

ENVIRONMENTAL AWARENESS MODULE

Network of Environmental Authorities
Ministry for the Environment
Spain

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1. TEACHERS' GUIDE

1.1. BACKGROUND

In line with the mandate given in the Treaty of Amsterdam that environmental protection requirements must be integrated into Community policies, the network of environmental authorities, whose principal objective is to ensure that the environment is taken into account in the measures financed by the Structural Funds, proposes to make the environment an integral part of the schemes co-funded by the European Social Fund over the next programming period (2000-2006).

This environmental awareness module, which will be included in all the training programmes co-funded by the European Social Fund (except for those specifically on the environment), marks the first step in this strategy.

We often think that global environmental problems are beyond our control. We feel powerless and are overcome by apathy; we give up and feel that all we can do is to leave it to politicians and technology to find solutions.

However, a large proportion of these problems stem from our consumption and production patterns, where we play the leading role and, therefore, bear prime responsibility. We must accept this responsibility and become involved in seeking solutions in our walks and ways of life. But before we can change things we have to know them and before we can know them we have to understand them.

For this reason, there is a need for a teaching method dealing with real environmental problems and developing in students an ability to make things better and contribute to saving the planet.

In this context, trainers play the key role of fostering the learning process and steering it in a direction enabling the students themselves to develop the attitudes and acquire the knowledge needed to attain this end.

We urge trainers to join in attaining the objective set, for the good of mankind, our countryside and our environment. All of us will gain in terms of quality of life.

1.2. OBJECTIVES

1.2.1. GENERAL OBJECTIVE

To develop an environmental awareness in individuals by motivating and involving each and every citizen with a view to changing behaviour and consumption patterns and thereby promoting sustainable development.

1.2.2. SPECIFIC OBJECTIVES

- (1) Objective 0 "To know the environmental impact of the profession covered by this course".

This objective is considered fundamental in order to implement and integrate all the general objectives of this module in the profession covered by the course so that they, in turn, pervade the entire process and profession.

Irrespective of the timing and duration of the module, two phases are needed in order to achieve this objective:

- Phase 1: Trainer's thoughts, with the aid of the checklist set out below, on the environmental impact of this profession.
- Phase 2: The result of these ideas must serve as a basis for the trainer to make good environmental practices in this field an integral part of the entire course.

**CHECKLIST: ANALYSIS OF THE ENVIRONMENTAL IMPACT OF THE
ACTIVITY**

A. THE ENVIRONMENT AS A SOURCE OF RESOURCES

- Material resources used in your profession (tools, raw materials, installations, etc.).
- Adverse impact of use of the abovementioned resources on the environment and quality of life (mis-use, waste, appropriateness of the resources used).
- Alternatives which could:

prevent:

correct:

avoid:

damage to the environment.

B. THE ENVIRONMENT AS THE REPOSITORY FOR WASTE (solid, liquid and gaseous) generated by the profession:

- Wastes generated by your profession:

solid:

liquid:

gaseous:

others (noise, odours, nuisances, etc.).

- Adverse impact of these wastes on the environment:

Wastes and impact

- Alternatives which could:

prevent:

correct:

avoid:

damage to the environment.

- (2) Objective 1: "To introduce students to basic environmental concepts and terminology".
- (3) Objective 2: "To introduce students to a knowledge and understanding of the causes of the principal environmental problems and threats to the planet".
- (4) Objective 3: "To introduce students to a knowledge of the institutional and social responses to the environmental crisis".
- (5) Objective 4: "To introduce students to a general knowledge of the environment in their region, province and town".

1.3. PATHWAYS

The form and duration of this module will be flexible, depending on the total duration of the course of which it is to form part. Four pathways are proposed:

Pathway 1: For courses lasting less than 50 hours

Number of hours: 3

Number of sessions: 2 (each lasting 1 hour 30 minutes)

Pathway 2: For courses lasting between 50 and 100 hours

Number of hours: 6

Number of sessions: 3 (each lasting 2 hours)

Pathway 3: For courses lasting between 100 and 150 hours

Number of hours: 9

Number of sessions: 5 (four 2-hour sessions and one 1-hour session)

Pathway 4: For courses lasting over 150 hours

Number of hours: 13

Number of sessions: 7 (six lasting 2 hours and one lasting 1 hour)

Pathway	Total duration of course	Duration of awareness module	Number of sessions
No 1	50	3	2
No 2	100	6	3
No 3	100-150	9	5
No 4	>150	13	7

1.4. GUIDELINES FOR TEACHERS

The following recommendations are made:

- This module should be given at the start of the course.
- It should be transversal, i.e. the environmental awareness criteria must be present throughout the course, pervading the entire educational process.
- It is recommendable to start with the students' own previous experience, knowledge and everyday life.
- To attain the objective of environmental awareness, question-and-answer methods and active participation should be used wherever possible.

