



# Country Report Australia

by Syd Smith BA Med MACE

## 1. State of environmental education and education for sustainability in Australia

### 1.1 Main contents and guidelines of official national and state programs and documents supporting EE/EfS including link to national curricula.

Australia has six states and two territories all of which have their own separate education systems. The Federal Government also has its own education department, its main role to administer funding and policies to universities and higher education and to allocate funds for the registration of government and non-government schools in the states and territories. It is, therefore, a challenge to comment generically on the state of Environmental Education (EE) and Education for Sustainability (EfS) on an Australia-wide basis, although developments at a national level in the last 12 months have made this task much easier. There are now some common patterns across the country and with the encouragement of the Australian Department of Environment and Heritage ((DEH and formerly known as Environment Australia), we have seen a revival of Environmental Education and the Sustainable Schools program in all states. The National Environmental Education Council (NEEC) and the National Environmental Education Network (NEEN), managed through the Australian DEH, are the major change agents for EE at an Australia-wide level.

- The main Australia-wide initiative is the *Sustainable Schools Program*. The NSW model is outlined in detail in the NSW case study but the program has aroused interest in all states and territories and each system is adapting it to its own curriculum framework and policies. DEH has already funded NSW and Victoria at \$A100,000 each to monitor and establish the program in those states and is now in the process of funding the other interested states and territories.
- Each state and territory has its own Environmental Education Policy or EE Curriculum Statement, some still using their original documents from 1989. Several states, like NSW and Victoria, have revised their documents since Rio, while states such as Queensland and Western Australia are in the process of revising their original documents. Most states and territories have begun to follow the

NSW/Victoria lead and are putting additional resources into redefining the integration of Environmental Education into their state curriculum. The term “Education for Sustainability” has only just begun to become a recognised term in most states and territories.

- The details of the Sustainable Schools Program, which is an elaboration of the European Eco Schools Project, are outlined later in this report. A variation to this model exists in Victoria where it is administered by the Gould League, a non-government organisation that has taken on the program in liaison with the Victorian Department of Education and Training.

### 1.2 Main contents and guidelines of official national/ state programs/ documents that support school development in the framework of the values inspired by EE or EfS

- The Commonwealth issued its own policy on Environmental Education in 2001. The basic tenets of this policy are:
  1. the development of a national framework for Environmental Education activities
  2. the raising of the profile of Environmental Education in Australia
  3. a better coordination of Environmental Education activities
  4. a greater access to quality materials
  5. the introduction of more professional development opportunities for teachers in the formal education sector
  6. the development of more integration of Environmental Education principles into mainstream education (including tertiary level education) and vocational training activities
  7. the introduction of the better resourcing of community organisations involved in Environmental Education

From a national survey it was noted that respondents had indicated that it is appropriate that the Commonwealth, and in particular, the Environment and Heritage Portfolio, show leadership in Environmental Education. Its responsibilities should include:

- the development of a national Environmental Education strategy, which seeks to better coordinate current Environmental Education activities

- the provision of high quality, accessible and relevant support services for Environmental Education
- the provision of funding to support contributions already being made by State and Territory Governments, industry and the community.

While the Department of Environment, through DEH, can issue such documents, the states and territories are not obliged to implement them. However, this document *has received* national endorsement.

### **1.3 Description of main contents and guidelines of more interesting initiatives guided by national, international or local NGOs supporting either classroom initiatives in EE or school development**

#### **1.3.1 The Australian Sustainable Schools Program**

New South Wales manages a typical version of the Sustainable Schools Program which has been picked up and diffused Australia wide by the DEH through its NEEC and NEEN committees, The NSW State Government has also passed legislation, in the State Parliament, establishing a NSW Council on Environmental Education. The Council has prepared a three-year strategic plan for the promotion of Environmental Education across all sectors, both government and non-government. (Ref: [www.epa.nsw.gov.au/cee/learning+for+sustainability.htm](http://www.epa.nsw.gov.au/cee/learning+for+sustainability.htm)). The role of formal education, both in schools and at tertiary level, is clearly outlined in this report launched in Sydney on 12 December 2002. The plan and the legislation have enhanced Environmental Education in schools, giving it greater legitimacy and highlighting the *Environmental Education Policy for Schools* which requires schools to develop and implement a School Environmental Management Plan (SEMP) (Ref: [www.curriculumsupport.nsw.edu.au/enviroed/index.cfm](http://www.curriculumsupport.nsw.edu.au/enviroed/index.cfm)). The SEMP requires schools to:

- develop a simple strategic plan outlining the school's environmental management priorities. This is known as a SEMP consisting of three interrelated focus areas- curriculum; the management of resources; and the management of school grounds.
- conduct a school environmental audit, undertake a visioning exercise and put in place at least one annual action plan that will be a priority item selected from that SEMP.
- report annually on the implementation of the *Environmental Education Policy for Schools*.

At present government schools are supported in a number of ways in their implementation of the new policy. These include:

- Support materials in print form and as CDs to schools, including the document *Implementing the Environmental Education Policy in your school* and a set of eight key learning area documents to assist secondary teachers in each faculty area
- A web site ([www.curriculumsupport.nsw.edu.au/enviroed/index.cfm](http://www.curriculumsupport.nsw.edu.au/enviroed/index.cfm)) in which proformas and examples of SEMP's are demonstrated, along with a list of helpful resources and references.
- Two videos, one produced by SCRAP and the other by Observatory Hill Environmental Education Centre, both of which illustrate how environmental audits can be conducted in schools.
- On the ground support from the department's 23 environmental education centres along with some support from the two zoo education centres.
- A training and development package.
- Support from local councils, the NSW Department of Environment and Conservation (DEC) and a number of other government and non-government organisations (e.g. Department of National Parks and Wildlife and School Communities Recycling All Paper (SCRAP).
- Grants, competitions and awards (e.g. Environmental Trusts, NSW Minerals Council's SEMP Competition, Solarch Awards, Froggies Awards).

#### **1.3.2 Other initiatives**

Other national programs supporting classroom initiatives include the *Waterwatch Program*, *Murder Under the Microscope*, *Youth Environment Committees* and *Airwatch*. Both Waterwatch and Airwatch involve students in collecting data on air and water quality, reporting it to the utility responsible for the area and then taking action to improve the situation at local level. *Murder Under the Microscope* is a multi media program in which students are given clues to an environmental problem somewhere in Australia. The first school to fax, email or phone in the answer is the winner while a second section of the competition requires schools to present a solution to the issue. Satellite technology is used to present the program across 3 states. Some of these are reported in more detail later in the document.

## 2. The Eco Schools development process

### 2.1 Sustainable Schools Program

#### 2.1.1 General characteristics

The Sustainable Schools Program in NSW was an extension of the implementation of the *Environmental Education Policy for Schools* and works with schools that volunteer to participate in the program. Over 200 schools in NSW have volunteered, so far, to take part. Other states and territories have now adopted the same model to fit their own curriculum framework. The program encourages students not to simply learn about the environment but to take action for it and become partners with teachers and the community in planning for a more sustainable future. The program supports partnerships, collaboration, empowerment, co-operation, recognition and futures education. It combines school curriculum with administrative strategies in the school. In terms of pedagogical approaches it links very closely to relevance of information, integrative thinking and problem solving approaches to mention just a few.

#### 2.1.2 Explicit criteria

- A set of accreditation criteria were originally envisaged but this has proven difficult so now a set of **indicators** has been devised allowing for some form of recognition for a school's efforts
- The program is to be **evaluated** externally but on reflection it would have been better to have had an action research model instead.
- A central **database** is to be established in which all schools will be able to supply data on waste management; water and energy consumption; and initiatives relating to biodiversity in their school grounds. As well as demonstrating gains in waste and energy reduction the database is a facility for schools to reflect on.
- Schools are to be role models demonstrating sustainable practices and are to contribute to educating and influencing others in the **community** to adopt their own individual sustainable practices.
- The school must have an **environment committee** so that a single person is not entirely responsible for the program. An environmental audit is also required to collect data for the school plan.
- The program must relate to **curriculum implementation** in the school and not be seen as an extra or an add-on to what is already the school's total activities. It must be part of the school plan and integrated into the school's **curriculum framework**.
- It must support **experiential learning**

- Students will have some **control** in determining the nature and content of their learning experiences

#### 2.1.3 Implicit criteria

Sustainable schools encourage students to:

- learn about the environment
- develop skills to investigate and solve problems in the environment
- acquire attitudes of care and concern for the environment
- adapt behaviours and practices which protect the environment
- understand the principles of ecologically sustainable development

The program also supports the general aim of Environmental Education in Australia: *To foster students understanding of the environment as an integrated system, and to develop attitudes and skills which are conducive to the achievement of ecologically sustainable development.*

The values it supports relate to:

- a respect for life on Earth
- an appreciation of our cultural heritage and
- a commitment to act for the environment by supporting long-term solutions to environmental problems.

Of the implicit criteria it is apparent that the Sustainable Schools Program gives highest priority to this last value, particularly taking a long- term view and asking schools to continue their plan well into the future. The involvement of the community and appreciating cultural heritage is also important in this program. Seeing the program as an integrative system is also highly important. All of these are challenges and most communities have little appreciation of these values so far.

#### 2.1.4 Proposed kind of development

The program involves 3 main steps- awareness and self assessment phase, visioning and planning phase and the implementation/ self evaluation phase. The Program supports schools to improve their performance over time, working towards improved outcomes in each of the three areas – grounds management, resource management and curriculum. The Program support them to work towards being recognised as a "Sustainable School"

An 11-member Steering Committee has been established to advise and provide input into management strategies and evaluation priorities. A list of potential supporters, both Government and non-government, have been identified with a clear definition of their potential contribution, role and purpose

### 2.1.5 Kind of support offered

The program reflects the Environmental Education Policy for Schools and there are support documents to assist schools to implement the program as well as a database, CDs, a training package and website

([www.curriculumsupport.nsw.edu.au/enviroed/index.cfm](http://www.curriculumsupport.nsw.edu.au/enviroed/index.cfm))

In terms of the operation itself in NSW there 26 part time teachers working across 12 regions in 198 schools piloting the program. These teachers help schools to establish an environment committee, developing links and alliances with the local communities and establishing support from industry and businesses. They also point schools towards useful resources and suitable activities in which they can participate. Training and development programs are also conducted at regional level. At a national level the DEH is funding the states and territories and developing broad principles to suit the nation as a whole.

### 2.1.6 Main obstacles

The program is still at a developmental stage but there are obvious barriers and obstacles to a program that confronts, to some extent, traditional educational practices in systems with centralised curriculum design processes. At this stage the following barriers have been noted:

- Some schools entered the program hoping to get extra funding but later realised that it involved certain processes that they saw as an additional burden. The message that is sometimes difficult to convey is that the program is not extra work but is an optional practice for doing what is mandatory in the curriculum already.
- There is the problem in getting senior education officers in education systems to understand from the start, the advantages of the program. While this is now improving, Environmental Education is often seen as a lower priority or soft option in the total curriculum and sometimes forgotten when mentioning major priorities. The irony is that other government departments see Environmental Education as a high priority and are willing to fund it while education departments regard it as lesser priority.
- The daily management of the part time teachers absorbs a lot of time that would be better put to other areas of administration.

- The process of getting 6 states and 2 territories to agree to a set of principles and a consistent model for the program is a challenge for curriculum developers in Australia. However quite a deal of progress has been made through the NEEN and NEEC Committee structure. In addition there is a likely agreement by the MCYEETA, the meeting of Ministers of Education and AESOC, the meeting of directors-general and chief executive officers in each state and territory. While there is an optimistic outlook it needs to be noted that reaching formal agreements is a long term affair in Australia and ironically this educational goal has been taken up not by an educational authority but by the leading environment bureaucracy in the country, the DEH.
- With accreditation as a difficult issue the move to recognition is now more likely. In establishing criteria for recognition it will be necessary to look at climatic, population, socio-economic and rural-city differences when defining a set of criteria on a national basis

## 2.2 Student forums

### 2.2.1 General characteristics

Youth Environment Councils (YECs) are a major initiative in South Australia where a program known as Youth for Environmental Action Workshops (Y4EA) has been introduced. The program is an example of how youth can teach youth. The workshops focus on the implementation of the YEC Community Plan with the first day featuring sessions on presentation and project management skills. On the second day delegates network with environmental experts who help them develop their project which come from the young people's environmental interests.

Through participation in these workshops young people are assisted to develop their own project and will be able to develop the skills, leadership and teamwork acumen needed for sustainability. This program not only facilitates youth to take action but it has a ripple effect encouraging others to be involved including adults as well. Through working with the executive of the SA Department of Environment and Heritage YEC has been told that, as a result of their contributions they have raised the profile of environmental education within the Department. As a Government Advisory Council its role is to advise the Government of youth's perspectives on the environment and to encourage young people to be active in taking care of the environment.

### 2.2.2 Explicit criteria

- Mentoring is regarded as a key principle of the program not only involving youth to guide youth but also to let the guided ones to do what is important to them and for the mentor to respect their priorities as well.
- Empowering young people is the key principle.
- Youth's contributions are valued hence giving them a sense of ownership.
- Equity is encouraged.
- Establishing partnerships across the age ranges is seen as a valuable strategy.

### 2.2.3 Implicit criteria

The program aims to develop a generation of young people with the understanding, skills and commitment to be life long environmentalists. The values demonstrated in the program are to allow students to think outside the square, for them to be heard and to mentor each other. The basic goal of the program is for students to be respected for their perspectives, to be active in protecting the environment and to be listened to by their peers and in an adult world. Their basic philosophy is that since they are here for the future then they need to be active in environmental affairs in the present.

### 2.2.4 Kind of development process

Many examples of the results of this initiative can be found in schools across South Australia but other states such as NSW and Victoria are also interested in the program. One major success is the YEC receiving a grant from the government as part of the SA Civics and Citizenship Program to manage the allocation of small grants to other students to run environmental projects. Projects include monitoring local waterways and improving the condition of the catchment in their schools and surrounding areas.

The YEC has a state organisational structure with a president elected from the regions across the state. The president and the executive have access to the Minister for the Environment and meet with him at regular intervals. More information is available at [www.ecosay.sa.gov.au](http://www.ecosay.sa.gov.au)

Evaluations are conducted at annual conferences by the students themselves with the support of officers from the SA Department of Education and Children and the SA Department of Environment and Heritage.

The program supports a strong constructivist approach and facilitates experiential learning in a relevant learning environment.

### 2.2.5 Obstacles

Fortunately there are few obstacles in this program. The major one could be the attitude of traditionalists who believe that younger people have their place and that is to be seen and not heard. The ability of them to make rational decisions might be questioned although current evidence shows this not to be the case.

## 2.3 Waterwatch

### 2.3.1 General characteristic

Waterwatch is a national program supported by the Commonwealth and states operating in all regions of Australia. Schools and communities are given the equipment and materials to measure the quality of water in their catchments and to report their results to their local catchment management water authority. The process does not stop here however. Students are then asked to examine the results and look at the implications of the readings they have noted and recorded. In terms of turbidity, salinity, phosphorus, faecal coliforms and other indicators they can then assess the cause and take steps to diminish any problems for the future. This may require a publicity program to dissuade people from washing cars in the street or recommending fines to local authorities for those who dump pollutants in creeks and waterways.

### 2.3.2 Explicit set of criteria

By monitoring their waterways over time, schools and their communities can determine the health and quality of their waterways by fencing areas of river banks, eradicating weeds and invasive species and reducing the use of pesticides and other pollutants. Again we have a constructivist learning approach where schools are in partnership with their communities and students are encouraged to be creative in making decisions about the future of their waterways and catchments. Students are encouraged to look at their waterways holistically as part of a larger system, a catchment and ultimately a global system. In Australia there are 3000 groups, most of them schools, in 200 catchments. In addition students develop skills in research, observation, measurement, recording, decision making, planning and reporting.

### 2.3.3 Implicit set of criteria

The aims of the program are to improve the quality of water by reducing erosion, creating less polluted and cleaner waterways and minimising the impact of domestic activities on water quality while at the same time providing learning experiences for students to enable them to develop the above skills and positive attitudes to the

environment. These aims are realised by allowing students to go into the field and to measure water quality and then take steps to develop an action plan to remedy the situation.

At the same time it is recommended schools have some broad goals like increasing native vegetations in the catchment or removing a high percentage of exotic plants. In this way students are alerted to the connectivity of phenomena in the environment and that water quality is the result of, and determinant of many other outcomes. By joining a network schools are achieving a shared responsibility and collective action for natural resource management through partnerships between community, government and industry.

#### 2.3.4 Kind of development process

Waterwatch Australia recommends a set procedure for implementing this program. The sequence is as follows:

- Download the action sheet from the website ([www.waterwatch.org.au](http://www.waterwatch.org.au))
- Make contact with your community and get their involvement
- Examine the situation
- Now go from awareness to action
- Develop specific aims for your situation in your catchment
- Develop some broad goals
- Determine some specific objectives
- Evaluate your progress
- Review your plan

#### 2.3.5 Kind of support offered

Schools are provided with water testing kits and a guidelines kit and access to a database where they can record their results. Local water authorities often employ people to liaise with schools and conduct training and development activities for students and teachers. Some authorities conduct annual awards for those schools who have made significant contributions.

#### 2.3.6 Obstacles

There are few obstacles except the cost of the testing kits can limit the number of students participating in the program. The low percentage of students participating in the program in some schools infers that it is not sufficiently important since it is a voluntary activity only. Again there is a perception by some teachers that this is an

extra duty rather being part of the science curriculum. There are still some teachers who feel they have lost control if they take students out of the classroom or can't use pedagogies outside the classroom.

### 3. Case study

#### Co-creating a sustainable School at Aldgate Primary School

(by Sue Coad)

##### Introduction

Aldgate Primary School is a school of six classes in picturesque three hectares of grounds in the Adelaide Hills. There is a long history of environmental care, dating back to the eighties. The school has won numerous state and national environmental awards, both for its educational program, and on-ground actions. The school has also been through stages where the program has not been as strong, due to changes in both staff and leadership.

##### Leadership for sustainability education

The principal selection process in 2001 included environmental education as a priority so that the focus would be continued and extended. One of the first tasks as the new principal was to ascertain what was important to this community. Through intense processes with parents, staff and students, we determined the school values of *Caring, Being friendly, Learning together, Environmental learning and Student voice*. In the strictest sense, these are not all values, but they capture what is important to us as a community and provide a strong direction and focus. The school's focus on Values and Futures education has also been an enormous positive to environmental learning in the school and classroom.

##### Designing the learning

Our new school motto is *Learning together for a sustainable future* and our ways of learning reflect what we value. We use graphic organisers to support students' development of higher order thinking skills and futures perspectives. Critical literacy skills are an important tool to examine bias, and consider diverse perspectives on environmental issues. Students work within and across classes in many different size groupings. All learning is linked with the South Australian Curriculum standards and Accountability (SACSA) framework. Staff undertake professional development in key

areas of the program, e.g. Water Learning and Living Resource, and WaterWatch training.

### Guiding principles

There are certain principles that we believe make for effective practice in developing the Sustainable School concept. We believe that:

#### A sustainable school needs to have multiple learning pathways.

To achieve this, we have:

- Whole-school events, e.g. a weekly litter-free food day, *Life's a Drain* (road clean up), WaterWatch activities, World Environment Day activities, assemblies.
- A term focus, i.e. one strand per term as a major focus
- Integrated units of work based on Science, Society and Environment, English.
- Environmental electives<sup>1</sup>, i.e. whole afternoons for five weeks in a row, per term
- Students attending environmental education seminars, e.g. *Ecological Footprinting*.
- People with expertise coming into the school, e.g. for learning about energy, visit of a Southern Brown Bandicoot.

#### A sustainable school needs to have multiple leaders

To achieve this, we have:

- Teacher managers for each strand of the program,
- Sustainable Environment Committee or Governing Council to oversee the whole school approaches, e.g. to purchasing, disposal of waste
- Parents to support initiatives and help with learning activities, e.g. Community recycling centre, Waterwatch and environmental electives
- Student initiatives, e.g. cleaning up the pond, organising and leading some electives
- Year 7 School Community Service Roles, e.g. monitoring energy consumption, recycling, composting
- Student Representative Council, e.g. fundraising for Dolphin sponsorship, World Vision, Wilderness Society

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<sup>1</sup> The environmental electives reflect the school values of Environmental learning, Caring and Learning Together. The students choose from the list of elective and work in mainly mixed Reception to year 7 groups. Staff and volunteer helpers (including the grounds person, parents and university students) run the electives which have included making bird boxes, propagation and planting, paper making, learning about renewal energies, Worm farming, coastal studies, river Murray adventures and local weed walks.

- Grounds person working with students, e.g. propagating and planting local species, recycling and composting
- Community support, e.g. Department of Environment and Heritage to advise on program and direction

#### A sustainable school needs to have multiple community links

To achieve this, we have:

- A 25-page list of environmental contacts across the state
- Involvement in the *Valley of the Bandicoots* – revegetation project
- Developed a relationship with Andrewartha, (an elderly citizens home) re the telling of oral histories on what the local environment used to be like
- A new link starting with the *Weed Warriors* program
- Use of the community recycling centre by the whole community
- *Our patch* link for habitat renewal
- Links with other schools
- Links with the local council.

#### A sustainable school needs to have monitoring and accountability strategies and structures

To achieve this, we:

- read and record weekly energy consumption
- count students with litter free food each week
- count paper consumption per term
- weigh and sort a selection of landfill rubbish once per term
- count the number of plants propagated
- records from SA Water
- collect data from paper and recycling collection groups
- Waterwatch Catchment records
- Resource profile records from Department of Education and Children's Services
- KESAB awards and recognition.

#### A sustainable school needs to operate within an ethos of continuous improvement

To achieve this, we are:

- changing the oval watering system to be more water efficient
- extending the propagation area to better accommodate a larger group of students



- changing areas of the school vegetation back to local provenance for habitat value and water reduction
- planning further energy reduction initiatives, e.g. changing ceilings to a white surface.

### **In conclusion: Degree of success**

One of the most exciting aspects of co-creating a Sustainable School, has been the return of excitement, enthusiasm and interest to the students, staff and parents. We are having fun.

The school has taken a leadership role in environmental education and has successfully implemented the following overarching considerations:

- *Ecological Footprint* of school and families – commitment to reduce the EF: Developing sustainable attitudes, exploring values, past, present and future perspectives
- How to live a healthy and sustainable life when you are older; learning how to implement systems that sustain themselves, how to take effective positive actions
- Local, regional, global perspectives and local focus in actions; Ask elders about the past (Andrewartha tribe) or what they think is going to happen in the future
- Needs to span all sectors of community-government, business, commerce, education, community; Thinking ahead, e.g. long term planning, influencing government's decision making
- Our place in ecology. A sense of ecological positioning. The relationship between living things and the world's resources. Impacts of living on: water quality, soil, biodiversity, air quality
- Interdependencies and interconnectedness, cause and effect, systems and cycles; People's place within the broad environment – natural systems, use of resources, impacts
- Development of common terminology and understandings.

## Country Report Austria

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### **Introduction**

The first chapter of this report gives an overview about the formal frame for EE and ESD in Austria and a about the main public (federal, provincial) and private initiatives in this field. Chapter two describes the Austrian Eco-School programme, in chapter you find three short portraits of Austrian ECO-schools.

### **1. The state of Environmental Education and Education for Sustainability**

#### **1.1 Official national or regional programmes/documents to support EE/EfS**

##### **1.1.1 Environmental Education (EE) in School Curricula**

Since 1979, Environmental Education has been a principle of instruction and has been integrated into the curricula of general education and since the beginning of the 1990s also into those of the vocational school system. EE is referred to in the General Provisions and/or General Didactic Principles as well as in concrete specifications of the subject matter of individual subjects. e. g.?

##### **1.1.2 Constitutional Decree "Environmental Education in Schools" (edited 1985, re-published 1994)**

The decree defines main aims of EE: Action competence in acting; experiencing of democratic attitudes and behaviour in order to enable the learners to be active in political life.

Appraisal: This decree was the first national document to support EE-oriented project teaching and was the stimulus and the basis for the development of EE in Austria (e.g. also for ENSI). A new edition of this decree should consider the implications with respect to school development and Education for Sustainable Development.

##### **1.1.3 Constitutional Decree on Project Teaching (1992)**

It "states explicitly that project teaching is in line with the legally determined tasks of the Austrian school and aims to develop dynamic skills in students. The decree makes

several references to the experience gained in the framework of the OECD-ENSI project." (Thonhauser 1992).

Appraisal: The decree provides a federal framework for project teaching from pedagogical, organisational and legislative points of view and integrates previous regional decrees in this area. In this way, the Education Administration assigned an added value to project instruction for all school types and hence created the basis for its intensified consideration in the curricula. The implementation and diffusion of project teaching is a still ongoing slow process, which is endangered by organisational constraints in schools' everyday life, by financial constraints and by a lack of teacher training both pre-service and in-service. In middle and higher vocational schools, project management became a subject of its own.

#### 1.1.4 Federal Regulation for School Development

Since 1994 the School Autonomy Regulation permits schools to adapt and to change the timetable of lessons up to 15 %, due to local interests. Upper secondary schools also have some financial autonomy. In 1997, the Ministry of Education decided to focus on self-evaluation of schools as the main approach for quality insurance. The main tool should be the school programme (i.e. school development plans) as a basis for the meta-evaluation by the inspectorate by a ministerial decree from December 1999.

Research and development initiatives support school development and the development of quality in schools including the training of school development advisers organised by the inset institutes. (see Posch 2002, Krainz-Dürrr/Posch/Rauch 2003, website on "Quality in schools" [www.qis.at](http://www.qis.at)).

Appraisal: There is still an ongoing debate on how to evaluate the quality of teaching and learning – whether by external or by internal evaluation. The decision on the legal implementation of a school development programme has been postponed. School development is still left to the initiative of the single school. Financial restrictions in the educational budget cause additional constraints and uncertainties. Nevertheless, some provincial school authorities launched initiatives to implement school programme development initiatives on their own (e.g. Styria).

#### 1.1.5 "Austrian National Strategy for Sustainable Development" (2002) [www.nachhaltigkeit.at/](http://www.nachhaltigkeit.at/)

In this policy paper, approved by the government and the parliament, the chapter "Quality of Life in Austria" focuses on education in two key objectives: "A Sustainable Life Style" (objective 1) and "Solutions through Education and Research" (objective 4).

(Federal Austrian Ministry of Agriculture, Forestry, Environment and Water Management 2002, p. 24).

Appraisal: Due to intense efforts of people involved, it was possible to place education and research at a well acceptable position in this document and to avoid a position as a cross-sectional topic. There are still uncertainties what Education for Sustainable Development (Efs) might be and what it means for practical life in schools. However, the openness of the term Efs might also provide space for innovations like interdisciplinary projects, community co-operation of schools in Local Agenda 21 processes, participatory programmes and developments, as well as research-based learning and impulses for local curriculum development. A future task will be to collect, develop and test indicators and criteria as a basis for reflection of ongoing practice in schools.

## 1.2 Official national or regional programmes to support EE and ESD

### 1.2.1 "The FORUM Umweltbildung" ("FORUM Environmental Education") [www.umweltbildung.at](http://www.umweltbildung.at).

Since 1983, this organisation has been operating on behalf of both the Ministry of Education and the Ministry of Environment, developing and promoting educational programmes for EE respectively Efs in schools, in institutions of teacher training, in youth education outside of the school and in adult education.

Appraisal: The Forum represents the continuation of a successful inter-ministerial initiative, unique in Europe. It is indispensable for the continuous development and practical transformation of the Ministries' EE policy. Even after so many years permanent efforts have to be made in order to overcome the difficulties to reach teachers all over Austria, who show an interest into educational programmes of such a kind.

### 1.2.2 Education Support Fund for Health Education and Education for Sustainable Development)

Since 1992 this Fund has financed and promoted EE oriented project instruction in schools, since 1996 also HE (Health Education) projects. Schools and NGOs cooperating with schools are invited to submit projects, which are then evaluated by a commission. The financial endowment amounts to Euro 140.000.- annually, about 1000 projects were financed since the beginning.

Appraisal: All steps of school project planning should focus on the involvement of students, on reflection and documentation. Yet many of the projects are still teacher-driven and less student-centred, are rather actionistic with a lack of reflection and with difficulties regarding documentation of processes and experiences. There are also difficulties to reach and inform interested teachers. The evaluation (Tschapka 2002) recommends to use the fund to support Efs-initiatives in schools, especially for the ECO-School Programme and the "Healthy School Programme", and to offer additional in-service training for teachers, especially on the methodology for project teaching, and to focus on the aspect of student participation in the projects.

### 1.2.3 "National Environmental Performance Award for Schools and Educational Institutions" ("Umweltzeichen für Schulen und Bildungseinrichtungen" see [www.umweltzeichen.at/schulen](http://www.umweltzeichen.at/schulen)).

This is a national and government-based award, its criteria were set in force by January 2002. About half of the 120 criteria relate to EE, school curriculum and school development. The other half refers to technical aspects like energy saving. The award is valid for three years after the obligatory external evaluation and has to be renewed afterwards.

Appraisal: Main obstacles for schools were on the one hand the number of criteria, and on the other hand administrative difficulties to get access to the data needed (e.g. energy consumption data), due to the complex situation of financing school maintenance.

The "Umweltzeichen" award aims to approach highly engaged schools. As it is built on a set of criteria, it enables all types of schools to evaluate their EE/EFS performance, whereas the EMAS/ISO 14001 scheme turned out to be appropriate only for upper secondary, and above all vocational schools. The Ecologisation Programme (see chapter 2) serves as an important source for the formulation of pedagogical criteria. The experiences gathered in the pilot phase convinced the Ministry of Environment to recommend the Ecologisation Programme to schools after the first external evaluation in order to support their ongoing initiatives.

### 1.2.4 IMST: "Initiative on Innovation in Mathematics, Science and Technology"

Following the poor results of Austrian high school students in the TIMSS achievement test, the four-year-initiative IMST\_ was launched by the Ministry of Education to support teachers' efforts in raising the quality of learning and teaching science and mathematics. (see also: <http://imst.uni-klu.ac.at>). In 2004 IMST\_ was started concentrating on supporting the dissemination of good practise by networking schools

and on improving the quality of teacher education. The programme is organised by the Institute for Instructional School Development of the University of Klagenfurt.

Appraisal: The project has developed successfully. 180 Austrian schools with more than 230 teachers participate in the programme. Sustainable development is not a focus of this programme. However a number of supported school initiatives deal with environmental issues.

### 1.2.5 The programme "Ecologisation of Schools – Education for Sustainable Development ÖKOLOG"

ÖKOLOG is the first and main Austrian programme for schools at the interface of Environmental Education and School development. It is based on the ENSI approach to EE and ESD taking into account the challenges and opportunities of school autonomy and school programme development.

Schools define ecological, technical and social conditions of their environment and, on the basis of these results, define objectives, targets and/or concrete activities and quality criteria, to be implemented and evaluated.

Students as well as all the other actors at school should be involved in a participatory way and collaboration with authorities, business and other interested parties is encouraged.

For details see chapter 2

### 1.2.6 Environmental Education in Teacher Education- The Network ENITE.

ENITE is an research and development network which supports the development and study of initiatives in teacher education. At its first phase (1997 – 2000) teams of professors/associate professors, teachers and students at several teacher training institutions have worked in environment-related teacher education as part of a research project. The Forum Umweltbildung (see above) provides the home-base for the ENITE-network. Scientific supervision is provided by the Institute for Instructional School Development of the University of Klagenfurt.

A main outcome of the network is the "National teacher Educator's Course on ESD - BINE (= Bildung für eine Nachhaltige Entwicklung – Innovationen in der LehrerInnenbildung). This two years course which has started in 2004 has invited educators from pedagogical colleges and universities to work on issues of SD and its educational challenge. The course offers three one week seminars plus regional mentoring meetings. The aim is to improve pedagogical research competences, to reflect educational practise in teacher education within diverse educational subjects and to implement issues of SD into teacher education curriculum.

Appraisal: ENITE is part of the work programme of ENSI and SEED and has provided innovative impulses and experiences to the teacher education in Austria. The BINE teacher educators course is Austria's main contribution to the new COMENIUS II project developed by ENSI which starts in autumn 2004.

### 1.2.7 Regional programmes to support EE and ESD

The Regional initiative in Tyrol "Schule mit Zukunft" focuses on building school teams responsible for the management, reflection and documentation of environmental projects and for stabilising them in a school profile. Schools get support by an advisor and are offered financial support and in-service training. Schools which want to join this initiative have to reach an internal quorum of 80% and have to sign a contract with the organising "Tyrolean Network of Communal Environmental Projects" (Tiroler Netzwerk Kommunaler Umweltprojekte).

Appraisal: The main obstacle is the schools' lack of experience in implementing high quality projects without external support. The initiative has close contact and/or cooperates with the Ecologisation Programme and is strongly influenced by ENSI ideas.

The "Local Agenda 21"-Schools initiative in Styria is organised by the NGO "Umweltbildungszentrum Steiermark UBZ" ("Environmental Education Centre of Styria") on behalf of and financed by the Styrian Provincial Government. Agenda 21-schools should follow the "Ecologisation of Schools" concept with a stronger focus on collaboration with their community and on school development processes. Support for schools is provided by an advisory team of UBZ and central public relation support is offered.

Appraisal of regional government supported initiatives: Main obstacles are the lack of finances for the support of schools in relation to their interest. External partners repeatedly have difficulties to understand the "culture" of schools and their needs. Due to experiences of the schools and of the facilitators, UBZ and the responsible department of the Styrian Government recommend the Ecologisation Programme to schools who are interested in LA 21 initiatives. The aim is to integrate the LA 21 into the strong Styrian ECO-school network.

### 1. 3. Initiatives of NGOs and companies

The "Klimabündnis Österreich" ("Austrian Climate Association") is a nation-wide network with ca. 300 member communities and 60 Klimabündnis schools. It provides information, facilitation and PR, launches project initiatives and contests for schools, as

for example "Energy Saving in Schools based on contracts with the Ministry of Environment.

Appraisal: School development processes are not intended by this programme.

Since 1994 the NGO "Grüne Insel" ("Green Island") offers an annual thematic project week programme for Viennese schools at the border of the Danube National Park – in close collaboration with the Teacher In-service Training Institute of the City of Vienna and mainly financed by the City of Vienna.

Appraisal: The programme is offered at a quite reasonable price and allows especially students of Vienna's compulsory schools to spend some time in the "wilderness of nature" – for many of them it is the first time in their life. Main obstacles are the lack of staff and of financial support in relation to the interest of schools. School development processes are not intended by this programme.

Since 1990 the Institut für Angewandte Umwelterziehung (IFAU-Institute for Applied EE) an NGO in Steyr/ Upper Austria, has been focusing its programme on EE and on outdoor activities for students, on youth activities outside of school and on adult programmes and "sells" special project weeks for schools on the free market. Many activities take place in or around the Kalkalpen National Park in Upper Austria. "Freiraum/Buntes Dorf" ("Free Space/Colourful Village") in Vienna is an NGO organised by a professional company which has been working as a travel agency for children since 1985. They offer EE project weeks as well as outdoor learning and adventure programmes for school classes, their programmes being explicitly participatory and collaborative.

"The Austrian Nature Conservation Youth Organisation" (ÖNJ, [www.oenj.at](http://www.oenj.at)) is mainly school-based with teachers being leaders of youth groups. They organise field trips, projects, etc. which they can directly link to teaching activities in the classroom (Farthofer 1998).

Over the past decade, the WWF has launched half a dozen project initiatives and contests for schools. In addition, it offers outdoor programmes for schools at the Environmental Education Centre in the Neusiedler See National Park.

### Appraisal of NGO and company activities:

Since 1992, 54 project activities of NGOs with schools (including those mentioned above) have been financed by the Fund for Environmental Education and Health Education. From 1999 until summer 2003, 24 activities of NGOs and/or companies were supported symbolically by announcements by the Ministry of Education. Some of the

NGOs (WWF, Klimabündnis, Naturschutzbund), interest groups and communication agencies organised project competitions, provided teaching materials, organised workshops for teachers or acted as consultants. Some organisations provide expert lessons in schools or in outdoor learning settings. By doing so, the NGOs, interest groups and communication agencies offer valuable additional support to interested teachers and schools, which cannot be provided by school authorities.

These initiatives aim mainly at EE/HE activities, stressing outcomes and results. These external partners seem to have hardly any understanding of school development. They rather tend to neglect systematic reflection of teaching and learning processes and they do not have the notion and/or capacity of sustaining, i.e. continuing and improving, the culture of teaching and learning in schools.

#### 1. 4. Summary: Diffusion of EE and ESD in Austria

It is difficult to judge diffusion because that the Ministry of Education is "far away" from everyday school life schools are not obliged (nor interested) to report on their EE or ESD activities. There are only few instruments and data sources available to the Ministry of Education:

- Project documentations sent in as part of the agreement with the EE and HE project fund – about 600 schools handed in their documentations in the last ten years,
- the annual reports of schools organised in networks like the ÖKOLOG-Network or the WHO-Healthy-Schools Network,
- occasional reports sent to the juries of project competitions.

Other sources are questionnaires sent to schools. Within the Ecologisation Programme, regional questionnaires asking for EE activities were sent to schools in Lower Austria, Upper Austria and Styria. The results of the survey in Upper Austria were the basis for the thesis of Petra Schlatter-Schober (2002). In 2000 the Ministry of Education launched a nation-wide study, "Ökologisierung von Schulen – Umwelteffekte und Wirtschaftsimpulse", asking for environmental effects and economic impulses by the ecologisation of schools (Payer et. al. 2000). In 2002, during the evaluation of the "Environment and Health Education Fund", a questionnaire was sent to all the schools which have ever applied for project funding. (Tschapka 2002).

Appraisal:

To give a rough estimation: Environmental topics and activities seem to be integrated into school life. There may hardly be a school without any EE activity. Project teaching

according to the ENSI philosophy and the Ministerial decree still seems to be a minority programme. Most of the project teachers are more or less autodidacts, although the Project Centre of the Pedagogical Institute in Vienna and the Austrian ENSI Teachers Team already provided in-service training for teachers in the nineties. Nowadays, there is only little in-service training in project instruction. In middle and higher vocational schools on the other hand, project management training is well established in the curricula since the mid-nineties. The Austrian project Environmental Education in Teacher Training (UMILE/ENITT), intends to incorporate experiences with project teaching in teacher initial training.

Ecologisation of schools (EE) and school development are demanding and challenging topics for schools. 88 schools are members of the ÖKOLOG-Network, but there may be many other schools following a similar direction without being declared of this network (see below).

## 2. The ECO-School development process

In this chapter, the Programme "Ecologisation of Schools – Education for Sustainable Development / ÖKOLOG is described in more detail.

### 2.1 History and programmatic background of ÖKOLOG

The roots of the project can be traced back to the year 1986, when Austria launched the project Environment and School Initiatives (ENSI) supported by the OECD and focused on ecological education. Since then, the OECD-ENSI team, consisting of eleven teachers from all school types, a co-ordinator in the Federal Ministry of Education, Science and Culture, and a scientific advisor (Peter Posch), have been working in Austria.

In 1995, two initiatives based on this first project were launched in Austria, the 'Ecologisation of Schools' programme and the project 'Environmental Education in Teacher Education' (ENITE), aiming at innovations in teacher education through environmental education initiatives (cf. Posch/Rauch/Kreis 2000).

### **Chronology and timetable of the programme "Ecologisation of Schools" (ECOLOG) in Austria**

since 1986	1. Research and development activities by the Austrian ENSI team. The team has been composed of ten to twelve teachers, a national co-ordinator and a scientific advisor.
1995	2. Decision of ENSI to have ECO schools as one of the programmatic topics. Decision of the Austrian Minister of Education to develop a programme for an ecologically sustainable school development. Conceptual development and methodological documentation for the "Ecologisation of Schools" programme.
1996	3. Selection of 22 pilot schools; introductory seminar
1996	4. Ecologisation initiatives launched by pilot schools, supervised by the ENSI team with external evaluation
since 10/1997	5. Recruitment of regional co-ordinators to develop a regional infrastructure; introductory seminar
1/1998	7. National competition to involve other schools (about 150 schools participated). The schools launched Ecologisation initiatives as preparation for the competition, guided by the regional co-ordinators and supported by the ENSI team and the pilot schools; regional training seminars
10/1998	8. International ENSI conference in Linz
3/1999	Presentation of the results of the competition
6/1999	11 Start of the third phase of ÖKOLOG
11/1999 .	Regional support teams form the "Federal Conference of Regional Support Teams"
6/2000	11 Development of and decision on the ECO School network by the "Federal Conference of Regional Support Teams" and the Ministry of Education; invitation to schools to participate in the network
10/2001	Website, handbook for ECO-Schools, first national conference of the network.
2002	Annual focus topics are decided by the "Federal Conference of Regional Support Teams", Programmatic focusing of the network on ESD.
2002/2004	Focus topic "Learnsapes" based on the results of the ENSI Learnsapes project
2003 - 2005	Focus topic "School Food and Sustainability"
2005	Focus topic "Climatic change and participation"

### **2.2 What do we mean by the "Ecologisation of Schools"? (after Posch 1998, 1999)**

Condensed to one sentence, ecologisation means shaping our interaction with the environment in an intellectual, material, spatial, social and emotional sense to achieve a lasting/sustainable quality of life for all. This concise definition clearly shows: Ecologisation is not a one-time affair, but an on-going task. What is more: it concerns not only schools, but all institutions within the social fabric. The term environment embraces the natural and technical environment as much as the social and intellectual environment.

