educational section and UNESCO organized several conferences on Environmental Education up to the recent conference at Thessalonica (Greece, 1997) devoted to "Education for a Viable Future". Within the Alliance, we see EE as a dynamic topic capable of opening up education more to the problems of society.

Environmental Education should not only make humankind more aware of the breakdown of natural balances: by denouncing devastating, greedy and suicidal economic and technological practices; it must include training for behaving responsibly and for taking action. It must achieve this in the perspective of citizenship education.

Our approach in formulating this proposal booklet

Given the need and urgency of the situation facing us, it is simply not enough to measure the damage and risks incurred. We must go beyond analysis and reflection. In this context, putting forward well-chosen and argued proposals and diffusing them as widely as possible becomes almost second nature.

Our approach is based on the "logic of proposal": this entails the will to act, while avoiding the trap of just setting out the necessary Utopia, by being as concrete as possible to achieve efficiency. These are the preliminary reflections that have guided our approach and the structure of our work.

This concern for efficiency is linked to two important points:

- The first is the **choice of the target group of our proposals**, which influences the strategy for diffusing and promoting actions.
- The second lies in the presentation of each proposal by the use of **illustrative texts** (that we call "experience files") intended to provide concrete examples of experiences and reflections of those already committed to action and to those who will become so.

These experience files recount real experiences and/or argued suggestions. Descriptive aspects are reduced to a minimum since it is above all the analysis of the process that is emphasized along with critical and evaluative elements. The aim of the experience files is not to provide models or recipes but to give confidence and encourage commitment to action.

Furthermore, for each proposal we present the **initial context** that describes the elements of a situation justifying the proposal. This is followed by a list of directions for more concrete and specific action adapted to each target group and, lastly, the corresponding experience files.

The overall aim in writing this booklet converges with that of Environmental Education, in that it participates in promoting **education related to the exercise of citizenship**, so as to provide to all, through a wider approach to education, the means for acquiring competencies that permit pertinent and efficient action.

This booklet was formulated according to the following **steps** :

- An initial text of proposals was written in October 2000 by the co-ordination team of the Alliance Environmental Education Workshop.
- This text was submitted to debate via a discussion forum on the Internet, between January and June 2001. This forum permitted collecting the reactions of about twenty participants from eleven countries, and diverse disciplines and socio-professional milieus.
- A meeting of 14 persons, from among the forum participants, was organized on the Greek island of Syros at the end of June 2001. We debated basic questions, collected new reactions, updated a plan of proposals and wrote the files that illustrate the proposals.
- The final stage of writing the proposals text, as such, was ensured by the co-ordination team. The writing of the experience files by the meeting's participants was finalized at the beginning of July and the files were presented on the Internet forum. The participants gave their critical opinion on the files written by the others and the authors updated their texts by including the comments made.

Who is this proposal booklet aimed at?

Primarily at specific target groups, chosen with the intention of getting as close as possible to concrete action:

- 1) Firstly, professionals in education, teachers, instructors and coordinators in all disciplines: those who influence the behavior of the young and adults today and in the decades to come.
- 2) Then come the decision-makers and opinion-makers:
 - those responsible for formulating Environmental Education policies, administrators and politicians,
 - politicians in the wide meaning of the term: this ranges from the officials of the ministries concerned, to the elected representatives of the smallest villages, whose duty it is to take decisions affecting the environment and the quality of life and explain their choices,
 - different actors in the media (journalists, columnists, producers of programs and audio-visual material),
 - the leaders of major unions.
- 3) It is also aimed at:
 - the activists of organizations: grassroots education organizations, environmental organizations, nature conservation and protection organizations, consumers' and users' organizations (in the fields of health, transport, food);
 - union members.
- 4) Lastly, it concerns socio-professional groups (farmers, developers, engineers, producers), whose activities have an impact on the environment.

This list is neither exhaustive nor restrictive, since **in addition to these categories**, this work is obviously intended **for every citizen** who feels concern and who we wish to reach at an individual, local, national and even global level. Thus, in this extremely wide context, Environmental Education is the affair of all those acutely aware of the urgent need to behave as **CITIZENS OF THE WORLD**.

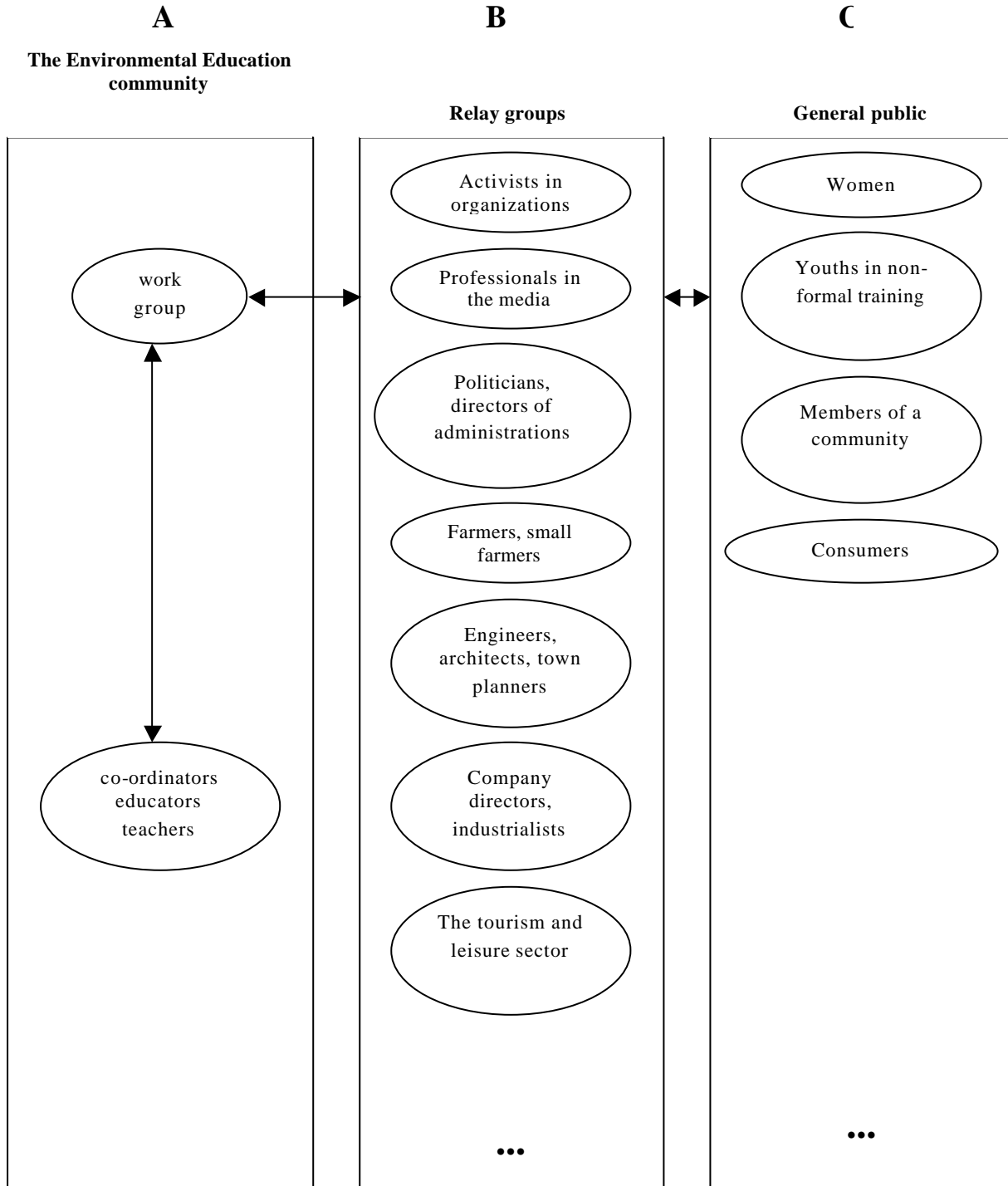
To ensure efficiency, we have decided to choose **relay groups** capable of reaching this wide public by adopting some of our proposals and implementing them. This explains the booklet's structure, which takes into account the distinction of target publics, between the relay groups and the general public we want to reach. The following diagram sets out our approach.

Diagram

Column A situates our workgroup as the representative of a small part of the educational community. Column B groups those categories we identified as the most important with respect to our objectives and those that ensure optimum efficiency for our action. This list is perhaps subjective and is open to criticism. It could be enhanced and modified.

Column C, which corresponds to the community or general public, categories that have been given emphasis to take into account the social, economic, educational and sentimental roles played by family and community life.

The proposals have therefore been formulated taking into account the correspondences between all these groups.



1. A FRAMEWORK PROPOSAL FOR CITIZENSHIP EDUCATION

1.1 The context

The following observations sum up the main points forming the basis of our approach for this group of proposals:

- **We are faced with the terrifying acceleration of damage done to every natural balance and which now affects the entire planet:** decrease of biodiversity, pillage and waste of resources to the benefit of the wealthiest nations, climatic disorders, local pollution affecting the health of populations, etc.
This divide between human beings and nature is accompanied by horrendous social inequalities within societies, between social groups and nations, the generation of violence and the promotion of a lethal philosophy.
- Regarding the environment in particular, international treaties and conventions and unwieldy legislation at national and international levels (e.g., the European Union) are neither applied adequately, nor are they respected.
- Through the current crisis at the dawn of the 21st century, we can glimpse the point of no return, where Humankind will become powerless to reverse the damage it has caused and repair some of the destruction already done (supposing it will have the will to act).
- **Thus we are confronted by a genuine EMERGENCY that demands each and every one:**
 - to **BECOME AWARE**,
 - to **acquire competencies in order to UNDERSTAND**,
 - a **commitment to ACT as a citizen.**
- There is a lack of community participation in our societies, even those that declare themselves to be democratic, since the electoral process does not permit effective participation of the citizens in decision-making process. Politicians are often criticized for practices that distance them from the necessities of the public interest. The effects of globalization permeate through the economy, society, culture and the environment and we are made to feel that decisions are taken “elsewhere”. Faced by the choices made by politicians at local, national and international levels, behind the backs of the people concerned, citizens and communities have few solutions other than to express their powerlessness rather than to act and participate.
- Environmental Education could contribute towards training citizens to be **responsible** in their individual and collective behavior, make them confident in the value of community action and make them **capable of acting** at every level, from local to global. However, acquiring the competencies for action is not enough. Environmental Education should aim at encouraging the **desire to act**, the desire to participate in basic choices and in the political decisions that involve our futures. This action does not only concern the environment, the rational and reasoned management of resources and respect for nature, but also and fundamentally respect for Humankind and our own survival as a species. It is this survival that is now increasingly threatened.

- **This is why it is necessary, with respect to the environment, to go beyond the traditional objectives of education – learning to observe, discern, analyze and understand.**

Although some educators involved in Environmental Education feel that it is enough to have as objective the awareness by all of the interdependence of the systems that regulate the basic equilibrium of the Earth, this objective no longer meets the challenges we now have to face.

It is not enough that Humanity is simply aware of the “denaturation” of Nature: this knowledge would have allowed it to slow down this evolution if it could obtain the time required! Degradation is continuing to accelerate and worsen; consequently the situation is far too serious to be remedied by the awareness that knowledge provides.

- Thus, EE must take on additional missions that, in the context of education, as it is practiced today, are new to it: critical analysis of the concept of development, analysis of the malfunctioning of production processes, the exploitation of non-renewable resources, the perverse effects of consumption that systematically generates waste. In short, EE should denounce a destructive economic system whose short-term profits are the privilege of a tiny proportion of the world’s population.
- **This process must insist on the need to forecast and remedy in accordance with the principle of precaution rather than on relying on correcting and repairing damage once problems have occurred.** This means taking into account the effects of irreversibility regarding the exhaustion of certain resources and the harm done to natural balances.
- **The diversity of traditions, languages, cultures, the variety of perceptions of the very concept of “environment”, that of “education”, the relations between “education” and the “environment”, lead to exploring and defining methods adapted to each specific context.** The reality of one situation is not the same as another. The term “mosaic” can be used for the Environmental Education methods used by thousands of aware and committed teachers all over the world.
- A paradox exists, however: **faced by this diversity, a new common awareness seems to be dawning:** the media, technologies, high speed transport and standardized lifestyles promote **universal awareness that “we only have one World”.** This is the emerging awareness that **Environmental Education must develop by building a TRANSVERSAL culture that links all others.**

Thus we formulate our framework proposal and the basis of the analysis developed hereafter:

1.2 Framework proposal:

Proposal 1

The primary objective of Environmental Education must be to strengthen the capacity of citizens for critical analysis to permit continuous and improved democratic control of decisions, political orientations and actions regarding the environment, development and resource management.

This is a general proposal that seeks to involve EE in citizenship education, an education that permits citizens to act. This is done by both widening and specifying its scope of action. It entails

the development of a critical mind, the prerequisite of all civic action. Beyond educational systems with their more global pedagogical and cultural dimensions, such an approach could influence the entire community of citizens.

Since the United Nations Environment Conference at Rio in 1992, educational concerns have been marked by an attempt to promote “Education of Sustainable Development” (or “Durable ” or “Viable”, according to the term used at the UNESCO conference at Thessalonica - Greece, in 1997). EE follows this trend and therefore is a part of this Education for Sustainable Development.

Nonetheless, the concept of sustainable development has become a trendy slogan that fits with all kinds of economic action (sustainable consumption, sustainable resource management, etc.) and no clear and precise definition of it exists. Furthermore, little is said of its cultural and ethnic implications or of the economic vision underlying it. It is striking to observe that the debate that held sway in the seventies, which distinguished growth and development, has completely disappeared. Education for Sustainable Development, proposed as a form of education intended to “absorb” and integrate all other forms, including EE, is the heir of this semantic confusion and its ambiguities. This is why it would be useless and even harmful to promote Education for Sustainable Development without applied critical examination. We prefer to take a stand for the incorporation of EE in education that aims at making the citizen feel concerned, responsible and capable of efficient action.

The following proposals for action seek to concretize as much as possible the application of the framework proposal adapted to each target group. Indeed they can be considered as sub-proposals. The overall strategy keeps in mind the slogan used by UNSECO: “**understand to act**”. The first word can be expressed by the formula:

observe / discern / analyze / understand

while the second can be expressed by:

behave, inform, act...

in order to:

prevent, stop, remedy, repair...

1.3 Illustration

- ❖ Environmental Education: a quest for Autonomy, Citizenship and Social Justice – the case of Latin America, Marcos Reigota
- ❖ Education and Environment: building hope without naivety, Lucie Sauvé
- ❖ The “citizens panel”: an attempt to promote participatory democracy, Yolanda Ziaka

To read these files, turn to page 26.

2. TWO PROPOSALS FOR FORMAL EDUCATION

2.1 A proposal related to education systems

Proposal 2

Promote the introduction and or the development of Environmental Education, as citizenship education, within education systems.

2.1.1 The context

At present, many education systems in developing countries and in so-called developed countries are still over-academic and, from secondary education onwards, subject to corporatism related to traditional disciplines. This partitioning of learning prevents the development of an interdisciplinary approach and opening out to the world. Education systems are cut off from social reality, operating without a global mind-frame or a genuine cultural approach. In addition, they are often run on elitist lines based on selection and they exclude the less good. They produce docile citizens acceptable to the technocratic structures of the State and the profit-making priorities of companies. Citizens are prefabricated for consumption, thereby ensuring the success of a certain type of economy. However, these education systems are unable to provide an efficient response to social integration or unemployment, since they teach neither a good level of general culture, nor professional training that provides both competencies and a sense of responsibility vis-à-vis the community. What is more, in the context of economic globalization, the role of continuing education as a response to unemployment is hardly recognized.

One fundamental idea is that education related to exercising citizenship should be based on the critical appreciation of concrete cases. This would allow pupils and future citizens to participate genuinely in the governance of society and its problems.

2.1.2 Directions for action

Educational systems are easily identifiable targets for specific “actions”. Action within a given education system nonetheless demands taking into account the administrative, and more generally social, constraints that characterize it.