Alongside this, the following methodological structure is proposed:

- Activities on:

PREVIOUS IDEAS (brainstorming, working party, opinions on issues, solutions, etc.);

APPLICATION AND COMPREHENSION (video, questionnaire, debates, visits, etc.);

SUMMING-UP (closing exhibitions, posters, etc.);

ACTION (awareness-raising campaign, simulations, etc.).

1.5. IMPLEMENTATION AND PROPOSALS FOR TEACHERS

1.5.1. GENERAL OBJECTIVE 1: To introduce students to basic environmental concepts and terminology

- (1) To draw a distinction between various concepts and terms commonly used in connection with the environment:
 - (a) clarification of concepts such as nature, ecology, environment, natural environment, flora, fauna, etc.
- (2) To understand the relationship between the environment and economic and social development:
 - (a) principal characteristics of the current development model: economic growth, international inequalities, unlimited consumption, population and resources;
 - (b) consequences of the current development model: degradation of living conditions and the environment;
 - (c) towards a sustainable development model;
 - (d) taking account of the environment in sectoral policies and everyday life.

APPROXIMATE DURATION: Between 20 minutes and 1 hour (see pathways).

1.5.2. GENERAL OBJECTIVE 2: To introduce students to a knowledge and understanding of the causes of the principal environmental problems and threats to the planet

- (1) Introduction to the causes of air pollution:
 - (a) the greenhouse effect;
 - (b) acid rain;
 - (c) the hole in the ozone layer;
 - (d) other forms of air pollution.

- (2) Idem for water pollution:
 - (a) urban discharges;
 - (b) industrial discharges;
 - (c) agricultural discharges.

- (3) Idem for soil pollution:
 - (a) urban waste;
 - (b) packaging;
 - (c) industrial waste (non-hazardous, hazardous, toxic and radioactive);
 - (d) agricultural wastes;
 - (e) medical wastes.

- (4) Idem for deterioration of the natural environment:
 - (a) global loss of biodiversity;
 - (b) depletion of natural resources;
 - (c) deforestation;
 - (d) desertification;
 - (e) natural disasters.

- (5) Idem for the urban environment:
 - (a) town and country planning;
 - (b) urban climate;
 - (c) urban demography and sociology;
 - (d) principal urban environmental problems: air pollution, noise, waste, transport and energy consumption.

APPROXIMATE DURATION: Between 1 and 5 hours (see pathways).

1.5.3. GENERAL OBJECTIVE 3: To introduce students to a knowledge of the institutional and social responses (international, European and national) to the environmental crisis

- (1) To know the main legal responses and the economic resources currently earmarked for environmental projects:

- (a) most significant European and national legislation. International agreements and treaties on the environment;
 - (b) Community and State budgets earmarked for the environment.
- (2) Idem for governmental and non-governmental organisations working most directly on environmental issues:
- (a) governmental organisations:
 - European: Directorate-General XI;
 - national: Ministry for the Environment and other environmental authorities;
 - consultative councils;
 - (b) non-governmental organisations:
 - international and European;
 - national.
- (3) Idem for the most important environmental policy programmes:
- (a) international and European: Rio Conference and fifth Community programme;
 - (b) national: water management plan, biodiversity strategy, etc.
- (4) Idem on social and public responses:
- (a) good industrial practice. Environmental quality certificates;
 - (b) idem for agriculture;
 - (c) idem for tourism and sport;
 - (d) idem for households.

MAXIMUM DURATION: Between 45 minutes and 3 hours (see pathways).

1.5.4. GENERAL OBJECTIVE 4: To introduce students to a general knowledge of the environment in their region, province and town

This section sums up the situation in Spain.

It would have to be adapted to the situation at national level.

APPROXIMATE DURATION: Between 55 minutes and 5 hours (see pathways).

1.6. EVALUATION PROPOSAL

The module will be evaluated on the basis of:

- knowledge acquired by the students;
- skills and abilities;
- change of attitudes during the course.

The methods which will be used include the questionnaire, tests, surveys and working parties, above all to evaluate the conceptual and procedural content. Direct observation of the individual

participants throughout the training process is recommended, based on the following criteria or codes (subject to prior agreement between the teacher and students):

- attitude to use of the resources for the course (taking care of material, installations, etc.);
- attitude to waste (volume and final destination);
- attitude to the group as a whole (respect, participation, solidarity, etc.).