What are schools doing if they strive for ecologisation? They launch initiatives at three levels, at the pedagogical, at the social/organisational, and at the technical/economic level. Ecological schools are schools which become active at all three levels. They relate pedagogical, social/organisational and technical/ economic initiatives to each other in a constructive way and make the pursuance of these efforts an inherent feature of their educational philosophy. Ecologisation, in this sense, involves awareness and behaviour, social structures and observable as well as quantifiable effects on the quality of the environment. In another sense it is an extended view of education."

In their Initiatives at the pedagogical level schools aim at creating stimulating and meaningful learning experiences and at involving pupils in ecological ways of thinking, acting, and feeling at school, in their families and communities. The focus here lies on a dynamic concept of learning according to which pupils do not only acquire knowledge and experiences for the future, but shape their living and working conditions constructively in the present (Elliott 1994).

At the social/organisational level schools aim at building and cultivating a culture of communication and decision-making and at developing a social climate which is characterised by mutual recognition and respect.

At the technical/economic level schools aim at the ecologically sound and economic use of resources. This includes measures to save resources, to reduce waste, to design indoor and outdoor space in an aesthetic and ecologically viable way and to promote healthy living conditions.

### **2.3. How do schools become an ECO /ÖKOLOG / School**

Schools have to apply to become a member of the Ecologisation (ÖKOLOG) school network. The application has to be signed by the school team co-ordinator and by the head of the school, based on an internal decision. Network schools agree to hand in a yearly report on at least one activity. The report should be based on a standardised

framework and should document both process and results. The following 10 steps of development are recommended to interested schools:

1. Step: Reach an agreement among all partners in school
2. Step: Establish a school team and select a co-ordinator
3. Step: Analyse the state of the art
4. Step: Define priorities
5. Step: Formulate goals and objectives
6. Step: Develop an action plan and define projects
7. Step: Implement the plan and document the steps of development
8. Step: Control achievements and reflect processes
9. Step: Celebrate successes and strengthen the team spirit
10. Step: Organise the transfer of results and experiences into every day routines.

These ten steps are at the core of innovation: school consensus is required, building and maintaining a school team should be a step towards a "middle management structure" in schools in order to sustain developments, and the further steps should facilitate the development of a school programme. Schools are encouraged to become active in "hard topics", like energy consumption, as well as in "soft topics" like school climate.

The yearly reports of the ÖKOLOG-network-schools show a whole range of activities, from single EE projects to whole school initiatives including school programme formulation and striving for the "Umweltzeichen" (National Environmental Award). Payer et al. (2000) report that....."Ecologisation schools showed a higher environmental engagement with more environmental measures to reduce emissions, with more concrete future plans in this field and with a significantly higher collaboration with enterprises...." qqx

#### **2.4 What is innovative in the "Ecologisation of Schools" project? (after Posch 1998, 1999):**

Its novelty consists, first and foremost, of three long-term, educational-policy developments.

- a) At the level of the individual schools, it is the step from temporary individual initiatives to ecologically sustainable structures and to a combination of pedagogical, social and technical/economic initiatives. In this respect, ecologisation can be regarded as an important contribution to school development. Many

innovations at school are individual or group initiatives launched by committed teachers, school heads, and pupils, and tied to their motivation and involvement. Most innovations come to an end when commitment falters or when external support is withdrawn. Few innovations actually have a transformative impact on the culture of the institution as a whole.´

- b) At the level of the educational system, it is the step from pilot schools to an inherent feature of the system of education. This means developing a strategy to spread ecological development processes as widely as possible. Many reform initiatives are burdened by the fact that they are limited to a few, rather privileged schools, particularly because the required investment in terms of counselling and resources cannot be afforded on a general scale. Therefore, a strategy is needed which stimulates and supports a dynamic development within schools, involving teachers, students, administrators, support staff such as secretaries and caretakers, and parents. There is probably no topic better suited for developing and testing such a strategy than the ecologisation of schools. The development of a sound strategy for the dissemination of initiatives aiming at ecologisation is a pioneering feat whose impact would reach far beyond the specific concern of the ecologisation of schools.
- c) At the level of competences, it is the step from the competences of a minority of teachers and headmasters to an intrinsic professional feature of the teaching profession and of school management. A survey of environmental education policies in Austria has shown that innovative practice is only rarely generated in teacher training institutions, but almost exclusively in schools. Teacher training has been identified as a weak point in the educational system (House/Eide/Kelley-Laine 1994). The second issue within the ecologisation programme will therefore be teacher training. In Austria, e.g., three teacher training institutes and three university departments will be developing and testing viable curricula to prepare students for a teaching practice guided by the educational philosophy of the ecologisation program. These curricula will include, inter alia, the involvement of trainee teachers in ecologisation initiatives as part of their training, and the close co-operation with schools which have taken on a leading role in this field."

## 2.5 Highlights from the Evaluation of the programme Ecologisation of Schools ÖKOLOG

### 2.5.1 Evaluations, inquiries and studies related to the Austrian Ecologisation Programme

Throughout the seven years of the Ecologisation Programme, a series of evaluations, inquiries and studies have been written:

- evaluation of the pilot-phase by Prof. Thonhauser and his team (1998),
- a master theses on pilot schools by Michaela Ehgartner (1999),
- a questionnaire assessment study on the ecological effects and economical impulses of the Ecologisation Programme by Payer et. al (2000),
- a doctoral thesis based on a regional survey in Upper Austria by Petra Schober-Schlatter (2002),
- and a study "Networks as Support Structure for Quality Development in Education" by Franz Rauch and Ilse Schrittmesser (2003).

Prof. Thonhauser and his team developed an extensive set of criteria for the evaluation of the Eco-school pilot phase. Their data base were two interim reports and the final report of the schools, visits to all schools and interviews with teachers, heads of schools, school co-ordinators, students and non teaching personnel.

M. Ehgartners was a member of Prof. Thonhausers evaluation team and in her master thesis she primarily used the interim reports of the pilot schools.

Payer and his colleagues sent questionnaires to all 6100 Austrian schools. 2300 questionnaires were returned and could be analyzed.

P. Schober-Schlatter made an inquiry via questionnaire in 370 Upper Austrian secondary schools (138 returns) and produced case studies of five schools, in which she was involved as a consultant for quality management processes during three years.

F. Rauch and I. Schrittmesser made a series of in depth interviews with different partners of the Ecologisation network.

### 2.5.2 How did the different actors at schools participate?

The main actors of the programme were teachers. Heads of schools played an important role in the decision making process to join the programme. But in some cases they were unable to convince their teachers to implement the programme. All reports from schools and evaluations show that schools have been collaborating with external partners like mayors, city councils, companies, doctors, landscape architects, artists, etc.

Concerning the involvement of students Thonhauser reports that in the pilot phase "two thirds of the co-ordinators gave no information about participation of students, although the importance was repeatedly confirmed. So we assume that the co-ordinators hesitated to report unfavourable facts. Evidence in schools and interviews indicate this: several times students learned from us (the evaluators) that their project was part of a larger national resp. international project. We could not make out what the reason was that teachers did not explain the larger context to their students. We experienced though that this information could have raised the engagement of the students."

Schober-Schlatter states that "the initiative of students in upper secondary schools is higher than in lower secondary schools. Students are interested in concrete realisation and continuation of activities, mainly in the field of ecological school management." School wardens and parents are reported to have played a minor role only.

### 2.5.3 How did schools report on their initiatives?

Eco-Schools still have difficulties with reporting. "When talking with teachers, they repeatedly confirm that they start, conduct and finish a project with enthusiasm and idealism, but that they find it hard to reflect on their work and to write an according report. Quite a few teachers saw reporting as additional work which has to be done in this ECO-school project, but has little importance beyond it." (Thonhauser) Teachers still have difficulties to formulate the aims of their activities. There are also few reports in which learning processes, interdisciplinary teaching, democratic participation of students are reflected.

Thonhauser resumed that "this topic was not seen as important or that teachers hesitated to report negative results. Reflection on the school's setting for project work is hardly systematic and sufficient. The few reports mainly contained complaints about unfavourable situations.

Public presentation of projects was a concern of the pilot schools. Most of them found ways for publishing internally as well as externally. Generally, the media seemed to be interested in the reports about ecologisation processes in schools. What we could not find out was if and how often public relation was only the work of one or a few teachers, or if and to which amount it was an integrated part of the project with students involved. However, both variants showed impressive results."

### 2.5.4 What are the difficulties concerning school development?

Schools still have difficulties to use the tool of the school programme as an instrument for planning and further development. Many initiatives start with a high involvement of



teachers but end without tangible effects. This could also be observed in the ECOLOG Programme. As a result sinking involvement of teachers could be observed in a series of schools. It is assumed that this is also due to unclear organisational structures of the project: duties and rights of the co-ordinators or of teachers active in projects resulting from negotiations were rarely clearly defined.

Schlatter-Schober concluded that it was not "possible to achieve an ecologically oriented whole school change partly because of the lack of acceptance by non-involved teachers and/or non teaching personal, and partly because it collided with other interests of the schools. As a result, ecologisation was in most cases limited to initiatives of single teachers." In her case studies she found evidence that although common goals proved to be a central precondition for successful change in schools, they also caused conflicts and needs for external support/ facilitation because

- members of the school community do not have a common understanding of environment
- the consequences of an ecologically oriented change are not perceptible for the individual person
- ones own interests have to be "set back",
- the relevance of environmental initiatives beyond planning and designing autonomous classroom teaching is not seen, as in many schools staff members do not believe in their feasibility,
- the attention of members of the school community is focused on the operational level (teaching), discussions are dominated by operational problems,
- the involvement of all members of the school community is made difficult by "cultural barriers" e.g. by the fact that non-teaching personal are not seen as members of the school.

Both the inquiry and the case studies show that the schools' do not fully use their autonomous possibilities for decision-making. Management processes and management instruments are new to the schools as well as the necessary documentation. In all five case studies communication proved to be a central element of ecologically oriented steering. Talking about the environment in classes, in schools' everyday life, in staff conferences, in meetings of non-teaching personal, in school newsletters, environmental reports, etc. does not only express the importance of the topic for the school. Communication about the environment is also the central element for a common understanding, and the precondition for learning of all members of the school community. All case studies showed

- a lack of communication. Improving communication appears to be a basic prerequisite for change.
- the influential role of heads of schools. Neither his or her personal initiative in favour of a specific project nor the involvement in an environment project team are central, but rather his or her "official" support of the project, e.g. by putting it on the agenda of teachers conferences, and by symbolic communication of support in public. Additionally, some schools showed the possibilities for heads of schools to provide incentives, to co-ordinate and negotiate financial support with the body responsible for maintaining and financing school (for compulsory schools it is the community).

#### 2.5.5 How are ECO-schools supported and what are the incentives?

Central support is provided by the Ministry of Education, Science and Culture and by the Forum Umweltbildung. This comprises the central co-ordination of the regional support teams including two meetings per year for exchange purposes, the maintenance of the web site [www.oekolog.at](http://www.oekolog.at), the publication of a monthly electronical newsletter and of a quarterly ÖKOLOG-newspaper, the provision of a hand book on didactics and teaching methods, a file full of information and checklists, the organisation of events, a scheme for extra-curricular certification of student achievements and the financing of regional in-service training workshops (two per year and province). All together the costs amount to Euro 93.000.- per year.

For reporting a standard framework is provided and additionally some writing workshops are offered to assist teachers in writing well readable and informative reports.

Rauch/Schrittesser (2003) have found in their study that "the OECD-ENSI teacher team, together with the network co-ordinator in the Ministry can be seen as the 'historical' activity centres of the network... The (Austrian) OECD-ENSI team is still at the core of this network and plays a significant role in what we call the motivational culture of the network. It is referred to as an important resource in all interviews – in terms of emotional support, innovative ideas and personal competence."

On a regional level support is provided by the ÖKOLOG regional teams. Their major task is to organise further education and training and - closely connected to that - to promote the exchange of experiences between schools in order to derive maximum benefit from the pool of competence which is accumulating at the schools. They are constituted by nominees from the regional school boards, the regional teacher in-service training institutes, and a member of the ENSI-teacher team. In some provinces,

the ÖKOLOG regional teams managed to establish co-operation with the Environment Departments of the provincial governments and with NGOs and were able to get some financial support as for the ECOLOG network schools.

Yet "some of the regional groups do not function too well, or if they do, their success depends too much on the commitment of individual people and too little on the group as a whole". (Rauch/Schrittesser, 2003)

The Ecologisation pilot schools were advised by the experienced teachers from the Austrian ENSI team, were provided with a file with teaching materials and could apply for financial support at the Environmental Education Fund. Since 2001, when entering the ECOLOG-network, schools have received a welcome package with an initial membership certificate together with a file of information materials and a handbook (see central support, above). Annually, ECOLOG network schools receive a certificate confirming their membership after having sent in their annual report. These certificates are printed and signed by the Ministry of Education, signed by the responsible ministerial head of section (= the highest ranked civil servant) as well as by the President of the provincial school administration and then handed over to the network schools in regional celebration meetings.

Since the end of 2003, the Environment and Health Education Fund (see above) has been offering a three times higher financial allowance for project funding to Eco-Schools.

### 2.5.6 What kind of obstacles did they meet?

Lack of Time: Too narrow time budgets were in conflict with the growing complexity and duration of projects.

Lack of funding for local support and advice for schools: The advisory support available was not sufficient to increase the number of ECOLOG-schools and to support the necessary self-evaluation and quality development. Some schools reported that there was not enough information available to enable them to self evaluate their environmental performance. In fact, only a few schools knew what their major environmental impacts were. From those schools who took concrete measures to improve their environmental situation only 20 % could quantify the effects. Even fewer schools could report relevant costs or achieved cost reductions (Payer et al., 2000).

Lack of know-how regarding project and network management and team-building: There are difficulties in networking schools on the regional level, in involving a greater number of students and in co-operating with enterprises and other external partners.

Policy changes with respect to school programme development: In 1999 a main policy aim was that School programs (combining self evaluation and development of selected issues) will become mandatory in Austria in the year 2002/2003. In this situation the programme on Ecologisation of Schools was intended "to provide an opportunity for schools

- to gain first experiences with linking development and evaluation activities and initiatives to provide credible accounts to the public,
- to prepare themselves for the expected mandatory periodic elaboration of school programmes". (Posch 1998, 1999)

In 2001 however, the Ministry of Education, Science and Culture decided that the legal foundation of school programme development was no longer a policy priority, at least not for the time being, but received the status of a recommendation to schools. As a result, for most schools self evaluation and development was no longer an issue. Obligation for schools to sign a kind of contract, if they wanted to become a member of the Ecologisation Network: The (virtual) binding character of this obligation seemed to have been an obstacle for many schools although some of them were highly engaged in the field.

### 3. Examples of Austrian ECO-schools

#### Upper secondary commercial school in Mattersburg

The school is in an old but newly adapted building with 14 classes with about 350 students and 35 teachers. It is situated in a rural area and offers a special course on "ecologically oriented management" which provides a very practical basis for the schools' ecologisation initiatives. In a series of four school years a team composed of students, teachers and external experts developed an energy management concept, a waste management scheme and initiatives to improve the social climate in the school: Students of the "Eco-management class" interviewed 140 school mates (16 –19 years old) about their well-being at school and asked for suggestions. Most of the students complained that there was no space to sit, to rest and to learn, esp. in the longer (lunch time) breaks. A team of students started a planning exercise and designed learning and sitting spaces. On the basis of these plans students of the project class interviewed their colleagues again and found that the proposed changes in the learning area and the plants were well accepted by most of the students. At a public presentation these changes and the ECO-School idea found broad public acceptance

To “green” the classes and the floors students invited a plant expert. They developed a plan for planting, measured the light intensity, ordered and bought flower pots and finally planted the “greens” supervised by the expert.

One of the teachers who were involved commented after the conclusion of the project: “Our relation to the students has changed indeed, we got to know each other better and got to know each other as partners with equal rights who want to reach a common goal, and we experienced the “human” sides in each other. Something which would have stayed hidden without this project”.

In the following year the school introduced healthy and regional food in the school’s cafeteria. This school was among the first schools to win the Austrian “National Environmental Performance Award for Schools and Educational Institutions”. (Pfaffenwimmer, G., (1998)

#### **Primary school in Würflach:**

This small primary school takes care of 59 pupils from 1st to 4th grade. The school with its four teachers has a long tradition of creating an atmosphere to inspire learning with pleasure and engages itself in environmental and wildlife protection. One of the teachers acts as the school’s project facilitator and team meetings take place regularly and provide a forum for evaluating project status and the progress achieved.

One of their recent projects focused on the quality and sustainability of items the children brought to school, e.g. their writing pens.

How can the use of ecologically sound school items be made a regular characteristic of this school? This issue raised a lot of discussion among the school’s teaching staff because so far they had paid little attention to the ecological soundness of the items of their pupils used in school. “In retrospect, the fact that we had not even bothered to find out alarmed us” (Quotation of teacher).

After a detailed analysis of the status quo in the individual classrooms it became apparent that they had to start from scratch. The head of the school organised a parent-teacher meeting to which she invited a representative from the provincial environmental consultancy board. Her presentation was met with a lot of interest by the parents and many pro and contra arguments were put forth in the ensuing discussion.

In the end 92% of the parents were in favour of this programme. It became clear that an one time initiative would not be enough to sustain the programme. For the parents of newly enrolled children, e.g. such parent – teacher meetings would be necessary each year before the parents buy schools items.

One mother commented the programme after it was introduced: “I really appreciated the introduction of ecologically sound school items in all grades. This is something that could not have been done individually at the parents’ initiative – it requires that all children accept the necessary changes. There is an enormous peer pressure with respect to all the shiny objects of desire. When the introduction of ecologically sound items becomes a collective experience there is no more competition between children. My daughter is very proud of the “cool” plain colour pencils, rubbers, book covers and the like they all use in class now.” (Spritzendorfer, E., 1999)

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www.oekolog.at, www.qis.at

## Country Report Belgium – Flemish Community

by Willy Sleurs

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### 1. The state of Environmental education and education for sustainable development in the Flemish Community

#### 1.1 Department of Education of the Flemish Community

Environmental education has been introduced officially in the Flemish education system in 1998 for primary education and in 1997 for secondary education, when the centrally formulated final objectives became operative.

The Minister of Education recognises 'Education for All' as a powerful instrument to realise a sustainable future. Therefore a broad and holistic view on education is required in order to realise new knowledge and skills for sustainable development.

#### 1.2 EE in the Flemish curricula

For both primary and secondary education, the Department of Educational Development of the Flemish Ministry develops final objectives for compulsory subjects, which are confirmed by the Flemish Parliament. Some of these subjects (Geography, Natural sciences) contain objectives which explicitly relate to environmental education or sustainable development.

Examples are:

- Pupils can read off the levels of pollution of some Belgian rivers from a map and list their major causes (Geography, 1st grade of secondary education).
- The pupils learn to show respect for the value of pure water (Geography, 1st grade of secondary education).
- The pupils can list environmental effects which can be related to agricultural activities (Geography, 1st grade of secondary education).
- The pupils can judge critically about the interaction between social developments and the environment (Biology, 2nd grade of secondary education).
- The pupils experience movement in nature in positive and environmentally-friendly conditions (Physical education, 2nd grade of secondary education);

- The pupils see the possibilities of participating in a positive way in policy decisions with regard to environmental policy and town and country planning (Geography, 3rd degree of secondary education);

Besides the final objectives, both primary and secondary schools have to incorporate cross-curricular themes in their curriculum. In primary education there are two themes: learning to learn and social education. In secondary education there are 5 themes for the first grade (12-14 yr.), and 6 or 7 themes for the 2<sup>nd</sup> (14-16 yr.) and 3<sup>rd</sup> (16-18 yr.), depending on the kind of education (general secondary or technical/vocational education). An overview of the themes per grade is given in table 1. *Environmental education* is a theme that can be found in all grades and forms. Intrinsic values of EE are experience- and problem-based learning, learning through participation, emotional commitment, wellbeing and efficiency of the learning process, ethical awareness and taking responsibility in the decision making process. In the introductory text of the cross-curricular theme 'Environmental education', the overall goal of EE is formulated as follows:

*"Environmental education is aimed at increasing environmental awareness, which is a fundamental contribution to sustainable development. This is based on the development of environmental literacy, i.e. knowledge of and insight into the relationships between man and environment. This results in a scientific and critical approach to concepts, which allows for more complex relationships between man and environment to be discussed later on. Here, account is taken of social, cultural, economic and ecological aspects, to which various subjects and other cross-curricular themes and educational fields can contribute. This entire approach leads to sustainable development education".*

In the first grade the approach mainly relates to the local context and the observability of the themes by the targeted pupils. The (sub)themes in the first grade are: (1) air, water and soil; (2) living beings and environment; (3) society and spatial use and (4) waste. In the second grade *care for nature and traffic and mobility* are emphasised. In the third grade *nature and environmental policy and traffic and mobility in spatial policy* are the main topics.

1 <sup>st</sup> grade	2 <sup>nd</sup> grade	3 <sup>rd</sup> grade
> Health education	> Health education	> Health education
> Learning to learn	> Learning to learn	> Learning to learn
> <b>Environmental education</b>	> <b>Environmental education</b>	> <b>Environmental education</b>
> Education for citizenship	> Expressive-creative education	> Expressive-creative education
> Social skills	> Education for citizenship	> Education for citizenship
	> Social skills	> Social skills
	> Technical-technological education (only for ASO)	> Technical-technological education (only for ASO)

Table 1. Overview of the cross-curricular themes per grade and per form

Considering the UN Decade for Education for Sustainable Development, the Flemish Minister of Education in her policy document of 2003 declares to be prepared to order her department to make an inventory, containing all relevant initiatives and projects which relate to sustainable development in Flanders. In the *discussion document* of the Flemish Minister of Education of 2003 we read: "education has to concentrate on the development of values, among other things *sustainable development*".

### 1.3 Diffusion and realisation

The final objectives are compulsory for all pupils of all grades and forms. So, all Flemish schools have the obligation to deal with Environmental Education.

Initiatives from other departments (e.g. Department of Environment) are strongly tuned to these objectives and to the cross-curricular themes. Therefore, the cross-curricular themes and the final objectives are usually considered as steering documents when developing curricular materials for schools.

Notwithstanding the pressure schools experience to realise the final objectives that relate to environmental education, the realisation of these final objectives does not automatically lead to the development of an environmental friendly school. Only a very small number of schools starts from the objectives to use EE as a means for 'School development'. However, the Department of Environment and Infrastructure (LIN) of the Flemish Community is a very important partner with respect to the ecologisation of schools and an increasing number of schools start projects that relate to sustainable development with the help of LIN. Many aspects of 'School development', such as

student participation in the decision making process, problem-oriented teaching, learning by exchange of experiences etc. are strongly emphasised in these projects.

#### 1.4 Department of Environment and infrastructure of the Flemish Community

The MINA-council (Milieu- en Natuurraad van Vlaanderen) is the advisory council for the Flemish Government and particularly the Minister of Environment, concerning environmental matters.

In her MINA 2-plan (1998) the council asks for the establishment of a Flemish nature and environmental participative platform (*NME-overlegplatform, the NME participating platform*), where the subgroups and working groups provide information about their work, initiatives, findings and results. This platform is the result of the Initiative 146 of the MINA-plan 2: 'creating a nature and environmental network and strengthening it with respect to the content'. In this way, all groups involved have an overview about initiatives regarding nature and environmental education that occur in the Flemish Community.

The objectives of the *NME-overlegplatform* with respect to education are:

- > information flow from and to the provincial networks
- > consultation, planning and quality monitoring concerning nature and environmental education
- the network takes initiatives with respect to educational policy: structural fit of ecology and environmental education in learning programmes and final objectives, and introducing an environmental care system at school
- nature and environmental education in the educational system contains –amongst others- formulate and provide advice for in-service-training programmes for teachers and developing teaching and learning materials.

The initiative is taken by the division of AMINAL (Administration of Environment and Nature Policy) of the Environmental department of the Ministry of the Flemish Community.

The partners involved are: the departments of Education, Welfare & Public Health and Culture, the educational networks, the Flemish governmental institutions (*OVAM, Public Flemish waste company, VLM, Flemish Land Company, VMM Flemish*

*Environmental Company*), provinces, municipalities, nature and environmental associations.

The department of the Environment co-ordinates the project MOS (environmental care at school), which intends to implement an environmental friendly caring system at school, which is strongly inspired by values which are implicit in the final objectives of the cross-curricular themes (particularly those of EE) of the department of education.

Most initiatives taken by the NGO's with respect to EE are co-ordinated by the department of LIN. Some of these initiatives are: '*Koopwijzer*' an initiative of the '*Bond Beter Leefmilieu*' (BBL) (Association for a better environment) which stimulates schools to buy environmental friendly products.

The '*Koning Boudewijn Stichting*' (King Boudewijn Foundation) awards grants to schools who submit a plan for the ecologisation of their school grounds, especially these plans which include aspects of 'learnscapeing'.

## 2 The Ecoschool development process

The LOGO Green School award is the only important initiative within the Flemish education system that stimulates and supports the process of school ecologisation.

### 2.1 General characteristic

The LOGO Green School Awards has a large degree of diffusion within the educational system. It is coordinated by the Flemish Ministry.

The Logo MOS<sup>1</sup> – Green School (1,2 or 3) is an initiative of the department of Environment of the Ministry of the Flemish Community and the five Flemish provinces. It must be considered as a quality-label awarded to schools which

- are engaged in an educational project,
- organize activities in a systematic way,
- make efforts to sensitize their members for environment protection. Priority is given to activities that promote prevention.

<sup>1</sup> MOS: milieuzorg op school (environmental care at school)

The LOGOS are awarded to secondary schools only.<sup>2</sup> About half of the total number (approximately 580) of Flemish secondary schools and 776 primary schools (about 1 school out of 3) have already joined the project. Every school that joins the project has to sign an environmental policy statement. In each province 3 counsellors are at the disposition of the schools, which support them with advice on educational matters with respect to environment protection. Advice is free of charge and the counsellors are paid by the provinces. They all have more or less experience as an educator or as a school teacher. A team of co-ordinators works at the department of environment (LIN) and co-ordinate the school actions and/or are responsible for the preparation of teaching and learning materials that can be used in the class/school. These materials are in line with the final objectives of *'nature and environmental education'*, and with the other cross-curricular themes (*civics education, learning to learn, health education, social skills*) which are compulsory for all grades (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup>) and forms (General and vocational secondary education).

The judging-committee that awards the LOGOS consists of members of the national schools inspectorate, pedagogical consultants, representatives of the provincial environmental departments and other external experts (such as one representative of the department of Education of the Ministry of the Flemish Community). The evaluation instrument is based on the instrument used by the national school inspectorate to assess the implementation of cross-curricular themes in schools.

## 2.2 Explicit set of criteria

The instrument contains the following criteria (each of the criteria is operationalised by indicators):

1. Planning
2. Participation
3. Communication
4. Continuity and structural embedding
5. Educational and environmental gain

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<sup>2</sup> The logo for primary school is rather meant as a proof of participation in the project. But primary schools also have to make clear that there is pupil involvement, a broad support by the school actors and integration of the project in the school culture.

The school can make a choice between one or more of the following areas of special attention:

- waste management
- mobility
- water
- materials
- greening of school environment
- energy
- kitchen and canteen

For each of the criteria (see table 2) a higher level is required for LOGO 2 than for LOGO 1 etc. Furthermore, in order to obtain LOGO 2, the school should work at least on two areas of special attention. For LOGO 3 at least three areas should be considered.

## 2.3 Implicit set of criteria

At the start of the Green School-project, strong emphasis was put on the instrumental character of environmental education. This is strongly reflected by the fact that much more materials to support EE in schools were devoted to waste management than to other themes. Furthermore, the environmental gains were an important criterion to award the LOGO.

As a consequence of the introduction of the cross-curricular themes in the Flemish compulsory education, such aspects as participation, decision-making, educational gains etc. became more important and even as important as environmental gains for the LOGO award.

Nevertheless, very often schools perceive the cross-curricular themes as an extra workload, and as a consequence they restrict their efforts to actions which can be used as prove in order to convince the educational inspectorate that they make efforts to implement the cross-curricular objectives. Hardly ever, cross-curricular themes –in particular EE- are used as a starting point for school development.

## 2.4 The Program Development Process

Developing a good and realistic working plan is an important condition for the success of the LOGO Green School project. Therefore a step-by-step plan is developed by the

	Planning	Participation	Communication	Continuity and structural embedding	Environmental and educational gain
LOGO 1	minimum: 1 special area of attention	Pupils may be recruited from one form, department, ... Pupils are at least involved in executing environmental friendly activities	The school informs all parties concerned about the project and involves them as much as possible.	The activities can be restricted to loose activities and initiatives	The school must prove some educational and environmental gain
LOGO 2	minimum: 2 special areas of attention	Pupils must also be involved in planning the activities	A more creative kind of communication is expected from LOGO 2 schools than from LOGO 1 schools	The project is embedded in both the school subjects and the cross-curricular themes	The school must prove some educational and environmental gain and the attitude of the pupils towards the environment must change; they also reflect on their own behaviour
LOGO 3	minimum: 3 special areas of attention	Environmental working group consists of a balanced representation of pupils from all forms, teachers, and other members of the school community There is also consultation with other participation committees within the school and with externals (parents, local community, associations, neighbourhood, ...)	A real internal and external communication strategy is necessary. The whole school community is mobilized in a creative way. The environmental working group informs and/or consults with the local community, the environmental committee, environmental associations and companies.	Environmental care has become part of the policy, the vision and the culture of the school	The school acts in accordance with the environmental legislation. It is a democratic school in which all school members feel very strongly about 'caring for the environment' and all pupils experience that their actions are of global importance

Table 2. Overview of explicit criteria used for awarding the LOGOs

(areas of special attention: waste management, mobility, water, materials, greening of school environment, energy, kitchen and canteen.

Education is compulsory till the age of 18. The different forms of the Flemish secondary education are:

ASO (mainstream general education), BSO (vocational education), TSO (technical educational education)

and KSO (artistic educational education). In each form there are three grades:

1st grade: from 12-14 year, 2nd grade: 14-16 year, 3rd grade: 16-18 year

coordinators of the Green School project. The following stages are recommended to starting schools (each of the steps is described in detail in a publication that is provided to the schools):

### 1. Engaging in the project

Both the school board and the pupils sign a statement of environmental policy.

### 2. The approach

A good planning starts with the composition and the organisation of the team.

Questions that should guide this step:

- who should be included in order to work efficiently?
- at which moment do we start the team and who will be involved?



### 3. 'Gauging'

Fill out the MOS self-assessment questionnaire to get insight in strengths and weaknesses.

Make an inventory of all environmental school initiatives and try to get an impression of the sensibilities and priorities of pupils and teachers (i.e. who's priority is the clean schoolyard: teachers' or pupils'?)

The coordinating MOS Green School team developed a questionnaire that can be used by the schools on simple request.

### 4. From abstract to concrete actions

What do we want to do for the environment = the core of our project.

Make your choices amongst one of the themes (cf. 2.1) Thanks to good planning a concrete proposal is growing.

- Who will join the project?
- Formulate the necessary conditions:
- Be creative: the idea is ready to become a concrete proposal.

Golden tip: at first be creative, be critical afterwards. Don't be both at the same time!

### 5. Action!

In the action plan a detailed work plan is developed which results in a phasing of the project..

The following steps are necessary:

- phasing of the proposal with the help of a model of the action plan
- distributing responsibilities for each part of the plan
- work out a detailed planning scheme of all activities (+ dead lines)
- follow-up of dead lines and responsibilities (task for coordinator)

### 6. Do we score?

Self-assessment is the last step and provides objective data that tells you whether your actions are successful or not. Furthermore it provides you with an overview of the subjective appreciation of you action.

After finishing these steps, start with an application for the MOS-LOGO Green school award.

### 2.5 Kind of support offered

- All schools can appeal to a counsellor, provided by the provincial authorities, who will help the school with the implementation plan. This support is free of charge.
- Twice a year the Department of Environment of the Flemish Ministry publishes a booklet (ca. 100 pages) which contains information about projects, about the the step-by-step plans, international networks (ENSI was mentioned in the second volume of 2003), other quality mentoring systems (ISO 14001, Emas II etc.), new developments in educational policy with respect to sustainable development, news from schools that have projects on sustainable development etc. It is sent free of charge to all primary and secondary schools of the Flemish community and to the Dutch speaking Brussels schools.
- A handbook with examples of good school practices is being prepared and will appear by the end of 2004.
- The school that has been awarded one of the LOGO's receives a plexiglass label with a recognizable symbol that can be put on the front of the school.

### 2.6 Main obstacles

No official data exists about the obstacles. However, in May 2002 eight schools, who received the Green School LOGO 3, were invited for a 'return-day' in order to give feedback on the difficulties they encountered during the project. The main obstacles reported by these schools were:

- Lack of financial support. Therefore, the school very often prefers economic reasons than ecological ones (i.e. environmentally unfriendly packaging materials are often preferred because of economic reasons)
- Overload of teachers involved in the project.
- Too few people carry too much responsibility for the project; so if these people leave the school (i.e. retirement, ...) then the project stops. This often happens if the school decides to relieve one teacher from giving courses in order to take full responsibility for environmental matters in the school.
- Lack of interest by the pupils, due to the fact of the (subjective) feeling that 'being environmental is not fancy'; the (negative) pressure of the group is often decisive not to join the project;

- Are the efforts sufficiently valued (by the internal and external world)?
- Frustration about the difficulty to change pupils' (and teachers') behaviour
- Need for strategies to link the cross-curricular theme Environmental Education with other themes (*citizenship, social skills, technical-technological education, artistic creative education, learning to learn*)
- How can the theme *environmental education* be linked to sustainable development?
- Several NGO's offer materials to schools (often materials that are not directly linked to the curriculum or that don't fit direct use in the classroom) in a uncontrolled way; schools think this has a counterproductive effect; consultation with the schools or their representative networks is therefore necessary
- Environmental education often has a negative connotation as it often refers to proscriptions (don't do this, don't do that ...)
- Absence of a (national) educational policy that really supports environmental education at school, often results in differences of opinion or conflicts within the school; in this case those who take environmental initiatives feel themselves abandoned. This is often the case when, for example, national policy promotes environmental friendly packages while at the same time policy is connive at the use of environmental unfriendly materials.

From the schools' reactions we learn that even schools which are very motivated to work on environmental education consider it as an extra workload for their teachers. Very often, the project is carried out and espoused by a limited number of teachers, which is a threat for the continuation of the project, when these teachers leave the school. Furthermore there seems to be a demand for elaborated curriculum materials which are linked directly to the final objectives.

### 3. Case study

#### **ENERGON: an interdisciplinary school project about the carbon dioxide emission problem**

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#### **Introduction**

*Energion* is a holistic project at Hagelstein high-school (Sint-Katelijne-Waver, Mechelen) executed by pupils of the 3<sup>rd</sup> degree (age: 16-18 year), general secondary education (ASO).

The project started as a result of the introduction of cross-curricular targets in the Flemish educational system and as a consequence of the conviction that the role of the teacher in the society is changing. The project has a strong interdisciplinary character as it involves science subjects just as language subjects and artistic education. The Liceo Luici Magnini (Gemona, Friuli) is the partner-institute in Italy, who works at the same time on the same project.

#### **Definition of the problem**

Through the *Energion* project, pupils try to understand the way man can deal ecologically sound with different kinds of energy sources. They investigate how their own lifestyle contributes to the CO<sup>2</sup> emission and how changing their lifestyles can help to reduce CO<sup>2</sup> emission.

#### **Specific project goals**

- applying knowledge in pupils' own living environment
- approaching environmental problems from an interdisciplinary point of view
- exchanging data concerning energy problems with the Italian partner and trying to come to a common conclusion
- to be prepared to cooperate with other students, to listen to colleagues and to express one's opinion
- to be prepared to be critical about environmental problems

#### **Input from different subjects**

Attainment targets from the following subjects serve as the first input for the project:

- Physics: electricity, magnetism and nuclear energy

- Biology: respiration, photosynthesis, man & environment, carbon cycle
- Chemistry: nuclear chemistry, organic compounds
- Geography: earth capacity
- Languages: English, French and German documents
- Artistic education: plastic arts and poetry
- Maths: explaining graphics, statistically processing of data, ...
- Dutch: learning to communicate, ...
- ICT: e-mail, website, power-point, word-processing, ...

Also the attainment targets of the cross-curricular themes (learning to learn, environmental education, citizenship, health education, social skills, and artistic education) are strongly integrated in the project.

Through subjects and cross-curricular themes, pupils learn to analyse data, read public documents and are motivated for self-activation.

#### Organisation of the project

Working-groups are formed (2 to 6 pupils per group) which work on the following issues:

- Energy sources (supplies, consumption, relationship between energy consumption and climate change, greenhouse gases ...)
- Energy consumption in Belgium (figures, graphics, ...)
- Nuclear energy (raw materials used, construction, nuclear processes, ...)
- Ethical aspects (pollution, radiation, storage and processing radioactive waste)
- Energy consumption by households by studying energy invoices of pupils' families (heating, cooking, electricity consumption, transport, ...)
- Energy consumption by the school
- Relationship between energy consumption, consumption of raw materials and CO<sup>2</sup> emissions
- Energy savings at school level
- Energy savings at family level
- Computing decreased CO<sub>2</sub>-emissions due to energy saving
- Studying political and economic factors that influence energy consumption and planned local and international strategic actions in order to reduce energy consumption
- Designing of an energy-friendly building
- Artistic education and energy; starting from the painting '*Hiroshima*' (fig. 2) of the local painter Rik Brouwers, pupils write poems which were subsequently used as an

input for new paintings etc. All poems and paintings produced by the pupils were put on the project's website at the end of the school year

Each group presents the results of their part of the project by writing a short report. A steering group, consisting of students, coordinates the results and write a final report. The results were exchanged with the Italian partner school.

#### Activities within the framework of the Energon-project

Several excursions, in Belgium and Italy are organised:

In Belgium:

- nuclear power station Doel (near Antwerp)
- exhibition *Isotopolis*, an information centre about radioactive waste (Dessel, province of Antwerp)
- old coal mine at Blegny (province of Liege)
- *Maison de la Science* ('House of Science') (Liege): applications of electricity, magnetism and electromagnetic radiation

In Italy:

- hydroelectric power plant at Somplago
- a walk through the Dolomites, and study of the influence of the hydroelectric power plants on the region
- hydroelectric dam at Vajont
- cyclotron, Trieste

#### Project partners

The following persons are more or less actively involved in the project: students of 3<sup>rd</sup> degree (age: 16-18 yr.), subject-teachers (science, Dutch, foreign languages, artistic education), parents, school-board, local community and associations for nature conservation.

#### Communication during the project

For the purpose of internal communication students and teachers make use of the following opportunities: communication at the student council, working meetings, E-mail, designing of project stickers, student newsletter '*Efemeriden*'.

For external communication towards the local community the following media were used: local newspaper, local radio- and television station, theatrical performances and the project website [www.energon.cjb.net](http://www.energon.cjb.net).

### Results

Students executed a complete screening of the energy consumption by the school. For instance, they conclude that 20% of the energy consumption in the school is due to lightening. They also computed that the school could reduce the CO2 emission by 45.102 metric ton, by putting foil at the backside of the radiators. The project also resulted in energy saving tips which were sent to the parents and to the school board.