The directions for action are therefore to seek the introduction of processes in such systems that would permit, generally:

- developing a global, critical approach that will be adopted by entire systems, especially in relation with traditional disciplines;
- integrating education for exercising citizenship in every traditional discipline;
- adopting a philosophic and cultural approach aimed at developing critical analysis in pupils and students.

More specifically, in applied pedagogy, teachers should attempt to:

- identify essential concepts stemming from traditional disciplines, though not necessarily exclusive to these, that can be qualified as "integrating" and on which an interdisciplinary and global approach can be built;
- clarify values (solidarity, responsibility, etc.), from the standpoint of ethics, religion, culture, etc.

- initiate pupils in the understanding of complexity, by using methods such as the systemic approach;
- promote attitudes that favor environmental protection;
- clarify the conceptions of learners and teachers, but also the dominant conceptions diffused in school books, the media and social backgrounds related to the environment and our relations with it, and on concepts such as development, responsibility, solidarity, etc.
- implement environmental projects that are directed by pupils in schools, that include constant critical analysis of the social and economic parameters related to each issue (promotion of renewable energies, reduction and recycling of wastes, investigations into local environmental problems and the diffusion of the results to the community, etc.).

2.1.3 Illustration

- ❖ Environmental Education in the realm of “Science-Technology-Society”: the Harari report, Abraham Blum
- ❖ The Yahas curriculum project in Environmental Education, Abraham Blum
- ❖ A plea for the promotion of Environmental Education in the education system, Christian Souchon.

To read these files, turn to page 26.

2.2 A proposal related to teacher training

Proposal 3

Promote the development of specific training for teachers and educators for the implementation of citizenship education, based on adapted pedagogical research.

2.2.1 The context

Training teachers in both formal and informal educational systems is still based on knowledge-based competency. However, the pedagogical objectives in active methods (used in EE and other subjects) are more oriented towards what could be called "learning to learn" and better understanding of the how to live rather than knowledge in itself. In Environmental Education in particular and thus citizenship education, the most essential objectives are those that modify attitudes and behavior.

Furthermore, if we really want to implement a strategy of "understanding for action", the learners must learn to acquire competencies based more on methods and controlled tools rather than on simple knowledge, and on the desire to use these competencies to act.

However, both teachers and educators in general, especially those who are specialized, are not trained to meet such demands. Therefore adapted training is necessary. Much, very diverse and exemplary training of this type exists already in several countries. Such training should be implemented where it does not exist already; concern should above all be given to generalizing it in education systems.

2.2.2 Directions for action

To develop this proposal, attempts should be made to implement and diffuse training intended to instruct teachers and educators to use methods adapted to EE and Citizenship Education, such as:

- analyze content, not only that of literary texts, but also texts related to social debate (e.g., diffused by the media);
- conceptual analysis derived from content analysis (including the meaning of words: etymology);
- analysis of conceptions (social perceptions) and values;
- the systemic approach as a tool for analyzing complex situations;
- the development in the classroom of transversal conceptual contents (interdisciplinary);
- the organization and implementation of a project (choice of subject, seeking partners, choice of educational methods and materials, application, evaluation).

Here, use can be made of available and reputedly efficient didactic "materials" and significant experiences developed and applied specifically for EE all over the world that have already met with success.

Within the EE education community and in the Alliance Environmental Education workshop, this position could find essential support in the analysis and evaluation of existing experiences or those to be applied by:

- identification, evaluation and diffusion of educational experiences (by using illustrative texts or "experience files");
- critical analysis of documents produced by our partners (other Alliance workshops working on environment and development issues, organizations of educators and activists working for the environment, etc.) and their use as raw material to train teachers;
- the analysis of the results and potentials of Internet discussion forums on the educational level, i.e. as a tool for teacher training.

2.2.3 Illustration

- ❖ The project of a movement of schools for and in Sustainable Development, Jean-Michel Lex
- ❖ A Brazilian environmental program for teachers and community leaders: the *Muda o Mundo, Raimundo!* project, Vera Rodrigues.

To read these files, turn to page 26.

3. A PROPOSAL ADDRESSED TO THE GENERAL PUBLIC AND ITS ADAPTATION TO DIFFERENT TARGET GROUPS

Proposal 4

Promote the acquisition of skills (scientific, technical, etc.) and encourage citizens to commit themselves to actions related to issues that affect their daily lives (health, food, risks, etc.) and which are also part of community life.

3.1 The context

This proposal seeks to mobilize citizens in general, i.e. as many people as possible. The aim is to permit the best and most general application of citizenship possible via the continuous and thorough democratic control of choices related to the environment, development and resource management. By adopting an educational point of view, or more modestly, by working to promote awareness about environmental, development and resource management problems, we seek to address the general public, which means everybody!

The public in all its dimensions is so vast, without real frontiers, that it is certainly more prudent to consider making it aware rather than aiming at genuine in-depth education. Furthermore, we rapidly became aware that seeking to reach as many people as possible was probably utopian. The general public may be reached more efficiently through relay groups (organizations, specific socio-professional groups) (cf. proposal No. 5).

Thus, to achieve optimum efficiency in aiming at this public, we decided to take two directions.

1) The first led us to distinguish certain categories within the general public, according to characteristics that remain general but which imply differentiated roles (membership of a community, activity within this community, level of integration, etc.).

We also felt it wise to focus on certain categories of more or less identifiable citizen:

- **women**,
- **young persons receiving informal education**,
- **members of specific communities** (villages, districts),
- **consumers**, i.e. everybody.

The way in which personal perceptions change from focus on the self to awareness of living in a community is strongly linked to the feeling of belonging that being a citizen gives. This role differs according to country, culture, social background and its organization.

Roles in society vary according to such aspects as age and sex. Thus women play a more important role in the family regarding the consumption of goods and services, health, and the education of children (especially for the youngest, and this continues outside the school environment).

Young children and adolescents have a more intense social life in the relations with each other and adults. Outside school, they find themselves in situations of non-formal education, sometimes benefiting from services catered by structures set up specially for them. The family and the community in a wider sense participate considerably to this spontaneous education, which also occurs to a great extent via a "self-education" process within each group.

The members of a community in the same geographic locality are subject to the same risks to health, well-being and the environment. Therefore they could mobilize to act together.

In addition, citizens of all ages are consumers; even the poorest need to consume the minimum necessary to sustain life.

Comment: The choice of categories of citizens was done according to the main concerns of those who participated in the Internet discussion forum and at the Syros meeting. Other approaches were considered too. Naturally, the aim is not to provide an exhaustive list but to put forward a proposal submitted for discussion and then enhancement.

2) The second direction is based on the observation that the general public can be reached at very different times and places, where educational messages can be diffused to a number of ordinary citizens (not necessarily identified within a specific community or a given socio-professional group).

With respect to time, it is possible to identify:

- time for consumption,
- time for trips, travel and transport,
- time for leisure and culture (reading, information, etc.),

and time when each of us is in some way similar to others who have the same activities.

As for places, mention can be made of:

- public places in towns, cities and the countryside, meeting places, cultural centers, shopping centers or more intimate places that permit reflection on pollution, health, energy and values (doctor's surgeries, churches, etc.).

3.2 Directions for action

1) **Women** have been identified as an especially important group due to the importance of their role concerning consumption, health in the family and children's education. In communities in developing countries, they also play an important role in managing natural resources (water, forests, etc.). The aim is to create the conditions required to allow women to:

- express themselves more on public affairs and be more involved in running them,
- obtain more means to critically analyze situations and competencies to carry out certain actions (in the sectors of food, health and children's education, among others),
- have greater access to education, especially in poor countries where they are frequently excluded. Here, Environmental Education can permit setting up a school that deals with daily realities and the wide range of subjects making up social life.

2) Regarding **young persons receiving non-formal education**, their difficulties go well beyond the problems of environment and health, since they are going through a period in their lives during which their need to assert themselves makes them easy prey in rich, productivist and wasteful societies.

Generally, whatever the country, young persons are too often subject to frustration and their integration into adult life is frequently difficult.

By drawing from the idea of community education and referring to Environmental Education, which, it should be recalled, is based on solidarity with future generations, the aim is in particular:

- to give them access to education that reflects their concerns and social realities. This would allow them to avoid feeling that the formal education they receive at school is inadequate ("What good is it?" is a question often asked to express their rejection of school which in turn rejects them implicitly),
- encourage young persons to commit themselves and give them the means to take initiatives and organize their actions themselves,
- encourage them to create their own organizations, possibly in association with other organizations, so they have better access to leisure, sports, etc.

Relations with environmental protection organizations that call on the spontaneous generosity of young persons are fundamental. Emphasis should also be given to the need to get more young people to take an "interest" in problems that they feel only concern adults but which will become theirs in a very short time (they are, or will be, electors in only two or three years time!). Critical analysis of the information diffused by the media is obviously related to the educational role that journalists and other professionals in the information sector could play.

3) Regarding citizens as **members of a community** at geographic level, their participation in managing affairs that affect everyone is usually limited to periodic voting, causing them to rely on politicians (elected representatives) and the administration, both of which are free from real control between times.

What is really needed is encouragement for the largest number to become involved in the management of their daily lives, via the acquisition of certain skills. This leads to:

- seeking reliable and accurate information and subjecting it to critical analysis,
- expressing one's opinion and taking direct control over certain situations, especially those in which public authorities are deficient (e.g., the layout of a highway in the case of territorial development, etc.),
- being capable of formulating proposals for solving problems.

Several channels can be considered so that ordinary citizens can take action. We mention the following by way of example:

- commitment in environmental protection organizations, consumers' and users' organizations, setting up similar organizations and giving greater force to existing ones,
- commitment by individuals to political action,
- appealing to the media (especially to journalists, to demand more information, details, analyses, etc.),
- commitment to legal action when laws are blatantly violated.

4) **Consumers** constitute an essential category insofar as consumption concerns everyone. This sector obviously participates in the economy, but environmental and other problems are generated by consumption, leading to effects harmful to health and well-being.

Therefore action is needed to (by way of example):

- permit everyone to identify their essential needs: to ask the question "Do I really need this?" before asking, "What should I choose?";
- resist advertising, gadgets, that which does not last, etc.;
- avoid waste by over-consumption;
- choose healthy food and follow a balanced diet,
- attempt to reduce packaging, since it totals over half of waste in industrial societies.

Action by existing and future consumer organizations is essential in this area, for example, against deficient control of product quality by authorities (food, water, etc.) or the prevention of risks. Besides the fact that individuals are invited to participate in their actions, organizations play an educational role when they diffuse criticism of environmental problems to the general public.

3.3 Illustration

- ❖ Development of a leisure center in France, Jean-Paul Braux
- ❖ Learn while teaching: Environmental Education through action, Kuntala Lahiri-Dutt
- ❖ Legal action for the environment and Environmental Education: the case of the Fly River, Kuntala Lahiri-Dutt and David J. Williams
- ❖ An example of community management of natural resources by women (Popenguine, Senegal), Urbain Njatang

To read these files, turn to page 26.

4. A PROPOSAL RELATED TO SOCIO-PROFESSIONAL ORGANIZATIONS / "RELAY GROUPS" WITH THE AIM OF REACHING THE GENERAL PUBLIC

Proposal 5

Get organizations and socio-professional associations to act as relays and driving forces for the development of Environmental Education and Citizenship Education for the general public.

4.1 The context

Reaching the general public, or at least a very large number of people, can only be done by making use of "relay-groups" that represent specific social and professional milieus.

First of all there are **organizations** that exist at different levels (local, national, international) among which the most important are:

- environmental protection organizations,
- consumer organizations,
- district education organizations,
- and more informal associations, in particular those that give the opportunity for debate on a problem or specific conflict.

The **media**, which play a considerable role in shaping public opinion. In addition to "traditional" media (the press, radio, television), we need to pay particular attention to the electronic press, which is becoming increasingly important. Journalists are vectors of awareness and learning, by popularizing scientific knowledge in programs on the environment and resource management. Furthermore, the media are powerful vectors for diffusing prevailing thinking on development, social relations, and for allotting responsibility for the occurrence of environmental problems.

Politicians, who obviously influence daily life through the choices and decisions they make. Here we distinguish between politicians at local level (members of local municipal councils), regional and national levels (e.g., members of parliament) and international level (representatives of a country in international organizations such as the European Union or the United Nations). Besides making decisions as such, their speeches are recorded and diffused by the media, which in turn inform and shape citizens' opinions on the issues that affect their lives.

Lastly, there are professional groups and sectors whose activities have a great impact on the environment:

- **farmers**, who are responsible for managing much of national territories to produce food in artificial ecosystems; they shape the countryside and ensure a certain type of relation with nature. In addition there are those who manage or use other types of space: forests, the sea and lakes (for transport and fishing);
- **engineers, architects and town planners**, responsible to a great extent for developing the territory and urban spaces in particular. Architects are in close contact with the general public, since they supervise the construction of houses, they make designs and choose construction materials.
- **company directors** and especially **industrial corporations** whose activities can cause pollution, all kinds of nuisance and impacts on resources. National and international legislation obliges them to take measures to prevent pollution and repair damage done to

the environment. They seek to promote their public image via certain actions, thus they can use this type of communication to inform and educate the public.

- **scientists and technicians:** they play an essential role in choosing technologies and how they are applied. They also play an important role in explaining the causes of pollution and its impacts on human health and ecosystems, and the measures required to mitigate such impacts. Thus they diffuse information on scientific processes and technologies to the general public.

- **actors in the tourism-leisure sector** who are involved with contacts between populations and natural areas, the countryside, forests, the sea and with other populations with different standards of living and cultures.

4.2 Directions for action

For each relay-group, the objectives to be attained could be the following regarding Environmental Education and citizenship education:

1) For **activists in organizations**

- acquire increasingly specific competencies in order to obtain credibility and recognition in the debate on environmental and development issues;
- learn how to set up projects, communicate and make proposals and counter-proposals;
- know how to seek and use existing pedagogical material on environmental issues;
- create and increase links with teachers in view to getting schools to be more open to the exterior,
- promote closer links between organizations capable of working jointly on specific subjects related to citizenship education: training courses, joint action programs.

Some of these objectives recall the need to set up specific training intended for members of organizations.

2) For **professionals in the media** (chief editors, editorialists, journalists, reporters, columnists, commentators, directors of radio programs and audio-visual documents, etc.)

- seek to set up general and specific training courses in colleges of journalism on:
 - methods for analyzing environmental complexity (the systemic approach or other approaches);
 - popularization of scientific language and critical analysis of scientific expertise and relations between the public and science;
 - methods of analyzing trials of strength between sectors of society involved in environmental problems, in order to establish chains of responsibility for specific problems;
- set up shared training courses and exchanges that link, for example, journalists and activists in organizations so that they can benefit reciprocally:
 - the aim for the training given to journalists would be to teach them how to report on an event or project on the basis of a clipping file and elements collected through contacts with organizations. Thus the press could carry out more in-depth and objective work less influenced by the emotional aspect of events;
 - the aim of the training given to activists of organizations would be to teach them to prepare a good clipping file so they can better argue their case in debates;
- encourage the public (individuals, small groups and structured organizations) to react by communicating with the media (for example, through personal contacts or letters to the

editor), to express their opinions, positions, protests and criticisms on the information supplied. This is a way of democratically controlling the media, henceforth evaluated by an active part of the population.

3) For **politicians and administrative authorities**

Organize actions aimed at involving them in the critical examination of concrete situations, in taking into account opinions expressed by groups of citizens and in solving environmental problems to counter prevailing superficial and demagogic attitudes, in particular:

- Explore different pedagogic methods aimed at this sector of the public, by associating organizations, the administration and universities:
 - encourage politicians to participate in projects and actions in the field set up by organizations;
 - organize public debates by inviting all the actors concerned by an issue (for example, decisions concerning the construction of a dam);
 - organize specific training for elected representatives (e.g., on impact studies, legislation on the environment);
- Diffuse positive experiences on the basis of action taken by politicians: actions and “battles” in favor of the environment. Information on these actions and their implications on the management of problems and the approaches and directions taken can be used to educate the general public. For example, the questions submitted to the European Parliament by its members, when they sometimes demand that concrete measures be taken to solve problems (local pollution, species in danger of extinction) or denounce non-conformity with a European Directive in their own country.
- Communicate to elected representatives the positions of formal and informal community organizations on the environmental dossiers being dealt with. This type of “harassment” strategy can be proposed to the ordinary citizen with the support of organizations. It could take the form of barraging politicians with letters informing them that their fellow citizens know their positions, how they voted and how they either committed or resigned themselves regarding environment and health issues and risks (decisions on development, management of energy resources, Genetically modified Organisms, etc.).