1.6.1. Questionnaire for evaluation by the student

MARKS

1. Duration.....
2. Content and issues covered.....
3. Documentation supplied.....
4. Knowledge acquired.....
5. Expectations met.....
6. Assessment of trainer.....

General assessment of the course.....

Marks from 1 to 4 (1 = unsatisfactory; 2 = average; 3 = acceptable; 4 = fully satisfactory)

What did you find best in the module?

What would you improve?

What effect has this module had on you?

1.6.2. Questionnaire for evaluation by the teacher

MARKS

Duration.....

Content and issues covered.....

Documentation supplied.....
(dossier, teachers' guide, bibliography)

Resources provided.....

Interest of the module.....

Acceptance by the group.....

General assessment of the module.....

Marks from 1 to 4 (1 = unsatisfactory; 2 = average; 3 = acceptable; 4 = fully satisfactory)

What did you find best in the module?

What would you improve?

What effect has this module had on you?

1.7. RECOMMENDED BIBLIOGRAPHY AND RESOURCES

- Bibliography;
- Videos;
- Internet addresses.

1.8. DOSSIER

(Text book for the instructor/monitor. It must be expanded and put into more colloquial language.)

1.8.1. GENERAL OBJECTIVE: TO INTRODUCE STUDENTS TO BASIC ENVIRONMENTAL CONCEPTS AND TERMINOLOGY

1.8.1.1. TO DRAW A DISTINCTION BETWEEN VARIOUS CONCEPTS AND TERMS COMMONLY USED IN CONNECTION WITH THE ENVIRONMENT

To raise individuals' environmental awareness, they need to be taught a series of basic concepts so that they can gain their bearings in relation to the environment and to lend support to students from outside environmentalist circles.

ENVIRONMENT: Animate and inanimate surroundings in which beings live. It includes human beings, animals, plants, objects, water, soil, air and interrelations between them plus aesthetic, natural science and cultural history values.

ECOSYSTEM: Clearly distinguishable unit within the biosphere, for example a wood, pond or river together with the associated plants and animals (biotic community). Self-regulating system sustained by the interactions between the abiotic (non-living) and biotic (living) factors.

ECOLOGY: Study of the relationships between living organisms and their abiotic surroundings (environment).

FLORA: Community of plant species living at a particular site.

FAUNA: Community of animal species living at a particular site.

HABITAT: Dwelling place of a species of plant or animal.

BIODIVERSITY: Variety of life on earth. This can be described in terms of genes, species and ecosystems.

POLLUTION: Any type of impurity, material or physical influence (such as noise or radiation) in a specific environment above normal levels which could endanger or damage the ecosystem.

POLLUTANT: Undesired substance in any environment which prevents or disturbs organisms' life and has an adverse effect on materials and the environment itself.

EMISSION: Discharge of gases, liquids or particles into the water, soil or air.

IMPACT: Effect of a given act on the environment.

DISCHARGE: Flow of liquid, solid or gaseous wastes into the environment.

WASTE: Any substance or object which the owner disposes of or intends or is under an obligation to dispose of.

RECYCLING: Return of waste products or components thereof to industrial activity to save raw materials and energy.

RENEWABLE ENERGY: Energy obtained from inexhaustible or renewable sources. Renewable energy harnesses the wind (windpower), water (hydroelectricity), sun (solar energy), etc.

Apart from these basic terms, we must not forget principles such as:

SUSTAINABLE DEVELOPMENT: A term which first appeared in the Brundtland report entitled "Our common future" (United Nations World Commission on Environment and Development, 1987) which defined it as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

POLLUTER PAYS PRINCIPLE: The principle, enshrined in Article 130r of the Maastricht Treaty, that anyone causing pollution must pay for the resultant damage to the environment. In line with this principle, persons responsible for a pollution incident must pay the costs of all measures necessary to end it or reduce it to a legally admissible level.

1.8.1.2. TO UNDERSTAND THE RELATIONSHIP BETWEEN THE ENVIRONMENT AND ECONOMIC AND SOCIAL DEVELOPMENT

Awareness of environmental problems has changed enormously in recent years. From a minority concern for species and habitats in the middle of the 20th century, today it has turned into a central issue in a global debate on the future of mankind.

It is clear that environmental problems stem from the use made of natural resources by society and that pollution is the result of inefficient production methods and literally unsustainable lifestyles.

Over and above this reality, there is the social and environmental situation in other countries which still have great wealth in terms of biodiversity but whose citizens live in misery. This therefore takes us on to social issues: justice, efficiency and democracy.