The students compared the amount of energy spent by families to electricity, heating and using cars. The results of the Belgian families were compared with the results obtained by the students of the Italian families. A letter was sent to the members of the Belgian parliament containing the main results of the project. Students suggested to the MP's how the CO2-emission could be simply reduced by reducing the number of cars at the level of one car per family and by supporting the use of public transport.

### Evaluation of the project

At the end of the project the whole team tries to answer the following questions, related to the goals of the project:

- did we reach are goals?
- where did we fail? how should we intervene in the future?
- can we expand the project to other issues?

## Country Report Denmark

by

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### 1.1 The state of Environmental Education and Education for Sustainable Development in Denmark

In this national report we adhere to the term 'environmental education' (EE) in order to include both aspects of the development of EE and education for sustainable development (ESD) / education for sustainability (EfS), despite the fact that the latter has developed a special profile in many other countries in recent years. The most important steering documents for environmental education in primary and secondary school in Denmark are the school laws and the description and guides related to the national curricula.

In § 3 of the Danish School Act of 1993 for the 'Folkeskole' (the Danish Primary and Lower Secondary School) the goal is stated in part as follows. Aspects especially relevant to the discussion of EE are underlined by the authors:

*"The Folkeskole shall familiarize the pupils with Danish culture and contribute to their understanding of other cultures and of man's interaction with nature. The school shall prepare the pupils for active participation, joint responsibility, rights and duties in a society based on freedom and democracy. The teaching of the school and its daily life must therefore build on intellectual freedom, equality and democracy".*

In accordance with that, a later section in the School Act points to central EE virtues that the students must acquire " confidence in their own possibilities and a background for forming independent judgements and for taking personal action".

Despite the formal introduction of EE in key subjects already in the school law of 1972, the 1993 law documented the priorities allocated to environmental issues on a governmental level and the awareness of society's dependence on natural resources and a clean environment.

The '93 law and its subsequent descriptions of objectives for school subjects and curriculum guidelines brought the Danish concept of EE in the official documents up to date and to the level of the Danish research related to EE by realising the fundamental democratic citizen perspectives of EE. As a background for the 1993 school act the Minister of Education had demanded that special emphasis be placed on 'the green touch' as an integrated aspect of most subjects in the Folkeskole.

Since then work has been carried out to develop more detailed descriptions of the aims of teaching in the Folkeskole. New aims for the central areas of knowledge and proficiency have been issued for many subjects, as have guidelines for intermediate requirements in connection with the curricula. The aims of the central areas of knowledge and proficiency including the intermediate requirements are binding for the schools and municipalities. The intermediate requirements describe the level of competence pupils are expected to achieve in the different grades. They signal a tendency towards stronger steering of general education from the national governmental level.

As yet, it is difficult to foresee the effect of these changes on the actual development of EE. An additional change has been the removal of the general 'green' focus from the documents and the rhetoric of the Ministry, as documented by the new series of curriculum guides (Undervisningsministeriet 2004). This change *could* be interpreted to mean that EE is regarded as mainstream and is integrated into most official documents of the Folkeskole. Important aspects of EE are now mandatory and are expected to be achieved in specific grades. Furthermore, it is underlined that all municipalities and schools have an obligation to work with what is called "pupils' versatile development" including "the development of the ability to actively take part in democratic processes".

However, formal conditions are only one aspect of EE; how EE works in practice is quite another. Although many schools have implemented environmental education in their normal praxis and on their main agenda, both the number of new national and local initiatives and schools' focus on the field have been reduced. As already reported in a research study (Mogensen, F. & Nielsen, K., 1999) focussing on pupils' experience with working with environmental problems in schools it was found that only approximately 50% of all responding pupils had worked with this type of problem. A marked decline in the number of teachers attending courses in EE offered by teacher training institutions and university colleges in Denmark are further evidence of this trend.

On the whole, the documents indicating the perspectives and content of the Danish 'Folkeskole' are adequate for an up-to-date component of EE in most of the subjects

offered in primary and lower secondary education. On the political level, the Haga Declaration is a recent event of importance for the focus on EE.

In March 2000 the Ministers of Education of the Council of the Baltic Sea States met in Stockholm at the Haga Palace. As declared in the resulting Haga Declaration, the Ministers agreed to develop and implement an Agenda 21 for Education in the region of the Baltic Sea. The Haga Declaration recommends that the Prime Ministers of the Baltic Sea States include education as a crucial sector for sustainable development in the region, see [www.ee/baltic21/document/ministerial/Haga\\_Declaration.htm](http://www.ee/baltic21/document/ministerial/Haga_Declaration.htm)

In connection with this work, each country had to elaborate a document dealing with the state of the art of EE in the education system. The suggestions put forward at the end of the Danish report<sup>2</sup> point to some of the challenges EE is facing in Denmark:

- It is a general comment from the experts involved in this survey that teacher qualifications need updating and that inspiration and encouragement is a necessary precondition for stronger development and integration of EE/ESD in schools. Most point to rather broad professionally and methodically orientated in-service courses. Time and money for local or regional study circles, possibly covering teachers of different subjects, are also considered helpful
- More targeted funding of teacher courses and for local development work could be used as seed money for turning attention to a greater degree towards EE/ESD
- Targeted research funding, including following up on results and pinpointing best practices, could help prevent a continuous reinvention of the wheel and help keep attention focused
- Targeted funding of the development of new teaching materials, possibly cross-curricular in nature and targeted at students in different age groups and with different qualifications is recommended. Internet-based interactive and internationally orientated materials that might be used in projects across borders would probably be very well received and used. Portals on the Internet for fast pinpointing of suitable and relevant materials are needed.
- Increased and more visible openness and goodwill between national, regional, local and school decision makers towards teachers and students working on EE/ESD projects nationally and internationally is recommended.

These proposals are all still relevant.

<sup>2</sup> The compiled document from all Baltic countries can be found at <http://www.ee/baltic21/>

## 1.2 School development in the framework of values inspired by EE or EFS

In general, very few national initiatives in EE have been directed at the development of entire schools, which means that most initiatives have in reality only involved a limited number of teachers at the participating schools, rather than all teachers and all classes. Even so, EE has on several occasions functioned as a vehicle for school development processes. The very concept of "school development" has several meanings in Danish terminology pointing to structural as well as content and/or teaching oriented meanings. Several of the improvements correspond closely with aspects of EE – for instance: student participation in the decision-making process, problem and project organised teaching, cross curricular teaching, teacher cooperation and exchange of experience within and between schools.

EE innovations have been incorporated in some initiatives for school development launched by regional or national bodies. Of these, initiatives made, financed and published by the Ministry of Education have given semi-official status to the documentation and inspiration derived from them. The publication 'Miljøundervisning i udvikling – Erfaringer fra MUVIN projektet' (Breiting 1998) ('Environmental education in development – experience from the MUVIN Project') is an example of such a publication and is downloadable from the Ministry's website. In this publication, the revised concept of EE is exemplified as being closely related to current constructivistic views on teaching and learning. The link between EE and school development is clear in these cases.

In another regional programme one of the foci is to qualify teachers to act as critical friends for colleagues in their own schools as well as at other schools in the region (see the description below). The rationale behind this focus was to turn the involved schools into 'learning organisations' and there have been clear links to the development of EE. Several national and regional programmes aimed at furthering the above-mentioned school development processes have been made in recent years and are still in progress. For instance, a large proportion of Danish schools have been working within the field of problem and project organised teaching and learning. The results of the action research connected with the programme are now available to the general public.

### 1.3 NGO supported initiatives

Several NGOs provide support for EE projects in Danish schools, but very few are aimed at school development. Many more NGOs and private companies provide advice and

information for school projects through websites, external experts, reading material etc..

#### 1.3.1 The Danish Outdoor Council

The Danish Outdoor Council organises environmental education campaigns for schools. These include the "Green Flag – Green School" - campaign (a kind of Eco-School campaign), Young Reporters for the Environment, 'the Forest in the School' campaign, and 'Action 21' for Danish and Zimbabwean high school students. Generally, teacher training or guides are provided corresponding to the activities for the pupils. These NGO supported initiatives are adopted by several schools; at the beginning of 2002, for example, 190 schools were registered as active participants in the Eco-School campaign. This programme will be described later.

#### 1.3.2. The Danish Society for the Conservation of Nature

The Danish Society for the Conservation of Nature is an NGO dealing with a wide number of issues concerning nature, 'our common environment' and 'resources and consumption' (<http://www.dn.dk/sw105.asp>). Although most efforts are invested in initiating public participation and dialogue with authorities and industry, the NGO also has its own school service, called 'Vilfred'. This service offers information and free teaching material, has its own website, and facilitates cooperation between schools and enterprises. Many teachers make use of this support body.

#### 1.3.3. Ibis

Ibis is an NGO aimed at supporting peoples' equal access to education, influence and resources in Latin American and African countries (<http://www.ibis.dk/>). In this context the NGO organises joint EE projects involving schools from Denmark and Africa in which cross-national communication is central. The organisation supports the schools with material, websites and occasionally in-service training seminars for the teachers. Many schools avail themselves of this offer.

#### 1.3.4. Forum for Miljøundervisning (FFM)

Forum for Miljøundervisning (FFM) ([www.ffmpeg.dk](http://www.ffmpeg.dk)) is an NGO that has launched a number of EE programmes since 1984. More than 800 school classes have participated in this period. FFM organises projects, develops teaching material and supports teachers with short in-service training seminars.

## 2. The Eco-school development processes

In the following three initiatives will be dealt with in more detail:

- The MUVIN programme
- Project Green Touch
- The Green Flag – Green School campaign.

### 2.1 The MUVIN project

The MUVIN project was initiated by the Nordic Council of Ministers and was given special attention in Denmark by the Danish Minister of Education as a main effort to support the 'green aspect of education'. Even though the MUVIN project was concluded a number of years ago, it still represents a benchmark for EE development in Denmark. To a large extent its ideas and results have set the agenda for the development of EE in Denmark.

#### 2.1.1 General description

The MUVIN project was aimed at developing a coherent and democratic understanding and practice of EE in the Danish Folkeskole and gymnasium (upper secondary school). The teachers' skills in promoting innovative EE were seen as crucial. It was school based, with all decisions concerning the teaching delegated to the participating teachers, and it was focussed on conflicting interests related to people's use of natural resources.

Because it was realised that the MUVIN initiative represented a break with dominating views on EE in Denmark, special efforts were made to promote the basic ideas of this 'new generation of EE' with the stakeholders. Accordingly, a number of regional study circles and a coaching team of 22 resource persons were set up, all linked to the Research Centre for Environmental and Health Education at the Royal Danish School of Educational Studies. Seven educational researchers supported and investigated the innovations through what may be described as a form of action research or 'dialogue research'.

The full-scale MUVIN phase involved 100 schools with 300 teachers and more than 2000 pupils in grades 5 – 10 and took into account many aspects from the pilot phase. In addition, the innovations were adopted at two upper secondary schools that are not dealt with here. The initial pilot phase involved 23 classes from 9 schools. The MUVIN programme was developed and launched by The Royal Danish School of Educational Studies (now incorporated in the Danish University of Education).

#### 2.1.2. Explicit criteria

The explicit criteria related to the teaching of teachers participating in MUVIN were that:

- Teachers should be open to the idea of developing their role and skills and should plan at least two sequences of teaching related to environmental issues.
- Environmental problems should be seen as societal issues.
- The teaching sequences should be interdisciplinary and problem based.
- Conflicting interests related to the use of natural resources should be in focus in the understanding of issues in the community.
- Teachers should emphasise class' participation and shared responsibility in decision making.
- The pupils should be encouraged to take a stand on ethical aspects of the environmental issues.
- The teachers should let pupils investigate environmental problems in the community outside the school and should let pupils get in touch with people who hold differing views on a specific environmental problem.
- It was recommended that the pupils gain experience in taking action in relation to the environmental problems they are working with.

#### 2.1.3. Implicit criteria

Implicit in this set of explicit criteria are:

- The notion that environmental problems must be understood as conflicting interests in the use of natural resources. This implies that it is not "Nature" that is the problem, but rather human communities whose use of nature generates problems for human living conditions now and in the future. Environmental problems are seen as complex societal problems.
- A general and philosophical understanding that human beings are participants rather than spectators, stressing the need to involve and qualify future generations for a democratic society through environmental education.
- The concept of "knowledge" in relation to environmental issues is complex and extensive. Environmental problems must be seen as more than just their "effects", for instance, the degradation of the natural environment. Also, the causes of environmental problems and alternatives and visions for a sustainable future and possible actions must be considered to form important parts of "environmental education knowledge".

#### 2.1.4. Support

The programme offered support to the participating teachers in several ways: conferences were, for example, organised at the start of the project; in-service teacher training courses in the form of study circles were offered in parallel with classroom teaching; and from the beginning teachers were introduced to the central ideas of this new generation of EE and how to link these ideas to a more democratic teacher role. However, the development of school practice including the choices of the environmental issues /problems to be addressed was the full responsibility of the teaching teams at the school supported by the coach.

#### 2.1.5. Obstacles and progress

According to the research reports a number of obstacles were encountered. The most important at the level of understanding was the difficulty of some teachers to comprehend real democratic EE. Many teachers had been used to seeing EE as a kind of environmental advocacy often grounded in the teacher's own environmental commitment. Therefore, avoiding the urge to push students towards more environmentally friendly individual behaviour could be difficult, explicitly or implicitly. The crux of the problem was the reorientation of the role of the teacher from being classic informing teacher to being a supportive coach in the pupils' learning. Another limitation was the adherence to science subject matter. The project's focus on conflicting interests related to the use of natural resources was meant to encourage independence from the tradition of linking EE primarily to science education. Many experienced EE teachers followed this tradition and had difficulties breaking free of it. However, in general the focus on conflicting interests did genuinely help the teachers to focus on environmental problems as community issues. The level of understanding gained by the pupils of conflicting interests as part of environmental issues seems to be dependent to a greater extent on how well the teacher was able to internalise this view himself than on the age of the pupils.

## 2.2 The Green Touch Project in Aarhus

### 2.2.1. General description

This project was launched in August 1999 on the background of a central decision from the City Council of Aarhus. Aarhus is the second largest city in Denmark. The programme ended formally in January 2003, although a spin-off of the programme has now been launched (see later). It was an in-service teacher training programme and at the same time functioned as an EE development programme trying out new ways of

working with EE and ways of integrating teachers as stakeholders in in-service teacher training. 30 schools and 175 teachers were involved in the project from 2000 - 2003. A fundamental idea behind the programme was thus to let EE function as a kind of vehicle for certain teaching and learning processes that were considered valuable in relation to the fulfilment of the School Act. It was also an important aim for the programme to qualify teachers to inspire, guide and be critical friends for colleagues who want to work with environmental issues – qualifications that are also valuable for other school subjects. Finally, an additional idea behind the project was to promote and qualify intra- and inter school co-operation at the teacher level aiming at school development in general.

The project itself was grounded on an action research idea: the teachers reflected on their own ideas and experiences; discussed changes and improvements with colleagues, critical friends (called "resource persons" in the programme) from other schools and coaches from the Danish University of Education.

The last phase of the programme has focused on developing a resource centre for EE in the municipality. This is one of the more "visible" outcomes of the Green Touch Project, building on the teachers' experiences and involving them in the development and running of the centre.

### 2.2.2. Explicit set of criteria – to EE school projects and the school development process

Although it was not a must to include a specific kind of school project, the following concepts and ideas related to the student level were discussed during the in-service teacher training course and functioned as an explicit set of criteria. However, it was up to each teacher or team of teachers to decide what was relevant for them and their students:

- Focus on the development of students' action competence.
- Point of departure in conflicting interests related to the use of natural resources.
- Students taking part in the decision-making process.
- Involvement of resource persons from the local community.
- EE organised as project work.

Several criteria related to the teachers and the school development process were put forward, all aimed at developing, exchanging and making visible new knowledge within the area of education as well as experience within the field of EE gained at each school separately and through cooperation between schools:



- The schools should establish local networks.
- The resource persons should act as critical friends/function as supervisors for colleagues at their own schools.
- The resource persons should act as critical friends/function as supervisors for colleagues at other schools.
- The resource persons should organise meetings or seminars at their own schools in order to mainstream EE.
- The resource persons should integrate EE in the local school plan for education.
- The resource persons should put central EE ideas and experiences gained from EE on the agenda at local school meetings and seminars, pointing out the general didactic value of working with EE from an action competence perspective.

### 2.2.3. Implicit sets of criteria

Behind these sets of criteria related to the school projects lie implicit sets of criteria. By focusing on the concept of action competence it is an implicit criterion that EE not be used as behaviour modification, "activism" or with the aim of forming the attitudes and values of the students in specific ways.

Another implicit criterion is similar to the one mentioned in connection with the MUVIN programme. By taking point of departure in conflicting interests related to the use of natural resources, emphasis is placed on the idea that environmental problems are not problems of nature but problems of humans. Thus, the traditional scientific approach must be supplemented with a socio-economic approach.

An implicit set of criteria also lay behind the school development process. For example, the idea of introducing resource persons or critical friends as a means of developing colleagues teaching skills is based on the implicit criterion that functioning as a teacher is not purely a "private matter". Instead, giving the teachers the possibility to discuss their projects with a qualified and skilled colleague makes teaching an open and shared matter. The school becomes closer to the idea of a learning organisation that values the sharing and discussion of problems, challenges and possibilities among colleagues. There is recognition of the fact that teachers can help each other without losing face, thus eliminating the common "who-do-you-think-you-are" attitude.

Another implicit criterion is that the qualifications of the critical friend are considered exemplary in the sense that he or she can be useful to the school in subject fields other than environmental education. The skills and experiences developed in an EE programme are to a great extent transferable to other subjects.

### 2.2.4. Developmental process

The overall development process of the Green Touch Project has facilitated the development of an application to the city council of Aarhus aimed at creating a support structure for EE for the next 4 years (for the time being). This successful application has been based on the main ideas and experiences of the project and with the involved teachers as central actors.

The offer will be open to all schools in the municipality and will encompass the following elements:

- Thematic meetings and arrangements aimed at strengthening school networks
- Arrangements for all teachers on specific EE issues
- A critical friend support centre
- An EE database
- An email conference
- Information about EE activities
- Visions and plans for EE.

Teacher involvement is crucial in the planning, organisation and completion of the events related to each of the elements in the support structure. The teachers will be funded by the municipality for carrying out this work.

### 2.2.5. Support

The programme was co-ordinated and lead by the Danish University of Education (DPU). The activities varied between conferences, seminars, courses and local school projects lead by teachers and supported by coaches. Two networks were set up: a network comprising schools making partnerships and a network of critical friends. The networks functioned as forums for reflection and discussion.

### 2.2.6. Obstacles

Although the criteria mentioned above were explicit, it often turned out that these ideas were difficult to achieve in reality. A summative evaluation showed that for some teachers it was difficult to shift their perspective from the "common" way of teaching EE, i.e. taking point of departure in a natural science perspective and not taking the pupils' wishes and proposals seriously. Implied aims of behaviour modification or activism are dominating elements. The common way of teaching EE thus differs fundamentally from the original aim: more cross-curricular organisation and critical and

democratic perspectives aimed at developing pupils' action competence. Thus, many teachers faced obstacles in putting the above-mentioned explicit criteria into practice. The following table from the summative evaluation of the programme shows that many teachers actually took up the challenge to work with conflicting interests and actions and involved students in the decision-making process:

	very high degree of participation %	some participation %	low degree of participation %	very low degree of participation %	no participation %
conflicting interests	20	36	24	16	4
student participation concerning choice of content	12	28	12	40	8
student participation concerning choice of working process	12	44	20	16	8
student participation concerning evaluation of the project	16	40	12	24	8

Figure 1. Data from the summative evaluation of teachers in the Green Touch Project in Aarhus related to aspects of special relevance for students' development of action competence (N= 65).

The environmental improvement part of the overall programme sometimes confused the teachers, who had difficulty distinguishing between the processes and aims related to this part of the programme and those related to the educational part of it. Instead, elements and aims connected to environmental improvement of the environmental problem became implicit criteria for some teachers in the programme. The following table shows that the two perspectives have quite different foci on various levels which can easily give rise to a project lacking a clear aim (Fig. 2).

The Green Touch Project revealed that it is crucial for teachers to be fully aware of these two different kinds of environmental projects with the different means, aims and learning processes involved and the different criteria for success (Fig. 2). An EE project may include a technical environmental improvement perspective, but *how* it does so is crucial to maintaining the overall educational perspective.

Both the formative and summative evaluations showed that supporting teachers so they can function as critical friends is a very promising way of strengthening the

	An Environmental Education Project	An Environmental Improvement Project
<b>Type</b>	An educational project	A 'technical' environmental improvement project
<b>Means</b>	Learning processes	Technical arrangements concerning installations, routines and regulations etc.
<b>Aim</b>	Development of action competence in relation to environmental problems	A reduction of the schools' use of natural resources and reduced pollution
<b>Characteristics related to the aim</b>	Open aims*	Closed aims
<b>Student participation in the decisions</b>	Great potential	None/limited, often of a technical nature only
<b>Potential number of learning processes</b>	A great number and a broad variety of possible learning processes	Rather restricted number of learning processes
<b>Typical types of learning processes</b>	Knowledge acquisition, critical reflections, judgements and taking a stand to understand and solve environmental issues	Getting factual information and doing measurements to solve technical problems
<b>Typical types of questions and types of knowledge</b>	Value questions and factual questions and the different kinds of knowledge they represent	Technical questions and factual knowledge
<b>Criteria for success</b>	Development of action competence	Achieved reduction of the schools' negative influence on the environment and/or saved money

Figure 2. Comparing the two extremes of environmental projects in schools: The overall educational EE projects and the environmental improvement projects, and typical aspects of each.

(\* ) Related to the frame of supporting students' action competence.

school's own educational capacity - and at the same time facilitates the mainstreaming of EE at the school. Accordingly, more than 65% (N=28) of the resource persons stated in a questionnaire that *"compared to before the project, they are now more attentive and interested in educational issues and problems because they have qualified themselves to be a critical friend"*.

However, the evaluation showed that if the principal at the school does not back up the project and the teachers morally and economically (in terms of working time), the process seems to decline. The teacher teams simply become faced with too many obstacles and give up the programme.

## 2.3 Green Flag – Green School Programme

### 2.3.1 General characteristic

The "Green Flag – Green School" programme is the name of the Danish Eco-school programme within the frame of FEE. It follows the internationally recognised basic principles or criteria, which state that each project must deal with the following:

- The establishment of an environmental committee.
- The development of an environmental action plan aimed at achieving a more careful consumption of resources.
- Participation of at least 15% of the students in the programme.
- The establishment of an environmental code for behaviour.

Thus, the Danish Green Flag – Green School programme is a structured and systematic programme aimed at involving many levels of the school community in assessing the impact of the school on the environment and is thus very similar to the sister programmes in other countries of Green Flag – Green School. The Danish Eco-school programme is run by The Danish Outdoor Council.

### 2.3.2. Explicit set of criteria

Besides these basic principles, the Danish Eco-School programme includes some national demands or explicit criteria for the school projects. Unlike some of the other Eco-school countries, the schools in Denmark are obliged to address a certain theme each year (water, energy, waste, natural environment or a project for continuous implementation of green initiatives at the school: "environmental revision") and to work exclusively with this theme.

Regardless of which of these above-mentioned themes is selected, certain criteria must be fulfilled according to the national agency in order to ensure that the schools

have worked carefully with all aspects. A leaflet from the Danish Outdoor Council states that the schools must work with:

- Investigation (look into the background of the resource, where does it come from, how is it produced etc). "Out of school visits" to power plants or waterworks are often made in connection with this.
- Practical work. Change a part of the school in order to show that resources can be used in a wiser way.
- Saving resources. The consumption of water and energy as well as the production of garbage must be reduced.
- Publication of results. The aim of publishing results is to make the school well known in the local area, and to encourage the people around the school to follow the good examples set. The schools must make specific environmental action days, write and publish articles in local newspapers, make exhibitions in the public library or use other means of spreading information to the world outside the school.

Every year the schools must make a short report if they want to be awarded a green flag to put on the flagstaff outside the school. In this report they must write explicitly about how they have fulfilled the above-mentioned criteria (the making of an environmental action plan, numbers of pupils involved, the number of out of school visits, the amount of energy, waste etc reduced and the publication of results for the benefit of others). This report must furthermore be signed by the principal as well as the mayor of the city.

The (former) chairman of the Danish Outdoor Council emphasises, however, that some basic points should be stressed in relation to EE:

- Environmental education is not only theoretical work, it is also practical. It is essential that pupils and teachers deal with both the theory behind the use of resources as well as the possibilities for actions, i.e. that the teacher in a constructive way enables the pupils to act in their own environment.
- In the teaching material environmental problems are presented on the level pupils perceive them in their surroundings. The pupils are encouraged to study the background of the problems and to transfer the gained knowledge into a practical solution in their daily lives.
- Co-operation between the different school subjects is necessary when working with the project. Cross-curricular work is encouraged by the practical projects and also by the complex nature of problems related to the wise use of resources.
- Links to the world outside the school are important. Education is not only for children locked up in the school. Experience from our daily lives should be used and

also influenced by what happens in schools. Pupils should influence their parents and also debate with the people living in their local areas.

### 2.3.3. Implicit set of criteria

A closer examination and interpretation of these explicit criteria reveals that pedagogical or educational criteria are not mentioned. This is thought-provoking because the programme has been developed for schools. The formulation of the explicit criteria focusing on saving resources sends a signal to the teachers. This signal can be viewed as an implicit criterion: that reducing waste and limiting water consumption etc through pro-environmental action is more important than students' learning, which increases their knowledge of handling complex environmental issues in the community. The Danish FEE programme is hosted by the Danish Outdoor Council, an umbrella NGO organization. In general, the Outdoor Council has promoted the view that nature experiences are valuable means of engaging people in environmental protection. In relation to EE this sometimes implies striving towards positive experiences that give rise to feelings and emotions towards nature. The rationale behind this approach in EE is that if you build up positive emotions towards nature and the environment then you are more likely to become interested in taking care of it. Research in this field tells us, however, that this is no simple relationship. For the Danish Green Flag – Green School programme, a quest for positive nature experiences can be regarded as another example of implicit criteria.

### 2.3.4. Support

The Danish Outdoor Council supports Green Flag schools in several ways, but does not arrange formal course activities or provide consultant support unlike the two other programmes described earlier as national EE initiatives. The Programme supports schools through:

- Teaching material, comprising booklets for pupils and teachers within all the topics (water, energy, waste, nature).
- Annual conferences and seminars that introduce new schools to the programme.
- A newsletter providing information from the participating schools that may give teachers good ideas.
- A secretariat and a database.

## 2.4 Comments on the programmes and EE's contribution to school development in general

How can EE contribute to school development – and how can the above-mentioned initiatives shed light on this issue?

The basic assumption in answering these questions is connected to how EE is to be understood. The initiatives outlined above raise a challenging question for EE by pointing out the gap between at least two different understandings of EE: a critical, democratic EE, aimed at developing action competence, and a more "traditional" view on EE. The concept "action competence" means developing learners' ability and will to take part in democratic processes concerning humans' use of natural resources in a critical way (Breiting et al., 1998).

The goal of environmental education is not to "save" the environment or nature here and now. In the first place, the teaching is for the sake of the pupils. Of course, it is the intention that the pupils in the long run will be well equipped to handle environmental problems but teaching in schools is first and foremost aimed at education. Any work done with the aim of solving any of the contemporary environmental problems should be seen as a learning ground for participation and for acquiring a better understanding of complex, controversial environmental issues.

A higher level of action competence, the democratic goal of EE, should be understood as an 'educational ideal'. As such, its relevance is not restricted to EE but extends to all subjects and themes dealt with in the school. Karsten Schnack argues: *"...action competence is situated in a non-place, a utopia, where it seems to get along very well in the company of such concepts as liberal education, democracy, human rights, sustainable development and equal ("herrschaftsfrei") communication. All these concepts live for, and ended of the fight against violence and oppression"*. Taking this into consideration, developing action competence through EE helps learners in many other fields, too.

On the level of teaching, the initiatives mentioned have shown that working with the development of action competence in the classroom provides a useful theoretical and practical framework for realising important general educational goals.

Central elements in EE projects like these are:

- student research on local environmental issues,
- taking part in the decision-making processes,
- critical reflections,
- interaction with community members,
- finding solutions to the problem and
- taking action.

Only if these elements are connected to conflicting interests related to the use of natural resources can the projected be called an EE project, but even if this is not the case, they are important qualities of education.

### 3. Case studies

#### A Main Highway in Jutland?

##### Introduction

This case study originates from a course that two teachers did with a 5th grade in the city of Silkeborg when they participated in the MUVIN programme. The teaching sequence was 'project organised'. The main theme of the project was the various environmental problems connected to determining the location of and constructing a new highway through central Jutland in Denmark.

The school was of the opinion that in general, team teaching is very important. This idea is underpinned by the way the school is built and the teaching is organised. The school is physically split up into a number of "houses" consisting of three classes each with communal open areas. These houses are to a great extent economically and pedagogically self-regulated. Therefore, the teachers and the pupils were able to spend entire school days from 8 a.m. to 2 p.m. on the project.

The following is a description in the teachers' own words of what took place during the four weeks the project lasted. The description is centred on 12 aspects of the project, which are listed as headings. Following this, some reflective comments from one of the teachers point to key issues of the project.

#### The class project

##### 1. What is an environmental problem?

An introductory phase with several problems formulated by pupils and teachers.

Together we found out what is characteristic for an environmental problem: It has to do with human's use of nature. We found some local environmental problems near Gudenå (the biggest river in Denmark), a local slaughter house, traffic problems – and the discussion about a possible central highway in Jutland.

##### 2. Fact and data phase

What can we tell about the problem or issue? Are there any objective facts? We used the Department of Roads' publication and tried to get behind the numbers and

diagrams. The reasons stated for the choosing the location were considered. The central problem is that the highway will cross the Gudenå Valley, a protected area

##### 3. Opinions and points of views

Reading articles from the local newspaper and a few articles from the national debate. Preparation of questions for visiting teachers – an opponent (a person from the local Nature Protection Association) and a supporter (a local Conservative politician). Listening, taking notes, asking questions. Writing a summary of the most important arguments and points of view, playing the role of "lawyer" for the two persons. Practising repeating the points of view loyally while the rest of the class listens and criticises.

##### 4. New data phase

We wanted to examine matters ourselves by performing a massive traffic census by several approaches – and radial roads in intervals at rush hours – and a questionnaire, to find out people's opinions.

##### Visit by a reporter

To learn how to ask questions the right way, we had invited a reporter to visit the class. Pilot investigation. Installation of software for processing the results.

##### Fieldtrip

We were on a couple of fieldtrips. One to the Gudenå valley and one to a major road construction site

##### The collation of data

We had performed a traffic census and conducted a questionnaire survey, the results of which had to be examined.

##### Creating profiles

Creating profiles of the typical 'yes'; 'no' and 'in doubt' voter from the questionnaire.

##### Another visiting teacher

A married couple that lives nearby a heavily used ring road visited the class.

### Summing up: Where are the conflicting interests?

The pupils concluded that the conflicting interests related to the highway were connected to the following:

- traffic security
- preserved areas
- expropriation
- heavily used areas
- CO2
- employment.

### How are the things decided and who decides them?

We went through the formal decision-making process of such a case. The allocation of tasks between parliament, counties, and municipalities. A little about opinion formation, NGO's, political parties.

### Concluding class debate

The pupils should prepare a paper at home, expressing their own, personal view and the most important arguments.

### The issue of conflicting interest

A conscious decision was made to focus on conflicting interests in the project, and the issue dealt with in the project was selected so that this aspect could be made visible. However, it was also ensured that the project was factual and embedded in reality. There are several reasons for this. The term 'critical thinking' is especially important in this context. As it is formulated several places in educational literature, the term means that a problem or a case is treated from several points of view, and the critical dimension comes in when different arguments must be analysed. There is a perspective of general education ("Bildung") inherent in this formulation, because it suggests that critical thinking could lead pupils to take a stance on their own existence. Pupils are constantly bombarded with a media storm of 'easy' solutions and no conflicts, but life is not really like that. If pupils are to have any chance of seeing through this, thinking for themselves and resisting, then critical thinking must be introduced at school to a much higher degree than has been the case up until now. Critical thinking is related to the discussion of valuation. Pupils must learn to deal with the hidden intentions that often lie behind supposedly objective statements.

The highway subject was a good choice of issue, as it had two opposing points of view (for and against the highway) that were clear to the pupils, at least in the beginning. As the project progressed, things became more complex, but in a way the pupils could grasp. Basically, the pupils discovered that an opinion does not arise out of thin air. It is often rooted in people's material circumstances. It was surprising for the pupils to discover this, as became clear when they made the questionnaire. Already at this stage, they had a suspicion of that connection – otherwise they would not have asked the respondents about their education and work. But it became totally clear for them when the results were seen. They quickly started to 'predict' people's opinions, with just a little information, and in general they were correct.

Behind all this lies the notion that ideas and opinions are seldom expressions of pure idealism, but rather of more or less hidden interests. The task for pupils is to see through this. At the same time, we found out that some points of view cannot be harmonised. A side must be taken, and priorities must be made.

### The pupils' points of view

It was difficult for the pupils to change their points of view. Once the pupils had an emotional point of view, they became good at rationalising and finding good arguments for their beliefs. There distinctly resisted viewing things continuously from different angles. They saw me as a person who was never 'satisfied'. The interview situation turned out to be the way out of this dead-end. Suddenly the situation was authentic because they met people who did not feel a demand for versatility – they held on to their point of view.

The role of the teacher is often to ensure versatility and objectivity in the project by asking questions and raising questions in the pupils' minds. This role can be exaggerated, as probably happened a few times in this project, with the result that some pupils did not express themselves freely because they knew that their points of view would be examined and argued against.

The pupils changed their minds, for example, when they met the elderly married couple from the ring road neighbourhood, who clearly suffered from noise and smoke and were clearly unhappy with their home. They could simply not afford to move – and lacked the strength to do so, too. After this meeting, the pupils began to understand the concept of 'environment' as more than an aesthetic approach to rare plants and animals in a preserved area. Environment was now also a question of human well-being. The discussion of these understandings of the term was raised to a structural level by the pupils themselves – with a little help from me – and ended up being about housing policy, and who makes it.

**Next time**

In the next EE project, the pupils must participate to a greater extent in discovering different aspects of the problem. In my opinion, conflicting interests remain the central aspect, because they provide the key to a deeper understanding of the functioning of society.

This time I planned and decided the whole project – taking the pupils' age into consideration, but next time I will put forward some ideas and suggestions for joint decision making. The pupils must find the conflicting interest by themselves. I hope that they will select some areas of conflict together in groups, which they will work within in order to expose the underlying theme comprehensively.

Furthermore, we are faced with the challenge that two teachers and another class (same grade) will join us during the next project, which will hopefully lead to innovation.

## Country Report Finland

by Dr. Lea Houtsonen, Counsellor of Education, Finnish National Board of Education

### 1. The state of EE and EFS

#### 1.1 Comprehensive education and upper secondary education curricula to be reformed

The Finnish National Board of Education has confirmed a new framework curriculum for both comprehensive education and upper secondary education. The last reform of the framework curriculum was carried out in 1994.

The national framework curriculum forms the basis for drawing up local curricula, which is usually done by the local authorities. The new curriculum must be in use in comprehensive schools by 1 August 2006. The new upper secondary school framework curriculum will be adopted simultaneously in all Finnish upper secondary schools on 1 August 2005.

#### Curriculum planning for comprehensive education

The framework curriculum for years 1-9 is more detailed than before. It defines the aims and key contents of different subjects and thematic entities, and provides guidelines concerning student evaluation. The objective is uniform basic education, i.e. a continuum through years 1-9. Student welfare and cooperation between home and school are included in the curriculum for the first time. A new item on the curriculum is health education, which will be taught as an independent subject from year 7 and incorporated into other subjects before that.

#### Curriculum reform for upper secondary schools

The curriculum reform for upper secondary schools places emphasis on student welfare, makes the teaching of various subjects more uniform by basing them on a new foundation, introduces more cross-curricular themes and defines the scale of objectives in languages on the basis of the Council of Europe recommendations. It also defines the aims and content of the obligatory and advanced courses more precisely and brings them up to date, emphasizes the importance of the student council in helping students to grow into active citizens, and stresses the responsibility of all members of the school community within the framework of the operational culture of the upper secondary school.

## Cross-curricular themes

The importance of cross-curricular themes is emphasized in both comprehensive education and upper secondary education. These are principles that help to define the operational culture of schools and priorities that span the boundaries between subjects, thus helping to make teaching more unified. They should be taken into consideration in the teaching of all subjects.

The cross-curricular themes defined for comprehensive schools are:

- personal growth
- cultural identity and internationalization
- communication and media skills
- participatory citizenship and entrepreneurship
- responsibility for the environment, human well-being and a sustainable future
- safety and transportation
- man and technology

The cross-curricular themes defined for upper secondary schools are:

- active citizenship and entrepreneurship
- well-being and safety
- sustainable development
- cultural identity and knowledge of cultures
- technology and society
- communication and media skills

These cross-curricular themes are educational challenges that are of social significance, and serve at the same time as statements on current values. In practical terms, they are policies that structure the operational culture of the upper secondary school and priority areas that cross subject boundaries and integrate education. They deal with issues concerning our way of life as a whole.

The objectives uniting all cross-curricular themes are that students should be able to

- observe and analyse contemporary phenomena and operating environments
- express justified ideas on a desirable future
- assess their own lifestyle and prevailing trends from a future perspective, and
- make choices and take action for the future that they consider desirable.

The cross-curricular themes should be taken into account in instruction as appropriate for each particular subject and in the operational culture of the upper secondary school. Their main points are included in the subject-specific sections of the National Core Curriculum. The intention is that they should be supplemented, updated and cemented

within the local curricula. We will consider below two themes that are of importance for the ENSI project: “active citizenship and entrepreneurship” and “sustainable development”.

### 1.1.1 Cross-curricular theme: Active citizenship and entrepreneurship

The objective of the cross-curricular theme ‘active citizenship and entrepreneurship’ is to educate students to become contributing, responsible and critical citizens. This means participation in and the exercising of influence on different areas of society ranging from political, economic and social activities to cultural life. The levels of participation may be local, national, European or global.

The objectives are that students should

- consolidate their knowledge of human rights and the principles on which a democratic society operates
- be able to form their own justified opinions and discuss these with respect to other people’s opinions
- be familiar with various systems of social participation and their procedures
- be ready to participate, as individuals and in groups, in actions for the common good of their local community, municipality, society and living environment and to influence decision-making in society
- adopt a pro-active and enterprising attitude in their own actions
- be familiar with the different forms, opportunities and operating principles of entrepreneurship
- understand the significance of work for the individuals and for society
- be familiar with the channels of influence available to consumers and know how to use these.

The main focus in the implementation of this cross-curricular theme should be on practical exercises and the creation of personal experiences of participation and influence. In addition to the school’s own active efforts, a study environment of this kind may be developed in co-operation with other bodies operating in society, including various organizations and businesses.

### 1.1.2 Cross-curricular theme: Sustainable development

The national core curriculum for basic education also specifies the objectives and core content of the cross-curricular theme “Responsibility for the environment, human well-being and a sustainable future”. The goal is to augment the pupil’s abilities and motivation to act for the good of the environment and human well-being. One



objective of basic education to generate environmentally conscious citizens who are committed to a sustainable way of life. The school must teach future-oriented thinking in which the future is to be built up on ecologically, economically, socially and culturally sustainable premises. The core content should be:

- ecologically, economically, culturally and socially sustainable development in one's own school and living environment
- individual and community responsibility for human well-being and the condition of the living environment
- environmental values and a sustainable way of life
- eco-efficiency in production, society and everyday ways of acting; product life-cycles
- consumer behaviour, management of one's own household and the consumer's means of exercising influence
- a desirable future and the choices and actions required to attain it.

The aim of sustainable development is seen at the upper secondary school level as being to guarantee present and future generations full opportunities for a good life. Human beings must learn how to adapt to the conditions and limits dictated by nature and global sustainability. Upper secondary schools should encourage students to pursue a sustainable lifestyle and to take action to ensure sustainable development. The objectives are that students should

- be familiar with the key factors in the ecological, economic, social and cultural dimensions of sustainable development and understand that it is only the simultaneous attainment of all these dimensions that can lead to sustainable development
- know how to measure, assess and analyse changes occurring in both the natural environment and cultural and social environments
- reflect on what constitutes a sustainable lifestyle, an environmentally friendly and eco-efficient community and system of production, a community and society capable of reinforcing its social capital and a culture caring for its natural heritage from one generation to the next
- be able and willing to promote sustainable development in their own everyday lives, as upper secondary school students, consumers and active citizens, and
- be able to co-operate in working for a better future at the local, national and international levels.