4) **Farmers**

Here, organizations, committees and co-operatives that bring together farmers and consumers at local and national levels should be set up in order to promote:

- direct access to healthy products that can be easily identified by those that consume them,
- identification of the origin of food products, from the place of harvest or breeding to the consumer's plate,
- joint action aimed at the intermediaries (agri-businesses and major distributors).

5) **Engineers, architects, town planners**

Ideally, these groups of professionals whose work has a great impact on our living environment should be able to:

- take into account environment quality criteria when building the structures they design;
- widen their views by taking a systemic approach to identify the indirect effects of their actions and their impact on resources;
- act as genuine educators for their customers and the population.

Communication and training given by these groups could orient them to making commitments as fully responsible citizens.

6) Company bosses – industrial corporations

Action could be taken in the sector of businesses and production, especially industrial, on the one hand regarding the relation between companies and consumer-customers, and on the other regarding businesses and workers.

- Regarding the first issue, attempts should be made in particular to:
 - get businesses to respect the environment (for example, by applying regulations on wastes, product quality and by the continuous control of their methods);
 - make them understand that brand images can be affected by the analysis of their methods and behavior by citizens;
 - use the environmental awareness of consumers to counter the search for immediate profit.
- Workers in a company can act to:
 - ensure that their safety is taken into account (risks of accidents, the impacts of pollutants on their health and that of the surrounding environment);
 - promote concern for the environment at every stage of production (the raw materials used, the origin of the type of energies used, production processes).
 - strengthen links between the media as a tool to exert pressure on companies, especially via the labor unions.

7) Tourism – leisure

- Make consumers of tourism responsible when choosing their destinations and lifestyles;
- inform the purchaser of holidays of the non-visible damage done to the natural resources and populations of the country visited;
- show the “hidden face” of tourism (economic exploitation of the “wealth” of the countryside, folklore and culture);
- highlight the value of tourism that gives priority to exchange, knowledge and respect of the other.

4.3 Illustration

- ❖ How can Environmental Education be dispensed to small farmers? The APEC project in Cameroon, Urbain Njatang
- ❖ Training journalists in the environment and their role in environmental and community education, Polyxeni Ragou
- ❖ The action carried out by a large organization to save ancient forests, Carmen Ramos
- ❖ An exemplary farming method is used for education through action, Philippe Robichon

To read these files, turn to page 26.

5. A FINAL PROPOSAL TO CREATE COLLECTIVE WORKING TOOLS

Proposal 6

Create collective tools for acquiring competencies intended for all actors fulfilling an educational role in the widest meaning, and through them, for every citizen.

5.1 The context

The desire to act is all too often burdened by hesitation caused by a feeling of powerlessness in the face of adversaries considered as far too strong: the weight of administrative and economic power, bureaucracy, domination of the media by huge corporations, the superiority of scientific and technological expertise, police state, etc.

Another reaction is to place trust in routine and believe that change is impossible.

Lastly, we often lack the knowledge and competencies required to critically evaluate the information and perceptions diffused by the media, to analyze and understand the causes of problems, and to become aware of our own individual responsibility and possible role in the community.

The fact of belonging to this informal network constituted by the Alliance, the Environmental Education Workshop, the Polis network and the Dialogue for the Progress of Humankind (DPH) network, has given us a remarkable opportunity to learn of organizations, networks and individuals who carry out exemplary work and struggle constantly to preserve and restore natural balances, fight for social justice, bring societies and civilizations closer together and promulgate a culture for peace. At our own level and with modest resources, we have attempted to promote exchange and spur continuous dialogue within the Environmental Education community. Here, we try to propose concrete directions for action that make use of these networks and aim at highlighting their experiences and lessons.

5.2 Directions for action

The objective is to help citizens, the general public and especially educators to act by giving them confidence and showing them that the chances of success are real, despite the difficulty of debates, combats and struggles. In addition to indirect involvement through reflection that takes into account essential values such as responsibility and solidarity, citizens must acquire basic scientific and technical skills. This does not entail training specialists capable of opposing scientists, for example, by using abstract concepts and mathematical symbols (incomprehensible for the general public), or by opposing technical experts. All that it entails is the power of critical analysis and evaluation, prerequisites for any commitment to action.

Several directions can be considered and the list is not exhaustive:

- Invite persons and organizations to start **exchanging experiences useful for action**. This means using concrete examples (or well argued, precise suggestions) that could be submitted to others in a spirit of exchange and solidarity. To be useful, such relations require as much self-evaluation and self-criticism as possible in order to judge both encouraging successes and stumbling blocks. Reflection spurred by the incorporation of these criteria will lead to seeking the means to overcome these stumbling blocks.

- This is the working methodology formulated by the DPH network – Dialogues for the Progress of Humankind – and used from its beginning by the Alliance Environmental Education Workshop, as well as most of the other workshops. In practice, this method is applied by the constant enhancement of a bank of “collective experiences”. Experience files are incorporated in a computerized databank and they are also published on paper and/or presented on the radio in certain countries. In our case, the files written by the members of our network are published in our newsletter “Dialogues for Environmental Education”, which is printed in two languages (English and French) and diffused in about sixty countries. These files are also presented in works published by Editions Charles-Léopold Mayer in France and by the Polis organization in Greece (cf. *Education and the Environment*, published in 1994, and *Environmental Education for the 21st century. Elements for debate and perspectives*, published in 2000. Both have been published in English and French).

We appeal to our friends and partners in the DPH network and the Alliance for a responsible, plural and united world to set out a concrete direction for action that would go beyond the continual enhancement of the DPH network's experience bank, i.e. the creation of Environmental Education multimedia tools, by drawing on the thousands of existing files (and those produced in the future) as raw material. These tools would be primarily intended for those not used to reading, in order to share the bank's collective intelligence with the greatest number of people. We have already proposed this idea to the members of the DPH network, though no such project has seen the light of day as yet.

- **Develop targeted training** adapted for specific sectors (such as persons working in the media, farmers, company bosses, union activists), on the basis of the following steps:
 - get existing training teams to work together for joint actions during which evaluations would be carried out,
 - design training methods aimed at general aspects such as: How to analyze? How to communicate? How to negotiate?
 - consider more specialized training courses with the help of experts and specialists (for example, law, food quality, resource management, etc.).

Regarding the participants and members of the Alliance, the experience gained from a large number of Internet discussion forums could be used to design and set up e-learning sessions based on the methods used for the discussion groups. Much collective experience in this subject has been gathered in terms of material for co-ordination, mediation, the choice of subject dealt with, the selection of participants, and formulating the final product of a forum, e.g., the proposal booklet. As for us, **we consider that these types of forum can constitute wonderful educational tools.** In addition, we have tried to develop such a tool by setting up the Humanity – Biosphere forum in the framework of the Alliance, in 1998. Our appraisal of the educational potential of such a forum is not only based on theory: we learnt much from the exchanges with the other participants of the Environmental Education forum on the Internet (and of course during our meeting at Syros). Now that we are ready to start evaluating the Alliance's discussion forums, we can reflect – with those who are interested – on the practical procedures for setting up an environment and development training forum.

- **Setting up an international network** constituted by associations and administrative structures active in EE. The aim of this network would be to exchange experiences and “good practices” and provide concrete assistance to individuals and organizations in search of partners, ideas for setting up a project, bibliographical material, educational material, etc. This objective is in fact that of “Polis – International Environmental Education

Network”, which co-ordinates the Alliance Environmental Education Workshop. Since it was founded in 1994, the Polis network has attempted to fulfill these missions at international level by forming and maintaining relations of exchange and collaboration with organizations and individuals from 60 countries. However, this task has been very difficult due to forever more calls for aid, resulting from the growing importance of environmental issues in our daily lives and the spectacular rise in the number of people active in Environmental Education.

What we propose here is to create an international network of organizations and structures whose members would focus their efforts on specializing in given areas, for example, EE within state schools, EE in informal education, research into EE, educational action of organizations regarding the environment, etc. Each node of this network would therefore commit itself to setting up a documentation and resource center for its area of “specialization” and satisfy the needs of educators related to this area. This structure would permit better management of information flows and provide efficient aid to developing, setting up and evaluating projects at international level.

Obviously, some of these directions for action are in fact the sequels of work already being carried out within the Alliance: networking, exchanges, diffusion of analyses and results of reflection. The Alliance provides us with a remarkable opportunity to meet and continues to provide us with a common space via which we can consolidate our networks and set up new projects.

CONCLUSION: NEW PARTNERSHIPS

Undoubtedly, there is nothing new about **the idea of situating Environmental Education within the framework of Education for Responsible Citizenship.**

However, what we have attempted in this booklet is to propose concrete **directions for work** to all those who, whether near and far, whether actors or ordinary citizens, feel concerned about Environmental Education. We sum up our conclusion in just a few lines:

- **The six proposals and “directions for action”** presented above by the group that wrote this booklet **should be considered as starting blocks.** New work done collectively could extend initial reflection, debate and action.
- **The Alliance Environmental Education Workshop, coordinated by Polis, has developed dialogue and reflection on Environmental Education for several years.** Each person and entity is welcome to become a free and independent partner.
- **In addition,** with the final proposal (no. 6), **we propose extending this work to new partners and starting up and monitoring new tools for exchange and work at international level.**

On the last page of this booklet, you will find a sheet allowing you to indicate your wish to continue down the road with our team, and work on ... “to be continued”. Please fill it in! We'll be hearing from you soon...

POSTFACE... ON THE TRAGEDY OF 11 SEPTEMBER 2001 AND ITS SEQUELS

As we were about to take hold of the final version of this booklet, we felt unable to remain silent about the horrendous terrorist attack on the United States on 11 September 2001 and on its equally tragic sequels. We want to insist on the urgent need we feel as educators and activists to join forces to develop values of responsibility, solidarity, tolerance and autonomy among young people and adults. These values are also emphasized in Environmental Education. Apart from our solidarity with the victims of the terrorist attack and those of the ensuing war, we want to emphasize the importance of tolerance which should encourage us to combat intolerance and extremism, violence, war and disdain for Humanity with all our strength. We must also reflect on the deeper reasons for terrorist attacks, especially the richest among us; we must reflect on our masked “gods” that revel in the glorification of growth, development, progress, selfish well-being, and unbridled consumption. We must ask ourselves what influence we simple citizens can bring to bear on those responsible (too frequently “irresponsible”), for governing us, especially those that hold sway in economics and politics.

We are not alone! Our work together has allowed us to start building links of friendship, respect and recognition. Our networks represent our strength and give us reason to hope. Is it utopian to want to stop violence, eradicate misery, fear and despair? Of course it is, but we are more than ever confronted by the dilemma of “Utopia or Death” (the title of the book by René Dumont). We shall never find solutions unless Utopia becomes reality.

ILLUSTRATIVE FILES

For proposal 1

- ❖ Environmental Education: a quest for Autonomy, Citizenship and Social Justice – The case of Latin America, Marcos Reigota (p.27)
- ❖ Education and Environment: building hope without naivety, Lucie Sauvé (p.29)
- ❖ The “citizens' panel”: an attempt to promote participatory democracy, Yolanda Ziaka (p.31)

For proposal 2

- ❖ Environmental Education in the realm of “ Science-Technology-Society”: the Harari report, Abraham Blum (p.34)
- ❖ The Yahas curriculum project in Environmental Education, Abraham Blum (p.35)
- ❖ A plea for the promotion of Environmental Education in the education system, Christian Souchon (p.38)

For proposal 3

- ❖ The project of a movement of schools for and in a Sustainable Development, Jean-Michel Lex (p.41).
- ❖ A Brazilian environmental program for teachers and community leaders: the *Muda o Mundo, Raimundo!* project, Vera Rodrigues (p.42).

For proposal 4

- ❖ Development of a leisure center in France, Jean-Paul Braux (p.44).
- ❖ Learning while teaching: Environmental Education through action, Kuntala Lahiri-Dutt (p.47).
- ❖ Legal action for the environment and Environmental Education: the case of the Fly river, Kuntala Lahiri-Dutt and David J. Williams (p.49).
- ❖ An example of community management of natural resources by women (Popenguine - Senegal), Urbain Njatang (p.50).

For proposal 5

- ❖ How can Environmental Education be dispensed to small farmers? The APEC project in Cameroon, Urbain Njatang (p.52).
- ❖ Training journalists in environment and their role in Environmental and community Education, Polyxeni Ragou (p.53).
- ❖ The action of a large organization to save ancient forests, Carmen Ramos (p.55).
- ❖ How an exemplary farming method becomes pedagogy through action, Philippe Robichon (p.56).

FOR PROPOSAL 1

Environmental Education: a quest for Autonomy, Citizenship and Social Justice – The case of Latin America

**Marcos Reigota
Brazil**

In this text written by Yolanda Ziaka we present an approach to Environmental Education used by Professor Marcos Reigota, a teacher at the Department of Education at Sorocaba University, Brazil. It gives priority to political, philosophical and cultural concepts as well as to autonomy, citizenship and social justice.

This analysis includes a critical approach of the method of development used in Latin America, of the exploitation of natural resources dictated by the colonizing countries, of the genocide and the depreciation of indigenous cultures.

In Brazil, Environmental Education is considered by many educators as political education to promote citizen participation in the search for solutions to ecological, local, regional and global problems. This approach goes hand in hand with the attempt by the new generation of intellectuals to go beyond the ambiguity of their relationship with cultural, political and economic centers and their nationalist positions, so that they can confront the challenges of today: globalization, ecological problems and the claims of indigenous populations.

At the beginning of the ecological movement in Latin America, arguments were put forward in favor of the citizen participation. It was associated with the claim for democracy, especially in countries subject to military regimes whose development policies were implemented by technocrats. Now, this argument is no longer limited to groups opposed to dictators, and citizen participation cannot stem populist policies or other policies aimed at transferring government responsibilities to the people. Citizen participation is understood as meaning the autonomous action of individuals and groups at national and global level.

The starting point of this approach, interpreted in different ways in Brazil, is that Environmental Education must not lose sight of complex problems (political, ecological, social and economic) that occur in the short, medium and long terms. As for values of autonomy, citizenship and social justice, they are considered as the basic principles of education. They are not goals to be achieved in a remote future; they must be built every day not only within pedagogical relations, but also within affective and social ones.

Autonomy characterizes an individual who is clearly aware of his specificity in a collective society. For the author, education, whether it be formal, informal or environmental, is only complete when the person learning can, at the major moments in his life, be autonomous, independent, think and act for himself. However, this approach is little included and developed in the main educational institutions, and those who participate in education are not all adepts to this principle.

Citizenship occupies an important place in the education debates in Brazil. When we talk about citizenship, we are attempting to place the human being in the political sphere, in contrast with other viewpoints emphasized principally in mass media that sometimes consider the citizen a "taxpayer" and, at other times, a "consumer". Citizens are more than mere consumers (and more

than their rights and obligations in relation to the products they buy) or taxpayers (and more than their right and obligations in relation to the taxes they pay).

We cannot think of citizenship without thinking of school, in the sense of an educational, political and philosophical project in which students are given suitable training to enable them to address the political and ecological challenges of our times.

The idea of citizenship, based on political equality among all members of a nation, has been enriched by claims for the right to be different, resulting from the ever-increasing political participation of social groups (homosexuals, blacks, women, indigenous peoples, youth, the elderly, etc.) who have organized on the basis of specific proposals and have broken with the hegemony of a uniform discourse.