Cooperation between states is therefore essential, first to end poverty as a *sine qua non* for sustainable development and, second, to avoid and repair environmental degradation on the planet by pooling know-how and technology.

At the same time, at national level states must shape efficient environmental policies setting out the environmental objectives and priorities. As clearly stated in Article 6 of the Amsterdam Treaty, these policies must be integrated in all other sectoral policies with the objective of reflecting environmental concerns in all areas of society.

1.8.2. GENERAL OBJECTIVE 2: TO INTRODUCE STUDENTS TO A KNOWLEDGE AND UNDERSTANDING OF THE CAUSES OF THE PRINCIPAL ENVIRONMENTAL PROBLEMS AND THREATS TO THE PLANET

It is essential to involve citizens in environmental issues. In order to achieve this, they need detailed, up-to-date information on the principal current issues and future threats (see Chapter 10 of the fifth programme of action in relation to the environment), seen first from a global point of view, then from a practical local view.

1.8.2.1. INTRODUCTION TO THE CAUSES OF AIR POLLUTION

The air is the natural resource on which environmental problems have the most tangible impact. Every day, enormous quantities of polluting gases are emitted into the air. The effects which they can have all over the world vary widely, both at local level (at the emission site) and on global scale. Some of the most representative and, at the same time, most damaging include:

GREENHOUSE EFFECT

The greenhouse effect is a natural phenomenon in the atmosphere, in which the earth's surface reflects only part of the solar energy coming into contact with it and absorbs the rest.

This absorption has a warming effect, in the form of irradiation of energy to the atmosphere. However, on its way through the atmosphere this radiation collides with other gases which slow it down and prevent the energy from escaping to the outside. Instead, it returns to earth, warming up the planet's surface even further.

This produces the "global warming" effect (approximately 4°C over the last 100 years). This results in thawing of the polar regions, thus raising the average sea and ocean levels which, in turn, is already beginning to have serious consequences in certain parts of the planet (floods, cyclones, coastal erosion, etc.).

The principal gases causing the greenhouse effect are:

- carbon dioxide (CO₂) from combustion of fossil fuels, emissions from motor vehicles and industry, etc.;
- CFCs and HFCs from aerosols, air conditioning systems, refrigerators, etc.;
- methane (CH₄) from agricultural waste.

Since the sources of these greenhouse gases are known, corrective action can be taken: reduction of emissions by means of filters, use of alternative transport, etc.

OZONE HOLE

The upper atmosphere contains abundant supplies of ozone (O₃), the gas protecting the earth against ultraviolet radiation. The introduction of new man-made compounds such as fertilisers is reducing the ozone concentration in the atmosphere, allowing more ultraviolet rays to penetrate, with grave consequences for plant and animal life and potentially causing skin cancers, genetic mutations, etc.

The principal causes of depletion of the ozone layer are:

- artificial sources of chlorine and bromine, which are present in industrial and household refrigerators, aerosols, etc.;
- oxides of nitrogen (NO_x), found principally in fertilisers.

ACIDIFICATION

Acids form in the atmosphere when water vapour is mixed with gases emitted by industry. They fall back to earth in the form of rain, leading to acidification of soil and water, loss of farmland, trees and woods, erosion, etc. This phenomenon can occur far from the emission source (the USA is suffering from pollution from Northern Europe). Consequently, the effects are felt over a very wide area.

The principal gases causing acidification are:

- sulphur compounds (SO₂);
- nitrogen compounds (NO).

1.8.2.2. WATER POLLUTION

Water is the most abundant naturally occurring chemical compound. Its properties make it a key component in sustaining life. Resources are limited and if they were to run dry the consequences would be drastic. Every year approximately 110 km³ of rain falls in Spain, of which only 35% is stored and the rest flows directly into the sea.

One of the major problems affecting these resources is pollution leaving the water unfit for the intended use. There are a wide variety of sources of pollution, but the most important are:

- **URBAN DISCHARGES:** sewage systems (cesspools, septic tanks, sewers), domestic activities, landfills for solid urban waste and spreading of effluent or sewage sludges on land.
- **INDUSTRIAL DISCHARGES:** pollution by wastewaters, effluent, discharges or storage of solid waste, smoke, raw materials storage and transport, accidents and leaks.
- **DISCHARGES FROM AGRICULTURE:** principally as a result of massive use of chemical fertilisers and pesticides in agriculture. This results in diffuse pollution, in contrast to urban pollution which can be considered point source pollution.