Students should learn to examine the challenges to sustainable development from various points of view, exploring the effects of human activity on the environment and

changes that have occurred in the way human beings shape their environment during cultural evolution, analysing global environmental hazards and their causes, together with means of correcting the course of development, exploring problems related to population growth, poverty and hunger, assessing the cycles of substances and energy in the environment and production systems and learning how to save energy and raw materials, considering the characteristics of a form of economic growth that would not be based on an increase in the consumption of energy and raw materials, focusing on economic stability and its bearing on environmental protection and human well-being, studying forms of business and technology that fulfil the principles of sustainable development and learning how to exercise the means of influence available to consumers, determining the ways in which human activities can be adjusted to their environment with respect to the cultural heritage and without endangering natural diversity, and rehearsing the practices of sustainable lifestyles and determining their structural prerequisites. Examples of successful practices will be incorporated both into the instruction and into the everyday life of the upper secondary school.

In order to be encouraged to become active in promoting sustainable development, students need experiences showing that their own ethical, practical, economic, social and occupational choices make a difference. The promotion of sustainable development must create an overview of the magnitude of the needs for change and of the fact that the required results can only be achieved through broad-based co-operation. In addition to instruction, sustainable lifestyles will be encouraged by means of an environmental programme or sustainable development programme and an environmentally aware operational culture in the upper secondary school.

## 1.2. ENSI Finland

Finland has been a participant in the ENSI (*Environment and School Initiatives*) project run by the OECD's CERI organization since its inception in 1986. In accordance with the project's original aim, the Finnish contribution has been devoted to supporting educational institutions in their attempts to improve the state of the environment, promote the development of regional collaborative networks in environmental education, stimulate research into environmental education and make recommendations for principles that will support environmental education in schools. In accordance with the original plan, the strength of the Finnish ENSI project lies in the cooperation achieved between teachers, researchers studying environmental education and administrators. Another feature that has enriched the project is that it has attracted

schools from different levels in the general educational system, and has even included some teachers working in vocational schools. In between the official meetings, the teachers, research staff and administrator have worked together in a collaborative learning environment by means of the Knowledge Forum software.

One characteristic feature of the Finnish ENSI project has been its investigatory approach, adopted not only by the researchers but also by the teachers and students involved, who have gathered environmental information and made active attempts to influence the development of their own environment. Some of the participating teachers have been doing doctoral research in this connection, the first to complete a doctoral thesis being Vuokko Ahoranta, a head teacher from Parikkala, at the University of Joensuu in 2002. Three others are in the process of working on their thesis.

The Finnish ENSI project has placed great weight from the outset on new ideas, which are an essential part of all teaching aimed at promoting sustainable development.

These have included:

- 1) allowing teachers to investigate and develop their own work, with the accent on the importance of action research,
- 2) laying emphasis on the importance of cooperation between schools and the surrounding society and its economy, and
- 3) the developing in pupils and teachers of skills that are becoming increasingly necessary in society, such as attempts at developing initiative and creativity and understanding broader connections.

The Finnish ENSI Project has prepared a book "Developing Sustainable Education in Schools" in 2004, which will be published (in Finnish) by the Finnish National Board of Education at the beginning of 2005 (Houtsonen & Åhlberg 2005).

### 1.3 Baltic 21 E

The Finnish plan to launch the promotion of sustainable development in education and training / Baltic 21E was published on 16 October 2002. The section concerning schools provides for two development projects in general and vocational education. The first pilot study will devise a **sustainable development programme for schools** and the second project will develop a procedure for collaborating with an external partner as part of the teaching.

The aim of these is to develop practices and procedures for enlisting the commitment of the whole school community to promoting sustainable development and for incorporating sustainable development viewpoints into school management, the

organization and development of activities, teaching, learning and everyday practices. The practical work will be used as a basis for deriving models.

The participating institutions commit themselves to a two-year development process, and the National Board of Education will support the process with expert help and training. A researcher is involved in every pilot study, and every project works with a representative of the regional environment centre, many also with representatives of the local environmental, cultural and planning authorities. The National Board, working in collaboration with the schools, will write a process description of all the stages, including problems encountered and solutions reached. A guidebook will be written based on the experiences, and this will crystallize ideas for ways of working for sustainable development, with the aim of enlisting the commitment of the whole school community and ensuring that it is realised in both learning and everyday practices.

In 2005, after the pilot stage, the network will be expanded in Finland and into other Baltic countries in accordance with the Baltic 21E programme. The experiences gained in the pilot stage and the guidebook will be used in the networks. The guidebook will be made available on the National Board's web service ([www.edu.fi/teemat/keke](http://www.edu.fi/teemat/keke)), which will help to disseminate information outside the network. The guidebook and ideas put forward by the participants will form a basis for new pedagogical materials.

### 1.4. The Baltic Sea Project

Finland is also taking part in the UNESCO Baltic Sea Project, an international environmental education project aimed at improving the state of the Baltic Sea and developing working methods suitable for use in schools that conform to the principles of sustainable development. All the countries bordering on the Baltic are involved in the project, which in Finland entails cooperation between schools and the authorities, research institutes, companies and organizations.

The aim of the project is to increase pupils' awareness of environmental problems and teach them to understand the relation between man and nature. Attention will be paid to ecological, social, community and economic development. Attempts will be made to arouse in the pupils a personal interest in nature and the built environment and to allow them to study different cultures and give them an experience of international cooperation. The aim is to allow them to learn to accept responsibility for themselves and for future generations, to exercise influence in environmental matters and to use the right channels for doing this.

The Baltic Sea Project is an extensive undertaking that includes seven subprojects: Water Quality, Air Quality, Rivers, Phenological studies, Bird ecology, Coast Watch and Environmental History. Schools and pupils are free to choose the subprojects in which they would like to take part, after which they are expected to play an active role in making observations and examining samples by appropriate methods. This project involves schools at all levels in the system and covers a number of school subjects. Every effort is being made to give prominence to the principles of sustainable development. The project has so far produced teachers' guides and a magazine that come out twice a year.

## 2. The Eco-schools development process

### *Finnish Environmental Criteria for Schools and Educational Establishments*

#### 2.1 Values implicit in the criteria applied to environmental education

Schools and educational establishments have an important role in promoting sustainable development and environment protection activities. The curricula and the National Board of Education's Sustainable Development Programme oblige educational establishments to include environmental matters in their syllabi and to observe sustainable development in all aspects of the school's operations.

With regard to environmental issues, the greatest potential for an educational establishment is the possibility for influencing its students' environmental knowledge, skills and attitudes. Environmental education has an indirect impact on the environment through the ways in which students behave and act later in their lives as employees, consumers and citizens.

Learning environmentally responsible actions is an important part of education, and the credibility of environmental education depends to a great extent on how environmental values are reflected in the everyday life of educational establishments. A learning environment should function as an example of a sustainable way of life, and it is therefore important that the pupils and all the staff should participate in the planning and implementation of environmental work.

School buildings form a significant part of our public buildings, and it is not a matter of indifference from the environmental point of view how the maintenance of these premises is arranged. Energy, water and material consumption by schools is considerable, as is the amount of waste they generate.

A school's external co-operation through projects and dialogue plays an important role in promoting sustainable development. More can be achieved collectively, and at the same time, important skills of engagement and influencing can be learned. Sometimes environmental reforms require investments, upon which the administrator of the school must make the necessary decisions. Therefore an educational establishment should co-operate with the administrator in implementing improvements.

#### 2.2. General characteristics

The aim of the environmental criteria is to support the work of sustainable development in schools. The criteria focus mainly on the ecological aspect of sustainable development, but they will be extended in the future to cover the economic, social and cultural aspects as well. They are applicable to comprehensive schools, upper secondary schools, vocational institutes and other educational establishments, and can be used as self-assessment tools and as requirements for granting an Environmental Certificate

Finnish schools and other educational establishments have been able to apply for an Environmental Certificate since March 2004, and this has been awarded so far to two comprehensive schools, one upper secondary school and two vocational schools. The certificate serves as an incentive and encourages schools to strive for better environmental performance.

The environmental criteria and certification system were created in the Envedu project (2001–2004), which was granted financial support from the Life Environment instrument of the European Commission and the Finnish Ministry of the Environment. The participants in the project were the Trade Union of Education in Finland, the OKKA Foundation, the National Board of Education, the Hyvinkaa-Riihimäki Vocational Adult Education Centre, the University of Oulu, the University of Joensuu and the cooperative Eco-One. The Finnish Association for Environmental Education also assisted in developing the environmental criteria.

Nation-wide environmental training was organised in Finland throughout the project to support the construction of environmental management systems and to prepare schools to meet the Environmental Criteria. Altogether 205 teachers from 149 schools participated in this training between 2002 and 2004, and the courses will continue in 2005. The guidebook "Environmental Certification of Educational Establishments" was produced to provide schools with further assistance in their environmental work.

A network of environmental auditors was created by recruiting and training teachers and other personnel from schools and local authorities all over Finland. The auditor training courses attracted 107 participants altogether, of whom 69 qualified as

competent auditors for inclusion on the register of the OKKA Foundation. The network promotes the continuous improvement of environmental work in schools and supports the evaluation of environmental performance in other municipal organisations as well.

### 2.3 The explicit set of Environmental Criteria

Environmental criteria have been developed for schools and educational establishments that want to improve the incorporation of environmental issues in teaching and learning and in management and maintenance activities.

The criteria consist of three entities, which are

1. Planning, organizing and developing of environmental issues
2. Teaching and learning
3. Maintenance activities

The aim of the criteria concerning the “planning, organizing and developing of environmental issues” is to ensure the consistency and continuity of the environmental work carried out by the educational establishment. Major aspects include environmental issues in the establishment’s values and management, planning of its environmental programme, internal co-operation and participation, environmental instructions, education, communication and the evaluation and development of the activities. In addition, reviews are made of the way in which the establishment complies with the requirements of the environmental and occupational safety legislation, undertakes safety activities and takes precautions with respect to accidents and emergency situations.

The requirements concern the following areas:

- 1.1 State of the environment
- 1.2 The environmental values of the educational establishment
- 1.3 Environmental programme
- 1.4 Commitment and co-operation
- 1.5 Environmental instructions, responsibilities, education and communication
- 1.6 Cooperation with stakeholders
- 1.7 Environmental and occupational health and safety legislation
- 1.8 Safety and actions taken in emergency situations
- 1.9 Evaluation and development of the operation

The most important criteria are those dealing with teaching and learning.

Environmental education is reviewed as a process of continuous improvement in which planning, implementation, evaluation and development follow on from one another.

The aspect concerning the implementation of environmental education is based on the theoretical planning model for environmental education developed by J.A. Palmer (Palmer 1998). Implementation is evaluated from three perspectives, i.e. education about the environment, education in or from the environment, and education for the environment.

Only some of the criteria concerning the ‘Teaching and learning’ are compulsory, the others being scored. The requirements concern the following areas:

- 2.1 School syllabi, compulsory
- 2.2 Educational resources (Learning materials, Teachers’ environmental skills, co-operation), compulsory
- 2.3 Implementation of the elements of environmental education in teaching (education about, in or from, for the environment), scored, max. 45 points
- 2.4 Evaluation and development of environmental education, compulsory.

The maintenance activities of the educational establishment have direct impacts on the environment (e.g. in the procurement or use of materials, consumption of energy and water, and waste management). The way in which these environmental issues are taken into account plays an important part in influencing the environmental knowledge, skills and attitudes of the pupils and school staff. In order to achieve credibility, a school must act as it teaches. The environmental issues related to maintenance activities enable the pupils and staff to participate in implementing an environmental programme in practice.

As far as ‘Maintenance activities’ are concerned, the criteria are compulsory, but some special activities or actions of quality are rewarded with extra points. The requirements concern the following areas:

- 3.1 Use of material and procurements, compulsory + 2 extra points
- 3.2 Waste management, compulsory + 4 extra points
- 3.3 Consumption of water, compulsory + 2 extra points
- 3.4 Energy, compulsory + 4 extra points
- 3.5 Occupational health and job satisfaction, compulsory + 2 extra points
- 3.6 Cleaning, compulsory + 2 extra points
- 3.7 Catering services, compulsory + 3 extra points
- 3.8 Transport and traffic, compulsory + 2 extra points
- 3.9 Use and storage of hazardous chemicals, compulsory + 2 extra points
- 3.10 Further environmental actions, max. 3 points

## 2.4 The Certification System

Before a school can apply for an Environmental Certificate, it has to carry out a self-assessment, in addition to which an independent, external auditor will evaluate the self-assessment report and carry out an audit at the school, verifying that it fulfils the Environmental Criteria and giving it feedback on its strengths and needs for improvement.

A school must fulfil the mandatory requirements of the Environmental Criteria and receive a minimum number of points on the scored criteria. The minimum points for the criteria concerning "Teaching, participation, co-operation and learning" will vary depending on the type and level of the school.

The school should apply for an Environmental Certificate from the OKKA Foundation, enclosing a verification signed by the auditor and a copy of the school's self-assessment report. The certificate is free of charge, but the school must compensate the auditor for costs of planning and implementing the external audit. The certificate is valid for a three-year period at a time.

## 2.5 Environmental management systems in schools as a tool for operational development

The foundation of the environmental criteria is the principle of continuous improvement, which is connected with quality management. The environmental criteria have been elaborated in accordance with the demands laid down by certain environmental management standards (ISO 14 001 and the EU's EMAS Regulation) for operational planning, control, evaluation and development. The standards have been modified, however, to be better suited to educational establishments.

An environmental management system (EMS) is a tool for managing and developing environmental matters at school, intended to help the school to achieve the performance level required by the Environmental Criteria for Educational Establishments. An EMS helps the school to gain savings in expenses, improve its image and develop the quality of its work. The Environmental Criteria can be used in constructing the EMS.

It is good to start environmental work in an educational establishment with an environmental review which maps out the present situation of environmental matters in its teaching and maintenance activities. It is very important that various personnel groups should be represented in the review, so that it is easy to gather information on issues related to various operations. The pupils can participate in the mapping

operation as well. The objective of the review is to identify the environmental aspects of different operations, i.e. environment-related issues, which may have environmental impacts. These include energy consumption and waste generation, for example.

Environmental education that can have a positive impact on the environmental knowledge, skills and attitudes of the pupils and staff is crucial for teaching.

Furthermore, it is important in connection with the review to record the needs for improvement related to environmental aspects, which can be evaluated on the basis of these environmental criteria requirements, for example.

The information gathered with the review functions as the foundation for compiling the environmental programme for the educational establishment. The environmental programme includes the objectives and action plan, which can relate to the development of the teaching, or projects for improving the premises or saving energy, for example. It is important that the implementation of the environmental programme is visible in the teaching and everyday life of the school. To support the implementation of the programme, instructions, education and communication are needed in order to ensure that the whole community of the educational establishment is committed to the programme.

The evaluation and development of the operations are related to continuous improvement thinking. The evaluation can be based on self-assessment by the management, teachers, pupils and other members of staff, and the results should be discussed together. In this way they will be able to recognise the development needs and transfer the best practices over subject and personnel group boundaries. The aim is that the environmental matters should be regarded as a part of the whole planning, implementation and evaluation circulation of the educational establishment.

## 3. Case studies

Some of the Finnish ENSI Schools are also Eco-schools, e.g. Hönttämäki Primary School and Mahnala Primary School. Environmental education at Hönttämäki Primary School is based on the idea of strengthening the pupils' positive relationship to nature. The school has its own environmental learning centre, Timosenkoski Nature School, situated about half a kilometre away. Mahnala's environmental learning centre lays emphasis on use of the immediate surroundings of the school for teaching purposes, sustainable everyday practices and a rural perspective.

### 3.1 Hönttämäki School: from nature education to education in a sustainable lifestyle

Seppo Saloranta

Headmaster, Hönttämäki School

Hönttämäki School is situated on the edge of the city of Oulu in northern Finland, eight kilometres from the city centre. It has 200 pupils and 14 teachers, and its location on the edge of a rural area with a predominance of forests was recognised as an outstanding factor when we set out in autumn 1991 to evaluate the school's strengths and possible areas of focus. The teachers were also mostly interested in nature, and so it was decided, with encouragement from the governing board, to give priority to nature studies. A working group was appointed to pick out those aspects of the existing curriculum that were of particular importance in this respect, and these were gathered together into the "Hönttämäki School nature study syllabus". This marked the first step in a process that led to the school's inclusion in the ENSI project.

Environmental education has experienced a snowball effect at our school, attracting new aspects and growing all the time.

#### *The themes of the ENSI project fit in with our school's aims*

To our delight, we realised that the fourth phase of the ENSI project in 2000-2004 fitted in especially well with our own aims. The project had clearly defined themes and a sufficiently small group of schools had been selected for it on the basis of their applications. Of the development themes proposed, eco-schools and learning environments were at the centre of what we were already doing in environmental education. Now, four years after making our application, in which we had to describe the target state of the school by the end of the project, we can claim with some satisfaction that our vision has fairly well come true.

#### **Eco-school development work**

The emphasis on environmental education at our school began with nature study, but the scope was soon extended to reduction of the environmental hazards connected with the functioning of the school itself. At the first stage we made a list of relevant tasks to be carried out by different classes, including pupils' participation in the school's waste disposal arrangements and in looking after pets kept at the school (fish, snails and lizards). Then pressure became apparent from various directions (chiefly the National Board of Education and Oulu City Council) to draw up an environmental programme of our own. As a school with a focus on environmental matters, we produced a fairly comprehensive programme, in which precise objectives and aspects

for evaluation were defined for each parameter of sustainable development. The school's own ecological sustainability was seen as comprising environmental education, the environmental drawbacks arising from its teaching and measures to be taken to reduce these drawbacks. In addition, we outlined the aspects of social sustainability connected with security, tolerance and the exercising of influence. The list of targets defining economic sustainability was fairly short, consisting mainly of matters of consumer education.

A degree of thoroughness comparable to a quality assurance system was employed in the evaluation of the environmental programme. The things to be aimed at in the programme were defined during the autumn, together with the levels at which they were to be attained and the persons responsible, and these were evaluated on a scale of 1-3 points at the end of the school year. One point was given if the function was just beginning, was being planned or there had been talk about it, two points if action had been taken but it still needed improvement and development, and three points if it had become an accepted practice in the school and was functioning well. It took some time to arrive at an appropriate technique for defining and evaluating the aims of the environmental programme, and sometimes the evaluation was performed by the whole teaching staff and sometimes by the environmental group or the planning group. The advantages of this environmental programme lay in the breadth of its scope and the way in which it was monitored. It succeeded in going beyond questions of collecting waste paper, and in the end it proved easy to evaluate how far it had been implemented. The degree to which the staff were committed to the stated aims varied from year to year, but most activities that reached the three-point level of establishment were being implemented fairly well.

Implementation of the environmental programme led to the school being awarded the Green Flag in the year 2000, around the same time as work on the developing of national environmental criteria for educational establishments began under the auspices of the National Board of Education, the OKKA Foundation and the Riihimäki-Hämeenlinna Adult Education Centre. We served as one object of evaluation in this work, and decided to alter our own environmental programme to conform to the same criteria, as they provide a clear picture of what aspects must be under control in order to speak of an eco-school. Involvement in the work of developing the national criteria has provided an excellent foundation for achieving the eco-school objective incorporated in the ENSI project.

Our school intends to apply for an Environmental Certificate at the end of the ENSI eco-school project.

## Learning environments (learnsapes)

The aim of the learning environments theme in the ENSI project was to develop the environments of the school interior and yard in such a manner as to stimulate the adoption of a wider variety of teaching methods. Particular attention was paid to the school library, the school yard and the environment of the Timosenkoski Nature School.

### *The Timosenkoski Nature School learning environment*

The decision to attach especial weight to environmental education led to an increase in the purchase of teaching equipment and materials for this and related subjects, which gained a more prominent position in the school's budget. New ideas and new partners were constantly being acquired from training sessions and seminars, and plans gradually developed for using the school building at Timosenkoski for this purpose, so that it could be made use of in this capacity by other schools in Oulu as well. At around the same time the city's environmental department had also been considering how to improve school-children's knowledge in this sphere, and it was not long before a working group was formed with representatives of the city's schools, day care centres, Environmental Department and Public Works Department to draw up plans for a "nature school" and a guidebook to appropriate sites in Oulu which could be used by schools for educational purposes. Both of these aims were directed towards developing teaching outside the classroom, in real learning environments close to nature. Once the city's education committee had approved the plans for Timosenkoski, it was clear that our school had gained official sanction for its role of promoting environmental education throughout the city's school system.

Although the Nature School is administratively part of Hönttämäki School, teaching in its surroundings is open to all the schools in the city. Almost 300 classes made guided visits to Timosenkoski in the school year 2003-2004 and many other groups, including church groups, scouts, sports clubs, immigrants and children's day care centres, and some private individuals, also used it as a learning environment. The school currently has one full-time teacher, one person engaged in teaching practice and one part-time office worker. Many people interested in setting up such a school have contacted us to ask how to set about it and how to arrange the finance. In fact, the project began in a very modest fashion. The school building was already in existence, and the Public Works Department was responsible for the additional construction work needed (nature trails, wooden pathways, fireplaces and notice boards). New facilities to improve the variety of learning environments available are designed each year and agreements made for their construction. Looking back on this process, the strategy adopted may be said to have been very successful, and the need for such a school has been made clear to the

authorities through cooperation between the various administrative departments involved and through the activities pursued by the nature school itself.

### The school yard

The school yard is a significant learning environment that often remains somewhat unnoticed in Finland because of the long winters. Our school uses its yard mainly at break times and for some sports lessons, but an effort was made under the "Learnsapes" theme to redesign the yard together with the pupils. A planner from the Public Works Department came to the school to talk to the pupils about this, after which they could suggest all manner of ideas of their own, and it was only after this that they were allowed to start on the actual planning work. Eventually they produced models of the plans that they had developed as group work and voted on which was the best. When the yard was in any case to be refurbished in 2002, the pupils were allowed to make their own suggestions, but the cost, safety considerations, the size of the yard, the need for maintenance in the winter and the danger of vandalism meant in the end that their ideal school yard could never be put into effect.

### What next in the ENSI project?

We set out boldly on the path of education in sustainable lifestyles just over ten years ago by taking a look at nature in the surroundings of the school and strengthening the pupil's own relationships with nature. A positive relationship in this respect is still a major consideration in our teaching, but the notion of environmental education has broadened in the course of the ENSI project to cover all aspects of sustainable development. The topic "responsibility for the environment, human well-being and a sustainable future" mentioned in the new preamble to the 2004 national curriculum requires a great deal in terms of a school's operational culture. The teachers at Hönttämäki are accustomed to cooperation, and ready-made models already exist for unifying activities crossing numerous boundaries between school subjects, so that school camps, days spent at the nature school, the "adoption" of pupils abroad and the role of pupils in waste disposal at the school are all things that are written into the curriculum at particular levels.

The environmental programme and our application for an Environmental Certificate will dominate our work in the area of ecological sustainability in the foreseeable future. Nature study will continue to occupy an important position in our teaching, and the variety of activities offered by the Timosenkoski Nature School will be extended still further. One challenge will be to increase the pupils' level of participation and influence, while international attitudes will be fostered not only by the "adoption" of

pupils in developing countries and activities as a UNICEF school but also through the Comenius project "Nature: Living, loving, learning", involving three countries and intended to develop methods of teaching out of doors.

We believe that Hönttämäki School and the Timosenkoski Nature School will have an important role to play in the future in disseminating information about environmental education and sustainable development in the Oulu area. This will require continued supplementary education and networking for the teachers, an aspect which is excellently supported by an expert organization such as that provided by the ENSI project.

### **3.2 The Mahnala eco-school, promoting sustainable development as part of the Finnish contribution to the international OECD/ENSI environmental education project**

**Annikka Alppi**

**Class teacher, The Mahnala eco-school**

As a class teacher at Mahnala Primary School, which belongs to the network of Finnish schools in the OECD/ENSI project, I have ended up as a researcher in a programme led by Mauri Åhlberg, professor of the didactics of biology and sustainable development at the University of Helsinki, to study activities for promoting sustainable development and the evolution of environmental schools. The aim is to analyse the work of the school and to attempt to develop it, partly by a process of community information building in a Knowledge Forum® learning environment. Professor Åhlberg has done much to generate theories and tools in Finland for promoting sustainable development as a theme in schools and in the work of teachers (see, for example, Åhlberg 1997, 1998, 2002).

The village of Mahnala in the municipality of Hämeenkyrö is located in a recognised national landscape area, close to sites belonging to the Natura programme, and its primary school has 97 pupils (as of the autumn term 2004), ranging from a pre-school class to the sixth year of basic education, and a staff comprising three class teachers, a pre-school teacher, a head teacher, two classroom assistants, a cook and a part-time caretaker. There is also a special teacher who visits the school twice a week.

Environmental education has occupied a prominent and characteristic position on the school's curriculum since the early 1990s, and a programme of development towards the status of an eco-school has been in progress since the latter part of that decade, with an accompanying trend in its school meals towards locally produced organic food.

Both the pupils and staff are committed to the environmental education provided for in

its curriculum, and its activities are reflected in the nearby villages and their surroundings. Emphasis is placed on sustainable development in everyday matters (locally produced organic food, choices of materials, recycling, a school garden and contacts with local inhabitants and businesses). A number of environmental projects have been integrated into the curriculum, including the WWF Naturewatch programme, the School Forest project, the GLOBE research project, Comenius 1 and the OECD/ENSI project.

### **Education for sustainable development**

The particular topics of interest in the Mahnala environmental education project are the serving of locally produced organic food in its school meals, sustainable everyday working practices and the adoption of a rural perspective in the teaching, and its methods are characterized by learning from the immediate surroundings, learning by doing and experimentation, attempts to understand the connection between unpolluted food and attention to environmental sustainability, learning together with the parents and other local people, and the inclusion of historical, geographical, social and traditional perspectives in the teaching in addition to environmental ones. The aims are to avoid the squandering of natural resources, to reduce environmental loading and to strive towards sustainability in everyday practices. Out-of-school activities and learning through action and experimentation are used as ways of promoting problem-solving abilities and increasing interaction and the understanding of phenomena through concrete means.

Our school functions in collaboration with the surrounding community and local people and institutions in order to improve the children's own opportunities for influencing the life going on around them and to help them to understand the connection between things taking place in their own society and local and global environmental issues. Attempts are made to achieve concrete results through learning "about the environment, in the environment and for the environment", and also by persuading other schools and day care centres in the area to adopt the notions of locally produced and organic food, by developing more activities at our own school that take particular account of the environment, by improving the use made of the school garden for learning purposes, and by encouraging pupils to participate in activities that benefit the environment and to understand the significance of an international outlook both socially and globally where the environment is concerned.



### Activities for sustainable development

The Mahnala school aims to move towards sustainability in everyday life, to find paths that are open to all and will lead to a way of life that values and takes account of nature and the environment. The serving of organic food at the school is based on mutually accepted ethical principles, and an essential part of the theme is to look at the plate in front of us and see what it contains and where the ingredients have come from, how far have they come, and how they were brought to the school. This means that the pupils also learn the map of the local area and the distances implied by it. The paths travelled by our bread and milk are include as one item in the syllabus. We attempt wherever possible to choose sustainable alternatives and avoid disposable ones. Paper towels, for instance, have been replaced with proper cloth towels made by the pupils themselves, which are washed at home together with the other washing. Similarly, they all have sandwich boxes and mugs for use on excursions. We also try to favour products that carry the environment-friendly swan mark in the cleaning of the school premises.

The children are encouraged to collect natural products such as wild berries and mushrooms from the nearby forests, and every effort is made to intensify the collecting and drying of natural herbs and the use of vegetables growing in the wild. The school has its own drying racks for herbs, which make good items for sale at our traditional autumn fair.

The produce from the garden is also harvested. The berries from the bushes are preserved, the apples are made into purée and juice, eaten at break times or dried for sale at the autumn fair, and the potatoes are used in the school meals. There is also a vegetable garden, which the pupils and their parents look after during the summer. The school has its own compost bins, one of which is used for raising worms, and when the fresh, aerated soil is spread on the garden in the autumn the pupils are allowed to plant their own bulbs, which are the first flowers to be seen in the spring sun and can be enjoyed before the new gardening season begins.

Celebration of the national week of economy and recycling in April has become an annual tradition, and the children and their parents can bring goods and clothes to the exchange market and take away items that they can make better use of. There have sometime even been fashion parades of recycled clothes. Other waste material is made use of in handicraft lessons, and goods and materials thrown out by local firms are also used in the school. The plastic squares that the pupils take with them on excursions to sit on, for example, are made of reject packaging materials, and the mats placed on the tables during handicraft lessons are old floor covering samples.

Thus the school attempts to set an example in all matters of waste disposal and re-use. Composting and recycling have been everyday practices for a long time, and every classroom has facilities for collecting waste paper, food cartons, organic material and other waste separately, and the school has central bins for collecting recyclable glass, batteries, small metal objects, paper and cardboard as well as a bin for general disposable waste, two compost bins and a warm compost bin for organic material, which are also used for teaching purposes, and an open compost heap mainly for garden refuse. The pupils are also encouraged during the winter to follow the action of the worms in a separate compost bin.

In order to permit the school to serve organic food at its meals, constant attention has to be paid to the raising of additional funds. Apart from the traditional autumn fair, the school has arranged an "organic lunch" for the local inhabitants almost every year, which has been sold out every time.

The aim is that all the pupils should have a sound knowledge of their home district and its natural environment, communities of living things, human settlement and occupations and the local culture by the time they finish their basic education, and support is provided for this by making a particular effort to familiarize them with the outstanding characteristics of their immediate rural surroundings. The purposeful and systematic sustainable use made of the opportunities offered by nature and the environment for teaching and education at the school is apt to improve pupils' knowledge in these respects and to help them to gain a better understanding of the environment in which we live. The curriculum contains details of places to which excursions are to be made in different years of study, starting from the school's own yard and expanding the scope to the nearby villages, examples of their occupations and ecosystems and sites of particular cultural or archaeological interest.

### International activity supporting sustainable development at the school

Mahnala Primary School is not only linked to other schools in the national eco-school network but also, through the OECD/ENSI project, has international contacts and cooperation. The project has enabled it to obtain instruction and influences from work in environmental education carried out elsewhere in Europe for the purpose of promoting sustainable development. It was at the project's Finnish training meeting arranged by the National Board of Education that the idea arose of applying for membership of the Comenius 1 project within the EU's Socrates programme.

At the present moment we have eco-school partners in Austria, Hungary, Lithuania, Great Britain and Finland within a project entitled "Exploring and Interacting with our Environment". In accordance with the Comenius project as a whole, the aims are to improve the quality of teaching, emphasize the European aspect in it, encourage the pupils in their study of languages and increase the knowledge of other cultures (<http://europa.eu.int/comm/education/socrates-fi.html>). Our own ideas in the context of this participation have been to encourage both the pupils and teachers to undertake concrete international cooperation between schools, e.g. by fostering personal contacts with pupils abroad by letter or by e-mail, by studying the cultural backgrounds of our partner schools, by exchanging experiences and information both between teachers and between pupils, and by arranging meetings with teachers from the partner schools. Our teachers have had the opportunity through the OECD/ENSI connection to take part in international environmental conferences belonging to the SEED (School Development through Environmental Education) project. If the duty of environmental educators at the national level is to disseminate information, experiences and stimuli to others working in the field of education, then this should also be the case internationally.

### Evaluation and further development

Participation in the OECD/ENSI project and the ideas gained from this, e.g. the theme of identification with the rural context, has done much to carry forward the work of our eco-school. It has helped us to find an area of interest that unites all those working in the sphere of the school, children and adults, with the nearby villages. Our teachers took part in the local education authority's working group to formulate a new curriculum for the whole municipality, with the result that this curriculum bears traces of the same rural identification. The attention to the rural surroundings and the related attention to the origins of the food we eat are both parts of a broader environmental outlook, just as the serving of locally produced organic food in our school meals is a way of assuming responsibility for the environment and ensuring a better future for our children.

The cooperation with instances outside the school provides opportunities for including many new forms of activity in the teaching, and at the same time helps the pupils to understand and cope with the outside environment, promotes consistency in the teaching and provides pupils with activity and experience-based learning events. These forms of activity can help to bring the school closer to the life and work of the surrounding society, develop the pupils' sense of responsibility, independence and collaboration and improve their motivation.

The sustainable development activities at Mahnala Primary School are subject to a constant, interactive evaluation process that involves both the pupils and the teachers, other school staff, parents and partners outside the school itself. The activities are continuously being developed in the light of the feedback received, and fresh deliberations ensue at each stage as to what factors are influencing development towards the role of an eco-school and how the quality of the activities can perhaps be evaluated better and be subject to constant improvement. The school's "purposeful efforts on behalf of environmental education" have received recognition from the World Wildlife Fund (WWF), in the form of a Panda Prize awarded in 1999, and it was awarded an environmental prize by its own region of Pirkanmaa in 2003. Participation in the Green Flag project provided further support for the evaluation of our activities, and although the school gained the permanent right to use the Green Flag in 2003, the evaluation process continues. Now the flag is flying regularly over the school as an indication of the international reputation that it has gained for environmental education and support for sustainable development.

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# Country Report Germany

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## Introduction

As a consequence of the distinctive federative structure of the Federal Republic of Germany, general statements concerning Environmental Education and Education for Sustainable Development are basically not possible. The Federal Government in Berlin has no competence within the field of school education and within the field of universities the government has just a framework competence whereas the performance lies within the responsibility of each Federal State.

For all of the 16 Federal States there is a Ministry of Education in charge and very often another Ministry for Sciences and Arts. The performance in terms of contents of the school system lies completely in the responsibility of each Federal State.

The comparability of the certificates is guaranteed through a framework agreement of the State Ministries within the so-called **Kultusministerkonferenz (KMK)** (Conference of the Ministers for the Arts and Culture). For the implementation of common innovations in the fields of education and research the States and the Federal Government have hence established a common commission, the so-called "**Bund-Länder Kommission für Bildungsplanung und Forschungsförderung (BLK)**" which stands for "Federal Government and States Commission for Educational Planning and Research Promotion".

## 1. The state of Environmental Education in Germany

### 1.1 From Environmental Education to Education for Sustainable Development 1980 – 1999

In the year 1980 the Conference of the Ministers for the Arts and Culture (KMK) passed a recommendation for Environmental Education in German schools. This decision defines Environmental Education as an interdisciplinary task for all schools. All German Federal States have adopted this resolution as a fundament of their educational legislation and for the development of school curricula. According to the different ideas of educational policy each of the Federal States decided to follow an own way to

achieve these goals. In the following not all the different possibilities should be presented but I would like to describe some models and examples of these different ways:

- A number of Federal States has established Environmental Education and teaching as a so-called "Special Task of Education and Teaching" and obliged the schools to adopt it interdisciplinary in their school curricula.
- A number of Federal States has presented a resolution of principles for an interdisciplinary Environmental Education which also established this task as a commitment for all schools.
- A number of Federal States has developed and passed frame curricula for interdisciplinary Environmental Education. These frame curricula are orientated on the curricula of the individual subjects and learning areas.

Based on these frame regulations with different political authorization by law which is passed by the Parliament unto the decree which is issued by the administration, the curricula for the individual subjects in the school forms and school grades were developed during the '80s and '90s.

At the beginning only the subjects of natural sciences (biology, chemistry and physics are taught in Germany as individual subjects) were involved but in the following years the contents of Environmental Education were also introduced in the subjects of sociology, history, geography and in the last phase of the revision of the curricula even the artistic subjects were involved. The implementation of the guidelines for the curricula lies in the responsibility of the individual schools.

In this report the process and the quality indicators will be explained with the aid of two examples which are representative for the situation in Germany.

### 1.2 Systematic school development with ecological orientation

In the year 1996 the Federal States of North Rhine-Westphalia and Hesse have started to link the development of school curricula and the ecologisation of schools. In North Rhine-Westphalia the programme "Design and Opening up of Schools" and in Hesse the "Programme of Ecological oriented Schools" was started. The goal was to achieve experiences for the transfer into school practice of all schools under a systematic project guidance and scientific assessment.

Initially, steering groups were installed in the schools in order to connect systematically those projects of Environmental Education which in the past were very often conducted in a quite incoherent way and to establish them permanently through the instrument of the school programmes in the schools.

After a two year programme phase all schools had set up appropriate school programmes and transferred them into the regular practice. These experiences were made available also to further Federal States and implemented there. (See: Eulefeld, Mathar: "Ökologisch orientierte Schulen in Hessen", subtitle: "Zwei Jahre auf dem Weg zu einem ökologisch geprägten Schulprogramm": „Ecological oriented schools in Hesse“, „Two years on the way to an ecological characterized school curriculum“)

These two Federal States let the results pour into their practice of the federal programme "Education for Sustainable Development 1999-2004".

## 2. The Ecoschool development process

Within "The Federal Government and States Commission for Educational Planning and Research Promotion" (BLK) common projects are planned and jointly financed. In the year 1999 the Commission started a programme as a result of a preliminary study and an expertise called "Education for a Sustainable Development", abbreviated as BLK"21".

### 2.1 The BLK"21" Programme

#### 2.1.1 The general characteristic

BLK is dated for a period of five years from 1999-2004 and is budgeted by 15 (with the exception of the State of Saxony) Federal States and the Federal Ministry of Education with € 12.5 million. This common school developing programme represents the frame of Education for Sustainable Development in Germany.

In the programme BLK"21" 15 of the total of 16 Federal States are working together on the acquisition and testing of teaching concepts for Education for Sustainable Development.

In the following the way towards this programme will be described and the accompanying measures explained.

The programme is divided into three modules:

- **Interdisciplinary knowledge**
- **Participative learning**
- **Innovative structures**

Within 180 pilot schools teaching material is being developed and their implementation is being tested. The schools identify themselves as development workshops (laboratories) providing other schools outside the programme their experiences even during the term of the programme.

#### Interdisciplinary knowledge

Here the experience was made that within different forms of co-operation the sociological, scientific and lingual-artistic subjects cope together very well. The introduction of a spiral curriculum proved to be very appropriate. It assigns the issues and areas of sustainable development in an obligatory form to the individual school years. Thus it is guaranteed that social, economical and ecological aspects are equally communicated. As a result of the first three programme years it may be recorded as a matter of fact that Environmental Education adopts the decisive role of a frame.

Within this module a recommendation was prepared in charge of the Free University of Berlin (Prof. G. de Haan) for a lasting integration of the contents of Education for Sustainable Development and made available to the Curricula Commission of the Federal States. Additionally this manual is being accomplished for the first time with a current definition of educational standards in the context of Education for Sustainable Development for all subjects as far as possible.

A particular significance – this is an additional result of BLK"21" – will be attributed to the competencies for an active design of the future development:

- Future oriented thinking and knowledge about future scenarios and planning
- Ability of interdisciplinary work on solutions of problems and at innovation
- Networked (connected combined) thinking and planning competence
- Solidarity
- Ability of communication and co-operation
- Ability to motivate oneself and others
- Ability to look critically at own and foreign cultures

A considerable step of development will be to assign these competences to individual issues and subjects.

### Participatory learning

Within this module of the programme the schools are developing new ways of participation for pupils and new ways of co-operation with partners outside the schools. Examples for this are:

- Creation of energy consulting for the regional area by vocational schools
- Project of seawater desalination in co-operation with Tunisia
- Pedagogical design of a house where water is experienced with all senses
- Research of fertilizing methods which are kind to the water in co-operation with local farmers conducted by high school students
- Opening of the school as a learning place for the corresponding(adjacent) suburb
- Co-operation on processes of the Local Agenda 21

The experiences of the programme schools demonstrate that the relevance of the schools within their social and cultural environment improves dramatically when the schools define the regional area as a teaching subject and thus contribute to the creation of local knowledge. Examples for this are:

- Issue of brochures about local waters
- Portraits of the pupil's villages of origin
- Development of remediation concepts for regional waters

### Innovative structures

In this module of the programme the pupils endeavour to achieve a continuous integration of Education for Sustainable Development into the school curriculum. Examples for this are:

- System of energy management as a school project under control of the pupils
- Eco audit: Creation of a system of energy management in co-operation with exterior consultants
- School as a learning area in the environment – Integration into the school profile

The experiences of the work within the programme make evident that the crucial aspect consists of the installation and integration of planning and steering groups. They

are supposed to take care in the sense of a middle management of the planning, the conducting and evaluation of the projects of Education for Sustainable Development in the schools. Equipped with the corresponding mandates of the school decision-making committees they will become the pillars for a continuous integration.