In our continuous demand for local and immediate citizenship, we should incorporate the perspective of a more abstract, extensive and scattered citizenship as the idea of a planetary citizenship. We need to expand the real and imaginary frontiers and limits of the specific space of our global intervention and responsibility. In such a global and local context, Environmental Education involves expanding our limits, as well as our immediate limits for political action and participation.

The question of social justice is essential in a society such as that in Brazil, characterized by enormous social, economic and cultural differences. It will only become a just society when there is equitable distribution of the social and cultural goods that it produces. This means that we must consider those who are "different" as such, and not as "equals". A just society would take into account the actual economic and social differences among those who complete the second stage of education, and would give priority, or would reserve a certain number of scholarships for those with a lower level of social conditions, in order to obtain a common asset: the free and public university. This example is controversial, just as nearly all positions that view the standardization and equitable distribution of social goods for the complementation and maintenance of social justice.

The idea of social justice also appears in the definition of sustainable development, which implicitly includes concern for justice and ethics of the present and future generations. But the term "sustainable development" has become banal and its deeper meaning remains unclear for the vast majority of the world's population. Social justice is not simply a local or national problem, it should be situated in the globalized world in which all relationships have distinct results and consequences in different parts of the world. In that sense, diverse action aimed at attaining worldwide sustainability will only respond to the political and ecological challenges of our times if they include claims for social justice in their arguments.

We also insist on the fact that the quest for autonomy and social justice of those who develop political thoughts and actions in a space that is both local and global, constitutes at the same time a fight against the monolithic, homogenous, conformist and neocolonialist thought that has once again gained dominance at the present time. Much work lies ahead for Environmental Education that underscores the three inseparable elements of autonomy, citizenship, and social justice. Such an education must increasingly expand its arguments and practices. It is our only hope for considering the possibility of building a sustainable society.

Sources: *"Global Ecology and Environmental Education in Latin America"*, Marcos Reigota, in *Environmental Training*, Vol. 5, N° 11, UNEP, 1994 (Mexico).

"Environmental Education: Autonomy, Citizenship and Social Justice", Marcos Reigota, in *Environmental Training*, Vol. 10, N° 22, UNEP, 1998 (Mexico).

Note: Text written by Yolanda Ziaka on the basis of Marcos Reigota papers mentioned above, also published in Environmental Education for the 21st Century, (2000, Polis-INEE) and in the bulletin "Dialogues for Environmental Education".

Education and Environment: building hope without naivety

**Lucie Sauvé
Quebec, Canada**

Teaching relations with the environment

Environmental Education (EE) aims at rebuilding the network of relations between persons, the social groups to which they belong and the environment. The latter corresponds to a number of complementary realities: it includes nature (its appreciation, respect and preservation), resources (to be managed and shared), a complex of problems (to be solved), a system of relations (to be understood for better decision-making), the entire biosphere (in which we live together in the long term), but above all, closer to home, it is a living environment (that we must know and develop) and a community project (in which we must commit ourselves). The objectives of EE are to develop competencies of critical, ethical, strategic and aesthetic analysis, etc. related to the environment. It is an extremely vast educational project based on many, diverse well-documented theoretical and strategic proposals. It is not just an additional subject or a "form of education" in a long list of subjects, rather it is a fundamental dimension of education as a whole.

The "space" occupied by EE corresponds to one of three spheres of interaction at the basis of personal development: 1) the central sphere is that of the relation with one-self, the building of identity; 2) then there is the sphere of relations with the other, that of the development of otherness (indissociable from question of identity); 3) lastly, in close relation with the two former spheres is that of the relation with living environment, with *Oï kos*, the "house" that we share together and with other living beings. *Oï kos* is the Greek root word from which stem eco-logy (knowledge of the "house", the definition of one's human ecological niche") and eco-nomy (the management of relations of consumption and fitting out the common "house"). The environment is formed and transformed at the junction between nature and culture. It is composed of biophysical elements, in close interaction with the socio-cultural elements of the populations that live in the environment. This brings into question another kind of otherness, different from human otherness, and which calls for another dimension of solidarity; the sense of responsibility is widened by the incorporation of eco-centric ethics. It is precisely this third sphere of relations that concerns EE.

Such a view of education related to the environment goes far beyond current conceptions that restrict it to the role of tool for solving problems, "managing" the environment" or a simple strategy for diffusing the results of "scientific" research to ensure that their derivatives affect human behavior. EE is an essential process of human development and of social development as a whole. Thus it requires making appropriate pedagogical choices.

Current trends in EE

Numerous proposals have been developed for EE over the last thirty years. Nonetheless, some of the trends that have emerged appear particularly pertinent for dealing with contemporary socio-environmental problems and for inciting responsible social development. Among these trends in

particular are social criticism and bio-regionalism. These trends go beyond reactive and pragmatic approaches to problem solving; they propose a pro-active approach to environmental issues and condemn the short-sightedness of the "management" oriented conception of the environment that considers it as a mere pool of resources. On the contrary, they consider it as a genuine project for the entire community; EE is open to the needs and possibilities of the milieu and calls on various partners of the "education community".

Social criticism related to environment related education was above all developed in Australia at the end of the eighties. Its supporters adopted proposals for EE that originally came from critical theory formulated in the area of social sciences. What mattered here was to develop a critical approach to socio-environmental realities. In particular, attempts were made to update the close links between school, society and the environment. Schools act too often as mirrors of society rather as crucibles for social change. It is important to identify the intentions, interests and values of the protagonists both in the school and in society: Who decides what? For whom? Why? As a function of what interests? Ian Robottom and Paul Hart (1993) also suggested other examples of critical questions: How is the relationship with the environment and education influenced by prevailing social values? Why isn't the environment taken into account? Why isn't EE integrated in schools? However, this critical investigation is not carried out in thin air. On the contrary, it is part of projects for action or, to be more precise, research-action aimed at changing socio-environmental and educational realities. Thus it does not entail starting with research followed by action, rather it entails acting together in a project of meaningful action permanently associated with critical reflection: praxis in practice – action and reflection. The hegemony of scientific expertise is called into question to the advantage of dialogue between different areas of knowledge within which different types of know-how confront each other, conflict, question and complete each other.

The bioregionalist trend is also very critical, though it takes a less political and more economics oriented approach to socio-environmental problems, in keeping with the original meaning of economy: "management of the house". In this case, environmental problems are seen as essentially related to economic choices and our modes of production and consumption. This trend in EE encourages people to be responsible for themselves and seek new, responsible and social modes of development rooted in their local milieu and culture. More concretely, EE is applied in eco-management projects.

The expression "*grassroots Environmental Education*" describes a more radical type of bioregionalism. It goes to the roots of things, insisting on the need to avoid economic alienation and the need for social groups to acquire relative autonomy in terms of subsistence reliant on bioregional resources. This runs counter to the slogan of sustainable development, "think globally, act locally", which belongs more to the premises of globalization, encouraging us to act as if we belonged to a huge "global village" project over which, all said and done, we have no influence. Its supporters denounce the arrogance and utopianism of those that propose planetary management. The idea of a "globe of inter-related villages" (in Morris's words) is more pertinent. Initially, one can only be responsible for what one knows in one's own living environment and in the crucible of one's own culture. Populations must stop alienating themselves from food by developing alternative production and consumption methods. This entails throwing off the straightjacket of globalization and escaping from the erosion of one's own cultural identity. Although the grassroots movement has taken firm hold in the countries of the South where populations live in closer contact with the earth, concrete projects have been proposed in the North too, such as "community supported farming" which encourages ecological production methods by making advance purchases of harvests and by doing seasonal work. It is one way of forging links between the town and country.

The bioregionalist current is also closely related to that known as "*place-based Environmental Education*" which emphasizes the need for people to become genuine inhabitants of their districts,

villages, and workplaces. As David Orr says, we often behave like residents, i.e. more like people who live in a place temporarily, as if abroad or on business or for work. We use services, take, exploit and consume in exchange for money, but in return we pay no attention or care about the quality of our immediate environment. Often living like nomads, we grow no roots, except temporarily or symbolically. This trend in EE proposes that we should learn to know and live in our environment and take full responsibility for it.

Mention should be made of other trends. In particular, there is the *feminist current* in EE, developed among others by Annette Gough, an Australian. This trend borrows many elements from previous ones, including criticism of social relationships, particularly regarding the relationship between women and the environment and the importance of changing our relations with the earth, which is subjected to harmful exploitation. However, emphasis is placed on commitment, hospitality and care regarding beings and things around us. For example, the feminists reproach the social critics for their purely rational approach bereft of any emotive aspects in their relations with the environment.

We could go on describing contemporary trends in EE that contribute to what could be called educational diversity". However, the examples above sufficiently illustrate the vigor of EE, which has adapted to changing socio-environmental realities. Unfortunately, too little is known about this wealth and the image of EE remains tinted by naï ve methods that have given rise to examples such as stereotypical lessons on natural science and school waste management.

Source: Extract from an article written for the journal "Possible", 2001.

References: Robottom, I. and Hart, P. in Research in Environmental Education, Geelong, Deakin University Press, 1993 (Victoria, Australia).

Orr, D. in Ecological Literacy, Education and the Transition to a Postmodern World, State of New York Press, 1992 (New York).

Sauvé, L., in Pour une éducation relative à l'environnement, Guérin, 2nd edition, 1997 (Montreal).

"The Citizens' Panel": an attempt to promote participatory democracy

**Yolanda Ziaka
Greece**

The "Citizens' Panel" is a new type of public debate that has already been organized in countries such as Germany, Denmark, Spain, France and Switzerland and, for the first time, in Belgium in 2001.

The Citizens' Panel is a method for debating complex issues such as the environment, sustainable development, bioethics, etc.

In practice, a group of citizens is chosen at random to give its opinion on an issue of public interest. This opinion is supposed to be taken into account during parliamentary debates and decision-making related to the subject in question. In order to give a considered and well-argued opinion, the panel, composed of citizens with no prior expertise in the subject, informs and educates itself as well as possible by meeting different resource people.

This new type of popular consultation was started in early 2001 in the Wallon region of Brabant, Belgium. The subject dealt with was territorial development. The action was sponsored by the Ministry of Transport, Mobility and Energy and the Ministry of Territorial Development, the

Environment and Urbanism and focused on a proposal made by the *Foundation for Future Generations*, a non-profit association that coordinated and organized the process. The *Maison de l'Urbanisme* also contributed to the process. According to the two Ministries, the aim of the experiment was to "bring the authorities to listen to the community" and "practice participatory democracy". The project's initiators consider that it could be incorporated in new procedures for territorial development and make public enquiries less cumbersome.

The revision of land use plans is currently underway in Belgium. The Belgian government considers that these plans (21 in the region of Wallonia) that date back twenty years, should be revised, since they no longer satisfy the social, economic and environmental needs of today. They cannot be used to optimize choices related to the installation of companies, the extension of new residential areas or the protection of areas of ecological interest. Thus the stakes are high for the south of the country and especially for Brabant, with its dense urban and economic fabric under pressure due to the extension of industrial areas and a growing population.

Preparations for this popular consultation process began in September 2000 while the process itself took place from March to May 2001. A budget of BF4 million (about €9.000) was provided for the operation by the two Ministries.

The "citizens' panel" organized for the occasion was composed of 62 people chosen from those that had answered positively to phone calls inviting them to participate. They were recruited by an opinion poll company that contacted nearly 3,300 people by phone. At least 130 contacts were made out of the 1,300 genuine discussions that were held. Lots were drawn, resulting in a representative group in terms of sex, age, socio-professional background and the three sub-regions of Wallon Brabant. They were a group of non-specialists, half of which had not received further education.

The participants were invited to give their opinions in the form of "guiding principles" on the revision of the land use plans for the future development of the region.

The members of the panel gathered for three consecutive days by sub-region and were given courses in subjects related to sustainable development, economic development, mobility and territorial development. Each module consisted of exposés and practical work, such as group discussions, voting, simulations and role plays. In the territorial development module, the panel members were invited to propose modifications to the land use plans of an imaginary village and make choices and proposals in the form of principles ("low rent housing should be integrated in the village or district to prevent ghettos from forming", etc.).

At the end of the first three days, the panels were invited to select people and institutions capable of providing them with further information. Thus some 35 people were called on to join the panel: representatives from the business world, unions and environmental associations (Federation of Farmers, Chamber of Commerce and Industry, Christian Workers Movement, League of Families, "*Inter-Environnement Wallonie*", etc.).

During the following step, the participants were invited to vote individually on a questionnaire that grouped the principles (identified during the imaginary village exercise and during the meetings with representatives from different sectors of society) and select the best proposals from those selected during the previous steps.

An assistant-secretary, present from the beginning of the process, used these results to write and submit a draft text to an editorial committee composed of delegates chosen by the panel members. Once reformulated, the text was sent to all the panel members for amendment. 22 articles were amended and examined before the final text was approved.

The definitive text containing the opinion of the panel was sent to the two Ministries, which undertook to take into account the comments and observations while reserving the right to make the choices they judged necessary, with the responsibility they incur.

Failure by the participants to reach consensus during the process was rare and when it did occur, principles were adopted by majority voting.

The advantage of this type of project is above all the possibility of giving the ordinary citizen his or her role, place and right – by definition - to participate in the decision-making process. Experiences of this type carried out up to now show that participants are proud to have been consulted, given their opinion and participated in decision-making. Also involved is the task of educating these non-specialized adults participating in the panel. This entails initiation in learning about the concepts and data related to the issue in question and dealing with complex subjects where the stakes involve the interaction of economic, environmental and socio-political factors. Thus, the members of this Belgian panel expressed their awareness of the limits of the opinion they gave, in particular because they saw that the time devoted to consultation was inadequate to deal in-depth with the complex issues of territorial development. However, this initiation made them want to learn more. In addition, the educational role of this experiment also highlighted an attitude of increased responsibility with respect to the management of public issues and leads to hope that the participants will continue to feel as responsible in their daily lives. This experience also raises the question of the specific and vital role that lifelong education organizations can play in the public consultation process.

The panel members expressed great satisfaction with the experience:

“We would like to express our satisfaction at the end of this first citizens' panel. Despite certain constraints inherent to its newness, we were happy to have been considered as actors in and not of life in the city. The panel made us want to know more, to feel more a part of a region that should have been ours a long time ago. It proves the advantage of an approach based on building knowledge to make responsible decisions and it should go further than simply choosing representatives at elections.

At the beginning we were either motivated or curious but we came so hungry for information that our coordinators sometimes found it difficult to cope with all this energy and desire for responsible participation. We thank them for giving us the opportunity to live this experience and we would also like to thank the politicians that supported these meetings and hope that they will repeat it.”

The panel members were remunerated with a small sum for their participation.

Note: This text was written by Yolanda Ziaka on the basis of documents provided by Mr. Hans Harms, sociologist and coordinator of the Citizens' Panel in Spain. He has also described the basic principles and operation of this method of popular consultation in his article entitled “Community participation: a tool for Environmental Education”, published in the book “Environmental Education for the 21st century (Polis-RIEE, 2000).

FOR PROPOSAL 2:

**Environmental Education in the Realm of Science-Technology-Society
The Harari Report**

**Abraham Blum
Israel**

In the beginning of the 1990's, the Israeli Ministry of Education set up a committee to suggest how science teaching could be made meaningful for the majority of high school students who do not major in a scientific subject and actually attend science courses only up to 9th grade (aged 15). The committee, headed by Prof. Harari, came up with some revolutionary recommendations, which were taken up by the Ministry of Education. Among other points, the "Harari Report" recommended that all "non-science" students in senior high school (10th to 12th school year) should study a new subject called "Science and Technology in Society" (STS) as compulsory subject.

The idea was to prepare science and technology literate citizens who could take part in the democratic decision making process about public issues, the understanding of which demands that kind of literacy. In Israel, 96 percent of youngsters at that age level (16-18) still attend school. They are in a developmental stage, in which they take a keen interest in public affairs, and are open to ideas how these could be handled in a better way.