1.8.2.3. SOIL POLLUTION

This applies to the part of the soil where quality has deteriorated as a result of direct or indirect point source discharges of toxic and hazardous wastes or products. These discharges result in concentrations of certain substances which turn the soil toxic, insalubrious, dangerous or unfit for certain uses.

Today some contaminated sites have been abandoned, while others are still in use, the most important being uncontrolled landfills predating the legislation on toxic and hazardous wastes.

The problems which soil pollution can cause are as diverse as the substances in the landfills. Generally, they can give rise to the following damage and risks:

- gravely endanger performance of the basic functions of the soil;
- pollute groundwater, surface water and the air;
- cause poisoning due to direct contact or through the food chain;
- cause fires as a result of explosions, etc.

WASTE

Waste is one of the principal causes of soil pollution. Waste treatment is one of the key points in environmental legislation as the volume of waste generated has been increasing alarmingly over the last 20 years.

There are various types of waste:

- **URBAN WASTE**

This covers waste generated in urban areas in the course of the inhabitants' everyday activities (shops, offices, services, homes, etc.) This is commonly known as "refuse". Estimates suggest that 1 kilogram of waste is generated per inhabitant per day. Given the great quantity of waste generated every day, proper management, i.e. perfectly organised collection, transport and treatment with the support and collaboration of the public (selective collection) is indispensable. Glass, paper and organic matter (food leftovers) are each collected in separate circuits. That leaves the problem of collection of the different types of plastics and tetrapacks. Rules were recently adopted on these as well in the form of Law 11/1997 of 24 April 1997. This extremely important piece of legislation is the first to impose an obligation to find an outlet other than landfills for these materials.

- **INDUSTRIAL WASTE**

Industrial installations produce two types of waste:

- inert or semi-urban waste; and
- toxic and hazardous wastes with one or more of the following characteristics: inflammable, irritant, harmful, toxic, carcinogenic, corrosive, infectious, etc. Wastes of this type must be dealt with by an authorised manager who will dispose of them in secure landfills licensed for the purpose.

- **MEDICAL WASTES**

Hospitals generate large quantities of waste every day (3.5 kg per bed per day), posing the risks of infection (biological medical wastes) and pollution (chemical and radioactive wastes).

Given the variety and danger of medical wastes, every hospital must have an in-house waste management plan so that it can classify each type of waste generated and deal with it appropriately.

- **AGRICULTURAL WASTES**

Wastes generated by farming could potentially cause pollution since they contain products which could be dangerous or affect the environment in various ways.

Like urban waste, wastes of this type are not governed by any specific rules. In practice, however, they are treated differently from ordinary municipal waste, in that most of the waste can be re-used on the farms themselves.

1.8.2.4. DETERIORATION OF THE NATURAL ENVIRONMENT

GLOBAL LOSS OF BIODIVERSITY

Biodiversity is one of the basic principles of sustainable development. Biodiversity covers all species of plant, animal and micro-organism plus the genetic variability that they embody and the ecosystems of which they form part.

Today the threats to biodiversity are truly disheartening. The majority of the biodiversity on the planet is in tropical forests in developing countries, which are experiencing rapid population growth.

This population growth and the development necessary in order to sustain it threaten to wipe out 70% of all living species by the end of the century.

The importance of biodiversity lies in the large number of organisms on earth and the variability within the same species. All this information is a potentially valuable source for new pharmaceuticals, chemicals and materials.

The most immediate consequence of loss of these species would be to upset the balance of the ecosystems and of the planet. In the long term, however, the loss of potentially extremely valuable information would be more important.

For this reason, these problems are serious enough to demand a rapid response. Individual countries are taking measures, such as drafting legislation on conservation of their species, declaring sites with great biological riches as heavily protected areas of natural interest, etc.

At international level, the most outstanding achievement is the Convention on Biological Diversity ratified by Spain in 1993. The objective of this Convention is to ensure maximum conservation of biodiversity for the benefit of present and future generations and to ensure sustainable use of resources.

DEPLETION AND POLLUTION OF WATER RESOURCES

Marine pollution issues have remained virtually unchanged for the last decade. What has changed, however, is public perception of these problems.

Of the 20 000 million tonnes of dissolved salts and suspended matter washed into the sea by rivers, only 10% reach the deep sea. The rest builds up in the coastal waters which supply 90% of the world's fish, putting consumers' health at risk.

Another problem facing the marine environment stems from discharges of urban sewage. Bacteria use oxygen dissolved in the water to break down the organic matter in sewage. If the volume of sewage is very high there is sometimes not enough oxygen in the water to support

many fish and bacteria proliferate instead. In the Mediterranean region, for example, 90% of the sewage is discharged without treatment of any kind, causing public health problems (pollution of bathing water, pollution of fish and shellfish, illnesses such as typhus, cholera, etc.).