### 2.1.2 Explicit set of criteria

The necessary paradigmatic changes cannot take place as a centrally steered conversion process through "top-down" strategy. For the sustainable development a crucial mental change is required which enables consideration for nature, standing for social justice and willing to implement with a great richness on ideas the indispensable technical, economical and social innovation.

This richness on ideas is based on a further competence requested by the German Programme of Education for a Sustainable Development called "competencies to arrange the future and to be involved in the future society" which is recognised as a substantial criterion of quality. It comprehends the ability to change and preserve the future of the community in which one lives in the sense of sustainable development. To achieve these goals the competencies were divided into eight part competencies:

- To think foresighted in the sense of being able to deal with uncertainty, prognosis expectations and drafts for the future;
- To be accessible to "trans cultural" communication and new perspectives implicates the ability to understand phenomena in their worldwide context of relationship and effect;
- To think and act interdisciplinary became necessary since problems of not sustainable development and perspectives of future-compliant changes are not compatible and cannot be solved anymore with simple strategies of action;
- To be able to participate on the design of sustainable development processes is of fundamental significance;
- To be able to plan and act under the aspect of sustainability means to assess the course of actions from the view of necessary resources and their availability, to draft networks and to consider side effects during the planning phase;

- To show empathy, commitment and solidarity involves the purpose of fostering justice, the balance between poor and rich and the reduction of oppression;
- To be able to motivate oneself and others in order to deal generally with a concept of sustainability, to handle it vividly and to create satisfactory lifestyles;
- To be able to reflect individual and cultural models requires considerable skills of self-knowledge in order to reflect one's position in the own cultural context and of taking up reflected positions in the debate on global justice;

### 2.1.3 The programme developmental process

It is of outstanding significance for the permanent establishing of the ESD project to have an open but in view of the outcome a binding agreement on the mutual tasks and expectations. An often applied possibility consists in the announcement on the official way, i.e. through official gazette, government information or just through the homepage of the respective ministry.

The conditions for the participation on these announced programmes for school development are always being described very accurately in order to make the conditions more clear and evident for the schools. Normally it is expected at first that during a process of opinion making within the school committees the possible contents and the volume of participation are being comprehensively discussed and that the responsible persons are being nominated. For the formal participation it has been proved as very useful to assure the approval of the decision-making committees (parent's council, staff meeting, student's representation, et al) A further relevant instrument for the success of co-operation is given in the passing of an agreement where both sides, the school and the school development institutions establish their respective contributions for the success of the common project.

Items for this could be:

- Description of the working levels
- Description of the areas of contents of Education for a Sustainable Development supposed to be handled (revised) by the schools
- Strived products
- Installation of planning and steering groups
- Fixing of a time schedule: who ? what ? until ?

- Fixing of the evaluation and responsibilities
- Support of the schools on their work (financial and staff resources, consultation and further education)

It is of major significance that schools and their work are being assisted and that they are able to recur on support and consultation from outside. Very often it proved to be sufficient support by organising regular exchanges among the schools and the assistance of this process

These instruments and methods which are fundamentally based on the instruments of action research, proved to be extremely helpful during the process of school development unto the establishment of Education for a Sustainable Development in Germany. These measures were additionally permanently established in the frame and teaching plans for all kind of school forms.

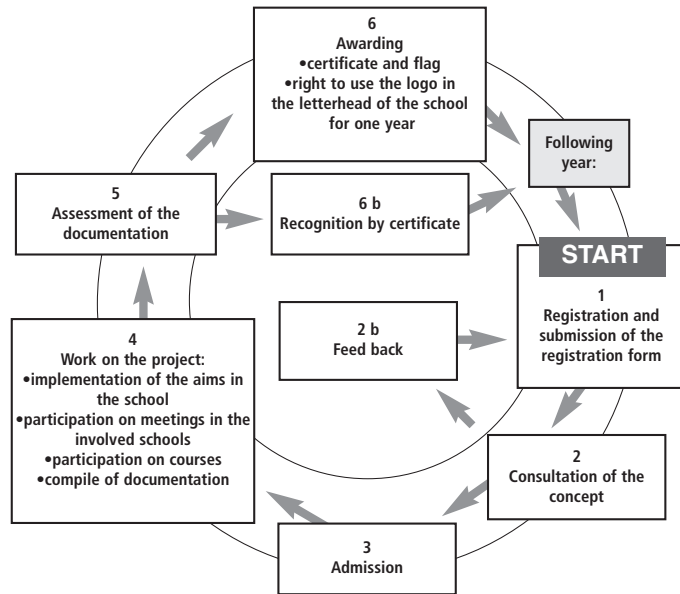
### 2.2 Campaigns and Competition: Eco Schools in Europe

In Germany the campaign of FEE (Foundation of Environmental Education) is run by the DGU (Deutsche Gesellschaft für Umwelterziehung). Unlike most of the European countries this campaign in Germany is run in close co-operation with the Ministries of Education and the Federal Institutes for Pedagogy. DGU takes care intensively of the schools and builds up regional co-operations e.g. with local sponsors. In 2004 over 500 schools applied successfully to the title of "Eco School".

A considerable number of schools is taking part on this competition since many years and this lead to a substantial improvement and to a permanent integration of the projects into the school planning. Through the agreement on an internal school communication process, one-man projects are avoided and the quality of the projects is being improved. A further mean for quality assurance is described in the procedure of the campaign:

At first a school applies for this title with a project of its own choice. This application will be assessed by the DGU, Federal Institutes for Pedagogy and experts from schools and universities and then ad-mitted. After that the school is given one year of time to implement its project. An essential part of the work consists in detecting the actual status and in the report on the communication process within the school. During the school year the school is obliged to participate on the regional meetings. This picture of

the Eco-schools in Europe shows the annual procedure from the application to the certificate. A new application for the following year is always possible:



### 3. Case studies

Schools in Germany integrate education for sustainable development on different levels, by using different organisational structures and with different topics. The following examples should give a general overview of different ways to realise ESD in German schools. For more information's look at: [www.transfer-21.de](http://www.transfer-21.de) or [www.bildung.hessen.de/Transfer21](http://www.bildung.hessen.de/Transfer21). On these websites you can download examples of school programmes and different materials to integrate ESD in different subjects of schools.

#### Example 1:

Besides ecological questions the Education for a Sustainable Development does comprehend also problems of socio-cultural and economical development. Thus schools have to take this into consideration in view of all their projects, i.e. themes and contents which reflect ecological perspectives have to be selected, others which favour cultural identity and variety and further ones which serve to explain economical

relationships. In the ideal case this could be compiled into one issue, but otherwise it also makes sense to distinguish the themes for every different field. As an example for the variety of themes at one participating school may be seen in the following:

#### Working area:

Environmental education and solar energy  
 Social design and future orientated methods of solving problems of violence in between school  
 Health / sports  
 New learning / All day school  
 International meetings / cultural experiences

#### Example 2

Action plans proved to be very useful for the planning the school practice, which will be evaluated with the instruments of action research:

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The significant advantage of such a detailed planning is that the participating teachers are able to see in which times they have to be on duty for the project. Certainly this increases the acceptance in the schools tremendously, since the necessary time for the individual steps becomes perceptible. A further advantage is that the participation of students is also clearly visible.

#### Example 3

The distribution of issues depends on the products for the school community and collecting of local knowledge:

- Village of the region: Their cultural peculiarities and their history
- Waters of the region: Environment. Culture, History and use.

Referring to these fields the schools have prepared comprehensive researches and printed brochures for the inhabitants and residents. Thus the schools contributed to the acquisition of local knowledge and their standing within the community has improved considerably.

## Action plan 2002-2003 and 2003-2004

Planned action	Time	Responsible persons:	Criteria for success:
Discussion of the action: "Lay out of an orchard"	November 2002	pupils who attended the workshop for the future	Preparation of individual steps. Distribution of responsibilities
1. Meeting with the principal	December	Nominated pupils	Principal supports the action
2. Meeting with the principal	January 2003	Nominated pupils	Frame conditions are clarified
Selection of an appropriated area on the school ground	January	Nominated pupils	Agreement on an appropriated area
Selection of appropriated plants	March	A specialist from the local orchard club	Agreement on appropriated kinds
Search for sponsors	March	Nominated pupils	Sponsors were found
Planting date 1	April	Nominated pupils	One fruit tree is being professionally planted
Planting date 2	October/November	Nominated pupils	Planting of the rest of the trees
Purchase of a mower, eventually together with further schools of the community	June	Nominated pupils	The mower is available in due course
Mowing of the meadow	Just before summer holiday	Nominated pupils	The meadow will be mowed annually
Maintenance of the trees	February-March	Nominated pupils and members of the orchard club	
Use of the meadow for biology classes	Springtime	Biology teachers	Project "meadow plants" takes place
Harvest and production in case of fruit planting	Autumn	Nominated pupils and members of the orchard club	Sale of the product

## Example 4

Education for sustainable development as a whole school approach

In some parts of Germany the schools have to formulate their steps of development in a school programme. More than 20% of them integrate questions, themes and structures of ESD in these programmes.

In this way ESD becomes part of the profile of the school. ESD is the basic orientation of all activities, the content of all subjects and the basic line of school organisation. Those schools try to save energy by running the school, reduce waste and integrate social, economical and ecological perspectives in their lessons.

Each class has a special topic out of the field of ESD. In the school curriculum of a secondary school as an example:

5. class: Forest education // Global education: Chocolate a global product
6. class: Historical problems of development
7. class: Agriculture
8. class: Water, local rivers
9. class: Economical and social development of local communities
10. class: Energy saving and using of solar energy



# Country Report Greece

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## 1. The state of Environmental Education in Greece

### 1.1. Official documents concerning Environmental Education school practice

The efforts for the inclusion of Environmental Education (EE) in the Greek educational system began in the late 1970s, while it was in the 1980s that the implementation of the first -experimental- EE programmes started (Spyropoulos, 1986; Flogaitis & Alexopoulou, 1991). The official introduction of EE in the National Curriculum took place in the early 1990s following the enactment of Law 1892/90 (FEK 101 v.A./1990). This law constitutes a milestone for the EE implementation in Greece as it officially recognizes it as part of the curricula for Secondary Education schools (Flogaitis, 1998; Papadimitriou, 1998). The inclusion of EE takes place within the framework of "school activities", educational actions which are foreseen by the curriculum, although implemented outside the school timetable and in which the teachers' and students' participation is on a voluntary basis. A year later, in 1991, EE is also introduced in Primary Education curricula (Law 1964/91 - FEK 69 v.A./1991) with corresponding terms and conditions to those of Secondary Education.

Already with the first two circulars directed to schools (G1/1152/24.9.1991 and G2/5548/7.10.1992), the Greek Ministry of Education informs teachers about the characteristics that define the nature of EE and gives the basic directives for its implementation. It is made clear that EE is not another subject but an "educational process" connected to all school subjects, designed and implemented in the form of an educational 'project'. EE aims and objectives are defined, it is noted that its subject matter should be drawn from the students' immediate environment and the local environmental problems, the need for an interdisciplinary approach to knowledge is proclaimed and the basic teaching and learning principles in EE within an educational constructivist framework is put forward. It is mentioned that for its proper implementation, all the members of the school community (school principal, teacher association, parent/ guardian association) as well as the local community authorities (museums, historical archives, public libraries, nature clubs, scientific organisations,

youth community centres, public organisations, laboratories, etc.) are needed to collaborate.

An important point of circular G2/5548/7.10.1992 is that it recognises EE as having the ability and potential to contribute in the upgrading of the school's role and the overall development of the students. As mentioned in the text, the application of EE, among other things, serves the implementation of the aims and objectives of articles 1 and 5 of Law 1566/1985 for Education, according to which the following are sought after: the connection of school with the broader environment, the provision of knowledge relevant to the contemporary social concerns on occupations and the productive process, the broadening of the students' value system, the adaptation of education to the students' individual differences and interests and the improvement and development of the individual's relationships with his/her immediate and broader social environment (through the development of responsibility, the participation in shared speculations and the search for solutions, the collective effort, the development of initiatives, etc.).

From the enactment of EE to the present day, one can discern an evolutionary diversification as well as specification in the EE programmes' indicated content. According to the Ministry of Education's most recent circular with reference to the EE subject-matter (G2/5317/16.10.2001), EE programmes can deal with "environmental issues" which are related to well-known environmental problems and their consequences (forest destruction, desertification, pollution, the ozone layer hole, trash management, energy, etc.) as well as with "environmental issues" which are connected to broader social issues and expressions of social life and behaviour (such as war, tourism, culture, health, religion, etc.). After the Thessaloniki Declaration (1997), there is a special mention made on the theme of sustainable development. Educators are asked to identify concepts and topics within the current discussion on sustainability, to address local environmental problems, to cooperate with local authorities and to aid in the preparation of a suitable plan of action for their school's environmental groups (Circulars: G2/4881/11.9.1998 and G2/4255/22.9.1999).

In active support of the implementation of EE programmes in schools are the EE Officials and the Environmental Education Centres (EECs). The enactment of both is achieved with Law 1892/90. Educators are appointed as EE Officials in each of the country's 58 Educational Departments (separately for primary and secondary education) for a three-year term. Their duties and responsibilities, as defined by circular G2/3026/27.8.1990, are multi-dimensional (administrative, organizational, coordinative,

instructional and advisory)<sup>1</sup>. Experience until now has shown that not only by exercising their role but also by their personal attendance, EE Officials act as a defining factor for the promotion and development of EE in schools of their area.

Until today, 18 EECs have been founded and operate all over the country. The services provided include concise educational programmes and activities for school children, training programmes for teachers, the production of educational material, the creation of thematic school networks and the development of collaborations on a local and national level. EECs have the infrastructure and equipment (laboratory, audiovisual media, hospitality units, etc.) and engage educators from different fields on a three-year basis.

Generally speaking, the EE implementation in the Greek educational system, despite the legal establishment which keeps it in the margin of schools' programmes operation, presents relatively satisfactory progress. According to data from the Ministry of Education's Department of Studies, some 2,000 voluntary EE school programmes are conducted every year in the 58 Educational Departments all over the country.

Specifically, during the 2000-2001 school year, almost 2,100 EE programmes took place subsidized by the Ministry of Education with the amount of about 34,500 Euros. Nearly 4,500 educators and 54,000 students participated in these programmes.

## 1.2 Official documents concerning general school development

During the last two years, the opportunity to apply EE in the school curricula and insert it in the school timetable is being promoted as it has been included in the educational system's modernization scheme for compulsory education suggested and implemented by the Ministry of Education (FEK: 1366,v.B\_/18.10.2001; 1373, v.B.; 1375, v.B.; 1376, v.B\_/18.10.2001). Basic axes for the promoted changes are the shaping of educational terms and conditions for a comprehensive, investigatory and cross-curricular approach to knowledge, the pedagogical and instructional autonomy of educators, the connection of the school to its financial, cultural, natural and social environment and its rendering to a place of joy, life and creation. The proposal not only includes the reform of the studies programme (Cross-Curricular Integrated Studies Programme Framework), but also the introduction of "project schemes" to Kindergarten, the sanction of a

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<sup>1</sup> By a recent Ministry Decision (57905/G2/4.6.2002) the duties and responsibilities of an EE Official have been considerably limited and focused entirely on the supervision of the EE school programmes' implementation.

"flexible zone of cross-curricular and creative activities" to Elementary school and the "innovative action zone" to Junior High. EE with other, already prevalent, forms of school activities and also a series of new interdisciplinary fields of contemporary concern were proposed as indicative thematic areas suitable for the drawing of topics that students will process as projects. The application of innovative actions begun experimentally in a gradually increasing number of schools during the last two years. No official evaluation reports for the progress of the promoted school development and the obstacles encountered have been published until now.

## 1.3. School programmes and networks in EE<sup>2</sup>

The ones who design and coordinate international, national, and/or local EE programmes are mainly Environmental Education Centres (EECs), EE Officials and Non-Governmental Environmental Organisations (NGEOs).

The thematic school networks coordinated by EECs are the following:

**Forest:** A 23-school network coordinated by the EEC of Mouzaki while three more EECs collaborate. The educational material provided to the schools includes orientation exercises, measuring the age of trees, meteorological measurements and observations, etc.

**Lakes-Sources of inspiration:** The network is coordinated by the EEC of Kastoria. 32 schools which implement programmes in relation to the lakes of their area participate in it. A laboratory guide for analyses with microscopes as well CD-ROMs are provided.

**Traditional settlements:** It is coordinated by the EEC of Konitsa. 10 other EECs collaborate. The network's target is to study traditional settlements and to promote their relationship with the natural environment. 53 schools participate in this network.

**Springs:** A network coordinated by the EEC of Soufli. The 40 schools which participate implement two-year programmes in relation to springs, fountains, rivers, lakes, spas, etc.

**The Ionian-A sea that unites us:** It is essentially a peripheral network which is coordinated by the EEC of Zakynthos. 40 schools which choose themes from the natural and human environment of their area participate.

Moreover, the EEC of Argyroupoli coordinates 3 networks. These are:

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<sup>2</sup> The accumulation of data for the thematic school networks operating in Greece took place after the authors personally contacted the networks' coordinators.

**Sea:** Five other EECs, the Ministry for the Environment, the National Centre for Sea Research and the Universities of Athens and Thessaloniki participate. The network's subject matter includes the ecological study of coastal ecosystems, the timeless study of their influence on human life and the effect humans have on them, and proposals for their improvement. 150 schools participate in this network.

**Sustainable cities-Quality of life:** 10 more EECs and 50 EE Officials participate. It deals with the organisation and operation of settlements (natural environment, transportation, human resources). 101 schools, which collaborate with the Municipalities in their area to implement the programme, have been included in the network.

**Greengold leaf:** It is a network with 15 schools in Greece and 15 in Cyprus. The themes are chosen by the collaborating schools and relate to the management of the natural and built environment.

The national thematic school networks which are coordinated by EE Officials are the following:

**Thermalism:** This network is coordinated by the EE Official of the 1<sup>st</sup> Department of Secondary Education of Thessaloniki. Its subject matter includes anything connected to hot springs (bath towns, spa tourism, energy use, etc.). 70 schools participate in this network.

**The nautilus travels:** It is coordinated by the EE Official of the Cyclades prefecture. 61 Elementary schools participate and they process themes connected to the Mediterranean, peace and culture.

**The school yard:** The EE Official of the 2<sup>nd</sup> Department of Secondary Education of Thessaloniki is responsible for the coordination. 5 Kindergartens, 22 Elementary schools and 103 Junior high/High schools from all over Greece participate. It seeks to upgrade and pedagogically utilize the school playgrounds, at the same time providing opportunities for cooperation between the school community and the local community in a participatory environmental design framework.

Schools are also supported in the design of EE programmes by Non-Governmental Environmental Organisations (NGEOs)<sup>3</sup>. Specifically, the Hellenic Society for the

<sup>3</sup> In all events, with a recent decision published in the Government Newspaper (June 2003), the Ministry of Education is trying to limit the role of NGOs allowing only EE Officials and EECs to coordinate networks and programmes in schools. The role of NGOs will only be supportive. This modification, which essentially places EE under the complete control of the Ministry of Education, is encountering reactions from NGOs and other authorities such as Universities, which are trying for a collective and open to society EE.

Protection of the Environment and Cultural Heritage coordinates the following two thematic school networks:

**The river:** The 150 schools which participate in this programme implement studies on rivers and send the data they have gathered to the Coordination Committee which yearly creates the Map of Water Quality of Rivers in Greece.

**The little seed:** 105 primary education schools in Greece, Cyprus and the Greek schools of Austria participate in it. The network's theme is the development of life in and through nature.

The networks coordinated by the Hellenic Society for the Protection of Nature, another NGEO which is active in the field, are the following four:

**Green Corners of my Neighbourhood:** The 106 schools which participate are asked to observe nature around them in the small havens of life in cities.

**Learning about the Forests:** An international programme. In the 97 schools which participate, knowledge about the forest and practical applications that are implemented by students, often in the forest itself, are provided.

**New Journalists for the Environment:** An international programme in which 62 Secondary Education schools participate. Serious environmental issues are chosen and dealt with journalistically in depth, many times in collaboration with students from other European countries using the Internet as a mean of communication.

**Eco-Schools:** 210 schools participate studying practical solutions to issues connected to energy, water, trash, etc. It is an international programme aiming for a sustainable school.

Finally, we should mention one more thematic school network operating in Greece under the auspices of Unesco. It is:

**Semep:** An international network in which 12 Mediterranean countries participate. Every year the participants choose the project theme (eg water, nutrition) and during a special meeting, the educators jointly design the programme and activities plan. 40 schools in Greece participate in this programme.

## 2. The Eco-school development process

Most of the programmes mentioned in the previous section can hardly be considered to be in the direction of eco-school development. In reality, they are studies and educational actions which are implemented by isolated classes or school environmental groups which do not have an impact either on the school as a whole nor on the broader community. From the total number of programmes implemented in Greek schools today, we have chosen to present the programme of the "Eco-Schools"

network coordinated by the Hellenic Society for the Protection of Nature (HSPN) and the programme of the thematic network “The school yard”. The criteria for this choice were that these programmes are applied in a large number of schools all over the country, they introduce innovations so much on an educational as well as on a social and financial/technical level, they adopt a constructivist pedagogical approach and involve the local government and other local authorities in their implementation.

## 2.1. The international thematic network: “Eco-Schools”<sup>4</sup>

### 2.1.1 General characteristics

“Eco-Schools” is an international EE programme of the Foundation for Environmental Education which is implemented in 7,500 schools in 25 European countries with the participation of 700,000 students and 35,000 educators. In Greece, the programme has been applied since 1994 with the HSPN as the national coordinator. Its application in schools has been approved by the Ministry of Education (F/18/265/G1/308/2.3.1995). During the 8 years of the programme’s implementation, 210 schools from all levels of education with 6,000 students and 600 educators have participated.

The schools which implement the programme work on the following thematic units: “Energy”, “Water”, “Trash”, “Sustainable School/ School Agenda 21”. With the completion of the foreseen educational activities, a school is evaluated and characterised as *Eco-School*. Until today 94 schools have been awarded this title while 39 of them have been awarded twice for their comprehensive actions and for the promotion of the programme’s philosophy.

The main aim of the ‘Eco-School’ programme is for schools to become “sustainable”. The basic targets, as presently applied in Greece, are analysed on the following levels:

- on a *pedagogical* level, the cultivating of an ecological way of thinking and acting in reference to the class, the school, the family and the neighbourhood,
- on a *social* level, the cultivating of decision-making skills on behalf of the students, the sanctioning of rules acceptable by all through the adoption of a behavioural Ecocode and, finally, the promoting of the school’s role in the local community,
- on a *technical/financial* level, the undertaking of action that leads to a more rational management of trash and the conservation of energy and water.

<sup>4</sup> The data for the Eco-Schools come from official documents (HSPN, 2002; HSPN, 2003) and from interviews with the coordinator of the HSPN programme, Mrs. A. Vavouri and with Mrs. M. Dimopoulou and Mrs. K. Dimou, EE Officials of the Department of Primary Education of Athens, in schools of which the programme is applied.

### 2.1.2 Explicit set of criteria

The explicit criteria that rule the belonging to the programme are the following:

*The involvement of the entire school in the programme.* Eco-Schools are not only implemented by a class or grade but require the participation of the entire school community. This is because the actions proposed have an impact on the entire school unit. For example, the reduction of energy or water consumption from only one grade cannot have tangible and measurable results. All the grades should adopt corresponding behaviour and the proposed interventions should be respected by all in order to finally change the way energy and water is used in the school’s daily routine.

*The involvement of the local community.* This criterion forms the chief condition for the programme to commence. Specifically, for a school to start applying the programme, a collaboration protocol should be signed between the school’s principal and the municipality. This cooperation is necessary as the interventions that take place in the schools require at least the financial aid of the municipality. Apart from ensuring the municipality’s support, the programme aims at the general involvement of the local community and the development of joint initiatives and actions which exceed the school’s boundaries and have an impact on the broader neighbourhood.

*Students and educators working together* and the creation of a general climate of cooperation in schools. The adoption of projects for the implementation of the programme promotes the cooperation between the students and educators, who jointly design and implement the actions.

*The undertaking of action.* The programme cannot be covered with a theoretical study of the thematic units of energy, water, trash and sustainable school. Its successful application presupposes the forming of proposals and the undertaking of specific action which attempts to solve the school’s problems in relation to the previous themes. Thus, certain action must be taken so as to reduce energy and water consumption in the schools and for the better management of trash (reduction, reuse, recycling).

### 2.1.3 Implicit set of criteria

The implicit criteria that rule the belonging to the programme are the following:

The Eco-School programme in Greece places particular gravity on the concept of ‘citizen’. For the authors of the Greek educational material, the main idea behind its design was “to create educational material which can strengthen young children and youths, so that from ‘passive recipients’ they can become ‘active socialisation

agents' for other youths, their classmates as well as for adults" (HSPN, 2002, p.15). The forming of an 'environmentally responsible citizen' constitutes the ultimate aim of the programme. The definition of an environmentally responsible citizen is one who does not only participate in the financial and social life of the city or area s/he lives in but someone who is also an active member of the 'political' life and is interested in issues concerning the planet, democracy, peace and sustainability. *"The educational material's aim is to support children and youths in their effort to obtain autonomy and at the same time to become active members of society, far from stereotypes and dogmatic opinions"*(HSPN, 2002, p.15).

The emphasis given to the concepts of 'citizen' and 'values' limits the worth of the results of the actions undertaken by schools. In other words, we can say that the result is not as important as the process. Besides, the successful outcome of the actions depends frequently on factors that go beyond schools. For example, the installation of double-glazing for heat conservation is expensive and lies in the good intentions and financial state of the municipality for its implementation. Finally, the fact that students came up with this proposal and tried to implement it is laudable in itself.

Furthermore, the involvement of the local community can commence with the simple act of informing and conclude with the development of joint actions. The extent of this cooperation depends on many factors, such as the educators' experience, the parents' participation, the municipality's availability, etc. Even by simply informing, which most schools participating in the programme end up doing, an opening of the school towards the community is created and is evaluated positively by the programme.

#### 2.1.4 The programme development process

The schools that are interested in implementing the programme first come into contact with the EE Official of their area or the Eco-Schools coordinator at HSPN and are informed about the programme. Afterwards, they submit an application to HSPN and receive further informative material. The next step is to inform their municipality about the programme and request their cooperation in its implementation. In the event that the municipality accepts to participate, a Collaboration Protocol is signed by the school's Principal and the Mayor, which is then sent to HSPN. It should be noted that the schools are asked not to limit the Municipality to the signing of the application but to request their active participation in the development of joint initiatives and actions concerning specific environmental problems the school and the surrounding area face (HSPN, 2002).

The moment the previously mentioned process is completed, the programme's implementation commences along the following steps (HSPN, 2002):

- An Environmental Committee, composed of students, educators, the school's principal, a representative of the parents' association, a representative of the local government and a member of the school staff, is formed at the school.
- The Environmental Committee investigates the school area in regards to the three themes dealt with in the programme: Water, Energy, Trash.
- The Environmental Committee forms a Plan of Action.
- The Environmental Committee supervises the application of the Plan of Action.
- The students and educators draw up a set of general rules for environmental behaviour called Ecocode. Before it assumes its final form, the Ecocode becomes a matter of systematic discussion in the school community.
- The Environmental Committee informs the school and the local community of the activities' results.
- The programme can be either linked to the curriculum or worked on using the project method.

When the school completes a significant part of the foreseen activities, it sends a folder to HSPN which includes a description of the methods of programme implementation, photographic material, etc. Each school is assessed by a team of HSPN programme coordinators and educators, members of the Educational Team. The assessment is based on the following points (HSPN, 2003): nice folder presentation, cooperation with other schools and local authorities, original ideas and activities, undertaking of initiatives for the sensitizing of the local community, student participation in the proposed actions. The way the school's environmental group assesses its actions for the Eco-Schools programme is also taken into consideration in the assessment.

In the event the school is assessed positively it is named an "Eco-School" and is awarded a flag with the programme's insignia at a special ceremony. According to HSPN data, during the eight years the programme has been in operation, only two schools have been assessed negatively and haven't been awarded. Two years after the first awarding, the schools are reassessed so they can continue to carry the title of Eco-School.

#### 2.1.5 Means of support for participation in the programme

The programme is coordinated by the programme Official and Secretariat which are headquartered in the HSPN and is supported by a Pedagogical Team which is composed of primary and secondary Education educators. The participating schools are supported with educational material, instructional seminars and newsletters. Specifically, each school that participates in the programme receives educational material with activities for the thematic units of Energy, Water, Trash and Sustainable School. The activities are

directed to students and include a variety of techniques such as literature review, questionnaire surveys, role-playing, theatrical games and also crosswords, acrostics, etc. According to the authors (HSPN, 2003), the educational material has direct and indirect references to the Primary and Secondary Education's curricula and can constitute the foundation for a multitude of approaches to be used in all school subjects. In the material's introduction, it is highlighted that while using the proposed activities, the educator, who is asked to adapt them to the needs, interests and abilities of his/her students, plays the greatest role. Moreover, it is made clear that the educational material forms only the framework and the educators may use other activities beyond the proposed ones.

Also, educators that implement the programme and EE Officials participate in three-day training courses organised annually. In these courses, programme philosophy and proposed steps are presented while teachers process the educational material. Apart from instructional, these courses give teachers the opportunity to become acquainted with each other and lay the foundations for collaboration between their schools. Finally, regular newsletters are published which include Eco-School news, information and experiences from schools that implement the programme.

#### 2.1.6 The main obstacles encountered

The main obstacles in the application of the Eco-Schools programmes are directly connected to the general problems EE encounters in Greece. The fact that EE is voluntarily applied in schools and at scheduled hours other than those foreseen by the curriculum, discourages many educators from getting involved in this process. The indifference or denial of certain school educators to participate can undermine their colleagues' efforts and lead to the failure of the programme.

One more factor that discourages educators is the long duration of the specific programme. At least four years are needed for the students to process all the units and attempt the necessary interventions. Also, educators are hesitant to undertake a long-term commitment.

Another problem in the application of Eco-Schools is the lack of continuity. Many schools abandon their efforts after the completion of the programme. The principal's withdrawal or a teacher's transfer to another school can mean the end of Eco-Schools. Finally, the collaboration with the Municipalities does not always prove easy. Very often, apart from signing the collaboration protocol, the municipalities have no other involvement in the programme. This usually happens in the country's larger municipalities while smaller ones are more eager to participate substantially in the programme's implementation.

## 2.2. The national thematic network: "The school yard"<sup>5</sup>

### 2.2.1 General characteristics

The thematic programme "Designing my school yard for a sustainable future" was first designed and implemented during the period of 1999-2001 in 2 kindergartens, 2 elementary schools and 2 junior high schools in the Municipality of Neapoli in Thessaloniki. The responsibility for designing and implementing the programme was with the EE Official of the 2<sup>nd</sup> Department of Secondary Education of Thessaloniki, Mrs. K. Tamoutseli. After the initiative itself and the changes achieved on a practical level by the participating schools were made public, other EE Officials, parent associations, schools and municipalities from the entire country became interested. Thus, the proposal of founding a national EE thematic network named "The school yard" was initially approved by the Department of Secondary Education Studies of Thessaloniki and subsequently by the Department of Secondary Education Studies of the Ministry of Education (2001). Assigned coordinator of this network is the EE Official of the 2<sup>nd</sup> Department of Secondary Education of Thessaloniki while collaborators are Environmental Education Centres (EECs), other EE Officials of Primary and Secondary Education, the University of Thessaloniki, the Cyprus Institute of Education, the National Association of Landscape Architects, the Greek Society of Education, the Municipalities of Neapoli and Polihni. During the 2002-2003 school year, 5 Kindergartens, 22 Elementary schools and 103 Junior High/High schools from all over Greece participated in the network.

The main targets of the programme are analysed on the following levels:

- on a pedagogical level, the rendering and using of the school playgrounds as areas of education and learning,
- on a social level, the activation of the school community (students, parents, educators) and local government in order for them to cooperate and undertake action with the objective of improving the school playgrounds and
- on a practical level, the drawing up and implementation of a remodelling plan of the school playgrounds by the technical services of the Municipality based on the school community's proposals.

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<sup>5</sup> The data for "The school yard" network come from publications and informative material related to the network (Tamoutseli, 2002; The School Yard, 2002) and from the interview that took place with Mrs. M. Dimopoulou, EE Official of the 1st Department of Primary Education of Athens, at schools of which the network's programme is implemented.

For inclusion of a school in the network, a display of interest and the submission of the relevant application to the network's coordinator is all that is needed. Extremely important, however, is the intermediate and advisory role performed by each area's EE Official, who<sup>6</sup> can discuss with the educators about the basis of their personal aspirations and the specific terms which exist in their schools, examine how mature the conditions are for the participation of a school in one of the existing networks and if a pilot application of a certain programme is necessary in a school in their area of jurisdiction, take the general climate, the school's potential and previous action into consideration and finally suggest which programme-network s/he regards as the most suitable for the school to participate in. Respectively, the EE Official provides the relevant references to the network coordinator on the school.

### 2.2.2 Explicit set of criteria

The participation of a school in the network presupposes the acceptance of the programme's official targets and the commitment to achieve them. More specifically, through the implementation of the programme, the school is expected to achieve:

- the aesthetic, functional and pedagogical upgrading of the school playgrounds through the correct design and incorporation of nature
- the use of the school yard as a pedagogical tool in the educational process
- the reinforcement of its image as a school that respects and loves the natural environment, the student and the school's activities
- the students' comprehension of the processes of environmental design and the need for their substantial participation in the shaping of the environment so that they can evolve into responsible and active citizens interested in their city's environment
- the reinforcement of the students' self-image through the recognition of their role in matters of design of an area that belongs to them so that they can appropriate it
- its opening towards the local government and the local community
- the activation of the school community and local government on a joint level of cooperation and action
- the activation of the school community (students, parents, educators) and the assurance of participation so that the Municipality's interventions for the improvement of the school area will be adopted and so become sustainable
- the reinforcement of nature's presence in school yards as they are one of the few open areas left in the urban grid

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<sup>6</sup> The data mentioned came from the oral communication with the EE Official of the 1st Department of Primary Education of Athens and refer to the practice followed by herself on this issue.

### 2.2.3 Implicit set of criteria

It is clear that the programme puts emphasis on the achievement of particular interventions and visible improvements in the school playgrounds (school yard). A practical orientation of the network's aspirations is observed not only on the general targets level but also on the content level of different actions. Furthermore, the involvement of the local government and other local community officials in the schools' programme serves exactly this potential: to ensure the opportunity for practical implementation of the proposed interventions. An important quality criterion in these promoted interventions for the school yard is the development of the natural element. While the effort to upgrade the school yard on an aesthetic and functional level is obvious and measurable in regards to its efficiency, the same does not occur with the promotion of its pedagogical dimension. Despite the fact that it is especially projected, not only in the targets but also in the programme's general way of thinking, the importance of pedagogical upgrading and use of the yard area is not accompanied by particularly exact quality criteria on this level.

Even though the programme adopts an obvious product-orientated approach, the emphasis put on process is not insignificant. Through this the achievement of the second axis of programme targets is made possible, that is the familiarization of students with the principles and practices of the participatory design of their local environment as a chief condition in the promotion of sustainable development. Especially projected are the values of the children's active participation in the process of forming a specific design proposal and the collaboration with specialists and officials of the local government for the improvement and completion of their own proposal. The success, of course, of the whole attempt depends greatly on the degree of maturity of the circumstances for the promotion of such a type of collaboration. This means that the interest, the intention and the ability of the local government to finance the proposed interventions should already have been looked into or else the students' initiatives will remain on paper.

The involvement of students in constructivist learning processes, the use of instructional techniques which facilitate the active acquirement of knowledge from the students, the development of initiative and cooperative action and the promotion of action research with the aim of altering the students' learning conditions refer to a progressive school operation model on a pedagogical level. Even though there is no particular reference to the official targets of the programme, maybe because it is taken for granted that as an EE programme it should follow these pedagogical principles, the attempt to promote them through particular actions in the course of project implementation is obvious. Finally, it is not mentioned but constitutes an important success criterion in this type of

initiative, if a climate of consensus pre-exists in the gulf of the school community (between the educators, the educators and the principal and the educational staff with the students' parents). A respective climate of mutual trust and joint interest in development should also exist between the school community and the residents of the neighbourhood where the school is based. These are, in any case, some of the terms which are informally discussed by the network or by any who mediate on its behalf (e.g. EE Officials) with schools interested in becoming involved.

An equally important condition is the expression of a personal interest and commitment on the part of the teachers who will become more actively involved in the programme, as they will be ones who support, inspire and cooperate with the students and other officials for its implementation. However, the participation of the total or of a minimum number of educators in the programme is not put forward as a condition, either explicitly or implicitly, for the programme's implementation.

#### **2.2.4 The programme development process**

According to the instructions of the educational material created by the network, the programme is developed in 13 stages.

The first two stages have an aim to initially identify and activate the interest of the students (and other teachers) so as to participate in the programme. In this phase, the techniques used are brainstorming, discussions, video projections with the presentation of other schools' cases and interventions realized in their area. In the next stage (3<sup>rd</sup>) the design for the plan of action is discussed, the students are divided into teams and each team undertakes certain duties and obligations.

A series of contacts between the cooperating partners follow. At these, the representatives of the local government are informed about the programme, their commitment to collaborate and finance the implementation of the proposed design solutions is obtained (4<sup>th</sup> stage); educators and students are further informed on the alternative opportunities for thought and action in connection with the design of the school playgrounds (5<sup>th</sup> stage).

The 6<sup>th</sup> stage includes the defining of the programme's methodology and the development of specific actions from the students. A first team of students undertakes the drawing up, distribution and gathering of questionnaires from students, educators and students' parents. A second student team undertakes the drawing up of an observation guide for the organisation and function of the yard area, the analysis of its characteristics and their assessment (aesthetic, functional, ecological) by the students. The same team forms 'before-after' type design proposals for improvement in connection with desired changes in certain characteristics of the area. Finally, a third

student team draws up an observation guide for the students behaviour. The entire area is divided into smaller area units and student pairs observe and record student behaviour (during the break) in each of these units with the help of a camera and video camera.

The next two stages (7<sup>th</sup> and 8<sup>th</sup>) are devoted to the gathering of design ideas and proposals. Students visit schools and parks and specialists (architects) are invited to discuss with the students.

The 9<sup>th</sup> stage foresees teachers' training on the theme of using the school yard as an educational tool and exploring potential collaborations among each other in designing and applying pilot educational activities.

The choosing and stating of the final design proposal from the students follows (10<sup>th</sup> stage). The programme is completed with the presentation of the design proposal in a special ceremony at the school in order for the entire school community to be informed (11<sup>th</sup> stage), with the assessment of the pedagogical activities by students and educators (through the use of interviews) (12<sup>th</sup> stage) and with the students' collaboration with the representatives of the local government to implement their design proposal (13<sup>th</sup> stage).

#### **2.2.5 Means of support for participation in the programme**

The organised scientific and pedagogical support of the programmes which take place in schools that participate in "The school yard" network constitutes the first and foremost function target of the network. The prime responsibility is on the network coordinator while the role of the other collaborating officials is substantial.

The coordinator had undertaken the initial production of educational material and takes care of its renewal and enrichment from time to time. She is also responsible for the design and organising of training courses for educators as well as meetings between schools for the exchange of experiences. Recently, she contributed to the organising of a pan-European youth convention for students in cooperation with the international educators and students' organisation for the environment, Caretakers for the Environment.

The collaborating EE Officials and EECs in the network offer substantial help to schools which are interested in becoming involved or are already participating in the network. They function as intermediaries between the network coordinator and the schools but also as a means of supplying information and searching for other partners willing to cooperate, support and finance the schools. They also play a defining role in the reproduction of educational material and its distribution to schools as well as in the organising of forums and teachers' training courses for the publicising of the schools'



programmes, the informing of new schools and the training of the participating teachers.

The other partners collaborating in the network can also offer scientific and pedagogical support for the implementation of the schools' programmes. Especially important, though, is the contribution of the local government's cooperating officials. Without the security provided by its technical and advisory support to the schools and the financial aid given to the proposed design interventions, students and educators would "toil in vain".