The commission also made it clear that the STS approach means to choose a number of relevant topics and to prefer depth rather than "coverage". Therefore, no mandatory syllabus was devised. Curriculum development teams were invited to prepare modules (teaching-learning packages), from which teachers could choose. The modules should leave room for the teacher to add or delete learning activities. Thus, not all students would study the same topics, but all would be introduced into the integrated approach, which was described in the curriculum guidelines. As a consequence, no nationwide examinations were expected, and instead of a final "paper and pencil" examination, a "portfolio" of students achievements during the whole period of their studies would be compiled and serve as basis for the final evaluation.

Clearly, this new school subject opened a new and excellent opportunity to get EE elements into the senior high school curriculum, where only relatively few schools have opted for the elective subject Environmental Studies. At that level of formal education, schools tend to concentrate on subjects which are needed for matriculation. STS is a subject which is planned to become compulsory for the majority of students.

The Ministry of Education decided that the new subject "Science and Technology in Society" (STS) should become compulsory for all students in senior high schools who do not opt to major in one of the "classical" sciences (and these students are the majority). During the school years 10-12, students should study the subject for a period of about 240 hours. Schools can decide how to divide these hours over the three years. Since the modules, from which teachers can choose, are planned to supply educational materials for about 30-45 hours, students will be exposed to 6-8 modules. Three of the modules, which were so far developed, deal with environmental issues. Teachers do not have to choose an environmental module, but all modules deal with scientific, technological and socio-cultural aspects.

However, the implementation of the decision to declare STS compulsory is being postponed year by year, due to the high costs of the teacher in service training in new contents (subject matter) and methods. In the meantime, teacher training continues on a slower scale. Only teachers who underwent that training are certified to teach the new subject.

So far a few thousand students have studied STS and have been examined at the matriculation (secondary school leaving) level. The grades are determined by the schools, based on the "portfolio evaluation system". In this system, all pieces of work the student has handed in (projects, reports on investigations, written exams, etc.) are considered. In future, the results of a national exam paper might become part of the grade, but will not replace it. This is done to insure that schools will be able to focus on local issues or problems areas they are specially interested in. In this context, it is interesting to note that the most popular modules chosen by teachers are those on environmental problems (e.g. air pollution) and health (e.g. drug abuse).

The Yahas curriculum project in Environmental Education

**Abraham Blum
Israel**

Yahas (the Hebrew acronym for "Objective: Environmental Education") is an educational development project at the Hebrew University of Jerusalem. Its latest products are two curriculum modules – "As Air to Breathing" and "Technological Advances and Environmental Quality". Study materials for students and teachers, role play cards, a video film and computer exercises were developed, tested and published for use in schools, mainly in the frame of the new "Science and Technology in Society" (STS) subject, but also in other subjects. STS as a subject was introduced into Senior High Schools (grades 10-12), according to the recommendations of the Harari report (for details on STS modules and their use, see the experience file "Environmental Education in the Realm of Science-Technology-Society Education", A. Blum).

The Yahas curriculum modules specialize in sustainable development issues and environmental problems which concern society. The Yahas modules were accepted by the curriculum board of the Ministry of Education, which is responsible for the new STS subject. The subject itself is planned to become compulsory for all students who do not opt in Senior High Schools (when they are 16-18 years old) for one of the "classical" science subjects. Thus, in the meantime, teachers will have to choose among the modules "on the shelf" those which they think to be best suited to their own situation. According to the school inspectorate, "As air to Breathing" is among the most popular modules chosen by teachers.

The Yahas approach

The Yahas approach is based on three questions, which relate to any environmental / development problem:

1. What factors created or aggravated the problem? (To answer the question, scientific knowledge has to be applied)
2. What technological solutions exist that can help to solve the problem?
3. What are the optimal solutions from the point of view of society (whose members have often different value systems and contradictory interests)?

"As air to breathing"

This module treats air pollution. It starts with the dramatic case of the "pea soup ", the dark and poisonous London smog of 1952, which ended with thousands of victims, but also triggered a major move towards the use of more environmentally friendly sources of fossil energy. This story brings up the inversion phenomenon, which can be easily demonstrated experimentally. The study of inversion leads to the movement of gases and the role of chimneys in catching and redirecting smoke particles. Students use mini-Ringelman charts to estimate the seriousness of the smoke emitted from factory chimneys in their town. Students also set up "traps" to collect air-borne particles around their houses for inspection under the microscope or binocular. Usually, they are surprised to detect that not only smoke particles landed on their trap device, but also pollen and dirt. So far the emphasis in the module was on the scientific and technological aspects of air pollution. In the next chapter case studies are used to study questions under debate, e.g. the case of a power plant which was planned close to the highest population concentration in the country. The different interests of central and local government, industry and city dwellers ended (typical for real life environmental situations) in a compromise. Students study the follow-up: What were the clashing interests? In hindsight, how far were the decisions taken positive? Where and how would you build a new power station - if at all?

Another chapter is devoted to acid rain. Students collect and test rain samples. Experiments with different concentrations of acid, which are applied to chalk and steel wool, simulate the effect of acid rain on buildings and sculptures, respectively. From the societal point of view, the main problem is that the acid rain comes from Europe and cannot be controlled locally. Students realize that international cooperation in the fight for a healthy environment is necessary. This leads to a discussion of other global problems like the greenhouse effect and the hole in the ozone layer. Students learn about different types of radiation, the electromagnetic spectrum and the special problem of UV radiation. They are confronted with clashing views on how serious the warming up effect might become, and learn how to accept uncertainty as a factor in decision making. Scientific information on the effect of CFCs leads to the search for alternative materials which are less damaging to the environment. Students study the qualities of these materials and check in supermarkets what sprays are being sold. They devise a local campaign to make the public more aware of the underlying environmental problem.

The package for teachers contains task cards for two simulation games, which give students a chance for role playing. In one simulation, "representatives" from developing and industrialized nations, multinationals and Greenpeace association, each of which promotes a different interest, discuss how to plan energy consumption in a sustainable development approach. The classroom turns into an international forum, which decides what proposal to accept. This role play is available also over the website of the National Science Teaching Center, and is used by science educators who teach different subjects.

In a second simulation game, advocates for different approaches to the improvement of city traffic and the reduction of air pollution, ask the class (acting as regional parliament) to vote which of the suggested solutions should be adopted.

Many environmental problems, which we face in our modern world, were created by the use of technologies, which destroy the natural and social environment. To understand their mode of action, we must be "science literate" and be able to use popular scientific sources which can explain why a certain technology is unsafe or leads to unsustainable developments. Based on this literacy, we can then discuss alternative planning approaches, which (hopefully) are more sustainable. Two of such issues are treated in another Yahas module:

"Technological advances and environmental quality". Here is a short description:

Deafening noise

In this unit, much emphasis is placed on the subjectivity of our perceptions, conceptualizations, values and opinions. The central question is, if the present central airport should be enlarged - in spite of the noise pollution which affects the biggest population concentration in the country - or if rather an alternative airport should be planned and, if yes, where. This topic is since a few years at the heart of a heated discussion, which will continue for quite some time.

Students learn to differentiate between sound and voice. They rate if different sounds (including various types of music) are rather thrilling or a nuisance. Then, they ask their parents to do the same. The two ratings are not the same! In the next activity, students measure the decibel level at different places and again get different ratings. They learn that we often interpret subjectively what we hear, see and feel. A similar subjectivity is encountered when students are presented with expert statements, which are in the interest of one of the parties, while the others bring opposing statements, also from experts. The issue becomes even more problematic, when for instance the Airport Authority publishes a plan of the airport without showing the neighboring towns, while the opponents emphasize how close the airport is to these towns and what decibel level was measured there.

The subjectivity of "noise" makes it difficult to devise laws to prevent it (or other nuisances that are below the real danger level, but are still diminishing the quality of life for the population in a given area). To enable citizens in a democracy to use their legal rights, e.g. to prevent changes in their environment which would create a serious nuisance, they have to know how to read by-laws. This demands another kind of literacy, which is seldom taught in schools. Students also learn how to rank the issues involved in making decisions according to their value system (which they have to clarify), thus finding which of several alternative has relatively more advantages over disadvantages.

Chemical or biological pest control?

In this unit, students learn about the relative advantages and disadvantages of chemical and biological pest control. DDT is introduced as a classical case for the shortsightedness in the use of synthetic chemicals. The developer of DDT, Muller, received the Nobel price mainly due to the two qualities of DDT, which made it necessary to ban it all over the world. These qualities were: the wide range of harmful insects it could kill, and its longevity, which meant that it had a long lasting effect. Today we know that both qualities are very bad. DDT kills also the beneficial insects, and its long lasting action before disintegration has brought about very serious unbalances in nature.

Students study biological control in the classroom by growing fungi, which can cause plant diseases, and opposite them fungicidal bacteria. The results are dramatic. Then integrated pest control is introduced. This is done mainly through a video film, which shows the action of the revolutionary "solarisation" method developed at our university. In this methodology, which is suitable for regions with hot and dry months, solar heat is caught under plastic, which covers the soil. The heat kills many disease-causing microorganisms without harming the useful ones. The video was based on an instructional film produced by the extension department of the Ministry of Agriculture. We cut out technical details, which are not important for high school students, and divided the film into five sections, each of which ends with a question for students to answer. Teachers are advised to show the film section by section, and then again as a whole, to create closure.

The solarisation method uses safe solar heating instead of the ozone destroying methyl bromide, which was used so far for soil sterilization. Is this the happy end of the story? What about the polyethylene sheets which remain in the field without decomposing? Sure enough, plastic sheets,

which discompose after being exposed to a certain amount of sunshine, were developed, but so far their price is too high for farmers. Again, the economic problem prevents (so far) a clever invention from being used to protect the environment.

Lessons learned

During the two year trial period and the following three years, feed back was collected from teachers, mainly during in-service training sessions. The teachers came from different subject areas (all science disciplines, geography, school hobby clubs). Their students were 14-18 year old. It was amazing to learn from these teachers, how flexible they were in adapting the learning materials to their specific situation, deleting chapters and adding others of their own. One case is specially interesting, because it shows what a good teacher can do in school classes in which students opted to join either the art or the social studies “stream”, but not the alternative science stream. The topic was Radon, a radioactive earth gas that was found in some regions to enter houses at a dangerous level. The social study students made a survey on what people in the neighborhood knew about Radon and the measures preventing it. Analyzing the answers, students detected what information citizens did not have and some of their misconceptions. In the next step they prepared informative flyers for distribution to the public. In the meantime, the arts students wrote and staged a play, in which all the relevant factors were included.

While these points are encouraging, one has to remember that these were teachers looking for new challenges and educational units which treat real life problems. Due to severe budget cuts, in-service training could not progress at the planned scale. On the other side it became clear that most teachers who were trained in a specific science discipline could not teach the new approaches and contents (which included technological and social science elements) without that training. That is also the reason why the new subject is now taught only by teachers who underwent in-service training.

<p style="text-align: center;">A Plea for the Promotion of Environmental Education in an Education System</p>
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<p style="text-align: center;">Christian Souchon France</p>

The text below was presented to the French Ministry of Education, with the purpose to improve the development of Environmental Education - EE - in the French system of Education. It was then very slightly modified to give a more general approach. For the moment, this process ended to the promise of a working group meeting!

Background

We can consider Stockholm Conference (1972) as the formal date of birth of EE, since on that occasion was decided the creation of the UNEP (United Nations Environmental Program).

Several UNESCO conferences followed: Belgrade (1975) - with the production of a charter and a list of objectives -, Tbilissi (1977), Moscow (1987), then Thessalonica (1997) - that tried to bring out an education to sustainable development, following Rio 1992.

But many debates came out in the educational community in EE, notably with the Canadians and the Belgians, who wished to keep the EE spirit that already included, since Stockholm, the questions of sustainable development - before the expression appeared - and of eco-strategies (for

more details, see the historical background, in *La educación ambiental: bases éticas, conceptuales y metodológicas*, María NOVO, UNESCO, Paris and Ed. Universitas, Madrid, 1998).

Various conceptions

With regards to the methodology, there are a number of very interesting approaches (see Lucie Sauvé illustration file, "*Education and Environment: building hope without naivety*" Canada). Very schematically, there are three schools of thought:

A "pedagogical" school, that insists on the interest of EE for the use of active methods (in concrete domains of Society in the sphere of environment and the quality of life) and for the development of the individual.

A "sensitive" school, which preaches sensorial-affective and emotional approaches; it is today quite challenged, especially when its proposals are exclusive vis-à-vis the other schools of thought. In addition, the "sensitive" vision generally gives priority to activities carried out in the nature - therefore according importance to a "naturalist" trend, quite developed by the associations that organize outdoors activities of leisure out of the school schedule.

An "environmentalist" school that, without neglecting the educational aspects and the need to rethink the Mankind-Nature relationships in a modern context, circumscribes the EE approach according to its study issues: environmental and resource management problems (including the resources issued from Nature!), as well as life-quality problems linked to the above (therefore closely linked with other "appointed" educational domains: Health Education, Education to Consumption, Development Education., and even Peace Education). Incidentally, in pedagogical terms, this school of thoughts takes into account methodological questions that have led to researches allowing a didactic adaptation to the EE specificity (systemic approach, information management, conceptual analysis, etc.).

Possibilities and obstacles

EE was not absent from the concerns of the different ministries in the last thirty years (protocols of the Ministry of Education, of the Environment and of Agriculture ; balance sheets...). The foreign experiences are known ; in 1991, a European "outlook" was already made...

Within the EE community, there is virtually consensus on the idea that EE should not become a discipline, since this would denature it completely. In effect, the complexity of environmental situations remits to inter-disciplinarity and to a connection with knowledge (including scientific knowledge) that cannot be fixed beforehand; moreover, the immediateness of facts and contexts prevents from any preliminary discourse.

They finally decided to **introduce it in the disciplines** (in the case of high school education): it was not a great success, probably because most of the teachers have not received any specific training in EE.

Another difficulty lies in the fact that the exercise of the interdisciplinary approach was not prepared. In effect, for EE activities, it is necessary:

- 1) To have specific spaces and **exclusive slots in the timetable** (with the possibility of traveling out of the school premises, for inquiries, visits, etc.).
- 2) To have a **team-based pedagogical support**, and to accept the requirements linked to this practice.
- 3) To enable a non-classical pedagogical practice that could even lie on a tutorship model, but that involves at least a **project pedagogy** aimed at concluding with an "action", for example a action of communication (preparation of an exhibition, publication of a magazine for the parents, etc.), or even more definite actions (proposals for solving an environmental problem, field actions, etc.).

We can then conceive "workshops" enabling to carry out assignments of personal interest along with a tutor, and in which individual reports (short memories) would provide the elements of evaluation (providing a qualitative assessment, which remains indispensable in a "selective" perspective and the current classification school system). Such activities should ideally take place during the whole high school education, and would enable the young students mobilizing their more formal knowledge, being considered as adults and citizens, and valorizing their knowledge (know-how and know-to-be). We can also imagine the introduction of an "accounting memory" that would be taken into account during the exams.

The major obstacle for implementing such "Utopian" proposals (see René Dumont, *Utopia or Else...*, Universe Books, NY, 1974) is certainly the reticence of a teaching staff by and large based on a disciplinary corporatism which is not absolute but based on the confidence they have on their specific capabilities. Beyond it, the teachers feel uncomfortable, and the need for an **appropriate training** is obvious. The EE community can respond to that question in terms of design and pedagogical assets, including by accounting for the deontological problems that unavoidably emerge when concrete problems are examined.

A last remark: if a **formulation in terms of a curriculum** was needed, the accompanying **directions** would certainly be very important, because it is essential in EE to have the objectives in mind, the reference to some values, etc., rather than the contents themselves. Likewise, in terms of pedagogical documents, the assistance to authors and editors must be quite careful, in order to avoid some media-like drifting leading to superficiality. Let us remind that the pedagogical material should be located in the current scene (for instance the use of the press and the media in general).

At primary school level, the presence of a single teacher simplifies a great deal the approaches. Insofar, as higher and technical education is concerned, several cases can be envisaged:

- general training at the University;
- subsequent professional concerns: engineers, farmers, journalists, etc.

In any case, it is essential to set up specific training courses for teachers.