Good management on land can solve all these problems; the sea could be the resource offering us the greatest benefits in the future.

DEFORESTATION AND DESERTIFICATION

Deforestation is the loss of forest cover (trees, undergrowth, etc.) in a given area, which also implies loss of fertile soil. The principal factors behind deforestation of certain regions of the planet include:

- massive demand for wood as a fuel at certain times of the year and as a material for building houses, boats, etc.;
- road and path clearing;
- felling for the paper industry;
- fires which deforested 432 000 hectares in Spain in 1994.

The most significant effects of deforestation include:

- soil erosion, as a result of the lack of vegetation;
- loss of fertile soil as nutrients disappear from the soil;
- loss of flora and fauna;
- increase in polluting gases (CO₂) when forest is burnt;
- interruption of the water cycle.

This deforestation process is inextricably linked with the process of desertification. Once deforestation sets in desertification follows, almost in parallel. This process has a direct impact on the living conditions of large numbers of people and places and is both the cause and effect of poverty and emigration. As a consequence, more than one-third of the earth is arid. Spain is the only country in Western Europe where the desertification risk is classified as very high. There are three aspects to combating this process:

- introduction of farming practices protecting soil fertility;
- reconstitution of the vegetation cover;
- construction of forest waterworks.

Finally, a distinction must be drawn between desertisation and desertification. Desertisation is a natural process, whereas desertification is caused by human activity.

URBAN ENVIRONMENT

Technological progress in recent decades has brought with it strong economic development in the industrialised countries and a concentration of the population in big cities.

This technological progress has been accompanied by pollution of various kinds. Urban pollution can be of various origins, principally air pollution, noise and generation of waste of various origins.

Urban areas are subjected to a wide range of pollutants, some of them potentially carcinogenic. Their impact on health includes respiratory diseases and skin or eye irritations. Alongside this, they erode buildings and damage the natural environment. Most air pollutants stem from the following sources: industry, motor vehicles and burning of fossil fuels for heating and energy generation.

The measures to curb or reduce emissions of the various pollutants include:

- energy saving, which should be given priority in view of its potential to reduce CO₂;
- switch from fossil fuels to natural gas or alternative energy sources;
- greater research and development effort to reduce emission levels in the medium and long term;
- reforestation and phasing-out of CFCs, etc.

Because of their transfrontier implications all the issues listed above are of EU-wide importance for the internal market and shared resources, both from the point of view of cohesion and in terms of their environmental impact in all regions of the EU.

Citizens also generally feel that global environmental problems are beyond their control. They feel powerless and are overcome by apathy; they give up and feel that all they can do is to leave it to politicians and technology to find solutions.

A sense of personal responsibility for the environment must therefore be fostered, by informing all citizens of the fundamental roles which they play in environmental management in their everyday life, as consumers of goods and services with a free choice and also as direct generators of pollution and waste, at home, at work, on their travels and in recreational areas.

1.8.3. GENERAL OBJECTIVE 3: TO INTRODUCE STUDENTS TO A KNOWLEDGE OF THE INSTITUTIONAL AND SOCIAL RESPONSES TO THE ENVIRONMENTAL CRISIS

1.8.3.1. GOVERNMENTAL ORGANISATIONS WORKING DIRECTLY ON ENVIRONMENTAL ISSUES: ADMINISTRATIVE STRUCTURE AND POWER SHARING.

INTERNATIONAL LEVEL

The environment has an exceptional international dimension since pollution knows no frontiers and, day by day, the major pollution problems are becoming worldwide, forcing states to reach global agreements which really will be able to offer effective solutions to the problems.

For this reason, the various international organisations are attaching increasing importance to environmental issues:

- **UNITED NATIONS ORGANISATION (UNO)**

In 1972 the Stockholm Conference conceived the idea of the United Nations Environment Programme (UNEP), the objective of which is to support, stimulate and supplement action at all levels of human society on all issues of interest to the environment.

Under the auspices of the United Nations, in 1992 the United Nations Conference on Environment and Development was held in Rio de Janeiro. This produced the following results:

- The Rio Declaration: this is a statement of joint, individual and government rights and obligations relating to the environment and development and of their responsibility to future generations.
- Agenda 21: this is an ambitious plan of action to be taken by governments and international organisations to integrate the environment on the eve of the 21st century.
- Framework Convention on Climate Change and Convention on Biological Diversity, two binding conventions signed by the Heads of State during the conference.