### 2.2.6 The main obstacles encountered

The network's main weaknesses which affect the implementation of the programmes in schools are especially connected to the inadequate funding of activities. Specifically:

- The scientific and pedagogical supervision of the programme is done by the network coordinator who, in reality, does not have the time to coordinate all the schools in the network because of the responsibilities she has as an EE Official herself.
- Secretarial support on a permanent and constant basis in order to inform and direct schools, educators and interested partners is not foreseen.
- The reproduction potential of the educational material and the undertaking of sending it to schools is limited.
- It is not easy to find funding sources for the realisation of the meetings between schools and the training courses for educators, EE Officials and any other partners participating or wanting to get involved in the network.

The difficulties are dealt with, up to a point, with the informal agreements between partners in the network to support each other. For example, EE Officials act as intermediaries not only for the inclusion of a school in the network but also for the supervision and support of its programme implementation. Respectively, collaborating EECs undertake the organising of training courses and other meetings in their facilities. Nevertheless, there are occasions when the budget and planning do not allow the prompt and exemplary implementation of such actions. In other cases, once again, the external collaborations with partners (e.g. local government), even though they constitute a substantial dimension of the programme, create commitments and obligations on the part of the school.

Problems and weaknesses are also recorded on the functional level of the schools themselves. Although most schools have Internet access and an e-mail address, they do not know or avoid familiarizing themselves with their use, a fact which consequently hinders the communication between the schools and the network. Finally, we cannot avoid mentioning as a problem, the negative attitude with which many school

communities face the initiatives of certain educators and students to bring changes in the school context. The diversion of the school's programme from its normal function and the involvement of students in activities other than the traditional "subjects" of the curriculum, frequently create discord and arguments coming from educators and parents while some of the promoted changes and interventions can also cause the reaction of residents in the neighbourhood or municipality.

### 3. Case study

The school that will be presented as case study is the 13<sup>th</sup> Elementary School of Keratsini. The choice of the particular school was made in agreement with the programme coordinators and EE Officials of the respective Education Departments. The methodological design and carrying out of the case study depended on a non-participatory approach (Cohen & Manion, 1994). For the gathering of information we used more than one data-collecting techniques:

- Observation and keeping notes on the interventions in programmed visits to the school.
- Semi-structured oral interviews with the schools' Principal, who was also responsible for programme implementation.
- Discussions and/or group interviews with the students participating in the programme and having them to fill out short questionnaires.
- Studying of the educational material used and of the report published for the programme.
- Studying of the programme folder (questionnaires designed and administered by the students, their analyses of the information gathered, before-after photographs taken by teams of students, the children's pictures - drawings - texts).
- Reports of the oral presentations of the programme progress in teacher training meetings.

#### 3.1 Eco-Schools: 13th Elementary School of Keratsini

Keratsini is an underdeveloped area of Piraeus with many factories and relatively high unemployment. The 13th Elementary School of Keratsini, however, as well as the 21<sup>st</sup> Elementary School which are housed together, constitute a reference point for the quality and efficiency of their work in the field of EE. The school signed the collaboration Protocol with the Eco-schools in 1995. The 13<sup>th</sup> Elementary School already possessed experience in EE as it had implemented many actions related to the recycling of paper and aluminium, the creation of a garden, etc.

The decision to participate in the programme is connected to the philosophy which governs all the decisions of the particular school: *“School is a place for learning, for activities, spontaneous action, cooperation, expression, promotion of students’ talents and personalities, cultivation of skills and for the creation of responsible individuals”*, the school mentions while presenting its work in the Eco-Schools Newsletter (HSPN, 2003). The other thing that drew them to Eco-Schools, according to the school principal and programme coordinator, Mrs. Kl. Chatzikosta, is the fact that the programme *“involves the entire school and local community. That is very important and was a challenge for us”*.

The years that have passed from the signing of the collaboration Protocol have been characterized as *“years of responsible and creative work. Eight years that have left intense impressions on all who worked on Water, Trash and Energy (...) These themes changed the school’s daily routine”*, the same text states.

Programme implementation took four years and the thematic units were worked on in the following order: Energy, Water, Trash and Energy again. The actions in the Eco-Schools framework are continuing into the present. All 13 educators with their 165 students participated in the programme. The decision for the school to implement the programme was collective and a result of a vote of the teachers’ association. It is worth mentioning that at the particular school all the educators apply EE. *“Even if a teacher did not want to work, the class coerced him/her to participate in the programme”*, the school principal said adding that, *“generally, the educators who do not want to work do not stay more than a year at the school. They understand that they do not fit in at the school and ask for a transfer on their own.”*

The educators shared the sub-themes and the activities proposed by the educational material, depending on the age and interests of the children. Afterwards, together with the class they decided on the time schedule they would follow (e.g. Saturdays or certain hours after school) and designed a plan of action. The plan was binding and each grade fixed the date of implementation for a specific action (e.g. the organisation of a second-hand bazaar). It should be noted that the material’s activities were only the motive and the teachers and students implemented many more actions.

The groups that were formed for the programme’s operation were the Coordinating Committee which was composed of the principal and five educators and the Environmental Committees, one for each school grade. All the grades’ students, the teachers in charge, specialist educators (in English, physical education etc.) and at least three parents participated in each committee. *“The children had a high degree of participation,”* the principal told us. *“Essentially, the teachers took the first step and afterwards the children themselves decided and gave the directions.”* For example,

it was their idea to heat the school with the hot water the electric power plant in their area dumped into the sea and they themselves supported their request to the Public Power Company and municipality.

The same applies to their parents who are one of the most important success factors of the programme. The parents help in all the projects; they clean, plant, bring materials to be recycled and compost to the school, sell the school’s magazines and inform their colleagues and friends of their actions. And the most significant according to the principal is that the parents’ relationship with the school and their contribution continues even after their children have graduated. For example, when the children decided to construct the model of a solar-powered house (which they named SUNFLOWER *“because it moves slowly and steadily like the well-known plant, looking directly at the life-giving sun”* [13<sup>th</sup> and 21<sup>st</sup> Elementary schools, 2000]) the parent of an ex-student who had relative experience helped greatly, responding immediately to the principal’s proposal.

The municipality participated with its signature, *“but afterwards was not particularly involved in the programme,”* the principal told us. Whenever necessary, it brought soil or plants to the school, installed an automatic watering system, constructed a fountain next to the plane so the water drunk by the students goes to the tree’s roots but did not respond to the school’s request for greater interventions (e.g. to install double-glazing). The same thing happened with the Ministry of Education from which the school asked to install photovoltaic arches on its roof or with the School Building Organisation or the Public Power Company from which the school asked to implement the children’s proposal of heating the school with the hot water from the electric power plant. *“They do not believe in the children’s proposals, they consider them to be childish,”* the principal told us adding that, *“When the children go to the municipality or the Public Power Company to submit their requests, they are regarded as small. It is a shame really because their ideas are truly great.”*

The school’s initiatives received a particular response from the local community which actively supports their efforts. *“People we do not know come to the school bringing paper to be recycled or material for the compost we make in the school’s garden. Furthermore, clients of our paperbank (where we gather the paper to be recycled) are the Public Power Company, the National Bank and many companies and offices. Also, everyone buys the school’s publications which are sold by the children to reinforce our Ecological Paperbank,”* the principal elaborated.

All the profits from the school’s actions end up in the ecological piggybank: sales of the school’s publications, the paper for recycling, the second-hand bazaar organised yearly

and even from the annual sale of homemade food in the school's canteen. Only the profits from the recycling of aluminium are given to a poor family in the area. Grade 6 students gave us a tour of the school and showed us all the initiatives taken in respect to Eco-schools: the fountain watering the plane, the "Sunflower" model, the paperbank, the compost-making area, the painted windows and the happy walls, the library housed in an old train carriage. *"We work on all these,"* we were told, *"A team from grade 6 is in charge of taking care of the compost, another team handles the paperbank, another takes care of the watering."* The children were especially proud of their creations and their bond with their school was obvious: *"We are sad to be leaving this school in a year. We had a good time here."*

The students who had taken part in the programme during the first years have already graduated. Nevertheless, the programme did not stop: *"We might have been rewarded by the HSPN and rewarded again in 2002 but this does not mean that we will stop thinking and acting as an Eco-School, stop applying the ecocodes and stop aiming to change the students' behaviour"* (HSPN, 2002).

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## Country Report Hungary

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### Introduction

This report has been recently drawn up for the OECD-ENSI Quality Criteria project. Various methods were used to highlight the state of environmental education in Hungary and of the Hungarian Eco-School Network. Several documents were analysed and interviews were employed to recognise the fulfilment of the criteria given in advance. The report is based on different sources of data such as; (i) regulations/laws (National Core Curriculum, 1995, National Environmental Protection Program, 1997-2003, Environmental Educational Concept, 2001, Co-Operation Agreement, 2002-2008, Forest School Programme, 2001.), (ii) publications/documents (Attila Varga: *Environmental education in Hungary*, Attila Varga: *Competition for obtaining the title "Eco-School"*, *Useful Book for Forest Schools*, Nemzeti Tankönyvkiadó, Budapest, 2002., Attila Varga, Ilse Schrittmesser /Franz.Rauch: *networks cross case study*, Attila Varga: *About the Hungarian Eco-School Network*), (iii) web-sites ([www.okoiskola.hu](http://www.okoiskola.hu), about the action research at Remetekertvárosi elementary school, [www.ktm.hu](http://www.ktm.hu) about the competitions, (iv) interview with dr.Beregnyei Józsefné the head teacher of the Templomdombi Primary School in Szentendre,).

### 1. The state of EE and EFS

#### 1.1. Presence of official national programmes/documents that support EE with a short description of the main contents and guidelines

According to the Basic Program for Kindergarten Education (Palmer and Neal, 1998) and the National Core Curriculum (4), environmental education is a compulsory task for every Hungarian teacher teaching pupils from age 3 to 18 in the frame of public education..

According to the National Core Curriculum, some objectives of the modern culture have to be present in every element of school education. Environmental education is such an objective as well. The primary goal of environmental education is to help students to adopt an environment-conscious lifestyle. In this way, the new generations will be able to prevent environment to protect nature and to promote sustainability of living nature and society. Students should become sensitive towards the conditions of our

environment. They should be able to recognise qualitative changes in their environment and evaluate them on a basic level; to recognise and preserve natural and man-made values surrounding them; and to recognise and exercise their civil rights and obligations towards their environment. Students should evolve a positive and attractive vision of the future, which will underlie a lifestyle in harmony with their environmentally friendly behaviour, based on knowledge of natural and personal responsibility. The values of environmental education should build in as a fundamental ethical principle in students' lifestyles.

In the course of environmental education, students become acquainted with the processes that have led to an environmental crisis on the planet. They should recognise the positive and negative environmental consequences of social and economic development through particular Hungarian examples.

Students should actively participate in preserving and improving their direct environment. Respect and responsibility toward nature should become an integral part of their lifestyle. They should strive to prevent any damage to the environment and acquire experience in co-operation and in handling environmental conflicts together. The schools and kindergarten had to develop their own local curricula which determined the way how the school or kindergarten will achieve the objectives given by the central National Core Curriculum or Basic Program for Kindergarten Education. The National Core Curriculum was created in a liberal educational political era. In 2001 the conservative government has launched a new compulsory curriculum the so-called "Frame-curriculum" which had determined the content of the education more in detail for Hungarian schools. The Frame-curriculum determined the way of use of the National Core Curriculum. So the frame curriculum has introduced a third level of curricula into the Hungarian educational system. Before the frame-curriculum just the National Core curriculum and the local curricula had ruled the education. After launching the frame curriculum the schools had to revise their local curricula according to it. In 2002 the liberal political era came back and one of the first actions was to eliminate the compulsory character of frame curriculum, and then renew the National Core Curriculum.

So in short: in Hungary, one of the main problems concerning the curriculum is that it changes too hastily, which makes a stable planning difficult. In the past 12 years, there were three curriculum reforms resulting in a rather permanent reform.

This hectic legal background is a very good basis for a lot of debate about the proper way of integrating environmental education into education. These debates belong to two main groups.

The first group of debates addresses whether or not environmental education should be a cross-curricular issue or should be a separate subject. In the field of public education, the first standpoint was accepted, so environmental education is a cross-curricular issue, but schools have the opportunity of offering independent courses beside the cross-curricular work. Interestingly, the second standpoint also has its place. In adult education (Mayer, 2000) and in higher education environmental education is a separate subject (e.g., 5). It should be mentioned here that there is no compulsory environmental education element in higher education even in the teacher training courses. There is just a slow movement to integrate environmental education in higher education (6). So nowadays those teachers deal with environmental education who have never been trained for this task. This discrepancy has many effects on Hungarian environmental education.

The first effect of this discrepancy is another debate. Should the teachers deal mainly with knowledge, objective facts, and scientific models during their environmental education activity or should they rather work with environmental actions, emotions, and social skills? (7, 8, 9). If we say yes to one or the other point of view, we should strengthen that part of "pre and in-service" teacher trainings. That's why this debate cannot be a purely scientific one. Education in Hungary is traditionally very knowledge-centered. Until the past very few years, the schools in Hungary served only learning. Academic achievement has been the only worthy thing in schools and the only aspect of children's evaluation. Every other thing (like sports or social and extra-curricular activities) came only as second at the best. This kind of attitude still exists in most Hungarian schools from primary school to university (Kelley-Lainé and Havas, 1996). So every action-oriented or skill-oriented educational effort in Hungary not only has to prove their solid scientific basis, but also has to face the residence of traditional values and methods.

The weakest point of environmental education in Hungary at present is the insufficiency of basic research. There is no unit dedicated to environmental education in higher education or in scientific institutes. There are only a few (5–10) researchers who conduct research on issues connected to environmental education, and this research is mainly about the practice of environmental education.

In 1996, the Government of the Hungarian Republic prepared and the Parliament accepted the National Environmental Protection Program (1997-2003). One of its chapters' aims is to develop environmental consciousness and improve environmental education.

NGO, dealing with environmental education initiated and elaborated the National Environmental Education Strategy, which outlines the role of the environmental education in society and the harmonisation of different sectors in environmental education. Since 2001 the Hungarian Ministry of Education and the Ministry for Environment have got a common Environmental Educational Concept. This document was signed by the two ministers and had declared the main aims of Hungarian environmental education for the next few years. The two ministries supervise a common committee responsible for putting the Conception into effect.

The Concept determines the programs to be supported. Such programs are in-service teacher training, development of methodologies of environmental education, vocational programs related to environmental education, supporting outdoor activities of schools and kindergartens as well as higher education programs.

Last but not least, the Concept deals with the Hungarian Eco-school Network and has assigned the National Institute for Public Education with the co-ordination of the Network. So this document is a very solid legal base for the Network, it helps a lot in lobbying.

The Ministry of Education and the Ministry for Environment and Waters proclaimed their intention to co-operate for the development of environmental education in the period of 2002-2008. They committed themselves to co-operate in the following strategic fields:

- Public education
- Vocational education
- Higher education
- Communication and Information Exchange
- Research

In order to reach the above-mentioned goals, these two ministries collaborate with their regional responsible quarters, other ministries, NGO and councils, as these institutes are important stakeholders in knowledge dissemination. Together they search for opportunities to establish and strengthen national and international partnership. Partners will inform each other about achievements abroad and make efforts to widen the possibilities for trans-boundary and international co-operation. The two ministries pinpointed tasks, budgets and their divisions and sources in two-year plans. They contribute to setting up a six-member Interministerial Operation Commission, where

delegates have been requested in equal numbers. The commission is executed by co-ordinators mandated by the ministers. The Commission elaborates and presents the strategy and the plans for the ministers who receive an annual performance report. The Commission runs frequent (at least quarterly) meetings for consultation and decision planning. The Ministry of Education and the Ministry for Environment and Waters support and supervise the Environmental Education and Communication Programme Office jointly and equally. The office's main duties are to co-ordinate and plan environmental education. They maintain forest school education programmes and audit the quality insurance of these agencies.

### **1.2 Appraisal of the real diffusion and realisation of such programmes in the country:**

Above-mentioned documents have vital role for EFS in Hungary. Without them there would be no possibility to deal with EE and EFS. They are very strong arguments in the lobby work for EE and EFS. Beside this vital function there are many weakness of this documents. There is no control if EFS and EE is integrated in the practical pedagogical work or not. This weakness is helped by the fact that these documents are on the national level and the local documents (local curricula, educational plans of local authorities) are usually much more weaker regarding to EE or EFS than the central ones. The local documents refer to central ones in general, but do not determine exact tasks and resources. And now we are at the origin of the weakness of the Hungarian EE and EFS. The resources. In this field the central documents/programs are equal to local ones. The resources are not enough to change step by step the existing educational system. It is problem not for just EE and EFS but for all other innovative aims of the educational government. Because of the lack of resources (or the lack of willingness to allocate adequate resources on EE and EFS) there are not enough training programs for teachers, neither in pre-service training nor in in-service training. So there are many teachers in Hungary who have to deal with EE and EFS according to the curricula but were never prepared for these tasks. Also the lack of resources causes that there are not enough pedagogical material which could help the not-prepared teachers.

The main thing that is missing is a very clear strategy, which could help to disseminate the results of the last years to each school. In recent years on the basis of central documents and existing support a lot of schools have developed programs and materials for EE and EFS, these products however can not reach all schools.

In summary the central documents and programs has launched a development process in the schools that was open to EE and EFS but diffusion of the changes to all schools is missing.

### **1.3. Presence of initiatives guided by international, national or local NGO supporting EE**

There are hundreds of NGO supporting EE in Hungary. Most of them working on local level, organising EE programs for the local schools and communities. Beside local NGOs Hungary have at least eight nationwide NGOs focusing on EE, and many nationwide environmentalist NGO also deal with EE. The nationwide NGOs have strong international connections.

This means an enormous diversity of initiatives guided by NGOs. On the one hand this diversity is strength of Hungarian EE, but on the other hand this diversity causes a lot of debate and frittering of the available resources and in spite of diversity there are many blind spots of Hungarian EE.

The Hungarian Environmental Educational Association has launched a program in order to create a framework the EE work in Hungary, in order to give a new perspective of Hungarian EE and to create a nationwide co-operation for EE. The Association invited all the stakeholders of EE (from schools to universities from local authorities to ministries) to create together the National Environmental Education Strategy. The first Strategy was published in 1998 and a renewed version in 2003.

The Strategy defined the main goals for Hungarian EE and composes suggestions for all stakeholders of EE. As the Strategy is not an official document its role is not to regulate but to inspire and co-ordinate the Hungarian EE actions. To realize the role of the strategy is a very slow and ongoing process. Those stakeholders of EE who are open to the message of the Strategy use more and more of its suggestions, but there are still many stakeholders who do not want to fit in this framework, or even do not realise their role in EE.

In summary one could see that the situation on the NGO side is quite similar to the governmental side (see Paragraph 1.2): Hungary has many good initiatives in the field of EE and the national co-ordination of these initiatives is recently developing slowly but continuously.

## **2. The Ecoschool development process**

### **2.1 The Hungarian Eco-school system**

#### **2.1.1 The general characteristic of:**

The OECD-ENSI Network consists of a co-ordinating institute and members. The **Centre for Program and Curriculum Development of the National Institute for Public Education** (hereafter: Centre) is the co-ordinating institute. The Hungarian Network was started in 2000 by an initiative of the Centre. The Ministry of Education provides operative support; the Ministry for Environment supports the various projects of the network. The Ministry of Education and the Ministry set the initial impulse for the network for Environment. The money for the network still comes from the Ministry of Education. The initial driving force of the network seems to have been the Centre for Program and Curriculum Development. Presently, the Centre is still responsible for co-ordination in the network but gradually the initiatives are more and more shifted from top-down to horizontal ones, starting from the participating schools.

Until the launch of official Eco-school-award system the Network has been open to every Hungarian institution for general education. The only precondition for joining the Network has been a letter containing a summary/description (introduction) of the activity of the school signed by the headmaster, which expresses the school's intention to join the Network. At the moment the network have 40 member schools.

This structure has changed as the planned Eco-school-award system has been launched. The Network will be transformed from an absolutely open network of schools to a two level network. On the one level there will be Eco-school-award schools, The awarded schools will be the official members of the Network. Membership of this section will offer more advantages (funding (tenders), information, programs), but on the other level the network will keep the open side of the networking. It will offer help for not-awarded schools in many ways: link them to the award schools, organise in-service training for their staff, and provide them with pedagogical material and so on. In short, it will help them to be awarded for the title of "Eco-school".

The initial intention of the network was to spread the idea of sustainability in education. The concept of "Eco" in "Eco-schools" is supposed to refer to both ecological and economic principles and points to the aim of the network to reconcile ecological and economic interests. All fields of school life are concerned with the aspect

of sustainability. Civic education and participatory democracy are considered as vital aspects of the philosophy of Eco-schools.

The National Institute of Public Education launched the current system of Hungarian Eco-schools, which is an institute in the hierarchy between schools and ministries. The Institute has to persuade ministries of supporting environmental education, and at the same time, it has to deal with schools to persuade them that this networking is worthwhile to join.

Members are not involved in the OECD-ENSI Network itself but in the objectives of the Network. It means that these schools work as Eco-schools independently from the Network. It is very fostering for the management and for the decision maker to see that the member schools try to function as Eco schools without any central help. This was the case before the Network was started and also during the period of financial gap between March and November 2001. This very solid involvement is a strong basis for Network building.

As the Network has strengthened, the involvement of members of the Network also increases. The more activities are organised by the Network, the more the members understand the importance/benefits of networking as opposed to just working alone. It is not justified however that just the activities of the Network have caused the increasing involvement. Nowadays networking also exists in other areas of education (e.g. private schools) in Hungary. Teachers and management of schools have understood that they can reach their objectives much more effectively if they work in teams rather than separately.

### 2.1.2 The explicit set of criteria

In the present there is just one real criterion to join the network i.e. a letter of intent signed by the principal. In this letter the school expresses its willingness to develop the school work according the criteria of the planned Eco-School award. The planned award consists of criteria regarding to the following area of the school-life:

#### A: *General Aims ( 4 criteria)*

1. A survey is made of school activities and their impact on the environment
2. The school develops a workplan to reach the Eco-school criteria
3. The school has connection to a national environmental education group
4. The image of school shows the commitment of the school to the values of sustainability

#### B: *Teaching and learning (8 criteria)*

The main points of these criteria are: project work, activity of the pupils, diversity of methods, continuous development of methods.

#### C: *Human resources- inner relationships (11 criteria)*

The main points of these criteria are: environmental awareness, democracy, in-service trainings.

#### D: *Activities beside teaching and learning: (8 criteria)*

The main points of these criteria are: activities regarding to sustainability: camps, campaigns, school media.

#### E: *Social relationships (5 criteria)*

The main points of these criteria are: links to the local community, other schools, international networks.

#### F: *Physical environment (8 criteria)*

The main points of these criteria are: conservation and protection of the natural and built environment of the school.

#### G: *Operation of the school (8 criteria)*

The main point of these criteria are: environment friendly, and saving resource use, care of health.

### 2.1.3 Implicit set of criteria

To be an eco-school means a commitment to school development and to school-network work. No one could be a real eco-school which does not continuously revise its work, or try to develop itself alone without any help from other schools and experts. Practically, the implicit criteria of the membership means permanent participation in the activity of the Network (e.g meetings, in-service trainings, conferences, tenders) .

### 2.1.4 The kind of development process the initiative proposes

As it was mentioned before, the network started to be completely open to every educational institution in the country. This openness, however, will change in the near future. The transformation process will result a kind of differentiation. There will be an inner circle of Eco-schools holding an award for their ecological activities and gaining a number of advantages (such as funding, information, teacher training etc.) from this

status. The second level remains open for schools applying for this award. They will get special support from the network in order to meet the requirements of the "Eco-school-award" as soon as possible. The award is intended to have both support and quality control function. On the one hand it is supposed to provide the schools with guidelines for what it means to be an Eco-school. It will be easier for awarded schools to raise funds for their activities and to get money from the two Ministries involved in the project. At the same time the title "Eco-school" will be connected with governmental assessment procedures checking the commitment and the achievements of the applying schools in the field of education for sustainability.

The organisation of the network has been launched as a government activity and therefore a "top-down" process. The Ministry of Education, the Ministry of the Environment and the Centre for Program and Curriculum Development have been both the hierarchical framework and dynamic "nodes" of the network. Today, it is the participating schools which appear to take over the role of the dynamic nodes more and more: like other network formations, schools can be regarded as true communities of practice. It is the Eco-school award - as both an organisational and a co-ordination feature - around which the communities start to form, guided both by the central idea of the network and by its hierarchical framework. Eco-schools as regional centres of education for sustainability will invite other schools to join the process that Lave and Wenger described as "legitimate peripheral participation": Eco-schools will represent the field of practice that "newcomers" (schools applying for the award) will be offered to share until they can fully participate in the ecological activities set forth in the award's requirement.

On the other hand, the Ministries and the Centre will stick to a restricted form of hierarchical co-ordination and control, especially in connection with the award: They function as the hierarchical framework of the network and step in whenever control and evaluation is necessary or when the network is in danger of stagnating. They withdraw as long as the network runs smoothly and only interfere when demanded.

### **2.1.5 The kind of support offered to students, teachers and principals to enter and to participate**

The main activities of the Centre are supporting the partners in the network. In doing so it organises meetings, where the most important national and international events and innovations are presented, and opportunity is provided for the members to introduce themselves, exchange technical experience and establish contacts. Also, the Centre has created a web-site, providing up-to-date news about tenders, foreign

outlook and data bases. The Centre continuously helps its members to participate in national and international in-service teacher training programmes. The members' work is also supported via action research and pedagogical-psychological research providing theoretical basis of the pedagogy of sustainability. The members of the Eco-school network have shown their results on Hungarian environmental education achievement at several international events and have taken part in many international programmes backed by the Network. In addition, the Centre supports the making of those pedagogical supplementary materials, books and educational packages which are important for Eco-schools, and of course it continuously informs the members about up-to-date handbooks.

### **2.1.6 The main obstacles:**

Uncertain and limited financial supports

Notwithstanding, the Ministry of Education and the Ministry for Environment have developed a common Environmental Educational Concept. This concept unfortunately does not oblige them to support the Network financially. For this reason the management of the Network has to lobby for support almost on an ongoing basis. These efforts consume a lot of time of the management and prevent them from constructive work.

Communication problems

There is no network without communication. One would think that in the era of Internet, communication cannot be a problem. Unfortunately, in Hungary there are many primary schools without access to Internet. This causes several problems. First of all, a school without Internet has a disadvantage because actually the Network's main and quickest platform communication is its homepage. Secondly, the management has to communicate parallel both via Internet and via traditional communication tools, (e.g. telephone, post) which means double work for the same goal.

Lack of technical management

From the very start of the Network it has been clear that the Network needs technical assistance. The management can co-operate with experts in the field of education and psychology, which is very suitable for professional work, but the lack of technical experts hinders the efficiency of the Network. The professional management of the network is enforced on e.g. updating the homepage and organising activities (meetings, training) of the Network. There is some technical



help available on the bases of short term contracts for major events, but the uncertainty and low level of support does not make it possible to employ a full time technical manager who would supervise the daily work of Network and take care of its development too.

## 2.2 Forest School Program

### 2.2.1 General characteristic:

The program is a joint program of four ministries: Ministry of Education, Ministry of Environmental Protection and Water, Ministry of Children Youth and Sport, and Ministry of Family and Social Affairs. The programme envisages the creation of the conditions of *“at least one visit to the forest school for children attending the elementary school”*.

It is useful, because:

- it provides free, interesting and complex learning;
- it contributes to the recognition of the environmental effects and relations;
- it facilitates the creation of an environment conscious approach and behaviour;
- train people for a healthy life (nutrition, training);
- development of personality and community.

The forest school can be realised in the following manners:

- self-efforts of the school – programme elaboration, acquisition of means, implementation by the teachers of the school;
- by means of forest school services.

The forest school service is a service to contribute to the introduction of organised educational and learning methods to the forest school by:

- provision of a proper place;
- provision of vocational programmes;
- provision of specialists, means and materials to the planned activities.

The high-standard forest school service providers belong to the creation of the above system of conditions of the forest school. As the popularity of the forest school is growing, both customers and service providers should be involved in the creation of the qualification system for the forest school services, and collection of their data is now in progress.

As a part of the qualification system, a database of the forest school service providers (agencies) having the qualification and recommended forest school trade-mark (the woodpecker) is available.

### 2.2.2 Explicit set of criteria:

The forest school is a special and complex educational and learning possibility characterised by the following features:

- it constitutes an organic part of the pedagogic programme of the school;
- it helps the realisation of the local curricula;
- it will be implemented during term;
- it takes more than one days;
- it is situated in the neighbourhood of the organising school, in natural environment, if possible;
- it is based on the active co-operation of pupils;
- the education is based on the local capabilities and the social-cultural environment created by nature and people;
- an important job is to develop healthy lifestyle abilities in harmony with nature and to implement a community related socialisation.

### 2.2.3 Implicit set of criteria:

Historically the explicit set of criteria has been emerged from an implicit set of criteria used by those schools which had organised forest schools before the formal program launched. During the formalization of the program some new aspects has been taken into consideration, The final explicit set of criteria has defined the forest school in a little bit broader sense than the most organizer of forest schools.

The forest school movement was coming mainly from biology and geography teachers. That's why even nowadays the scientific part of forest schools are stronger. So an implicit criteria can be composed:

A forest school could not be without biology or geography, but without social aspects it could be acceptable.

### 2.2.4 The kind of development process the initiative proposes:

The main aim of the program is promote new approach of education in Hungarian schools. The characteristics of this new approach can be described as follows:

- use of outdoor activities
- use the landscapes as a learning tool
- use pedagogical methods which require the activity of pupils (projects, field studies)

- integration of subjects
- teachers' teamwork.

### 2.2.5 The kind of support offered to students, teachers and principals to enter and to participate

The program offered mainly financial support for schools to organize forest schools. Beside this an important support activity of the program is the development of the woodpecker quality-insurance system mentioned before.

The program helps to organise some in-service teacher training about forest schools, and is in a continuous negotiation with the government and the Forest School Association (NGO) in order to develop the forest school system of Hungary.

### 2.2.6 Main obstacles:

There is insufficient training about forest schools. To organize a proper forest school is a very complex task. The teacher-education do not prepare for it. In spite of these facts the Forest school program allocate much more resources on organising of forest schools than to prepare teachers to organization. So in many cases teachers organise forest school without any professional preparation and without any professional support.

## 2.3 NGO guided initiative: "Greening the schools" movement.

### 2.3.1 General characteristic

Hungarian Environmental Educational Association has launched this initiative in 2002. They collect the best practices of greening activities in Hungarian schools in a book. The book tries to deal with all possible aspects of greening the school from the waste management to the math lessons. The editing work of this book was organized as a workshop-conference where all authors and other experts came together and disputed the content of the book. The book and the people, who were involved in the creation of it, are a basis for the emerging movement according to the plan of the Association. The plan consists several elements for supporting the greening activity of the schools:

- publish the book as a tool-box for all Hungarian schools
- establish an information office where anybody could get help and ideas
- organising in-service teacher trainings
- organising trainings for local authorities in order to involve them into the process
- offer courses in the teacher education about greening the schools
- make a national system of the different EFS initiatives.

### 2.3.2 Explicit set of criteria

There is no list of criteria. The movement is open to all kind of greening activity in the schools. A green activity could be as well a simple lesson about the environment as a complete investigation about the resource-use of the school in a project framework.

### 2.3.3 Implicit set of criteria

The school development approach of environmental education could be identified as an implicit criterion. If somebody joins this movement it means the she or he accepted that the work of school has to be developed.

### 2.3.4 The kind of development process the initiative proposes

The main idea of the movement is to create a helping web for everybody who would like to green a school in any way.

### 2.3.5 The kind of support offered to students, teachers and principals to enter and to participate

The movement is quite new so the support is rather a plan than reality. You could read the planned activity in the chapter about general characteristic. .

### 2.3.6 Main obstacles

This very ambitious movement could be stopped very easily without sufficient support. The Association is looking forward for sponsors and/or tenders for continuing the program. At moment the plans of movement are under evaluation of EU experts, so we can hope that the movement could go on as a EU supported project. If not, it remains the Association's very ambitious plan.

## 2.4 Appraisal of the existing innovations in the field of EE and EFS

- All the above mentioned innovation have some common features: they are limited in numbers, but strong as driving force and representation of good practice for the rest of schools which are not touched by these innovations.
- There are some other school development initiatives without any regard to the questions of sustainability. It seems so, that in Hungarian decision makers' mind sustainability is much more an educational task such as math or reading than a worldview which should be integrated in all educational activities including school development processes.

### 3. Case studies

#### 3.1 Remetekertvárosi (Budapest)

Remetekertvárosi Primary School is a registered member of the OECD-ENSI Eco-school group. On the Eco-school web-site, up-dated news is available about it. This school is labelled as a GREEN SCHOOL referring to the thematically built field studies (green lessons) The studies have become significant building stones in forming environment sensibility. The school put the environmental education project into practice by organising different kinds of programmes in natural and artificial plans either. The green lessons are integrated in the pedagogical programme of the school addressing every age group. The "green programmes" are implemented by pupil groups with the help of experts and form-masters of the school. Every year the experience and problems of the previous year are considered in the course of planning the annual field studies.

In the course of 2001-2002 school year, there were 5 field studies for each class /1-8 grades/. The younger pupils started it after the third lesson, while the older ones after the fourth lesson. In sum, these meant  $5 \times 17 = 85$  occasions, when the classes took 2-5 hour trips in different places. Those amounted  $8 \times 5 = 40$  outworked field study programmes. The thematic of the field studies were determined for each class, but places forms were advised by 4 external experts. As a result, further new places have been visited, pupils have become better and better aware of the environment. The school has established good partnership with more and more public institutions dealing with environmental education.

This school also has a self-made laboratory wagon. As far as financial resources are concerned, the school has been founded on their own voluntary contributions supplementing with some money from a foundation. Nowadays, the wagon can be worked on a self-sustain basis, due to the school's unique program, the so called "Rolling path" offering for a fee to the visitors. Now it's become a very popular program in Húvösvölgy, to go to the rolling path.

The Remetekertvárosi school has been taking part in an action research programme started in September 2001. The external help has been provided by graduating students of the University Eötvös Lóránd. The future natural science teachers (fourth and fifth year) are getting to know about the theoretical background and the methodology of action research within the course of pedagogy subject. After finishing that course they can take part in action research. Two types of questionnaires compose the body of the action research. One of them is filled in by the leaders of the field study programme whereas the other is filled in by the pupils taking part in the programmes. Both

questionnaires contain some evaluative questions in connection with pedagogical and professional preparation of field studies and a longer question on possible problems and critics which has to be worked out more detailed. These questionnaires are required to be filled in after each field study programmes of each class during the school year. Besides these data there are some other observers taking external monitoring by the students of the University. Considering the outcomes of the questionnaires and the monitoring data teachers may adjust the structure and agenda of the field studies regularly.

#### 3.2 Templomdombi (Szentendre)

This municipal school serves as a very good example for the co-operation between local government and the school leadership. The school was founded in 1989 as an independent institute with one class each year. Its rather small but homely building is standing in the most beautiful place, the historical centre, of Szentendre. It includes 8 classrooms, 5 special rooms, a PE hall, a small library, a staff room, 3 offices and technical rooms. Exploiting the advantages of the favourable endowments of the building the staff works on strengthening the homely characteristics of the school, making the right atmosphere and the space for forming the pupils' individuality and the sociability.

The school put the process of experience-like learning into the centre. Several innovative and efficient after-school training have been launched, such as "Forest school preparation project", Gordon's "Teachers' Effectiveness Training' and Methodology of learning process". The school has been awarded a tender of Soros Foundation training for self-developing school. It helped them thinking over their activities and creating the pedagogical program.

#### The specialities of the school's training facilities

Over its basic purposes -based on the educational rights-the school offers further special opportunities for children to develop their aptitudes and abilities on three fields, helping the pupils to live in harmony with themselves and their surroundings. According to the school's philosophy every child is talented so the school tries to support them the right activities, the most suitable for pupils' capabilities.

The school's educational specialities are:

- Environmental education,

- Development of Manual Abilities,
  - Education of Foreign Languages,
- from our viewpoint only the first one is relevant.

### Environmental Education

The Templomdombi school has been participating in an international project called "Forest and Men" with the support of COMENIUS 1, lasting from March 2000 to March 2003. The final outcome of the project is to publish a book showing selected European forests of different types, and the symbiotic relation with men. This topic is closely related to several other domains of the National Core Curriculum, e.g. "Our Planet and Environment", "Men and Nature", "Men and Society". The related tasks are incorporated to almost every subjects and all 7-13 year old pupils are involved with the help of headmasters and teachers. The project co-ordinator supervises the development and encourages the ongoing communication among participants both inside the school and internationally among participants school.

The school began the first steps toward environmental education in 1990, with the slogan that "The school teaches even when it does not teach." The idea was that the atmosphere and the milieu of the school and also the teachers' approach to environmental worth and harmony are a decisive force in forming the aptitude. The environmental education is regarded as an action-oriented topic. The goal of the environmental education is to form the environmental knowledge, the skills needed to solve environmental problems, and the aptitude and worth related to environment in pedagogical ways. The environmental education has an effect on the whole personality and therefore can only be realised by acting so in all matters of the school. As the pupils spend the third part of their day in the school, the most important place for environmental education is the school-building itself. By choosing energy-saving and aesthetic solutions, the staff tries to achieve the goal of complex education.

There are various efficient forms of environmental education in this school:

-First, it is part of every subject (E.g. in literature, the works of art of different styles can demonstrate the natural phenomena and the admiration and love of the writer toward nature. In physics teachers can acquaint pupils with the sort of renewable and non-renewable energies, the physical phenomena of nature, etc.)

- Forest school programme (It is an important aspect in choosing the places that the children can catch an impression of every typical region such as plain, limestone and

dolomite middle-mountains, volcano-originated middle-mountains, a region of shore.)

- Bird study groups and natural-resources study-groups
- Campaigns protecting environment (It means the examination of an important environmental problem that touches the children, too. This can improve their sensitivity and teaches them how to enforce interests and how to deal with conflicts.)
- Natural-resources camps in the Summer
- Information (via the school-radio, school-newspaper and the wall-adds.)

### General Characteristic

The Templomdombi school can be regarded as a relevant good practice as it is one of the members of the Hungarian Eco-school Network, the founders of the Forest Schools Network and of the founders of the Self-Developing Schools Network. Notwithstanding, it is not a registered member of the OECD-ENSI Network, the school has already fulfilled the network's criteria implicitly. One of the school's pedagogical innovations is the above mentioned project called "Forest and Men". All the stakeholders have been participating in the development process.

As for explicit criteria, the program of the environmental education has been approved by guardian board of the local government, setting aside the financial sources in the budget. Parents are involved in the Forest-School program work, through work-groups and through weekend programs. Also, when applying, they are asked to sign a declaration that they can agree on the aim of the environmental education program and can contribute to the financial support of such services. (e.g. the Forest School program amounts about 15.000 HUF support a year.)

As for teacher's team-work, there are further trainings on the Forest School's program. The school applies a criterion that neither teachers nor the technical staff should smoke.

As for implicit criteria, both the physical environment and the pedagogical programmes have to be mentioned. There is selective waste-management in the school, and moreover the school has developed the Educational Package for Selective Waste Management.

The school acts as a moderator in the Regional Public Educational Program for 5-6 years and gives professional aid for the pedagogical program in the domain of environmental education. The new programmes with competitions also develop the curriculum (e.g. "Forest and Men" with an international co-operation.)

The school has quality-insurance system providing a self-control facility. The achievements of environmental education, the realisation of the curricular work are evaluated every year in the frame of quality-development program and along with the pedagogical program, too. Also, the needs and satisfaction and environmental attitude of parents, teachers and sponsors are measured every year with the aim of implementing the results in the next curriculum.

The local guardian authority supervise the school's activity. This supervision is extended to the realisation of the pedagogical program as well as the control of compliance with law and supported by external consultants.

As for the support of the stakeholders, the school gives professional support for the pupils and teachers to complete. Some supports for professional travels abroad are also available and correspondence is also encouraged.

Teachers, parents and children are highly interested in and motivated to support the phenomena of environmental protection and the aim of the school. For widening programmes and its activities the school needs additional financial recourses.

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# Country Report Italy

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## Introduction

Over the last five years the Italian education system has seen continuous changes, sometimes only announced and not always turned into laws. This situation is partly due to the change in government and also partly to the slowness with which innovations are introduced in the school system.