The Project of a Movement of Schools for and in a Sustainable Development

**Jean-Michel Lex
Belgium**

The text below is a short description of Brundtland green schools in Quebec, Canada. Another document presents the project with more details. It will be summarized and published in the coming issues of Polis network bulletin " Dialogues for EE ".

1) A double statement

1. The education system is very ill and, if there is no deeper transformation, the Environmental Education (EE), along with its close "partners" (development, citizenship and health), will remain occasional, partial and discreet.

When experiences are lead, using educational methods for environmental projects - even modest - the positive effects on the public clearly shows out (children, young and educators).

Could the duplication of educational actions and the use of active educational methods help the schools follow the path? That is the first bet of a movement of teachers and educators whose project is to help the school change progressively.

2. The second bet is to help our schools adhere to sustainable development, that is to say to transform them progressively in eco-structures, in tools where children and young people can daily experiment and feel directly the eco-consumption, a rational use of water, energy and resources, the respect of environment, of the life surroundings and a sustainable mobility.

2) The movement of Brundtland green schools in Quebec, Canada.

This movement was born at the initiative of the CEQ (Confederation of the Quebecois Teachers) in 1994. The movement wishes to spread out (and is based on) the principles of Sustainable Development (DD), notably the principle of intra- and inter-generational solidarity. "A green Brundtland school is a school that acts in favor of the" 6R" for SD, for a viable future and for a different society: to Reduce the resources consumption, to Reuse the goods, to Recycle the products, to Revalue our systems of values, to Restructure our economic systems and to Redistribute the resources ".

The participating schools enter a program that makes them act within an ecological, pacific and united spirit (three dimensions, three projects).

Some activities are compulsory, others are optional. It represents a real emulation tool for the school and those supported by a small team, with educational tools and, of course, it is piloted by the teachers union, which is a real luck.

**A Brazilian National Environmental Program for Teachers and Community Leaders: The
Muda o Mundo, Raimundo! Project**

**Vera Rodrigues
Brazil**

Brazil is now well known for its strong environmental movement, which has led to several improvements and changes, including the ones in the legal environmental framework. In 1988, changes were made in the Brazilian Constitution, which guarantee the inclusion of Environmental Education (EE) at all levels of schooling. This was great progress; however, a nation-wide project has actually not been implemented yet and, if good practices do exist, they still remain isolated.

In 1995, an Environmental Education program entitled Environmental Education at the Basic Level of Teaching in Brazil - *Educação Ambiental no Ensino Básico do Brasil* - was put into practice and applied throughout the country. This program received funds from WWF (World Wildlife Fund) and the British Department of International Development; it was also sponsored by the Ministry for the Environment and coordinated by WWF in partnership with UNESCO, IBAMA (Brazil's environmental-protection agency), MEC (Ministry of Education) and Fundação Roberto Marinho.

Some of the most prominent Brazilian professionals were invited to participate in the process of creating an EE program that would be relevant to the cultural, educational, social and environmental diversity of the country. The process resulted in the publication of a book - *Muda O Mundo, Raimundo!*. The book was written for educators, in order to situate the theme with an interdisciplinary approach. It retells passages of the Brazilian history, as well as the world history, from an environmental perspective. *Muda O Mundo, Raimundo!* is a showcase for everything that is developing in terms of EE in public schools throughout the country, it helps deepen fundamental concepts (moral values, education, citizenship, sustainable society). The last chapter - Utility Chest - *Baú de Utilidades* - consists of several texts, which reinforce the importance of the concepts mentioned before. The main goal is to offer educators conceptual and methodological basis so they can develop their experiences in EE according to the reality of each school.

The first 5.000 copies were quickly sold-out. Only four months after its debut, the Fundação Roberto Marinho and the Community Solidarity Program - Programa Comunidade Solidária - sponsored the second edition (3.500 copies) of *Muda O Mundo, Raimundo!*. These were also sold out by mid 1999.

In 1997, based on the contents of the book and the principles of the Environmental Education project, training was given to over 1.000 educators from the public school systems in Brasília, Paraná, Pernambuco, Maranhão, Rio de Janeiro, Rondônia and São Paulo.

The Project, which includes both the book and a support for teachers during 2 years so they can develop experiences in Environmental Education, was highly acknowledged in academic and scientific circles, domestically and internationally. Social movements and the media recognized its importance and, after media exposure, demand increased tremendously.

In order to continue the work and activities and guarantee the development of EE in Brazil, the institutions and people involved in the project suggested to create an NGO. This is how the ***Instituto Brasil*** was created, in December 1997, with the support of WWF, MMA, IBAMA, MEC, UNESCO and the Fundação Roberto Marinho.

The *Instituto Brasil de Educação Ambiental* strives to develop, promote and support EE. Its action is based on solid educational fundamentals and experience of daily practices for the natural resources protection, the improvement of quality of life and citizenship, aiming at a sustainable society. Its work consists of training, encouraging research in EE and the production of didactic material and newsletters.

Development Context

>From 1997 to 2001, 1.675 people (including those teachers who took part in the initial training/testing process) have been trained on 36 courses using *Muda o Mundo, Raimundo!* in nine districts. Trainees involve not only teachers and university students, but also municipal, extension and NGO staff and local communities, including poor formerly landless people that were recently given land. Two editions of the book (8.500 samples) were printed and nationally disseminated.

A communication network *Rede Rodamundo* was set up by the Project to enable the exchange of information and experiences among the Regions involved. This network involves 60 different institutions, among City Councils, local NGOs, universities and Unions. Five numbers of the national newsletter were printed and distributed to all partner institutions and to all course participants, documenting and disseminating good practice in the training courses and implementation of *Raimundo* among the project partners at the national and regional levels in Brazil.

Besides the training courses and their monitoring process, the Instituto Brasil is currently expanding its national and international partnerships, addressing the huge demand for good Environmental Education practice in Brazil. As a result of its work, for example, the Instituto Brasil has been invited by UNESCO to develop a national evaluation project, to identify the degree of integration of EE into the primary school curriculum in the whole country.

Evaluation

A **WWF International Evaluation** on the Contribution of Educational Programs to Conservation was made in May 1999 among WWF network. After an external and independent evaluation held in 100 countries by the Universities of Bath (England) and Griffith (Australia), Instituto Brasil was considered **one of the eight references of good Environmental Education practice** identified by the team of evaluators. The main criteria were that it develops Education for Sustainability, its programs are designed to be relevant with the Government Legislation (in reference to the 1998 new legislation on education that gives more autonomy to the schools systems), and it includes opportunities for training and strengthening capacity. Moreover, very good opinions of experts and beneficiaries were recorded.

Note : The name "Muda O Mundo Raimundo" was inspired on a passage of a poem written by Carlos Drummond de Andrade. The author plays with the verb "mudar", conjugated "muda", which in Portuguese means "change" and is, phonetically, found in the word "Mundo" (world) and "Raimundo" (a male name). The translation, literally, is "Change the world Raimundo". Instituto Brasil found that it conveys the message.

Source : Extract from the paper: "The Muda o Mundo, Raimundo! Project. A Brazilian National Environmental Program for teachers and community leaders", Vera Rodrigues, July, 2001.

FOR PROPOSAL 4

<p style="text-align: center;">Development of a Leisure Center in France Jean-Paul Braux France</p>
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The action takes place in the Puy de Dôme, a French department located in the region of Auvergne.

The Federation of the Laic Associations of the Puy of Dome (FAL63), constantly concerned by an education to citizenship, wishes, among other objectives, to enable different publics to develop a global and critical approach, in particular on environment. This organism federates more than 500 associations whose activities are very diverse (culture and/or sports, professional insertion...). It offers its members (more than 30.000 persons in this department) various resources: projects follow-up, logistics (demonstrations organization, disposal of material, of animators...), insurance service...

The Federation is not only at the service of its members, it also organizes actions in direction of the general public. In this case, it rather plays the role of a local agency representing the national organization (the League of Education and of Professional Education) and implementing its main values: citizenship, solidarity and secularism.

In fact, the Education League program of Environmental Education (EE) and Education to Sustainable Development aims at developing educational projects that integrate a global action for a "world citizens' training". In this context, FAL63 launches a project of diversification in its leisure and holiday Centers. Its objective, among others, is to transform the Chadieu center (in Authezat, Puy de Dôme) into an attractive pole in terms of EE.

The Center of Chadieu and its intervening parties

The Leisure Center of Chadieu is located in a park of 32 ha next to the Allier River. This site belongs to an inter-cities union (4 townships). The forest and arboretum parts are managed by the Spaces and Landscapes Conservatory of Auvergne. FAL63 supports the planning and follow-up of the buildings and organizes activities in the Center. The maintenance of the surroundings, hedges and walls are supported by the union. The prairies are reaped by a farmer from one of the townships. Let us also mention the existence of a private enclave with a castle from the 18th Century. The difficulties generated by this plurality of intervening parties will be evoked below.

Activities and publics

Objectives:

- to present ecosystems integrated in their economic context,
- to develop a citizen behavior,
- to sensitize and incite to a multidisciplinary, systemic and complex approach,
- to improve and constitute educational tools.

Activities:

1. Schools (pupils welcomed for a day, without accommodation)

Scientific activities

The pupils, from kindergarten to University, can discover the different ecosystems of the site (alluvial forest, pools, hedges...), directed by their teacher. This discovery can be completed by the intervention of specific animation elaborated in collaboration with the teacher and using educational documentation (and notably cards that help sensitizing to the systemic and complex approach).

Sporty activities

The sporty activities (during or out of the school schedule) can be practiced in a classic way. But they also organize discoveries of the landscape with mountain bikes, meso-environment explorations via climbing, thematic orientation courses (pools, hedges...). During these activities, the youth are informed on notions of ecology, geography and history, and they are confronted to assess the impact of their activity on environment.

Leisure center

The children from 7 to 16 are welcomed during holiday and some Wednesdays (day off for the primary schools). The youth leaders propose various leisure activities: different games, constructions (huts, micro-rockets...), free relaxation.

In coordination with the animation team, the site and premises are provided with displays and signals aimed at provoking a citizen behavior on the use of water, of electricity, of the trees (construction of huts)... This process is also reinforced by specific animation activities and prepared or spontaneous debates.

2. Trainers, animators

The FAL63 provides the site, the classrooms, scientific material and documentation for the organization of training to teachers, youth leaders and engineers in agriculture. It also proposes to students in teaching and to animators of EE organizations additional training on the specific methods for a complex approach.

3. The large public

The park of Chadieu is free of access for the large public (walkers, cyclists, horse riders). The different parties responsible of the site are about to install descriptive panels and beacons, which will be both informative (playing, ecological and historic aspects) and interactive. Questions, enigmas, propositions of track games consist as many means to challenge and to sensitize to the specific environmental problems in this site and to its use. These methods incite the visitors to adopt a complex approach of the place and also invite them to have a citizen behavior while practicing the activity chosen by the person or the group.

Assessment, obstacles

In the school context

Among various dysfunctions, we could observe recurrent incoherence and contradictions from some teachers and youth leaders. Two examples:

- Leisure center: in spite of the information and recommendations of the Conservatory representatives on the use of the trees for the huts construction, the children did not respect the orders (trees species and localization). Is it because of a maladjusted sensitization method (speech, necessary knowledge to recognize the trees...), and/or an absence of relay from the animation team

to look after the good execution of this activity (lack of scientific knowledge of the team, management of the group)?

- Classes: several times different teachers brought a class to study the "pool" ecosystem of the site which contains newts (protected species). They can reach the place following a path that crosses a prairie ready to be cut. How can we understand the behavior of a group (teacher and pupils) that is aware of the recommendations (protected newts, prairie to be cut...) when:

- on both ways the group scatters in the prairie and lets various packing (sweet and snack papers, bottle of water...),
- the pupils appropriate the newts, observe them out of the water and then let them on the side.

Given these contradictions and incoherence, we can wonder about the citizenship exercise, the respect not only of the concerned living beings but also of the human activities in relation to this environment (cutting, maintenance). What can we do on the spot to bring a teacher have a responsible behavior and incite his pupils to the same (Environmental Education must not be reduced to a pseudo-naturalistic outing for the year end!) ? This is an important educational stake for the "school tourism", a newborn sector in France. Obviously, we can and must act at the level of the initial and full training for teachers and group leaders. But it is urgent to find sensitization tools adapted to this kind of public.

The intervening planners

What to do with this site? The former inter-cities union was not clear on its intentions and carried internal divergence (big arboretum, leisure park, fishing base..?). The new union, since April 2001, seems more interested by a park that would offer "discoveries circuits" and spaces for rest and relaxation. The Spaces and Landscapes Conservatory, acting both as a technical council for the union and as the alluvial forest administrator, wanted to isolate part of the site from the public for an experimental reserve zone. Finally the FAL63 wanted its Environmental Education project to be taken into account, which obliged the two previous partners to review their action orientations, especially because the activities planned by the Federation intervened in a larger territory. Given these complex aspects (unclearness, divergence, contradictions, interactions of the system constituted by the intervening parties), a process of mediation-training was set up aiming at informing on the environmental stakes (impacts of the project development and of the leisure and education activities). Meetings between the various intervening parties were organized in order to provoke exchanges and debates, which are indispensable for a better mutual knowledge. Little by little, the progressive emergence of conceptions and discussion on each others projects brings an internal consistency, pledge for a potential success of the common project: to transform this site in a place for education and pleasure in the respect of each. The "mediation-training" can become more elaborate with a specific training and methods for mediators / group leaders.

Perspectives

Among others:

- follow-up of the mediation-training process by enlarging it to the many institutional partners involved (Local Authorities, representatives of the Ministry of Environment...),
- creation of tools for school groups initiation training,
- development action involving young people in the setting of an international workshop that would be planned within a multi-year EE project ("Youth and Reconstruction"),
- connection between the Auvergne Regional Network for Environmental Education (a regional resource system gathering public departments, educational organizations, territorial communities, nature reserves) and POLIS network (an international network for exchange and non formal education pole).

Learning while Teaching: Environmental Education Through Action

Kuntala Lahiri-Dutt
India

Being able to teach puts us on a higher ground and practically stops all conversation between the educators and the taught. This used to be the case in classical pedagogical situations. However, Environmental Education (EE) is a two-way process that changes continually. In EE, the concept is to build an interactive and dynamic knowledge-base that complements the scientific/expert ideas with diverse local or traditional wisdom which is often not contained with the generalism of science. Here is an example of EE through action – education, not only for the taught but also the educators learning from the traditional wisdom of local communities, making it a two-way process.

Rajendra Singh started his career as a government educator in one of the desert districts in the arid state of Rajasthan in the western part of India. In 1984 he resigned his job and, along with four other friends, set out for one of the poorest and dry regions of Rajasthan to live a ‘socially useful’ life teaching the villagers how to know about their environment. The hope of the young group was to put into practice many of the lessons written in books about how to provide EE to illiterate villagers. But defining a role for themselves in the village was not easy; it took them over three years before they came to be trusted by the people in the villages they chose to make their own. Rajendra's objective was to reach the *antim jan*, the last person in the economic and social hierarchy, and help provide him build means of livelihood that is adapted to the environment and is sustainable. He found that agriculture in these arid villages was in complete disarray. Even a ‘big landlord’ family owning about 250 hectares of land could not rely on agricultural income alone and was dependent on the cash earnings of three of his grandsons who plied cycle rickshaws in far away big cities. This was not an isolated case; able bodied, working age-group males of most families had emigrated too in search of jobs and cash income, leaving behind the women, children and older people at home.

Due to repeated droughts, the farmers in this part of Rajasthan had all but given up agriculture, even as a means of subsistence. Those who were left in the villages depended on animal husbandry, but even milk yields were shrinking, as the pastures also became drought affected. Communities that were once proud farmers producing an abundance of crops and milk were not being adequately rewarded for either their hard work or their insights which had developed a rich legacy of biodiversity with an incredible array of seed varieties.