COMMUNITY LEVEL

1958 Treaty of Rome (establishing the European Economic Community): This contained no express reference to powers for Community authorities on environmental matters.

1986 Single European Act: Three new articles targeted specifically on environmental protection became Community law:

- Article 130r defines the objectives of action by the Community relating to the environment;
- Article 130s requires unanimous adoption by the Member States of the action to be taken by the Community in this field;
- Article 130t conceives the action taken by the Community as the minimum, leaving each Member State free to introduce more stringent protective measures on its territory.

1992 Maastricht Treaty: The objectives include “... to promote ... a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment.”

1998 Amsterdam Treaty: Not only is sustainable development established as one of the essential objectives of the Community but also Article 6 of the Treaty imposes an obligation to integrate environmental protection requirements into policies for all other sectors.

Beyond this, the European Community has adopted a host of regulations, directives, decisions and rules of all kinds relating to the environment. There are too many to mention them all here. Some of the best known and most important examples are:

- Council Directive 85/337/EEC on the assessment of the effects on the environment;
- Council Directive 79/409/EEC on the conservation of wild birds;
- Council Directive 96/61/EEC concerning integrated pollution prevention and control;
- Council Directive 91/271/EEC concerning urban waste-water treatment.

Action programmes on the environment

Alongside the legislation (Treaties and Community law), the Community has produced action programmes on the environment setting out the principles of the action by the Community on the environment. Five such programmes have been produced to date. The latest, the fifth (1993) programme, identifies sustainable development as the only form of development compatible with environmental protection and selects five sectors on which the measures will be targeted because of the decisive role which they play in sustainable development, namely: agriculture, tourism, energy, transport and industry.

Community bodies responsible for the environment

Directorate-General XI. European Commission:

This is the department responsible for implementing the Community’s environmental legislation and drafting proposals for further legislation. It draws on the formal or informal means placed at its disposal by the Community legislation (proposals, recommendations, etc.) in order to perform this task. It is based in Brussels.

European Environment Agency:

The Agency was set up by the European Council in 1990 with the objective of establishing a European environment information and observation network. Its objective is to provide the Community and the Member States with reliable information which will enable them to take the measures required to protect the environment and to provide the technical support required for this purpose. It is based in Denmark.

NATIONAL LEVEL

This section sums up the various Spanish authorities responsible for the environment (at central, regional and local government level).

It would have to be adapted to the situation in other countries.

1.8.3.2. SOCIAL AND PUBLIC RESPONSES: PATTERNS OF SUSTAINABLE CONDUCT

Traditionally the institutions have used regulatory deterrents and obligations (rules, watchdogs and financial penalties) to promote environmentally sustainable behaviour. Use of these instruments is not enough on its own to guarantee pro-environmental attitudes and behaviour on the part of the public, since they require greater outside control, are extremely costly and have no generally applicable effect but only a transitory impact on human activity.

For this reason, it is essential to develop training instruments and methods based on community education, responsibility, participation and experimentation.

Amongst other things, the objective of environmental training is for citizens to adopt an environmentally responsible lifestyle. To this end, examples of sustainable attitudes and consumption patterns for all walks of human life are listed below. Before we can change things, we have to know them and before we can know them we have to understand them.

The measures are easy to take. Most of them will not cost anything; in fact, many of them will save money. These sustainable attitudes and patterns could include:

IN THE HOME

- Consume food produced by farming and fishing methods with little impact on the environment (food with designations of origin, sold in fair trade chains, etc.).
- Choose properly packaged, clearly identified materials (green dot or eco-management scheme symbol).
- Use the form of energy most appropriate for each use. Electricity should be reserved for lighting and domestic appliances, but not used for heating, hot water production or in the kitchen, for which gas is a more attractive energy source than coal or oil since it is highly efficient and produces lower emissions of pollutants.
- Insulate doors, windows and facades (can cut energy consumption by 35%).

Rational use of water

- In the bathroom: use the WC correctly (accounts for 30% of total water consumption in the home) by avoiding pouring solid, toxic and hazardous wastes into the drains and fitting water-saving cisterns, etc.
- Turn off the tap if you do not need water, take a shower instead of a bath, lower the boiler temperature, fit systems to reduce the water flow and water-saving taps or shower roses.
- In the kitchen: fill the washing machine and dishwasher completely before switching them on, turn off the sink tap when you do not need water, etc.

Appropriate management of the waste generated

Separate organic from inorganic wastes, in line with Law 11/97 on packaging and packaging wastes; dispose of spent batteries in special containers; put bottles in the popular bottle banks found in virtually every town; dispose of cooking oils and kitchen waste at collection centres, etc.