This situation of uncertainty has had a bearing on the state of Environmental Education (EE) and Education for Sustainability (Efs): throughout the 1990s, also through the lobbying carried out by national associations and workgroups, the Ministry of Education and, above all, the Ministry of the Environment had supported the initiatives of schools, EE centres and local authorities for EE, which since 1997 has been defined as “oriented towards sustainable development”. Until 2000 there was a “Technical Committee”, with representatives of the two ministries as well as of national associations and initiatives, for programming common initiatives. In the last four no common initiatives have been organised. Despite this, and also due to the coming into force of an “agreement” between the national government and regional governments signed in 2001, the regional governments have received considerable funding from the Ministry of the Environment for the years 2002-2004 in order to finance actions in the field of information, education and EE (the INFEA Programme). As a result, even in the lack of initiatives at a central level, there have been actions started up – albeit with different emphasis – in all Italian regions for information, education and research concerning education for sustainable development.

In this fluid and rather confused situation, this report will try to describe the situation as it was up until a few years ago and to outline some future trends.

## The state of EE and Efs in Italy

### 1.1 National programmes and documents that support EE and Efs in Italy.

#### 1.1.1 EE in the Italian Curricula

The curricular offer - subjects, number of hours, disciplinary contents - is still a central decision in Italy. The national programmes are in some cases very old - the core

programme of the *Liceo* is over 40 years old - but schools have the autonomy to introduce limited curricular innovations and the so-called '*academic freedom*' allows teachers to choose what methodologies, emphasis, and interdisciplinary links to use within their own subject fields. In this situation what is really relevant for teachers are textbooks and a general school climate towards innovation. Especially in upper secondary schools the situation was, and still is, very confused because there were over 100 different but centralised curricula concerning different orientations: from Lyceums to Technical and Vocational schools. However, in the 1990s, many environmental issues have been added in different subjects (science, geography, economics) as well as special '*project areas*' with interdisciplinary teaching and fieldwork, consistent with the orientation of the particular school.

New programs for upper secondary schools are now under discussion, and the new ones for the first 8 years of schooling have been approved in 2004. In the new programs, environmental issues are present in many subjects (especially geography and technology) and in lower secondary schools EE is provided as one of the 6 cross-curricular subject (in addition to citizenship education, road education, health education, eating habits education and education for affectivity). Nevertheless, EE and EDS not seems to be a priority since the programmes seem to be oriented to assure the “*essential performance levels*” required by the technological, economic and social system.

#### 1.1.2 Initiatives and Documents that support EE and Efs

The official state of national programmes does not, however, reflect the real situation of EE in Italy. The 1990s saw the strengthening of a movement for reflection and action for EE with the participation of environmentalist associations, research groups, Regional Institutes for Education Research and Innovation, some groups of schools and teachers (for example, those belonging to the Movement of Educational Cooperation inspired by Freinet). Discussions between these groups, with regular meetings in '92-'93, continued at an informal level thereby guaranteeing a relative concordance of views at national level that could then turn into lobbying aimed at the ministries concerned and which led in '94-'95 to some important results.

#### a. Official Networks

In 1996 the two ministries concerned – Education and the Environment – signed a “*Programme agreement*” in which two parallel and interconnected networks were recognised:

- a first network, belonging to the Ministry of Education, included one teacher for each school, as a representative of the school for EE, the provincial educational authorities (*Provveditorati*) and the Regional Institutes for Research and Innovation. The activities carried out by the latter are reported on the website:

<http://www.bdp.it/ambiente/>;

- a second network, belonging to the Ministry of Environment, included regional and local institutions (Regional Centres for EE or Territorial Labs for EE) interested in a communication and mediation role among schools, citizens and institutions. Centres for Environmental Education - offering environmental activities and internships for schools and students - are connected to this second network. The website of the network is: <http://www.minambiente.it/SVS/infea/infea.htm>

The idea behind the construction of the two networks was that EE cannot be limited to a school level, but schools and EE centres can work together and help each other to raise the social consensus and habits of caring for the natural and social environment. The two networks met officially in a few national events (such as the 2000 National Conference in Genoa, with the presence of the two ministries and over 5,000 participants); the relation between the two networks, at present, is very poor at national level, but can be very strong and effective at regional level or at local level.

## b. Official Documents

At present, EE in schools is governed by a **1996 circular** from the Ministry of Education. The circular was sent to all Italian schools and stressed the transition from a pioneering phase (the pilot) to a mature one, where guidelines and principles for EE are clear and shared among the institutions, even if open to uncertainty and to new ideas.

The circular put forward EE as:

- education for responsible and caring citizenship
- a means for connecting the school world with what goes on outside school
- a cross-curricular subject which shows the links between disciplines and concrete issues
- something that acts on the real world and on the present with a view to the future
- a subject which takes complexity into account and does not simplify or reduce problems
- a subject which deals with local issues in a responsible manner in solidarity with the rest of the planet

In 1997, the two ministries jointly prepared a "Charter of Principles for an Environmental Education oriented towards Conscious Sustainable Development"<sup>1</sup>, addressed "to citizens of all ages as well as to public administration, firms, workers, schools and education agencies" where it is stressed how EE calls for:

- an explorative spirit and knowledge construction processes (rather than knowledge transmission);
- methodological, didactic and organisational innovation involving all education agencies, working through projects within a true and open research dimension, along cross-disciplinary paths and creating the basis for a different relationship with disciplines and between disciplines;
- changing the traditional teaching-learning roles;
- cooperation between the school, other education agencies and citizens.

As regards EE school initiatives, the Charter states:

*"... (EE initiatives) involve knowledge, values, behaviors and concrete experiences for respect and interactions among the plurality of life forms existing in the environment; (they) have the possibility to construct and disseminate a modern culture 'capable of future', which means capable to go beyond the 'use and dispose' dimension and to conform their own actions to the sense of limit; (they) promote opportunities and contexts to foster the development of dynamic qualities, to construct the capacity to make decisions in conditions of uncertainty, to develop the awareness that the capacity of foreseeing cannot be separated from the availability to face the unforeseeable, to educate to debate and to the management of conflicts between different points of view."*

## c. National Survey

In 2001 the first large **Survey on Environmental Competencies** was carried out by INValSI – the National Institute for the Evaluation of the Education System. Five tests were prepared and administered to a national sample of over 25,000 students belonging to five different school grades (4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> and 13<sup>th</sup>):

[http://www.invalsi.it/ricerche-nazionali/icamweb/icam\\_home.htm](http://www.invalsi.it/ricerche-nazionali/icamweb/icam_home.htm). The idea was to

<sup>1</sup> This chart was recently confirmed by the present Ministry of Education in a public agreement with the NGO Legambiente.

assess whether the new competencies, more consistent with EE and EfS principles and ideas, had been developed in schools: the conceptual areas explored by the research were the following:

- *The structure connecting all living things to each other and to the planet*, and hence the competencies to grasp relations and to recognize both the consequences at local level of overall changes and also the distant and global effects of local actions.
- *An evolutionary view of natural and social processes*, and thus an understanding of the difference between laws - deterministic and predictive - and constraints within which a variety of processes are always possible, and of the importance of the diversity and abundance of directions and solutions for selecting, always partly at random, possibilities for the future.
- *The awareness of limits* - to resources, to the time necessary for carrying through biological cycles, to the possibilities of the human mind ... - together with the awareness of the unpredictability of complex natural or social systems, and the risk associated with our every action, or inaction.

As expected, the study showed the difficulties of schools in dealing with these issues in an inter-disciplinary and concrete manner, linked to real problems. However, the study enabled information gathering on the distribution of EE initiatives in Italy. It thus revealed that:

- Initiatives explicitly of an "environmental education" nature are more widespread in lower secondary schools (11-14-year-olds; 77%) with respect to primary schools (6-10-year-olds; 45%) and upper secondary schools (15-19-year-olds; 46%). It must be said, however, that many current primary school activities may be considered as linked to environmental education.
- The schools appointing a teacher responsible for EE accounted for 61% of primary schools, 78% of lower secondary schools and 57% of upper secondary schools.
- The great majority of teachers of all school levels (92-98%) consider EE to be important, but a high percentage (30-35%) consider the school inadequate for EE activities, while an even higher percentage (increasing from primary to upper secondary schools) complain of the poor care students have for their school premises (from 47% in primary schools to 85% in upper secondary schools) and for materials used in school (from 46 to 80%).

## 1.2 National or Regional programmes that support School Development

Since 1998 the Italian schools have been involved in a wide plan of educational reform, giving schools more organisational and administrative autonomy, and the right and duty of planning part of the curricular offer, but with relatively few initiatives and training courses oriented to prepare also teachers, and not only the principals and the administrative staff, to face all these changes and to use this kind of freedom. In the first experimental phase some researches have been done (i.e. the Copernicus project), but outcomes and suggestions coming from these researches, and from the evaluation carried out by INValSI, never reached the majority of schools.

At present, the school autonomy is more on paper than a reality: the cutting of funding, the division of responsibility between central and local authorities, the national tendency to reduce and privatize the state school service, are reducing the possibilities for an autonomous school development.

In this process the presence of the teachers' associations and environmental associations is becoming very important: they are stimulating the debate within the schools by offering initiatives, forums and teacher-training, where EfS and the new school autonomy laws are discussed together and where it is possible to look at the general plan for school reform from the point of view of sustainability and of environmental education.

## 1.3 Regional, Local, NGO Initiatives supporting EE and EfS

In this situation the intervention of **Regional and Local Authorities** is becoming more important every year: because of the new autonomy and the lack of resources, schools have been strongly interested in the outside support given by local authorities, associations and different agencies, especially if this means some form of financial or training support. Almost all of the 20 Italian regions have a regional centre coordinating the INFEA program, and because of the national funding of over 10 million Euros in two years, the regional authorities are encouraged to finance initiatives fostering EE and EfS. In many regions the INFEA program includes the definition and evaluation, of "quality criteria" for the EE centres and for school initiatives. One widespread initiative among regions is developing **Agenda 21** within schools: schools are invited not only to participate in the local Agenda 21, but also to use Agenda 21 methodologies as a way to evaluate and to improve their environmental quality. In many of the north and central regions a new Regional Agency for Environmental Protection, the **ARPA**, is gaining an important role by connecting the practices –



actions for the environment – with the theory and with educational actions related to those practices.

**Universities** are contributing to EE and EfS, mainly through “Master courses” (Padova and Bologna), PhD theses, training courses and research groups (Milan, Turin, Bologna and Parma), often in liaison with regional programs. The new and long awaited teacher-training courses<sup>2</sup> are, in general, still very “theoretical” and give little room not only to EE but also to action research and the new practices of teacher- training required by EE.

Other research institutions, such as **ISFOL** (the institute for training and employment) and the **CNR** (the National Research Council), have developed research lines on EE and EfS. One of these studies – *The Children's Town (città dei bambini)* – is becoming an internationally known field of action.

An important role is the one played by environmentalist associations: besides the well-known associations such as **WWF Italia, Legambiente and Italia Nostra** (which have thousands of members), Italy has other national organizations dealing with particular issues (safeguarding the sea; protecting artistic heritage; sustainable tourism, etc.), while many others conduct actions at a regional or local level. Every year these associations offer schools initiatives, training courses, “green” or “blue” weeks, and they also enliven and coordinate most of the local groups working in EE centres. In general, schools must renew their subscription to the initiatives proposed by the associations on a yearly basis, and this is also the case for the (very few) initiatives which, either directly or indirectly, deal with the issue of sustainability linked to school development.

## 2. The eco-school development process

Even if, at a regional level, there are several initiatives – often linked to EE centres and/or workgroups – aimed at networks of eco-schools or of schools involved in Agenda 21 processes, there are instead rather few initiatives at a national level, and these are mostly coordinated by the large associations: **Legambiente, WWF and FEE**.

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<sup>2</sup> In Italy, only pre-primary and primary school teachers had specific teacher-training in the past. All the others become teachers with a “disciplinary degree” (4-5 years of university) and with a national competition, but no specific pedagogical training. Four years ago saw the start of new two-year courses for teacher-training, but they are not compulsory for a teaching job and are not offered for all subjects and disciplines.

This section will thus go into more detail on the network of schools coordinated by the first two environmentalist associations without describing the experiences of the Eco-Schools international network, proposed by the FEE, because it is very similar to what has already been said in other national reports. The last experience which will be described is the one of the Italian ENSI network: *Qualità della scuola e ecosostenibilità* (“School quality and eco-sustainability”).

### 2.1 The Legambiente Project “SCUOLE CAPACI DI FUTURO”<sup>3</sup>

The network *Scuole Capaci di Futuro* (“schools capable of future”) was born 4 years ago and every year involves about 150 schools at a national level. Its explicit aim is to “favour the construction of a school that caters to the students’ cultural and civil growth, to the improvement of the relationship between the school and its territory, to professional and cultural reflection” within a general reflection that highlights the contradictions of globalisation, the “new dynamics between local and global, between values and knowledge”, and thus the need for a new role for the school and for a new “professional and social responsibility of teachers and administrators”.

Set up as a research project aimed at groups of teachers, the project developed into a “network of eco-sustainable schools” of the Legambiente association. By registering in the *Scuole Capaci di Futuro* network, schools entered a circle of schools that are “Friends of the Environment”, that is, schools committed to concretely carrying out actions useful for constructing a sustainable school and society. The projects must involve teachers and students in concrete actions coordinated within the promoter group (protected areas, green spaces, waste disposal, adopting monuments) and must be entered in the school’s Educational Offer Plan. The school’s classes are also encouraged to cooperate with local authorities and with other actors in their territory. The network is thus presented as a useful instrument for:

- comparing experiences and reflections among schools dealing with common issues
- circulating cultural and methodological contributions
- organizing professional research activities.

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<sup>3</sup> The information related to this project has been gathered from Legambiente website, Legambiente written documents and materials, and the written contribution of Marzia Fiordaliso, responsible for the network.

### 2.1.2 Explicit set of criteria

The network is defined as a “meeting place that can help schools in their daily work”. The project makes materials and experiences available to schools and each school takes part in the network by working in the field it finds the most suitable. The “issues” proposed to the schools to work on may be taken as “explicit” criteria of network participation:

- planning the school curriculum, the quality of learning and of education;
- organizing and managing school autonomy, with particular attention to participative processes in school and in the school’s relationship with its territory;
- the school’s participation in local development processes in cooperation with the territory’s actors;
- environmental education processes and organizing nature experiences for the school’s pupils;
- civil and ethical commitment of people and the school community in concrete actions for the proximal environment and on global problems;
- care (and the establishment of quality standards) for the sustainability of structures, for the security and healthiness of environments (inside and outside the school), and for the quality of food.

The network is put forward as a place for discussion and common research, on various levels, for a better school that is able to make its own contribution for an environmentally and socially sustainable society.

### 2.1.3 Implicit set of criteria

The history of the association and an analysis of the instruments used and of the materials sent enables enriching the explicit criteria with an implicit set of criteria that are part of the “style of work”.

Firstly, the emphasis on “research”, and particularly on the “search for professionalism on the part of teachers”. The main target for these initiatives of Legambiente are the teachers: the association managed to have its “education and training sector” recognized as one of the associations authorized by the Ministry for teacher-training, and has its own quarterly review devoted to education and training, always within the context of EE and sustainability.

Legambiente also has a tradition in the research field, both as regards the environment (many of its data on the state of the environment have preceded official data) and also education. Many educational studies carried out in Italy in the EE field have seen Legambiente among the collaborators or among the promoters. In this field the cooperation with the ENSI study has always been very close, and one of the

instruments proposed as a support for teachers (*Riflettiamo* – “Let’s reflect”) stems directly from the ENSI experience on the use of action research methodologies (the author is Bruno Losito, one of the ENSI national coordinators in the second phase of the study).

Another implicit criterion in the actions proposed by Legambiente is the attention to complexity: in this sense the paths proposed are still flexible and try to take account of local diversity and realities, and stress the diversity of viewpoints and conflictuality. Legambiente explicitly criticizes the sole attention to behaviours and aims to influence values and attitudes. This kind of action is aroused a good response among teachers (and students) of upper secondary schools, even if the network has more schools with students of compulsory education (about 10% of infant schools, 60% of primary and lower secondary schools, and 30% of the first two years of upper secondary education). A further implicit criterion is the great interest for the new “Organizational and didactic autonomy” of schools and the attempt to show school heads and teachers how EE and EfS not only deals with the sustainability of school structures, but also takes on the responsibility for constructing *new ways of doing school and new cultural approaches*.

### 2.1.4. The Programme Development Process

*The Schools Capable of Future* program is launched every year through the Association’s own information instruments: a letter and brochure to the heads of all Italian schools, a letter to the teachers who are members of the Association or who have already taken part in other initiatives, a letter to regional and local circles (over 150 in Italy), the publication in the review *Formazione Ambiente* and on websites, and information in the major journals. The schools taking part fill in an enrolment form and pay an annual subscription which gives them the right to receive materials and to take part in a forum. After two years of membership, a school that has sent in its own action project as well as the documentation of the results achieved is defined by Legambiente as a *Scuola amica dell’ambiente* (a “school that is a friend of the environment”). The list of the schools and the documentation of the best projects is put on the website concerned.

### 2.1.5. The kind of support offered

Membership of the network gives the school a guide, explaining the technical functioning and cultural opportunities of the network, booklets, related to globalisation, various possibilities of educational processes and actions for the environment that classes can deal with, a quarterly review dedicated to the profession and the renewal

processes of the education and training system, a choice of booklets related to teachers' research support instruments and professional development in the school of autonomy, and other internet and published materials.

Support at a local level is provided by the regional coordinators or by local circles. The national coordinating committee runs an annual seminar for training and the exchange of views, the expenses being borne by the teachers. In 2002, a successful online experimental course was proposed free of charge, and this will be repeated in 2003, perhaps with a small fee for participants.

### 2.1.6 The main obstacles

The main problem is that, out of the 150 member schools, only 30% manage to finish the process, and the documentation is often not particularly clear or complete. There are many reasons for this: in some cases there are schools and teachers who mostly enrol to receive the materials offered and do not, right from the outset, have any intention of getting involved in any real exchange. However, some of this reduced interest is certainly due to the difficulties in guaranteeing suitable support to the creation and conduction of projects that are concrete, realistic and achievable. A campaign or initiative involving a school for a few days is – according to the national coordinating committee – much easier to coordinate and, above all, to support. The materials are not enough on their own, and a network that is, above all, online does not meet the needs for personal encounters and exchanges: face-to-face meetings and thus a concrete possibility to share experiences, are rather limited due to logistical and financial difficulties (teachers must pay for their own participation). Moreover, teachers are not very proficient with computerized procedures (above all those concerning graphic presentation and documentation) so that the distance exchanges are limited in quantity and quality.

So far, the network schools have built their own path with great freedom as regards the issues to be dealt with, the methodologies to be used and the phases to adopt for the actions. Perhaps it would be better to establish deadlines and to organise projects in stages, following the model of local Agenda 21s. To this organizational difficulty is added the obstacles common to many EE projects – they are not curricular: teachers of different disciplines have difficulty in working together. They often do not evaluate their students' work and are burdened by the explicit request to involve not just one class but the whole school.

## 2.2 The WWF LA SCUOLA ECOLOGICA Project<sup>4</sup>

With the *La Scuola Ecologica* ("The Ecological School") project, the WWF approaches Italian primary and lower secondary schools (compulsory education) in order to promote the adoption of a **Charter of Principles** for an ecological school, to be inserted as a fundamental component within the school's educational offer plan, to inspire all the actions oriented to sustainability carried out by the schools. The proposal aims to *"seek forms of equilibrium and wellness in harmony with the laws of ecology and the load-bearing capacity of ecosystems"*, and to encourage students to *"explore the school environment, with one eye on one's needs and the other on the selection criteria oriented to sustainability"*. The proposal was launched in 2000 but, although it involved thousands of schools with the distribution of working materials, it only received the concrete membership of a few schools – around a dozen – which sent the WWF their decision to join the initiative together with documentation on the work carried out.

The project proposes a *"model"* Charter to be completed, by adapting it to one's own reality, and to be undersigned by the whole school community, explicitly stating the criteria of eco-sustainability the school aims to work towards. This proposal at times contains initiatives and instruments: an initiative strongly supported by the WWF and carried out in various locations (Siena, Genoa etc.) is that of calculating an *'ecological print'* of the school as a way of analysing the sustainability of its structure.

### 2.2.2 Explicit set of criteria

The criteria are clearly stated in the model Charter proposed for a sustainable school. They are:

*"Guaranteeing a safe and dynamic environment that stimulates learning and is able to provide the utmost support to students, based on the respect for individual dignity, on mutual respect and on the respect for social integration"*.

*"Devising and implementing a study plan aimed at stimulating the knowledge of and respect for natural ecosystems, as well as understanding the principles on which sustainable development is based, and able to offer students the opportunity to turn the knowledge gained into practical actions both inside and outside the school community"*.

<sup>4</sup> The WWF network case study has been written together with the coordinator of the project, Dr. Antonio Bossi.

*“Establishing a relationship of cooperation among the various members of the school community and, in particular, to guarantee that each member is involved in the proposed project and works to help the other members of the community by actively cooperating with them in order to achieve the established objectives”.*

*“Providing for the upkeep of the school garden and/or surrounding spaces in order to favour the preservation of biodiversity and to provide students with an ideal environment in which to conduct activities; taking care of the school building and equipment by keeping them in good condition and favouring their use also in the future for the school community as a whole”.*

*“Reducing the consumption of material and energy resources, including the ones used for transportation, and reusing, reclaiming or at least recycling waste materials in every sphere of the school community”.*

*“Establishing relations of cooperation with other schools, organisations, institutions or associations at a local, national and international level, and participating in initiatives aimed at strengthening these relations”.*

Within each or all of the above principles, the schools (or individual classes) can establish certain objectives to pursue and can implement auditing processes for their actions and for assessing the achievement of the objectives set.

### 2.2.3 Implicit set of criteria

Some of the values guiding the education sector of WWF Italy are implicit in the proposal and were inspirational. For example:

- The impossibility of defining the same schemes and procedures for all schools if the idea is to *“promote creative processes”* and to encourage each community to *“work out its own development process”*.
- *“Proposing a middle-to-long term view, laying the foundations for lasting actions over time”*.
- *“Activating an integrated development process”*, with the territory and with the *“many spheres of daily life (economics, culture, the environment...)”*
- Promoting the participation of all members of the community.
- Stressing that *“working for sustainable development”* is everyone’s responsibility.

Implicit is also the emphasis on who the project is destined for: traditionally, the WWF looks to the school of compulsory education, not so much the schools themselves but the classes (almost 5,000 classes are members of the Panda Club) and their teachers.

The kind of proposal, and the language used, is thus specifically geared to this target. Although the proposal explicitly calls for the involvement of all members of the school community – by mentioning *“parents, school non-teaching staff as well as teaching and administrative heads”* – it is implicitly taken for granted that the promoters of the project will be a few sensitive teachers and, above all, the students themselves. This confidence in the students as a sensitive element and promoter of initiatives is also found in other WWF initiatives linked to the one of an eco-sustainable school. In this regard, one should mention the initiative of a *“Children’s Conference”* that was held at the same time as the National Conference for Environmental Education and Education for Sustainability held in Genoa in 2000.

Another implicit criterion in WWF actions that, however, in this case worked against the dissemination of the Charter, is that the issues chosen by the WWF’s education sector are almost always at the service of the *“Awareness-raising and action campaigns”* that the National WWF decides: this leads to changing the campaign theme every year and does not give the schools time to draft and put forward something of their own but only to apply the suggestions and materials received.

### 2.2.4. The Programme Development Process

The schools have dealt with the sustainability issue not only through the process drafting the *Charter*, but through collective behaviours in some more concrete and operational spheres/issues. Some examples of these are certain commitments on the limitation of consumptions or the adoption of actions for saving water at school, which have involved dozens of schools, above all in 2002.

The sheets received were simply filed away, but the schools – or rather the teachers – that took part in the initiative have become important references for comparison between the WWF’s educational action and the school world. The teachers who constructed the Charter are now regarded as consultants: they receive other people’s ideas and materials before everyone else does and are called upon for advice on aspects linked to the dissemination of EE in schools.

### 2.2.5. The kind of support offered

The support offered to schools is made up of the teaching materials produced in the Panda Club campaigns and of a WWF information point available to teachers requiring more details, suggestions, references etc. Teachers can receive help or can cooperate also with volunteers of local branches: the latter can use the same distance support offered to teachers through the information point, and can also take part in a national seminar for exchanging views and for more deeply analysing the contents of the

programme that the WWF Education Sector organises every year. The WWF also has many associated cooperatives which disseminate materials and initiatives and are paid by local authorities: the proposal for “ecological schools”, however, does not have a “market” for the time being and this is one of the reasons for its poor dissemination.

### 2.2.6 The main obstacles

The little success gained by “launching the idea” has been the main obstacle, and after a cost-benefit analysis it was decided to keep the proposal under wraps and to resume the more common issues of WWF campaigns (the climate, biodiversity, etc.). This decision, together with the WWF’s habit of changing the work theme of school classes and of the Panda Clubs every year, has left too little time to classes and teachers who need to calmly “digest” this kind of proposal before adopting it and beginning to “produce” anything. In many cases, the classes find themselves working on themes proposed the year before. However, in the “eco-schools” case, having “done away with” the proposal a year later meant that the schools – even if committed in this regard – did not find any liaison with the WWF.

As regards the obstacles encountered by schools, the main problem appears to be that of shifting from the level of personal involvement of a few teachers (in some cases only one) to then extend the idea of a sustainable school to the whole school – through a “self-certification”. A further obstacle was that of moving from campaigns and initiatives on clearly defined issues, which may be dealt with in the space of a school year, to initiatives necessarily of a middle run, where the definition of the objectives to be achieved is left to the diversity of each school and to the teachers’ planning capacity.

## 2.3 The ENSI network: SCHOOL QUALITY AND ECO-SUSTAINABILITY

The ENSI network is not a permanent one: from the launch of the ENSI project in 1986 the Italian institution participating in ENSI – the INValSI (*Istituto Nazionale per la Valutazione del Sistema dell'Istruzione*), formerly known as CEDE (*Centro Europeo dell'Educazione*) – developed three different networks of schools investigating the different research focus proposed internationally. The first network, in fact, was the result of a nationwide survey on school initiatives in favour of the local environment (1987-89) and the second one used action research to explore the development of dynamic qualities and the culture of complexity in school initiatives (1991-1995).

The study on eco-schools was carried out in 1999-2001 and involved ten schools distributed throughout Italy – eight upper secondary and two lower secondary schools

– as well as ten EE centres or associations with experience in teacher-training and in actions geared to including EE in the school curriculum. The proposal concerned setting up a ‘dual network’ of research:

- A **network of schools** already active in environmental education, that could focus their reflection on the necessary actions to develop the **quality** of their school in the direction of **eco-sustainability**.
- A **‘partner’ network**, composed of centres and associations in the same geographical area as the schools, that could support the schools in their research work while at the same time reflecting on the roles and skills necessary to be ‘partners’.

### 2.3.2 Explicit set of criteria

Both networks were required to work with a view to the eco-sustainability of the national and international ENSI project, and thus with attention to:

1. The *development of dynamic qualities* of student autonomy and responsibility.
2. The integration of a *culture of complexity, systemic thought and educational innovation* following the introduction of principles of sustainability and ecology in schools.
3. The start-up of *processes of critical reflection* on one’s own professional work and of *action research* with respect to the processes activated, as a working methodology between teachers and between partners.
4. Documentation through case studies of school actions towards *quality*.
5. The definition of *indicators* in order to evaluate the results achieved.

Other criteria were made explicit from the beginning:

1. The key role assigned to the **school as a whole** and not to just to one or more particularly active classes, as with previous studies.
2. A view of sustainability taken from the international ENSI proposal (Posch, 1998) and based on three points:
  - **Sustainability at a pedagogical level**, based on **significant learning** dealing with non-structured situations and even conflictual issues requiring the active participation of students and teachers in the definition of processes and results to be achieved, that encourage the students’ own reflections and thus a self-evaluation on the quality of their own learning.
  - **Sustainability at a socio-organisational level**, by building a **culture of communication** and an **atmosphere of mutual respect** in schools that is based on a habit of cooperation both between teachers and between students, and also on

relationships of mutual support with the community and with the surrounding territory.

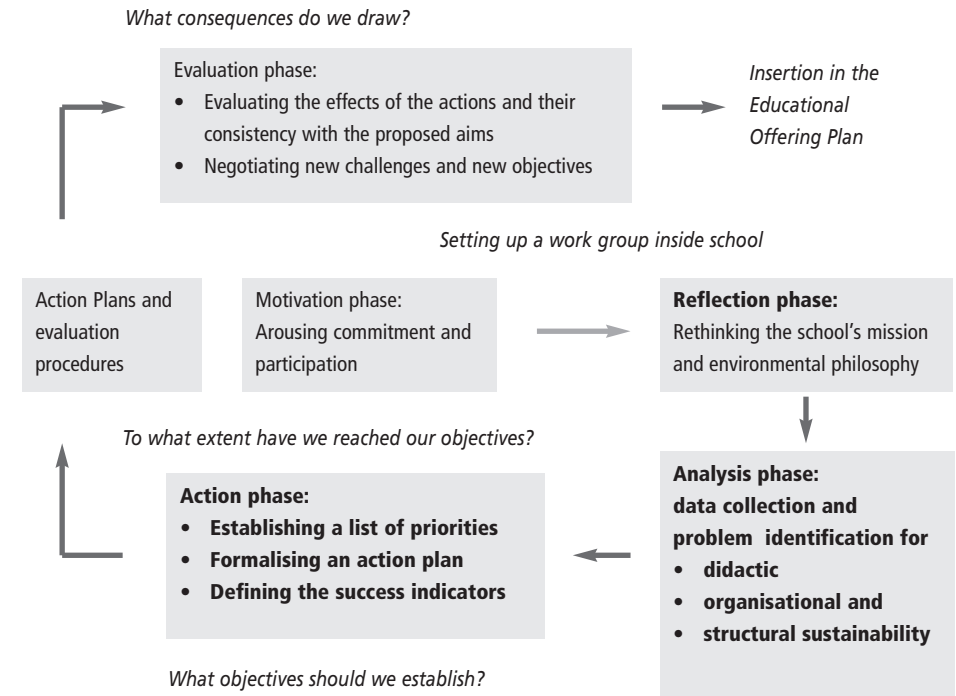
- **Sustainability at a technical-economic level**, by systematically adopting **eco-auditing** procedures in order to establish the objectives to be achieved for each school, in terms of material resource saving, waste reduction, aesthetic and ecological attention to the use of available spaces, attention to conditions of security, prevention and wellness.
3. The use of **action research methodologies** as an instrument for investigating both the transformation process in order to become an eco-school and the process for supporting this transformation as an external partner.

### 2.3.3 Implicit set of criteria

In the network the criteria were made explicit as far as possible, this being one of the research aims. However, it is a long process to compare and contrast ideas, expectations and representations, and many of the criteria made explicit were not initially perceived as such or were misunderstood. For many schools, the most difficult part was becoming aware of the different focus of the project: no longer the environment, but the school; and the school as a context in which to build a vision of a sustainable world (*Ecosostenibilità come orizzonte – Eco-sustainability as a horizon –* is the title of the book which the school of Messina published as their research report). Another criterion difficult to understand concerned *'putting oneself in research'*: for many schools, it was not clear what this meant and the negotiation process was long and complex. The presence and attitude of the partners was decisive: if the partner managed to clearly organise its work as a support for the research, accepting to support the initiatives as well but always keeping the former role as the main one, then the school's reflection on the meaning of sustainability progressed.

### 2.3.4. The Programme Development Process

The ENSI schools were asked to follow the same cycle proposed by Peter Posch for the process of development of school quality, and re-organised as shown in the following figure. The ENSI project moved at different paces according to the contexts, but always moving through a moment of negotiation inside the school and of definition of research objectives. In this process, it became evident that the 'quality' desired by the schools "new autonomy" largely coincided with the quality sought by schools which took up eco-sustainability as an educational *vision* and school *mission*.



**Figure 2.** The phases for carrying out a spiral process for quality and eco-sustainability in school (a modification of the diagram proposed by Peter Posch)

The development process envisaged three workshops of three days in parallel to the schools' research and a final workshop for evaluating the results. Between workshops the school was requested to follow the cycle with the help of its partner institution. Not all the schools of the ENSI network managed to complete the whole cycle in just one year of action research. Some progressed more slowly or only managed to do half the cycle, just starting up the research project with the students and initiating the action for the school or for the territory, but not the reflection process.

### 2.3.5. The kind of support offered

In addition to the network meetings (two per year), the schools had regular meeting with the partner organisation and one meeting in their own school with the central coordinator.

In the two years of the research project, the dual network was maintained through e-mail communication:

- one channel was dedicated to the whole group and provided messages reminding everyone of the jointly established deadlines as well as providing documentation and comments on problems and results; this channel was also used to notify the 'appraisal' each school received after the coordinator's visit: permission was requested because of confidentiality, but all schools agreed that it would have been useful to share the coordinator's report concerning their obstacles and their possibilities;
- the other channel was reserved to the partner organisations and discussed the difficulties concerning the school's progress, how to work together and how to deal with research problems and communication problems.

The Italian ENSI network tried to offer a *'support network'* in moments of uncertainty, a *'communication network'* between schools and individuals working on similar processes, and a *'booster network'* when obstacles seemed overwhelming and insurmountable.

### 2.3.6 The main obstacles

Many obstacles of the ENSI network are the same as the ones found in similar networks: moving from class or teacher initiatives to involving the whole school is no mean feat. This kind of process calls for a clarity of vision of what sustainability at school means – it is easy to limit oneself to technical-economic objectives of energy saving or to initiatives for contact with nature – without losing sight of the school's main role as a context in which to build knowledge and visions of the world. Research itself thus became the main obstacle – it is difficult to actually get down to doing research – but it was also the only instrument possible in order to stay critical and reflective. One of the results of the ENSI network was the awareness that it was not possible to get the whole school involved in research, but that it was necessary to have a small group that could lead – with the acceptance and recognition of the others – the reflection on school development. The main obstacle that this group faced was communication – firstly, with their own colleagues. What was often lacking was effective communication inside school, a shared vision of a school able to overcome conflicts without denying them, and to construct learning for everyone and not just for one's own students.

## 3. Case studies

### 3.1 A 'project based' school: the ITAS Giordano Bruno in Perugia<sup>5</sup>

20 years ago, the ITAS Giordano Bruno in Perugia, was a *'female vocational high school'* loosing students every year, but thanks to its innovative approach it has become one of the most valued school in the region, with more than 1000 students, male and female, and 150 teachers. The school offers 5 main curricula - 2 vocational, 2 scientific, 1 linguistic –for 5 year of schooling each.

In the school plan, where the mission and the general quality criteria accepted by the school are presented, the more important themes are environmental education, education for responsibility and solidarity, education for cultural understanding.

One of the more important characteristic of the school is the presence in each curriculum of a consistent *'project area'*, interdisciplinary and based on students field research. The project area is smaller in the first 2 years, and larger, up to 120 hours of project work each year, in the last 3 years.

The issues faced by the projects, are chosen in a participative way, students and teachers together, taking into account the students interest, the existing partnerships with local community and abroad, and the kind of curriculum chosen. Every year, students of the last year present to the younger ones their projects, explaining the process followed and not only the results.

The projects are always aiming to a final *'product'* and that product is a relevant part of students final examination. The project areas in 2003 were dealing with:

- environmental education
- nuclear energy
- cultural diversity
- biodiversity in Europe
- water as a resource
- young people and society.

Every project is organised in investigations, activities and outcomes. The projects outcomes can be CD, publications, theatre dramas, or concrete proposals for action in the local community. The school received many awards for the quality of their products concerning the use of renewable energies and the use of plant for water depuration,

<sup>5</sup> This case study is based on the documents and school plan of the ITAS G. Bruno, on several year of collaboration, and on an interview conducted with the Principal of the school.

based on field work in a local experimental station. In the past, one of the results of one project concerning *'feeling well at school'* was the remodelation of the school yard, following the ideas of the students, with a garden area, a pond, a relax and chat area, and a multiple uses new building.

Another main point in the school mission is the attention given to less able, disabled, or foreign students. The school has a special project for the socialisation and integration in the different classes of the disabled students – 14 in 2003-2004 school year, some of them with very serious disability, as blindness, deafness, autism, ... -. with 16 teachers completely dedicated to the project. The disabled students are integrated in the normal class work and participate also in the programme of stages and placement for future jobs, organised by the school.

A third main area of school interest is the one of partnerships and cultural exchanges. The school has many partnerships in the local community – with the University, with the local authority, with the local hospital (one study vocational course is for foods and diet specialists) etc. – The school is also participating to many Comenius and Lingua projects, and organises special *'school exchanges'* not only in Europe. The Itas Giordano Bruno was one of the first Italian school organising a school exchange with China 3 years ago!

The Itas Giordano Bruno was one of the school participating in the Ensi Project in 2000-2002, and their research focus was on the participation of the whole school, but mainly of the teachers, in the project area. In fact, the feeling was that the project area was very appreciated by the students, and by the external community, but just a few teachers were giving strong importance to that area, being preferably involved in their disciplinary work. In order to understand the causes of the situation, interviews and questionnaires were produced to explore the different feelings, among teachers, toward the advantages and disadvantages of the project method. The results allowed for internal changes and better organisation, with a rotation of roles, a clear definition of responsibilities, and a restricted leading group taking care of the main action areas. A side result was the adoption of action research methodologies by all the teachers in the leading group.

The principal, Prof. Alberto Stella, had a fundamental role in the whole school development, being able to construct an organisation and a climate of collaboration that encourages new ideas and proposals. In his idea, the school must become a learning organisation, and the *'leading group'* has as main role the one of collecting data and feelings in order to improve school activities and programmes. In his point of view, the school is a *'mirror'* of the culture and feelings of the external community, so that he thinks that it will not be easy in the future maintain the climate the school has

reached in the last years: *'the school is loosing its characteristics of participation and solidarity due to the general climate of fear and individualism, rising up in our country'*. With the new school reform - going back to basic - and the lack of funding, to continue with a school organisation based on project areas will be a real challenge!

### 3.2 A school linked to the planet: the primary school of Via Bosio, Chieti.<sup>6</sup>

The school is a little primary school in the suburbs of a medium size town in the centre of Italy. Many years ago the little group of teachers decided to follow the active methodology of 'Freinet' and the 'movement of educational cooperation' (well known in France, Italy and Spain). Within this movement, they gave life in the 80' to a network of 'green schools' and they still consider themselves and the pupils to 'be in research'. Environmental Education is at the centre of the school plan, because the school assume the responsibility to give *'a contribution to a sustainable future'*. The challenge the teachers accepted is the one of *'falling in love with the future'*, and this means being able to change, to go over frustration, for building positive experiences with children and with parents. Teachers their selves accept the 'uncertainty' of the teaching-learning process and are flexible and able to change their programs if some new opportunity occurs or if children interest and proposal for actions take an unforeseen direction. The school consider itself as a *'laboratory'* - not a science lab, or a technical lab, but as a 'mind lab' - as a context were students, teachers and parents can experience new methodologies, new challenges, and contrast different points of view. The challenge of complexity is one of the focus of the school plan: one common aim, for all subjects and all grades, is to explore the links that connect each individual being with others and to the planet and to construct a feeling of 'earth citizenship'. They start for caring the *'small scale and local dimension in order to learn to take care of the large and distant'*. Teachers think that children cannot be asked to care a tree or the quality of the water if they had not had time to play, to manipulate, to enjoy the physical contact with nature.

Children go in the field with every weather, but they accurately prepare each excursion with their teachers, reflecting on *'what they expect it will happen'* and *'what to do*

<sup>6</sup> This case study is based on documents and case studies written by the teachers of the primary school of Via Bosio, and on the collaboration and exchanges with the teachers Carmela Caiani e Anna Maria Ciancaglioni.



*if...'*, and accepting rules of behaviors – as walking silent in a line – knowing that these are opening 'opportunities' (of feelings, emotions, perceptions ..). Astronomy and the observation of the sky is a special interest point of the school: looking the movement of the sun and the stars, the pupils learn about time and space, and their own role over the planet. They learn to wait, and to link their waiting with the emotion of discovering.

Empathy with nature is another common aim for all the school grades, but another aim is the respect of diversity and the grow of mutual understanding in the whole school community. The students in the school are organized as a municipality, with a major, a general assembly and responsables for each sector. Students take responsibility for the library service, for an internal bookshops where the class products can be bought or borrowed, for a school magazine; students take care of the internal waste disposals, of the garden, of the sanitary regulations to follow. One group of students has the charge to take care of the internal school climate and to organize meetings and discussions if some problem occurs. The school presents itself as a 'model' for democracy and participation, and the learning and teaching go on together with these other activities, creating a climate of independence and of engagement at the same time.