Rajendra's plans of teaching environmental protection to poor villagers received a jolt when Mangu, an old man from one of the villages, confronted him angrily about propagating ideas that are culturally alien. He said “You educated young men – you talk a lot but do no work and have no idea how to look after the nature that once gave us prosperity”. Though taken aback, Rajendra replied with humility “I don't know what work I should do. Why don't you tell me?” “Will you do what I tell you to?” asked Mangu. “If so, bring a *phavda* and *gaiti* (two digging implements) and I will tell you how to start”.

Rajendra admits this conversation shook him up, but he decided he would ‘give it a go’. But there was heated discussion amongst the group of him and his friends that night. Two were convinced this particular village society was sick, irrational and need help from outsiders like them, but the other two and Rajendra decided to follow whatever this *samaj* (community) directs them to do. This led to a split and the first two left the group. The remaining three presented themselves next

morning for Mangu's directions. He told them to desilt the dried-up village pond. The three worked on it for seven months. When they began, no-one from the village would help, but slowly, seeing their commitment, people began to lend a hand. The result was when the monsoon rains did manage to reach the area, the pond not only filled up but led to a recharge of a neighboring pond. After then the trio were trusted and taken seriously. Their labor acted as a catalyst for galvanizing the village society to take charge of their own well-being and perform greater 'miracles' in the years to come. From long years of disempowerment, marginalization and impoverishment villagers had become demoralized, but now they see how they had become dependent on the government to show them the way.

Mangu said: "Now you don't need to do any more manual work to prove yourself. From now on we will do our own work. You simply help us in figuring out ways to bring the young men who have left back to their homes and join together into making a better environment here".

Mangu then showed the way to bring back the dying rivers and raise the lowered groundwater table. Under his guidance the village community along with Rajendra and his two friends undertook the building of a series of check dams, ponds and other small-scale water harvesting structures in the area. It took a couple of years and a several successful such works before the villagers had full trust and confidence in what they were doing. Throughout, the planning, decision-making and monitoring of all the earthworks were carried out by the local people themselves. They not only voluntarily contributed their labor but also bore the cost of the materials required for the repair of the ponds and the building of the sluice systems. Gradually the young people began to return from the cities and to give greater momentum to the work. Moreover the fame of these ponds spread to nearby villages and people came to witness this transformation in their environment and began to build similar water harvesting systems in their own villages.

Today, the villages in this part of Rajasthan have turned green with vegetation cover as the groundwater was recharged, the rejuvenated rivers and *nullahs* (creeks) remain full of water throughout the year, and soil erosion has been checked. The quality of life of the villagers has improved immensely. These were the reasons why the pastures had dried up and the agricultural land was degraded. About 35,000 check dams have been built in the region and about 500 sq. km of land has been completely re-greened. Villages like Nimbi that used to get lashed by violent sand storms and had turned into a dead desert have now begun to market crops grown locally. The now revived village community sat together and resolved to afforest the area; codes of moral restrictions and regulations were collectively evolved to prevent lopping or pruning of green branches and leaves or causing any other damage to the trees. It also decided not to grow water-guzzling crops like sugarcane and rice, and the total available water resources in the area rather than on individual whims would determine the crop choice.

Today, Rajendra has received the top award personally from the President of India as an exemplary environmental educator, and the example he set is being emulated in other parts of the country.

The story of Rajendra Singh and how he learnt from the indigenous wisdom of water conservation in the desert state of Rajasthan are known all over India. His experiences stand for a revolution he initiated – the revolution of putting people and local knowledge first and learning from them instead of just teaching. However, the example is also relevant to us as one because Rajendra, the urban educator, learned from Mangu, the illiterate villager some essential lessons about the environment. Scientific knowledge, as propounded in formal institutions of education, was enriched by indigenous knowledge, as evident from this case.

In this experience, we find several lessons. The first is the obvious one of Environmental Education helping to develop human competencies and communicating the message from one group to another. The second, more subtle, lesson is how an environmental educator can enrich his own experience through learning from local communities.

Legal action for the environment and Environmental Education: the case of the Fly river

Kuntala Lahiri-Dutt

India

David J. Williams

Australia

While dealing with EE, we shall also have to consider the laws related to the environment. In most countries, a set of legal net or legal framework already exists to protect the ordinary citizen and provide her/him with a cleaner environment. These laws range from ordinary health and safety laws to elaborate laws preventing the individual person's or factory/business' economic activity from having a disruptive/degrading effect on other people's well-being. In some countries, the 'right to breathe' clean air is accepted constitutionally as one of the fundamental rights. In the United Nations Charter of Human Rights, the rights of an individual for food and shelter indirectly accepts the provision of a clean and healthy environment as a human right for citizens.

However, in some countries, such environmental laws do not exist yet. In other cases, environmental laws do exist in name, but in reality they are hardly ever put into practice.

Laws with regard to the environment have a two-way relevance to Environmental Education.

First, is the enforcement of these laws where present, and enactment where such laws are not in existence. The environmental educators have the responsibility of handling the issues arising out of the need for economic development and environmental protection. In many democratic countries, the implementation or enforcement of such laws has been initiated with varying degrees of success by the environmental educators and NGOs. Educators can act through the media, and the media itself can be a major actor in such cases.

Finally, environmental educators, while building an aware and responsible citizenry, must look for loop-holes and gaps in the existing legal framework and try to create popular opinion for review of such laws from time to time to make them more suitable to current situations.

Second, use of these laws by an aware citizenry to achieve democratically the environmental objectives. Public Interest Litigation is one such instrument for legal action for the environment. It is the task of an aware citizen group to build up strong lobbies and pressure groups to influence public opinion, and eventually bring about political actions.

The case of the Fly river in Papua New Guinea (PNG) provides an example of legal action on environment and how it can educate in citizenry as well as how aware citizens can take recourse to law for protecting their interest.

Major ore deposits were discovered in the 1970's in Papua New Guinea (PNG). This country, barely out of the stone-age in many of its regions, wished to 'develop' through exploitation of its resources. In 1980, the PNG government allowed a consortium led by an Australian mining company, BHP, to exploit a major copper/gold deposit in difficult terrain at Ok Tedi. The project

was described by the then PNG Prime Minister as ‘a pot of gold at the end of the rainbow’. Gold production began in 1984 and copper in 1987. The copper concentrate was conveyed in slurry form via a 180 km pipeline for further processing on the banks of the Fly River before being carried by barge 850 km to the coast.

The difficulty in mining in remote, seismically active mountainous terrain in one of the wettest places on earth was seriously underestimated with major cost blow-outs. Plans for a tailings (waste left behind after concentrating the ore) dam, stipulated under the agreement, were abandoned after a major landslide wiped out the initial construction site. Some political wheeling and dealing allowed the dumping of large quantities of tailings into the Ok Tedi river and then the Fly. It is thought that over 50,000 tones per day were disposed of in this way for several years. The tailings contained copper (highly poisonous) and, spasmodically, high levels of cyanide (used to treat the ore), one being a disastrous loss of a container of pure cyanide.

The Fly River rose 5 – 10 m due to the tailings causing the river to flood over productive land covering it with gray ooze.

The mining company denied any major damage and said that cyanide levels were within agreed limits – true but these had been set at 10 times the normally acceptable environmental levels and the monitoring site was 100 km downstream of the discharge point!

In 1992 the affected villagers laid their complaints at the Rio summit and also approached an Australian law firm, Slater and Gordon, to initiate a ‘class action’ on their behalf. BHP denied any wrong-doing and emphasized the economic benefits to those involved. In 1994, the case, asking for \$2 billion damages and \$2 billion in compensation, was heard before the Supreme Court in the state of Victoria, Australia. It caused great embarrassment to BHP who eventually settled out of court for \$150 million compensation, an undertaking to rehabilitate affected land and pay the law firm’s costs (~\$8 million). Also the PNG government, who was 10% of the consortium, handed over its share to a trust.

This is a prominent example of how access to legal redress (through, if necessary, reform of the legal process to allow poor people a chance of having their voice heard in court), can bring gross breaches of environmental behavior to book. In this case a large mining company, who operates under tough environmental legislation in its home country, and a complicit government were forced by an aware citizenry to compensate for environmental damages. Such examples show that legal action can indeed be a major instrument of environmental action in a democratic framework.

An Example of Community Management of Natural Resources by Women (Popenguine, Senegal)

**Urbain Njatang
Cameroon**

The natural reserve of Popenguine, 1009 hectares large, is also known under the name of Cupaa keur, from the name of the tutelary genius from Coumba Cupaam zone. It is surrounded by a ‘rosary’ of 8 villages regrouping almost 40,000 people, who exploit intensively the resources. With the decree dated from the 21st May 1986, the classified forest of Popenguine is erected as a natural reserve. In 1987, the women living in the territory - which is managed by the reserve guardian and

some people from the Peace Corps, decide to participate in the community management of the reserve.

December 25th, 1988, was born the RFPPN (Regrouping of Popenguine Women for the Nature Conservation) under the instigation of Woulimata Thiaw, whose objective was the restoration of the natural reserve, in order to avoid the programmed disappearance of this biodiversity site due to an intensification of the anthropic action. A collective group called COPRONAT (Collective Group of Women for the Nature conservation), regrouping 1555 women, was created in 1995 for the management of the communal natural reserve. The leader's personality - who did the right things to impulse the handling of the restoration activities without waiting for any support - facilitated the women's appropriation of the process.

There are many types of management activities: reforestation, enclosure of the reserve with barbed wire to avoid the cattle scattering, rehabilitation of the mangrove, construction of stony walls, improvement and exploitation of tourist potentialities, training to the management techniques of the natural reserve, purification, soils amendment, program of gas sales for domestic use to avoid the exploitation of the firewood in the reserve, plantation of village woods, opening of a 6m large fire door around the 12 km long hedge, construction of a restraint lake for the migratory birds, paths in the reserve, struggle against erosion with stony walls, garbage and compost treatment.

The RNP (Popenguine National Reserve) acted as a conceptual modeling, illustrating how to put into practice a participating approach in the parks and reserves management in Senegal. An agreement protocol on Popenguine reserve management was signed the 3d June, 1996 between the RFPPN, the COPRONAT and the national parks board of the Ministry of Environment of Senegal, offering a political support for an initiative taken "from the basis". The RFPPN chairwoman is one of the two chairwomen of the Farming Council in Senegal. Her election at the head of the Farming Council is partly related to the role she played in the conservation of the natural reserve. Thanks to her influence, the Farming Council dedicates an active part to the environmental questions. The access for women and girls to property ownership is one of their action, to face the traditional inheritance proceedings that exclude women to this right.

Let us mention that, in Popenguine reserve, women and girls, once they are trained by the NGOs group leaders, take directly part to their own training by teaching one to each other what they learned, that is sustainable management of the reserve, environment conservation in general and the processes used in the forest maintenance and development, such as the pruning and cutting techniques. It allows them to work according to environmental and economic viewpoints. For that purpose, the women organized in groups and following community books, such as the participating cartography, follow up the evolution of the reserve. This activity justifies a horizontal educational action of women in environment. This shows how giving responsibilities to the populations in the setting of natural resources management participates to a good appropriation of the policies for environmental protection.

Source : Report of the workshop on the reinforcement of the capacities for analyzing and influencing the policies of Decentralization and of natural resource management in Southern Africa.

**How can Environmental Education be dispensed to small farmers?
The APEC project in Cameroon**

**Urbain Njatang
Cameroon**

The APEC project main objective is to reinforce the capacities of the Cameroonian Non Governmental Organizations, and to help them become, through a policy for sustainable development, the essential actors in EE and in the dialogue for an implication of the populations in the implementation of the recent forest policy in Cameroon.

It is financed by the Canadian Agency for International Development (ACDI) in the setting of the cooperation between Cameroon and Canada.

This project is lead by the Union for Sustainable Development (UDD), a Canadian NGO that essentially regroups environmentalists and scientists, and which is famous for its capacity to encourage the dialogue in the field of sustainable management of resources. The UDD works in Cameroon, in the setting of this project, in partnership with seven local NGOs¹. These organizations are for most active in the South of the country.

In the framework of this project, a specific methodology was developed, aiming at sensitizing the adult rural public on the natural resources management. This methodology proved to be perfectly adequate and judicious for mobilizing the public and help them appropriate environmental issues.

The APEC project conceived a set of didactic material aiming at facilitating an educational action on the ground. The most widespread material is a set of illustrated posters, format 81cm x 60cm, including specific categories: debate – exchanges, data sheets.

To implement its activities, APEC trained group leaders who act as an interface with the populations. It conceived a practical guide for popularization and animation in peasant environment, which addresses the local educators and all people wishing to use the APEC data sheets. It relies on a technique based on interactive exchange and consists of three main phases: the first is a preparatory phase. It allows the group leader to know the target public and his knowledge. The second is focused on the methods to moderate a session with farmers. And the third phase dedicates to animation and assessment.

The group leaders inform and exchange with the rural populations on diverse topics: water, forest, biodiversity, agriculture, fishing, breeding, hunting, green areas, etc.

The exchanges on these topics aim at transmitting and developing to the populations elements allowing them to better understand their surroundings, to participate to the governmental efforts for the environment conservation and its sustainable management, to understand the meaning of the new laws and contribute to their respect. For that purpose the animators take into consideration the local knowledge of the population, especially when they must make a definitive classification of the forests. In this case, a consultation is organized by a commission regrouping representatives

¹ The SAILD (Service of Support to the Local Initiatives for Development), the CED (Center for Environment and Development), the CAIPE (Center of Support to the Farmers Initiatives of Ebolowa), the PFERVDJAL (Federation of the Unions and Peasant Groupings of Ambam, Ma'an and Olamze) and the APE (Auto-Promotion of the Pygmies in their Environment).

of the local administration, elected people, traditional authorities and the populations living along the forest to be classified. These populations intervene in the specific classification of their forest using their local knowledge. For that purpose a set of didactic material is designed, according to the topic in debate.

This technique implementation was a success with the farmers organizations and the actors in environment. APEC currently supports several farmers organizations which solicited its help in the setting of the communal forests and the working accounts realization. APEC, to popularize this technique, allowed the people and independent organizations to use its material.

In summary, this project uses the interactive exchange technique which relies on the circular communication method. The teacher learns from the learner and vice-versa, avoiding thus any conflict and complex between the small farmers social category and the "intellectuals", which often occurs. Another interest of this approach is that it allows the group leaders, after assessment, to reorient the content of the training. The main role of this methodology was to help the population appropriate the forest issues and to incite more and more groups to manage themselves the community forests.

**Training Journalists in Environment
and their role in Environmental and Community Education**

**Polyxeni Ragou
Greece**

The medias are increasingly present in the environmental issues. For instance, the written press can play a major role for a stronger awareness of the environmental problems. It can prove to be a powerful educational instrument in the field of environment. Yet, the presentation of environmental issues causes specific journalistic problems. In fact, these issues are still not emphasized nor they are clearly presented, mainly because of a lack of scientific knowledge and the competition of the newspapers. This is especially true with the local written press of a middle size city.

We, as citizens, regularly read the local written press of our city, Lamia, in Greece. Papers on environmental issues are often published. In most cases, they deal with neighboring environmental problems.

To understand the meaning of the journalists papers on environmental issues, we made a qualitative analysis of the contents of the articles from five daily Lamia newspapers treating about environment, during a period of two years, with the help of the tools proposed by Yolanda ZIACA (1995).

We have noticed that a certain number of questions were slightly or not treated at all, such as the responsibility of the actors involved and their role in the problem put forward, the causes and the origin of the problem, the impact on human health and on the ecosystems, or the presentation of potential alternative solutions.

We therefore decided to organize, in the setting of professional training, working days to discuss with the journalists involved in the local written press, to exchange our points of view on environment and environmental problems and to propose training elements on community education.

We invited the journalists to participate to information days and to discussion workshops with the following arguments:

- The media have an important responsibility in the public awareness of the environmental problems.
- The journalists are in charge of the urgent necessity to sensitize the public with whom they have a daily relationship to environment, and they can bring an important contribution to Environmental Education to the general public. We therefore have common interests.
- The adult public inquires and educates himself on the environmental issues mainly through the media. As a consequence, the role of the written press in the public perception on the environment is important. The journalists have an essential responsibility in what is information and education of the general public on the environmental questions.
- The written press must provide the general public with the basic knowledge that would help him make choices, contribute to the awareness of the individual and collective responsibility on the environmental management, and incite him to involve in daily actions in this sense.