RECREATIONAL AREAS AND THE URBAN ENVIRONMENT

- Take care of the natural environment and keep up environmentally sustainable behaviour (prevent fires, do not dump refuse, avoid disturbing wildlife, do not remove plants, rocks, etc.).
- It is also recommendable to stay in traditional accommodation since this often helps to support the rural economy which is in decline in countries like Spain.
- To benefit from and improve your cities, cooperate with taking care of green areas, street furniture, monuments, public spaces and, generally, everything which helps to make the townscape more pleasant.
- Keep informed of and take part in environmental improvement schemes in districts or towns.
- Land use: town and country planning, industrial siting, green areas, etc.

TRANSPORT:

- Walk or cycle to places whenever possible.
- Use public transport for short urban journeys.
- If you use your car, share it (at the moment average vehicle occupancy is 1.3 persons).
- Drive in a way which saves fuel. Fuel consumption is lower at speeds of between 60 and 80 km/h and rises sharply over 120 km/h. Avoid abrupt braking and acceleration. Do not use roof racks since they can add 35% to fuel consumption.
- Have your car serviced regularly; good engine tuning significantly improves performance; underinflated tyres also add to fuel consumption.
- Buy the vehicle with the best environmental performance and make fuel consumption one of the crucial criteria when choosing a new car.
- Use unleaded petrol only (leaded petrol will be prohibited throughout the EU from 2000 on).
- Always change oil at your service station. Spent batteries must be deposited at collection centres, etc.

PLACES OF EDUCATION AND WORK

- Walk or cycle or, if this is impossible, take public transport or join a car pool.
- It would be recommendable to introduce in-house environmental management systems laying down environmental codes of conduct for each place of education and work.

- Use recycled paper wherever possible. This is easily available from stationers and is compatible with photocopiers and printers.
- Use both sides of the page.
- Make better use of the opportunities offered by new information technology (e-mail, etc.).

At the same time, to ensure a fuller understanding it would be recommendable to draft codes of environmental practice for distribution to participants in the courses. These should be written in simple language which everyone can understand and take an attractive form to allow a fuller grasp of the principal environmental processes.

Finally, measures would have to be taken to promote collaboration with the competent authorities (health authorities, fire brigade and civil protection services) and local associations on prevention of environmental risks and health hazards, fire prevention, selective waste collection, etc.

1.9. RESOURCE PACK

Teaching materials for the module (videos, databases, Internet addresses, additional information for each region, etc.). The content must be defined more closely.

2. TRAINING FOR TRAINERS: PROPOSAL

The environmental awareness module must be taught by the trainers for the course itself, following appropriate training. Under no circumstances may it be given by a teacher without a certificate for this training.

In each region, these trainers must be trained by specialists in environmental education and environmental issues.

The training courses for trainers must be given at two levels:

- courses targeted on environmental trainers who will subsequently take charge of training teachers/monitors responsible for teaching the module and incorporating it in all vocational training courses;
- courses targeted on trainers/monitors for vocational training courses.

The authorities responsible for environmental education in each region must lay down the training criteria for these environmental trainers.

The CENEAM (Centro Nacional de Educación Ambiental, National Environmental Education Centre) will hold a seminar in the first quarter of 2000 to compare the criteria of all Spanish regional authorities in this field. This could be entitled "Inter-regional seminar for presentation and comparison of criteria for introducing and applying the environmental awareness module in courses co-funded by the ESF".

This seminar will focus on:

- content of the module;

- criteria for introducing it;
- application and implementation.

The seminar will be targeted on:

- environmental education authorities in each region;
- vocational training authorities in each region.

3. SECTORAL TRAINING MODULES

The plan is to design two types of sectoral modules, depending on the target groups:

- basic sectoral module targeted on persons with low vocational qualifications;
- specialist sectoral module targeted on technicians and professionals in the sector.

3.1. Content

As regards content, the basic outline of the environmental awareness module has been designed:

background;
 objectives;
 pathways;
 guidelines for teachers;
 implementation;
 evaluation proposal;
 recommended bibliography and resources.

This outline will have to be adapted to the content of the specific sector for which it is intended. This work will be carried out in two phases.

- Phase 1: Presentation of the awareness module to the representatives designated by the ministries and regions in each of the five sectors, for adaptation, as appropriate.
- Phase 2: Closer definition between the network and the abovementioned representatives of the content of the abovementioned modules and of the criteria for introducing and implementing them.
- The arrangements for introducing and implementing them will be decided by the representatives of each sector.