The days we have organized had the following objectives:

1. To introduce the journalists to an environmental issue.
2. To train the journalists on the complex approach.
3. To train on environmental knowledge.
4. To try to reinforce the critical attitude of the journalists by developing a global approach on environment.

To reach these objectives, we implemented the following methods:

- analysis of the content,
- a systemic approach as a tool for analyzing complex situations.

The journalists accepted to participate to the working days. To start the discussion we proceeded as such: we selected some articles among those analyzed as described previously, that were written by journalists participating in the experience. For each article we erased the name of the author and of the newspaper. We gave the texts to the journalists and asked them to identify :

- the nature of the treated problem,
- the causes of the problem,
- the actors involved, being responsible or not,
- the impact of the problem on human beings and on the ecosystems,
- the possible solutions.

Most of the readers-journalists could not identify the elements we asked for. They admitted that the articles were deficient. Their answers allowed us to note that they needed an additional information on the points we asked for.

This experience brings us to the fifth proposal of this proposal booklet:

Get organizations and socio-professional associations to act as a relay and driving forces for the development of Environmental Education and Community Education for the general public.

Which brings to the essential role of the media on environment and to the necessity of a solid training for the journalists on the environmental issues.

Bibliography : Yolanda ZIACA, 1995, *The Environmental Education for adults through the media : didactic aspects in the case of the written press (in French)*, *Doctorate in Didactics in Biology and Environmental Education, University of Paris 7, Department of Education in the Disciplines Didactics, Paris, France.*

The Action of a Large Organization to Save ancient Forests

**Carmen Ramos
France**

Greenpeace association - which is independent because its funds only come from the contributions of its members - is known for its spectacular and very mediatised actions. Does this kind of actions have an educational role toward the general public? It is an interesting question: we - as members of the educational community in Environmental Education, whose main strategy, among others, is "to understand for acting" - will answer to that question with a clear Yes. Indeed, Greenpeace works through an exemplary process in depth on the pragmatic level, as we can see it from the case exposed below.

To fight against the destruction of ancient forests, especially in Amazonia and Canada (British Columbia), Greenpeace directly questions the stores of a company (LAPEYRE), which is "the most important dealer of industrial joineries in the European market, and by there of Amazonian wood". The company "owns 114 public sales outlets in France, in Belgium, in Spain, in Switzerland and in the French Antilles."

LAPEYRE sells a large range of products made of wood that comes from the ancient forests of Amazonia, Canada, Central Africa and Southeast Asia. Among them, let us mention the curupixa and the tauari from Amazonia, the hemlock from the British Colombia pluvial forests (Canada), the moabi and the sapelli from the basin of Congo, as well as the ramin and the merbau from Southeast Asia. Many of these forest species from which come these woods are listed by the International Union for the Conservation of Nature (IUCN) as being species either vulnerable, in danger, or threatened of extinction. That means that these species may disappear in a short or a medium term.

The implication of LAPEYRE in the destruction of the ancient forests is not limited to buying wood coming from suppliers who are not concerned at all about the forest management, or from suppliers who operate illegally; no, LAPEYRE owns directly Eldorado company, one of the biggest exporters of sawed wood in Para, a Brazilian State. LAPEYRE is currently the biggest retailer in France and in Europe of woody products coming from Amazonia and it buys most of its wood to Eldorado.

Following its investigation work, Greenpeace proved that between 1998 and 1999, almost half of the provider companies that sold wood to Eldorado were practicing illegal development, transportation and storage of the material. At least 14 of these companies were not even registered at the IBAMA, the governmental environmental agency, which normally constitutes a legal basic condition.

Following several useless meetings with LAPEYRE head office, Greenpeace opted for changing its strategy and alerting the public and the purchasers:

"April 28, 2000. Greenpeace activists intervene simultaneously at the entrance of the stores" of LAPEYRE company in several countries of Europe. On that occasion, "Greenpeace shows that between 1998 and 1999, over 50% of LAPEYRE suppliers in Amazonia were convinced by the Brazilian authorities to act illegally". Greenpeace also notes that this enterprise "had committed itself, in April 1999, to notify the name and the source of the raw woods to the consumers. At this date (April 28, 2000), a part from one product, no information is mentioned in their catalog".

Greenpeace strategy is obviously to oblige the enterprise to really involve itself, by affecting its brand image at several levels. For instance in May 17, 2000, "the Director of Greenpeace- France intervenes during the yearly General assembly of LAPEYRE shareholders to denounce the practices of the group in Amazonia".

The task of Greenpeace is definitely not easy – let us remind that militants were jailed in Canada for occupying peacefully forest yards – but they are expecting results from their action. In June 2000, Greenpeace organizes a Tour of France for the protection of Amazonia. In the main French cities, actions are organized at the entrance of LAPEYRE stores but also in public squares, where a great number of people express their indignation vis-à-vis this company practices by signing massively Greenpeace petition. In July, Greenpeace prevents a cargo to unload illegal wood that was intended to LAPEYRE. Finally, "in September 12, 2000, after months of pressure, LAPEYRE group commits to stock up only with products coming from forests certified by an independent organism recognized by Greenpeace, from 2005.

This commitment not only concerns the supplies coming from Amazonia, but also those from Africa, Asia and Canada. By this action, LAPEYRE – a European leader in the sector of industrial joinery – and IKEA – leader in the furnishings sector -, both show all their competitors the way for a sustainable management of the forests".

The action of Greenpeace includes many aspects that perfectly fit in the setting of an Education to citizenship. By aiming the large public in general and acting as a consumer, this organization does try to help the citizens become conscious and active. Besides, its pragmatic process is very close to the one of the educators in Environmental Education: analysis of the situation, identification of the actors and of their role in order to set up precise and efficient actions.

The media aspects, known in particular thanks to the "punch" operations led by courageous militant activists, probably constitute one of the rare means to be heard, considering the current general attitude from the media on the environmental problems.

Note: the quotations in inverted commas are extracted from various documents written by Greenpeace and distributed during the forests operation.

How an Exemplary Farming Method Becomes Pedagogy through Action

Philippe Robichon
France

André Pochon, a farmer of good sense, dedicated his life in a struggle to prove that agriculture could be totally ecological, performing in terms of outputs and benefits, and at the same time weaken the persons responsible for the agriculture policy and remain completely opposite to the "losing control" agribusiness. He relied his action on his experience of farmer respectful to environment.

1. The experience

In the 60's, in the French region of Brittany, André Pochon, farmer and unionist, decides to produce on 9 hectares as much as his neighbors do on 25 hectares, adopting a non polluting agriculture, without damaging soils and respecting the natural balances.

He converts $\frac{3}{4}$ of his concern in a **prairie** sowed with white clover.

The result was clear: with the prairies, he feeds three cows per hectare instead of one before; each produces 4.000 liters of milk a year instead of 1.500. Its soil remains rich and easy to work.

2. A report of the waste

In the 70's, a productivist agriculture progressively conquers Brittany and the rest of France: the agribusiness transforms the methods of production to the profit of the most powerful agribusiness groups.

As a consequence, an ecological disaster happens. Water pollution by the nitrates and pesticides, pollution of the soil by the surplus of zinc, copper and phosphate. Green algae invading the beaches. Triumph of the corn. Expensive import of soy coming from the US.

André Pochon, basing his statements on his experience, succeeds in convincing other farmers who had adopted these methods to work for a sustainable agriculture.

Later, he takes the lead of a struggle to demonstrate that the mad cow crisis, for example, is only the outcome of a long "**productivist drift**" whose objective is to produce always more, whatever the means, without worrying about the risks for the consumers health nor about the devastation on environment, and he gives the proof that this agriculture is, in addition, an economic bankruptcy.

He writes, in *Les sillons de la colère* (meaning "The furrows of anger"): "The so-said performing agriculture only survives thanks to public funds – the money of the taxpayer/citizen/consumer – while sustainable agriculture proves to be competitive in terms of business (for the farmer), of quality (for the environment and the food products) and it does not imply an overcost to the State. This clearly announces the bankrupt of the productivist agriculture and shows how ridiculous those who remain obstinate in this direction are, a direction that has been taught and popularized for 30 years now. They used to say to the cattle breeders: "To be efficient, you must produce 8.000 liters of milk per cow and feed at least two cows per hectare!". But our farmers following a sustainable agriculture did exactly the contrary (less than 6.000 liters per cow, less than 1,4 cow per ha) and their income is one third higher than those who implemented a so-called efficient method!

It is now time to understand that technical efficiency is not a synonym of economic efficiency!".

3. The action

André Pochon, when he is more or less officially at odds with his initial union, founds the Sustainable Agriculture network. He creates the CEDAPA (Center of Studies for the Development of a More Autonomous Agriculture) and works during 30 years aiming at three publics :

- a) The farmers themselves to modify the productivist system, with:
 - visits of his farm (by bus (!), exhibitions on the spot),
 - intervention at the chambers of agriculture,
 - interventions with the teachers in the agriculture schools.

- b) The political actors by:
 - denouncing the waste through evidence: producing a liter of milk with cows filled up with soy requires three times more energy than with cows fed in prairies;
 - showing clearly the costs to the community whenever an epidemics comes out (1998: 12 millions of pigs to quarter; 5 millions of bovines to incinerate).

- c) The consumers
The consumers must become the objective allies of the farmers-producers. They must demand that the product they buy does correspond to what was produced by the producer-seller.
 - Where does the product come from (guarantees on the origin, "traceability" of the products all along their course) ?

- How was the product elaborated: cultural practices, mode of breeding, transformation, confection: all must be consigned in a schedule of conditions by independent organisms.

4. An exemplary method

The strength of this report, which presents an "active" pedagogy, remains in the capacity to produce efficient action strategies, by modeling actors belonging to different universes.

It is the synergy FARMERS / DECISION-MAKERS / CONSUMERS that can help the things change. And obviously, we can see through this example of activist involvement that a testimony of this kind is contagious and ends becoming a model. In this case, communication has played a pedagogical role: two books, many conferences, meetings with political actors, with students in schools of agronomy, allowed a successful diffusion of a decisive message. The following extract of A. Pochon conclusion of his book *Les sillons de la colère* reinforces the above statements: "we cannot accept anymore such a waste. We cannot accept anymore that our money, our taxes serve to reinforce the productivist model at a moment when it is at the edge of society. We finally open our eyes after the drama of the mad cow and other dioxin chickens. NO to these billions spent to support the big cereal growers, the industrial breeding, the corn forage and irrigation! NO to a totally incoherent policy which, in the end, ate the farmers, destroyed the landscapes, polluted water, the air, our sea bays and our plates, for the mere profit of the multinational companies and agribusiness!"

Bibliography - books written by André Pochon:

Les sillons de la colère, Ed. La Découverte et Syros, Paris, 2001

Les champs du possible. Plaidoyer pour une agriculture durable, Ed. La Découverte et Syros, 2^d Ed., Paris, 1999

La prairie temporaire à base de trèfle blanc, Ed. CEDAPA-ITEB, 1996

Du champ à la source : retrouver l'eau pure, Ed. Coop-Breizh, Spezet, 1988.

LIST OF ADDITIONAL ILLUSTRATIVE EXPERIENCE FILES

Our reflection on the subject of this booklet has been enhanced by additional files and articles written by the participants of the discussion forum and the Syros meeting. Since these files (and those that will be written on the basis of the articles proposed) cannot be published in this edition – due to the volume of this booklet – they will be published in forthcoming issues of our newsletter “Dialogues for Environmental Education” and be available on the web site of the Alliance's Environmental Education workshop.

The files/articles concerned are as follows:

- ❖ "Systemic approach as a method to integrate sanitation, health and hydric resources in Environmental Education and Management", Debora Cynamon, Kligerman, Szachna Eliaz Cynamon and Emilio Lebre La Rovere (Brazil)
- ❖ "Une association locale préfère l'action juridique", Yannick Geffray (France)
- ❖ "Constitutional Principles and Ideals for Environmental Education in Europe", Professor John N. Hatzopoulos (Greece)
- ❖ "Education non formelle à l'environnement : quels publics, quelles stratégies de communication dans les pays en voie de développement ?", Mathieu Houinato (Benin)
- ❖ "Women and Environmental Education. A preliminary proposal", Kuntala Lahiri-Dutt (India)
- ❖ "Methodology for subjective assessment of Environmental Attributes", Kuntala Lahiri-Dutt (India)
- ❖ "Dossier de Candidature : Le projet EDAMAZ, Éducation Relative à l'Environnement en Amazonie", Université du Québec à Montréal, Prix d'excellence de la Banque Scotia et de l'AUCC pour l'internationalisation, Avril 2000, Lucie Sauvé (Canada)
- ❖ "Esquisse d'une formation à la lecture des événements environnementaux complexes pour les jeunes journalistes", Philippe Robichon (France)
- ❖ In Sato, Michèle et José Eduardo dos Santos, Sao Paolo "Educação ambiental" Universidad Federal de São Carlos (ouvrage en préparation), Lucie Sauvé et Isabel Orellana, *La formation continue des enseignants en Education Relative à l'Environnement : la proposition d'EDAMAZ* (Brazil-Canada)
- ❖ "International Proposals for Environmental Education: Analysing a Ruling Discourse", Lucie Sauvé, Tom Berryman et Renée Brunelle, 2000 (Canada)
- ❖ Actes de la conférence internationale sur l'Education Relative à l'Environnement : *Environmental Education in the Context of Education for the 21st Century: Prospects and Possibilities*, Larisa, Grèce, 6-8 octobre 2000, p. 42-63. (Greece)
- ❖ "L'Education Relative à l'Environnement : une dimension essentielle de l'éducation fondamentale", Lucie Sauvé, Ph.D., Département des sciences de l'éducation Université du Québec à Montréal - Texte publié dans Gohier, Christiane et Laurin,

Suzanne (2001). *La formation fondamentale – Un espace à redéfinir*. Montréal : Les Éditions Logiques, p. 293-318 (Canada)

- ❖ "Éducation et Environnement à l'école secondaire. Un répertoire de modèles d'intervention en Education Relative à l'Environnement", Une recherche collaborative sous la direction de Lucie Sauvé, Université du Québec à Montréal, Les Éditions LOGIQUES (Canada)
- ❖ "Le Développement Durable : idée généreuse ou miroir aux alouettes ?" Christian Souchon (France)
- ❖ "Le rôle de l'architecte pour la sensibilisation du grand public sur l'architecture bioclimatique", Francesco Tabacco (Italie)
- ❖ "Ecological footprints: a tool for evaluating the impact on the Earth of an individual, group or nation in terms of the land required to maintain a way or standard of living", David J. Williams (Australia)
- ❖ "From Conservation Education, via Environmental Education, to Sustainable Development Education, Abraham Blum (Israel)
- ❖ "The interaction between a strong environmental NGO and governmental agencies", Abraham Blum (Israel)
- ❖ "Education à l'Environnement et formation à une pensée complexe", Jean-Paul Braux (France)

Note: These files exist either in English or French, depending on the language of their author's mother tongue. However, they will be translated into both languages when they appear in the newsletter "Dialogues for Environmental Education" and on the Polis and Alliance web sites.

APPENDICES

APPENDICES 1

Addresses of the authors of the experience files presented in this booklet and of the members of the coordination team

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APPENDIX 2

And afterwards? Where to start

FORM TO BE FILLED IN BY THOSE WHO WOULD LIKE TO WORK ON THE SEQUELS OF THIS BOOKLET

To be sent to the co-ordination team:
Polis – RIEE, B.P. 4, 84100 Ermoupolis, Greece
Fax: 30-2810-87840 – email: polis@otenet.gr

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First name:

Address:

Phone:

Fax:

Email:

Profession:

Member of (organization, network, administration, etc.)

The projects in which I would like to be involved (among those proposed in this booklet or others – please specify):

What I could contribute (in terms of individual or collective competencies, tools, partners, etc.):