A special attention is given to the feeling of identity and of continuity of the 'school': each year the older students (10 years) receive the younger ones (6 years old) and have the responsibility to help them, to explain how to behave, to teach them songs and dances. Special ceremonies are prepared, and for a year the part of the garden that was responsibility of the older students will become a shared responsibility, the older ones becoming the tutors of the younger ones.

Another leitmotif of the school educational plan are the interest for other cultures and the exchanges with other schools: teachers and students had regular exchanges with schools in Brasil, in Scotland, in Bosnia, in Guatemala, and now participate in a Comenius 1 project with Norway and Finland.

Another special feature of the school is the parents activity: parents are asked to participate in the life of the school and, for a better understanding of the learning process of their children, they have built their own '*parents association*' with special annual programmes with theoretical courses and practical activities facing, at the adult level, the same issues that the children will be asked to face during the school year (eating habits, intercultural differences; conflicts and peace culture; green spaces in an urban environment ...) . They also '*act*' together with the school, participating in several initiatives as the recovering of an abandoned natural area nearby the school, or the care of a little garden in front of the school, or the intercultural exchanges organised with Guatemala.

## Country Report Korea

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### 1. The state of EE and EfS

#### 1.1. The short historical description of EE and EfS in Korea

Korea's environmental education has been influenced by the Belgrade Charter in 1975, the Tbilisi Declaration in 1977, and by the environmental education conference for Asia held in Bangkok in 1976. However, environmental education failed to attract keen attention from Korean society until the 1980s. As the 4<sup>th</sup> National Education Curriculum announced in 1982 stipulated the education on environmental degradation in its guidelines, environmental education started being included in the school curriculum (The Ministry of Education, 1982). Furthermore, the 5<sup>th</sup> elementary, middle, and high school curriculum announced in 1987 selected environmental education as one of 8 core areas Korea should focus on (The Ministry of Education, 1987). On the other hand, since 1985, model schools (elementary and middle schools) have been selected and operated across the nation under the control of the Ministry of Environment.

The 6<sup>th</sup> elementary, middle, and high school curriculum that was announced in 1992 and became effective from 1995 enabled elementary schools to select and initiate environmental education by using the time for optional activities (from the 3<sup>rd</sup> to 6<sup>th</sup> grade; one hour a week). Furthermore, as an elective course, 'the environment' was included in the middle school curriculum and 'environmental science' was newly added to the general high school curriculum (4 hours a week) (the Ministry of Education, 1992). The 7<sup>th</sup> school curriculum, which was announced in 1997 and became effective in 2000, highly emphasized environmental education in every course, enabling elementary schools to teach the environment by using the time for optional activities and having middle and high schools set up 'the environment' and 'ecology and the environment' respectively as an independent elective subject (The Ministry of Education, 1997).

With regard to education for sustainability, there have been a variety of discussions in Korea since the 1992 UNCED conference. Such discussions have been led by researcher groups, Society, and seminars, such as 'Environmental Policy Symposium for ESSD (Environmentally Sound and Sustainable Development)' (Korea's Environmental

Technology Development Institute, 1993), 'Sustainable Society and the Environment' (Jeong-Jeon Lee *et al*, 1995), and 'the Seminar on Environmental Education for Sustainable Development in Major Countries' (KOSEE, 1997). In particular, a 1997 international seminar introduced the concept of ESSD and environmental education in foreign countries such as the U.S., Australia, Japan, and India. Since then, partial and individual discussions have continued regarding education for sustainability but failed to become a public issue. Just before Rio Plus 10 Conference in Johannesburg in 2002, 'the Research on Environmental Education Strategy for Sustainable Development' (Seok-Jin Choi *et al*, 2002) helped to set up the strategies and indices for education for sustainability in schools and social settings.

### 1.2. The short description of school development

Since 1945, the Korean government has taken a variety of educational reform strategies consistently. What should be noted is the reform initiated by the Educational Reform Committee that was established in February, 1994 and terminated in February in 1998. The committee announced 'the educational reform to set up a new educational system leading the globalization and information age' on May 31, 1995. The major purpose of the new educational system initiated by the committee is to set up a life-long and open learning society where everyone can enjoy learning opportunities anywhere and anytime. The major characteristics of the new system can be summarized as follows:

- From teacher-oriented education to learner-oriented education
- From uniform education to diverse and personalized education
- From regulation/control to self-control/responsibilities
- From uniform education to freedom/equality-based education
- From blackboard-based traditional education to information-based open education for the 21st century society
- From low-quality education to high-quality education  
(Educational Reform Committee, 1995; 1996; 1997)

The committee's educational reform plans are very comprehensive and systematic, including innovative system, new organizations/institutions, and enactment/revision of new laws. However, there were criticism and debates, with respect to conservatism, introduction of market principles, reinforcement of nationalistic education system/control, improper attitude toward democratization in education, functional point of view, and validity of consumer-oriented education (Lee, 2000).

The Ministry of Education & Human Resources Development has devised and implemented a series of reform plans such as 'New Education Community Committee', 'Educational Vision 2002: New School Culture Creation', and 'the 5-year Educational Development Plan' (the Ministry of Education, 1998, 1999) after that period. Among them, the following 8 goals for change presented in 'Educational Vision 2002' are especially noteworthy.

- From teacher-oriented education to student-oriented practical education
- From uniform education to voluntary, various and personalized education
- From text-based school education to practical experience-based school education
- From education nurturing average students to education respecting students' characteristics and developing their potential
- From knowledge-based school culture to community-based culture characterized by self-control and responsibility.
- From knowledge-based education to more harmonious education developing knowledge, virtue and physical strength at the same time.
- From administration-based school organization to a new school organization supporting teachers and their course research to the fullest possible extent.
- From existing school management characterized by mutual mistrust/past practice to mutual affection/confidence-based school management.

In order to achieve such goals, the following tasks were presented: discussion culture formation, individualization of teaching/learning, various experience-based learning, various evaluation, transparency, reinforcement in professionalism/responsibilities of teachers, and autonomous school management (Ministry of Education & Human Resources Development, 2002).

### 1.3. The short description of initiatives guided by NGOs

Environmental education can be classified into formal environmental education (or school environmental education) and non-formal environmental education (or social environmental education). Their relationship can be regarded as supportive, rather than competitive. The formal environmental education can produce expected performance, when related to the non-formal one.

Environmental organizations, general social organizations, religious organizations, businesses, and governmental agencies have taken responsibilities for Korea's non-formal environmental education. Environmental organizations such as the Korean

Federation for Environmental Movement (KFEM) and the Green Korea United were organized in the late 1980s to lead the environmental movement and education. In the 1990s, professional environmental education organizations, such as the Buddhist Academy for Ecological Awakening, were set up to stimulate the movement. Likewise, most environmental organizations showed keen interest in environmental education. Furthermore, existing civilian organizations such as YMCA and YWCA also started operating environmental education programs, reinforcing non-formal environmental education.

Over the last few years, non-formal environmental education in Korea has greatly developed, classified into several types. The number of experience-based environmental education programs has risen sharply, focusing on experiencing the natural environment such as field trips and exploration. Environmental education organizations based in specific places or areas were more actively involved in this movement, for instance the Citizen's Group for the Environment in Bundang for Maeng mountain in Seongnam city in Gyeonggi, the Korean Eco Club for Kildong Ecological Park and Pukhan Mountain National Park, Ansan YMCA for Lake Shihwa, and KFEM in Masan and Changwon for Woopo Marsh. They have been maintaining experience-based environmental education programs for specific places, raising people's awareness of the importance of the places and monitoring them.

Furthermore, many other organizations were also organized for specific issues in the environment. In particular, the Forest for Life which was established after the economic crisis and has led the school forest movement is closely related to schools, the Ministry of Education, and the Korea Forest Service, enhancing school-based environmental education and contributing to improvement of the regional environment. The school forest movement is introduced as a model eco-school.

In the international context, environmental ministers of Korea, China, and Japan gathered together in 1999, reinforcing environmental cooperation and proposing 7 projects. One of them is the Tripartite Environmental Education Network (TEEN) among Korea, China, and Japan. The working groups for this network are Korean Society for Environmental Education(KOSEE) in Korea, Center for Environmental Education and Communication (CEEC) in China, and Japan Environmental Education Forum (JEEF) in Japan, holding annual workshops and symposiums through which the three nations can exchange information on environmental education. As of 2003, the workshops and symposiums have been held three times, once each in Tokyo, Beijing, and Seoul. Later, the three nations are expected to set up an actual network in school and society-based environmental education, through various activities such as teacher exchanges.

## 2. The eco-school development process

There are a couple of eco-school related initiatives in Korea, including the schoolyard forest project led by the schoolyard forest committee under the control of the Forest for Life, eco-friendly alternative schools such as Gandhi school and *Purunkum* (Dream of Green) School, the environmental practice enterprise supported by the Agenda 21 Action Council for Gyeonggi, and the environmental conservation model school project managed nationally under the cooperation between the Ministry of Environment and the Ministry of Education & Human Resources Development. This report will focus on the environmental conservation model school and the schoolyard forest project among them, considering the degree of proliferation, ENSI approach to environmental education, the pedagogical constructivist approach, and the participation in the process by many stakeholders.

### Environmental Conservation Model School

#### 2.1. General Characteristics

The environmental conservation model school is a nationally managed program under the cooperation between the Ministry of Environment and the Ministry of Education and Human Resources. If prospective model schools apply for this program, the government selects schools after reviewing their qualification. After being designated as a model school, it is operated and managed for 2 years according to guidelines. In the process, it is supported in administration and finance by the government in various ways. Since 1985, this system has been implemented every 2 years, with a total of 141 schools designated up to now (Table 1) and the 10<sup>th</sup> model schools are currently being operated.

**Table 1: Environmental Conservation Model School**

1 <sup>st</sup> (1985~)	2 <sup>nd</sup> (1987~)	3 <sup>rd</sup> (1989~)	4 <sup>th</sup> (1991~)	5 <sup>th</sup> (1993~)	6 <sup>th</sup> (1995~)	7 <sup>th</sup> (1997~)	8 <sup>th</sup> (1999~)	9 <sup>th</sup> (2001~)	10 <sup>th</sup> (2003~)	Total
8	8	8	8	8	8	15	26	26	26	141

\* Source : The Ministry of Environment (2003).

#### 2.2. The Explicit Set of Criteria

The goals of Environmental Conservation Model School are as follows:

- Induce the young generation to protect the environment in their daily lives through environmental education.

- Strengthen systematic environmental education by developing and disseminating model cases.
- Identify key challenges facing formal environmental education and come up with solutions.

The basic management direction of environmental conservation model school is as follows:

- Help to disseminate environmental education by identifying exemplary cases of model schools and delivering the information to other schools.
- Urge schools, homes, and regional communities to take interest in environmental protection through model school operation. Finally, encourage all the people in Korea to take part in the environmental protection movement.
- Enable practical and high quality education by selecting themes for regional communities and cooperating with local NGOs.

The selection of environmental conservation model schools is based on voluntary application of each school. The Ministry of Education is responsible for selecting model schools while the Ministry of Environment supports them in terms of finance and administration. The selection criteria are as follows:

#### Minimum Criteria

- Schools that want to be designated.
- Schools that have never been designated.
- Middle schools that selected (or would select) 'the environment' as a subject for their optional activities in curriculum, or that allocated more than half of the time for optional activities to environmental education. High schools that selected (or would select) 'ecology and the environment' as an elective course.

#### Priority Criteria

- Schools that are expected to produce exemplary educational performance and are located in places having positive effects on nearby regions.  
(The government gives priority to schools in overcrowded areas, industrial complexes, water resource protection areas, swamp protection areas, eco-system protection areas, and areas specially designated by environment-related laws.)
- Schools greatly contribute to environmental protection through active participation in regional environmental protection activities by students and teachers.

- Schools that have teachers with enough knowledge of community-based environmental education, global warming, and earth environment-related education, or whose major or minor is the environment.

### 2.3. The Implicit Set of Criteria

The guidelines for environmental conservation model schools include operating organization, operating themes, and priority tasks which are presented by the Ministry of Environment.

#### Operating Organization

Schools are encouraged to make the operating organizations. They include a task force team to research or develop educational materials and to be responsible for environmental education, and voluntary environmental protection bodies such as extracurricular activity group, hometown-loving group, environmental protection group, parents' group for environmental protection, and honorary teachers for environmental protection. In particular, students and parents are encouraged to join the latter groups. Furthermore, the schools are encouraged to form a cooperative tie with local environmental management agencies, environment-related institutions, and civilian environmental agencies.

#### Operating Themes

However, schools are encouraged to select and operate specific and realistic themes reflecting regional characteristics (urban/rural/fishing areas, industrial complexes, and commercial areas). They are also recommended to avoid existing, general ones.

#### Priority Tasks

This is mainly composed of the following three tasks:

- Systematic teaching for environmental protection.
- Reinforced awareness of environmental protection through extracurricular activities.
- Environmental protection PR and guidance for people in the community.

### 2.4. The Process of Developing and Managing Environmental Conservation Model Schools

This process is mainly composed of designation, management, and evaluation.

### Model School Designation

The Ministry of Environment requests the Ministry of Education & Human Resources Development and Local Offices of Education to designate model schools. Model schools are selected and designated according to the explicit set of criteria presented in the previous part, which are the status of selecting environmental courses, regions where schools are located, the degree of schools' participation related to environmental protection, and teachers with environmental background in the schools.

### Model School Operation

The designated model schools are managed for 2 years in accordance with the guidelines presented by the Ministry of Environment, following the phases described in <Table 2>. Planning, preparation, implementation, evaluation, validation, and modification are completed during the first year while the second year phases include implementation, result analysis, report meeting, and generalization. (The detailed information see next page)

### Evaluation of Model School Operation

The evaluation is composed of the following three processes: operation report meeting held by model schools, survey of environmental conservation awareness and practice, and self-evaluation by students.

Each model school holds a report meeting for operation evaluation by inviting related officials of the Ministry of Environment and local offices of education, principals and environment-related teachers in the region, and leaders in the mothers' group. Furthermore, before and after model school operation, it identifies school members' awareness of environmental protection and the degree of practice through surveys and sampling research. The experimental group includes students, parents, and teachers of model schools while the control group is composed of students, parents, and teachers of nearby schools. The questionnaire is composed of questions that can be used to measure changes in their awareness of environmental protection and the degree of practice. Sometimes, questionnaires presented by the Ministry of Environment are also used. Finally, students should complete a self-evaluation for which the environmental protection record card prepared by students during the operation period is used.

### 2.5. Support for Environmental Conservation Model Schools

Environmental Conservation Model Schools are supported in administration and finance by the Ministry of Environment and the Ministry of Education and Human Resources Development in various ways. In accordance with regulations for research schools, they

**Table 2: Model School Operation Process**

Classification	Phase	Detailed Information
The 1 <sup>st</sup> Year	Planning	Basic research and analysis, Review of past research documents. Determination of operating themes and model tasks. Preparation of operation plan
	Preparation	Operating organization and role-sharing Planning of educational map preparation
	Implementation	Establishment of environmental education-related facilities. Education through related courses and extracurricular activities. Connection with home and regional community. Invitation of experts from advisory institutions
	Evaluation & Validation	Evaluation of implementation results for the 1 <sup>st</sup> year. Reporting to a consultant body.
	Plan Modification	Lesson review and modification, with respect to the 1 <sup>st</sup> year. Planning for the 2 <sup>nd</sup> year operation and preparation. Modification of environmental education facilities.
The 2 <sup>nd</sup> Year	Implementation	Reinforced education through related courses and extracurricular activities. Connection with home and regional community.
	Result Analysis	Operation result and evaluation
	Report meetin	Operation report preparation and observation guide preparation. Model operation report meeting.
	Generalization	Reinforcement, development and generalization.

can get benefits in terms of teacher allocation, operation costs, reward for the environmental protection-related teachers, and personnel management. The support can be summarized as follows.

- Reward: environmental education-related teachers and exemplary students
- Governmental subsidy: 8 million won per school (about 6,000 euros)
- Educational materials and lecturer: video/audio-visual materials, a variety of environmental education materials, pamphlets, other documents, and outside lecturers.

### 2.6. Identified issues and recommendations

A few issues were identified from reviewing various operation reports of environmental conservation model schools and the following recommendations were made based on them:

First, the most effective way to teach environmental conservation is through hands-on activities in the environment. However, it is difficult to secure sufficient time from regular courses of the curriculum.

Second, as for the general high school, allocating specific time for environmental conservation from the regular course work is not feasible, and also teaching through related subjects has a limit. Therefore, enlarging the number of schools that have environment or ecology related subjects as the electives should be recommended, since the provision of various environment related science classes and production of course material which combines classroom teaching with field experiences is the inevitable condition for the environmental education.

Third, in order to maintain an environment-friendly attitude, specialization and professionalism of the teachers should be enhanced, which requires workshops and education for the teachers.

Fourth, School zone environment should be formed in consideration of the ecology that can be built through the close cooperation with the related authority in the community.

## 2.7. Personal opinion and appraisal - Reflection

There is no doubt that the Environmental Conservation Model School is an activity pursuing initiative for the environmental education through the evaluation focused on the numbers and /or figures. Case-study collections of the schools that are engaged in the exemplary operation of the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> environmental conservation (The Ministry of Environment, 2001; 2002; 2003) and interviews with the person in charge are far from the three perspectives proposed by ENSI: relevance from the point of view of the ENSI approach to environmental education, relevance from the point of view of the pedagogically constructivist approach, and relevance from the point of view of the participation in the process by many stakeholders.

Based on the purposes and the fundamental directions of the operation of the environmental conservation model school, the government established the strategy for propagating environmental education, with a purpose of setting an example which will further be expanded. Pedagogical approaches which are extracted from the exemplary cases would be imitated by other schools. The strategy has the strength of promoting environmental education at the governmental level. However, it has concerns for considering the generalized consequences over the process and for disregarding specific contexts which each school is faced with. In reality, most of the schools have similar topics and approaches in their operation of this project and schools prefer

generalized common themes to the specific and practical ones that have deeper relations to the local community.

Though the topics of the operation varied per each school, the contents that they dealt with are not very much distinguished. In particular, few schools have made concerted efforts to resolve the environmental problems which the school and the local community are faced with. In other words, 'strengthening experiential learning' and 'enhancing the public awareness for the environmental conservation' are the dominating themes adopted by most of the schools. Moreover, most schools have selected visiting environmental facilities and/or growing plants for their experiential learning, and the teachers' guides developed in those schools to improve students' knowledge and awareness for the environmental conservation regarded students as passive receivers.

The criteria for selecting Environmental Conservation Model School comprise a few working level standards including minimum requirements and the priority setting standards, etc. However, these criteria are not closely related to the purpose or operational direction, and, at the same time, they distance the requirements of Eco-school set by ENSI.

A loophole in the model school selection procedure is identified. The selection process for the Environmental Conservation Model School is initiated by the application of the candidate school. Once the school is nominated as a model school, it should develop and present the detailed plan including major stakeholders and the operational plan. In reverse, the nomination might be completed without reliable grounds. The procedure related issue takes a risk in the lack of research and preparation in topic selection and its implementation, given that the operation period is 2 years, which is short.

The evaluation for the operation is being conducted by the survey of the students, parents and teachers on the attitude and awareness toward the environment. Most of the evaluation contained in the reports says that their attitude and understanding on the environment has changed after the introduction of the model school. However, the evaluation needs more than surveys based on questionnaires. In-depth discussion and interviews among students, teachers and parents who have participated in the learning activities and various observation reports should be included in the evaluation process. These kinds of results would be helpful for the schools and teachers that would have the same concerns.

Other than the issues mentioned above, the following are the identified problems:

First, the Environmental Conservation Model School project has been implemented as a top-down approach. In other words, it is not the project developed by the needs of the

students and/or teachers on the scene. As a result, it is highly possible for the teachers to consider this project as an added burden of chores. Also, two years is a relatively short period to conduct a large-scale project by the school level, and a few frameworks that have been proposed as instruction guidelines can be exploited as a tool to narrow the strategy of environmental education with the justification of the operational feasibility in the field. The format of operation report and evaluation fails to overcome the pragmatic level, which makes it hard for it to be used as valuable references of real examples. Newly designated model schools are usually following the precedent of former cases with slight modifications, despite the need for trying fresh approaches that are fit to the individual situation of each school. Not much difference is found in the grade of school, such as elementary, middle and high schools. Furthermore, types of education common in the environmental education in other countries such as place-focused environmental education, local community based environmental education, experimental research type of environmental education and issue focused environmental education are very rare. One of the goals that ENSI wants to accomplish by the project is to relate environmental education with the improvement of the quality of education through advanced pedagogical approaches generally adopted by the environmental education. Unfortunately, almost no cases succeeded in the efforts of escalating environmental education into the advancement in the education. Despite these limitations, this project has been supported by the Ministry of Environment and by the Ministry of Education & Human Resources Development. And it has not been controlled by either of them through any strictly fixed framework, which can be interpreted to mean that the project has a greater potential to be further developed. If the fundamental objective of the project is realized in the midst of the current limitation, the project can play a pivotal role in the contribution to the advancement of the environmental education as well as the school education in general. Another objective is to set a model example and spread the best practice into other schools, eventually enlarging the environmental education. Theoretically, as time passes after the implementation of the model school, new forms and methods should be introduced in order to meet the goals. Even though many challenges are ahead for the project, it can accomplish these objectives.

The Environmental Conservation Model School initiative can contribute to the environmental education and school development only if it overcomes the existing framework of execution in terms of support and quality criteria. It could develop a realistic and productive framework that can facilitate the efforts of participating schools to be closer to the quality criteria. Approaches for the school ecologization including school curriculum and pedagogical approaches could be included in the

scheme. Referring quality criteria developed by Eco school system of other countries could be helpful.

### 3. Case Study: Shinyoung Elementary School

Shinyoung Elementary School is a small-sized school located near the seashore. This school is quietly located in the corner of a fishing village in Jumunjin, Gangwon Province. Since this school has been a school for children of succeeding generations, naturally all the villagers share this school. In early morning, the owners of this school are joggers and strollers. Even during the hours when the classes are opened in every classroom, the school serves as a strolling space for old villagers, and during weekends it is sometimes turned into a site for athletic meetings.

However, it has not been long since the school gate was widely open to the villagers. Until a few years ago, pine forest surrounded the three sides of the school. The forest was dark even during the day, and the pointed leaves of *Pinus Thunbergii* and the floor of the forest with sandy dust blowing kept children away. Besides, this place often turned into crime scenes.

The principal, the assistant principal, and the teacher in charge of environment carefully deliberated the matter and reached the conclusion that they would change the pine forest into the forest in which children could play and learn about various plants. Luckily, the seashore wild plants were found among the pine trees.

In 1999, this school was designated as a model school for schoolyard forest that was supported by the Forest for Life and they attempted such forest caring as thinning and trimming trees by request to the related office in Gangneung City. As a result of the three days' work, the light shone in the once-dark forest and the landscape of the sea could be seen through the trees. As a next step, they dug the ground to move the seashore wild plants to form plant communities here and there in the forest. They made a fence for every plant community and laid stepping blocks in the forest to form a natural exploration lane. In one corner, rides that are made of wood were installed, and many pieces of artistic-looking stones that had been covered with dust in classrooms were displayed harmoniously along the exploration lane.

They also decided to make a narrow path through the forest and to form a corner grove. The space for the corner grove was located next to the school gate, where there used to be a few Chinese junipers looking lonely and hollow. They removed the grass plot and planted broad-leaf trees in the space. They purchased the seedlings of elm tree, *Cornus officinalis*, wild walnut, maple, Chinese cinnamon, paulownia tree, etc with W5.7 million in support provided in 2000. The chief of alumni association secured the

amount of soil that would fill up six dump trucks that are usually used for building roads, and the association of village heads and the parents' association gathered 30 persons to help with planting trees each month. The school also made the request to get the help of the army unit in the vicinity; some 60 soldiers participated for four days in such ground-building work as graveling and moving blocks that were to be laid on the ground. It is needless to say that the most enthusiastic participants were the students. They succeeded in making the forest by themselves, moving blocks with their small hands, carrying water in metal buckets and stepping on the ground where new trees were planted.

The corner grove over some 500 pyeong was completed in November of last year after autumn gardening was finished. Fortunately, not a tree in the corner grove died until this spring. Watching the blossoming of Azaleas in spite of the cold weather in the flowering season, the children were deeply moved.

The schoolyard forest in Shinyoung Elementary School is used as an educational site generally through three programs. They use the forest for life, the educational site for learning from experience that was formed first, for walking the path and observing according to the subject. They walk along the path in the forest and conduct observation about two times a day, usually in the morning and at lunchtime. They observe what is different compared to yesterday and record what kind of changes happened in what kind of plants, and have the time to share and discuss what each one has found.

Secondly, the forest is used for learning from wild rose experience. This program is linked from kindergarten to the 6<sup>th</sup> grade in the elementary school and operated about two hours bimonthly at the time chosen by the teacher. The table on next page suggests the subjects of learning through experience and related activities by grade.

This education site of wild rose experience is available to use not only by Shinyoung Elementary School but also students from other schools. The schools that want to use this site should file the application and confirm the date of use prior to using this site. Shinyoung Elementary School looks quite different from in the past. Above all, the number of people who visit the school has increased. Not only villagers come to the school to stroll, exercise or to use it as a park, but also visitors from distant schools come to watch this nature-experiencing site. A class of 70 kindergarten pupils in Gangneung visited the nature-learning path in the pine forest not long ago. The association of marine soldiers who had to patrol this place for frequent occurrence of crimes expressed their gratitude for saving the trouble.

Grade	Subject	Contents of activities
K	I like wild rose!	Developing interest in the nature in school and basic education for living
1st	Nice to meet you wild rose!	Observation of leaf changes by season
2nd	Be with me, wild rose!!	Examining plants by stalk and learning 5 kinds of shellfish
3rd	The fruit of wild rose	Observing blossoming process of plants & learning 5 kinds of shellfish
4th	The fragrance of wild rose	Learning propagation process of plants and the protecting method and sea green algae
5th	Wild rose exploration team!	Observation of surrounding environment, Activities as environment protectors and reef area
6th	Wild rose looking back on forest for life	Preparation of reports on annual activities of 5 years and on the ecology of wild rose

Another change is found in the bustling every Monday morning, when children pull bicycle-drawn carts and pick up rubbish, rounding the forest around the school of their own accord. The assistant principal of the school said he learned, watching the children who confidently said they were cleaning their own forest that had been put in disorder during the weekend, that "forest is not merely a forest but a hope."

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## Country Report Norway

by Astrid Sandås, Directorate for Primary and Secondary Education

### 1. The state of Education for Sustainable Development

#### 1.1 Main document and guidelines

The topic Education for Sustainable Development (ESD) is included in the school act for Norwegian schools which states that

*"Education shall promote human equality and equal rights, intellectual freedom and tolerance, ecological understanding and international co-responsibility"*.

The core curriculum has a section about the environmentally-aware human being and the criteria for ESD are embedded in several other parts of the curriculum. Among the central goals stated in the general part of the curriculum plan, the following are important for ESD:

- Education shall promote the view that humans are equal and that human worth is inviolable.
- Pupils shall be trained in posing questions about the world around them, proposing explanations for what they find, and reasoning how they can test whether this is true
- Education shall give broad knowledge of the interrelationships in nature and the relationship between humankind and nature.
- Education shall create the understanding that concern for economic growth must be subordinate to nature's own laws and limits
- Education shall give commitment to actions of solidarity and common efforts to solve the global challenges facing us

One can see that pupils are asked to be independent and take responsibility for their own learning. Thus, the concept of developing dynamic qualities in pupils and the question of responsibility are embodied in the curriculum for Norwegian schools. The curriculum is for primary, secondary school and adult education, and should therefore be realised in the whole country. As one knows, however, the schools do not

<sup>1</sup> Core curriculum for primary, secondary and adult education in Norway, Oslo 1993

always follow a central recommendation. Other measures have to be taken if one wants to reach out and achieve the goals.

## 1.2 Action Plan for Environmental Education

In 2000 an Action Plan for ESD in the Education Sector (2001 – 2004) encompassing all levels of the education system in Norway was developed. In this plan the aims are stated as<sup>2</sup>:

### Main goal 1:

To provide insight into the interdependence of the natural resource base, ways of living, economics and politics and how an effective integration of environmental concerns in all sectors can contribute to an ecologically sustainable development.

### Main goal 2:

Increase awareness of environmental issues both locally and nationally in the church, in education and in research. Preserve knowledge about natural and cultural heritage through collections, libraries and archives, and ensure that society benefits from this knowledge.

### Main goal 3:

Introduce environmentally friendly operations in the Ministry of Education-, Research- and Church Affairs and encourage underlying departments and education- and research institutions to carry out environmental activities in their institutions.

These goals are divided into sub-goals, challenges and activities.

Evaluations shows that within schools the teachers have difficulties with both the **content** and the **methods** of Education for Sustainable Development. The challenges in the practice of ESD is on one hand related to the content and on the other hand related to the teaching and learning methods. The teachers do not yet have sufficient understanding of the complex scientific and social issues involved and they do not have sufficient capability to plan, lead and carry out interdisciplinary and intersectoral projects. The conclusion is that the schools are in strong need of support<sup>3</sup>.

<sup>2</sup> Action plan for environmental education in the educational sector, Oslo 2000

<sup>3</sup> Evaluation Strategy for Environment and Development in the Education Sector, Rogalandsforskning 2000

## 2 Eco-schools development process

### 2.1 Introduction

Norway has participated in the OECD project "Environment and School Initiatives" (ENSI) since its initiation in 1986, including research and development work. Norway's participation in the ENSI project has influenced the education ministry's work to development of the Environmental Education Network.

The main goal of the ENSI-project was to find out whether and to what extent environmental education can be an appropriate tool for bringing about school development. The conclusions from Phase 1 of the ENSI project in Norway can be summarized as follows:

- cooperation between the school and actors outside of the school inspired pupils and appeared to stimulate learning
- a network between schools and actors outside of the school inspired teachers who participated in the network
- cooperation between schools and research institutions appeared to benefit both parts
- pupils exhibited a high degree of dynamic qualities; in particular, they were good at collecting information, drawing conclusions and communicating their findings to local decision-makers and the press
- teachers experienced interdisciplinary work as being both demanding and fruitful.

ENSI Phase 2 lasted from 1991 to 1994 and focused on the development of local curricula. A "Policy review" of environmental education was conducted in 6 OECD countries, including Norway. The report on Norway by the OECD experts shows that although much good work had been done, *documentation and evaluation of development trends* at the school level was inadequate.<sup>4</sup> Later in the ENSI project we have given greater emphasis to evaluation and documentation of the work with environmental education in Norway.

Experience in these and other Norwegian research and development projects clearly indicated that schools often have great difficulty integrating environmental education into existing teaching structures and practices. This is why the most important goal of

<sup>4</sup> A review of environmental education policy in Norway, 1993. Nigel Norris, Peter Posch, Kathleen Kelley-Lainé, OECD Paris, October 1993.

the Norwegian strategy for environmental education was defined as creating framework conditions that promote high quality environmental education. The Environmental Education Network is an instrument that has been developed to reach this goal.

In this context, Norway decided to participate in ENSI 3 to learn more about what actions would need to be taken at the central level to support schools in their environmental work. Goals for the ENSI 3 project in Norway were defined as:

- to find correctives to improve the Norwegian strategy for environment and development in the educational system
- to have the opportunity to compare Norwegian environmental education practice with that of other countries, both to learn and to have an impact on development in this area
- to reveal barriers at all levels in the Norwegian school system to achieving environmental education that fulfils the United Nations goals
- to develop models for competence-building in environmental education

In addition, the work in Norway focused on a working hypothesis that participation in Local Agenda 21 work was an effective route to achieve the goals of ESD. This idea is based on the premise that *environmental education based on concrete tasks for local Agenda 21 has the potential to change organisation forms and working methods in the school.*

Implementing this approach has two important implications:

- the educational work of the school functions as a resource in local Agenda 21 work, and
- local environmental protection work functions as a learning arena for the school.

## 2.2 Environmental Education Network- supporting eco-school development

*The Environmental Education Network* has been developed in order to give schools the support needed to implement ESD<sup>5</sup>.

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<sup>5</sup> Evaluation "The Nationale Environmental Programme", A. Eggen Knutsen og P. Van Marion, NTNU, PS-report nr 1. 1997

The aim is to provide a system for developing knowledge that contributes to sustainable development, and in which:

- the participants are active and gain knowledge on their own by collecting, structuring and communicating new knowledge
- all pupils are given the opportunity to experience nature and to recognize the beauty and value of nature
- all pupils develop a sense of identification with other peoples. They learn to have solidarity with the world's poor and an understanding of their responsibility for the future.

The Network is a learning resource organized into 155 exercises. All information and support tools are found on the Internet, but the actual main part of the work is undertaken in the field through hands-on involvement of the pupils.

The exercises illustrate how to teach complex global questions and how schools can view **social, economic and ecological problems as interrelated issues**. The schools use the exercises as background for project work. The students do investigations, discuss findings and make reports. Concrete examples are shown in the next section.

The exercises are viewed from a global perspective. The results are entered into a shared database which both schools, the local and central authorities can draw on for information about environmental conditions. **The schools participating in the network receive supervision and guidance from research institutions.**

A research-based evaluation of the programme has been undertaken<sup>6</sup>. The findings are that the Environmental Education Network is a good concept but that it will take time for schools to familiarize themselves with it and use it actively.

*Internet address*

<http://miljolare.no>

In the Environmental Education Network the schools have the opportunity to cooperate with research institutions through Internet. They get support from researchers through e-mail, telephone and web pages. Responsibility for in-service training of teachers lies with the municipal authorities. They can engage research institutions if needed. Several in-service courses are carried out each year.

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<sup>6</sup> Evaluering av Nettverk for miljølære, P Engesæter, S Flygvind, L Nyhus, ØF-Rapport nr 01/2002

The EE Network was evaluated in 2001<sup>7</sup>. The evaluation concluded, among other things, that:

- The Network is a good model, in line with education for sustainable development both as regards content and methods
- The program is not used to its full potential in Norwegian schools.

Based on these conclusions and additional discussions and analyses various follow-up activities have been undertaken. The Environmental Education Network includes many functions. Section 2.3 explains the explicit and implicit criteria in the program. In addition, more detailed information is given about a few concrete examples of activities within the program.

## 2.3 School projects

### 2.3.1 Explicit criteria in the Environmental Education Network (EEN)

All schools in Norway are invited to participate the EEN. Schools participate in one or more concrete activity, they receive information and support regarding methods for the activity and planning of school projects. The following criteria are explicitly stated in the program materials:

- Activities should be integrated into the schools pedagogical plan
- Cooperation with the local community is involved (the schools receive guidance about how to select relevant local partners including parents, local managements, NGOs etc.)
- A local project plan should be developed with student participation (schools receive guidance about how make plans for project work and write reports)
- Activities involve making accurate scientific observations and measurements (schools receive detailed descriptions of methods for the investigations and outlines and criteria for reports)
- The entire school community is involved in a collaborative, action- oriented learning process. If one group of students or one class does the investigation, they are urged to present the results to the whole school.
- Teachers must ensure adequate opportunities for student participation
- Cross curricular approaches are involved, specifically including sosio-economic aspects of environmental issues

- The activities should be explicitly related to the national curriculum (schools receive guidance about selection of appropriate topics for given age groups)
- Follow-up is required, including presentation of reports, public statements, contact with local government, newspapers etc.
- The local issue should be explicitly related to global challenges, including discussions of this in the class.

Examples of criteria implicit in this approach include:

- Changes in the local organisation of instruction structures and methods will often be needed in order to carry out the activities as described
- Students are required to be active and themselves acquire or construct knowledge by collecting, structuring and communicating knowledge.
- The subject matter (content) of the knowledge being constructed includes interactions in nature, interactions between nature and society, interaction between nature and the sosio-economic systems, and politics and interaction between countries.
- Students must be provided with opportunities to experience nature and to recognize the beauty and value of nature
- Important implicit results of the program, if successful, are that all pupils and students will develop a sense of identification with other peoples and with the common environment for human life, have solidarity with the world's poor and exhibit a sense of responsibility for the future.

Not all schools can fulfil all of these criteria using one activity in the Network or doing this work as a one-time event. However, if the school follows the guidelines provided by the Network and use it to its full potential, doing several activities over a period of several years, changes in organisation of the learning situation and in learning styles expected to occur.

In the next section we will give examples from the 2002-2003 school year.

### 2.3.2 The Spring is coming

In the EEN one exercise involves observing signs of spring. A database is developed where the students store the results of their observations, including both quantitative measurements and photographs. All Norwegian schools are invited to participate. In spring 2003 approximately 100 schools have sent their observations to the database. Some schools have sent observations for 2001, 2002 and 2003.

The project is expected to continue and schools will be encouraged to continue to make observations. Researchers have analysed and presented the results using maps, lists and diagrams. Over a period of years, changes can be seen on maps. This can then be used as a starting point for discussion of global issues as climate change, biodiversity etc.

*Explicit criteria*

- Students have a concrete experience as the starting point for discussions connected to a biodiversity and climate change.
- Out-of-school teaching and learning are used
- The activity gives room for a cross-curricular approach including a socio-economic perspective, depending on the nature of the school's local initiative We have not yet compiled an overview of the extent to which schools have take a cross-curricular approach.

### 2.3.3 Species in the local environment

School children are provided with methodologies for mapping species in the local environment. They observe the species, take pictures of them, and produce reports that they send to the database where the results are stored. One school had close co-operation with a teacher training institution spring 2003.

In Norway the central and local authorities have decided to map biodiversity by registering the entire flora and fauna of the country. One wants to follow changes and keep track of what happens with various species, both threatened species and others. Responsibility for this lies mainly with the local authorities, but the central authorities support the initiative as part of the national follow-up of international agreements (Convention on Biodiversity). This activity is therefore an example of what school children can do for the local community as they learn, and is part of Local Agenda 21 work. The children feel that they can do something useful for society, and this makes learning activities far more interesting and the learning outcome more tangible.

*Explicit criteria*

- The students have a concrete starting point for discussions connected to the importance of biodiversity and international agreements.
- Out-of-school teaching and learning are used

- The activity gives room for a cross-curricular approach including socio-economic perspectives. The school that has co-operated with a teacher training institution has had wide-ranging discussions of socio-economic issues in some classes.

### 2.3.4 Action water quality

2003 is the international year of water. Schools in Norway are invited to participate in a competition about school projects related to water quality. Schools receive methodological support for taking samples of water in their local community and analysing them in a scientifically reliable manner as part of their local project. The students then store the results in a database and develop a report. A committee evaluates the report and the best school project will receive an award.

*Explicit criteria:*

- Schools discuss human rights related to the right to clean water. Students discuss the global water access situation and possible ways to improve access to clean water.
- Students discuss and question the effectiveness of international discussions and agreements at international meetings or in international bodies.
- Students explore the connection between lack of clean water and world's economy.
- Students have a concrete starting point for discussions connected to the importance of clean water and international agreements.

### 2.3.5 Action indoor climate

Indoor climate is an important issue in Norwegian schools. The temperature is often too high; there is too much dust, the CO<sup>2</sup> level is too high, and so on. In this action the students map the situation in their school, do analysis and make reports about it, and take actions to improve the situation. They also measure how much energy the school uses for heating. Schools are often able to conserve up to 20% of their energy use by holding a more appropriate temperature and better indoor climate in the classrooms. The outcome for students is twofold. They do something to improve their own well-being, and by saving energy they contribute to reducing the impact of energy use on outdoor climate. Class discussions may include our ability and responsibility to act to improve undesirable situations. Discussions can also deal with the global issue of energy distribution and consumption. Depending on the students' age, what they have learned earlier, current events in the newspapers etc., a wide range of issues may be included.

In spring 2003 a competition among schools were arranged in cooperation with a NGO and a research institution. One school got an award. Build on this experience this autumn a new competition will take place. It is cooperation between the National Board of Education, The national Council for Science and Norwegian Institute for Air Pollution. The event will be presented on Norwegian Television in sept 2003

*Explicit criteria:*

- The students have a concrete starting point for discussions of the importance of saving energy and the consequences of energy consumption.
- Schools report on how the activity is integrated into the school's pedagogical plan and how they have cooperated with parents and other local bodies

*Implicit criteria*

- Changes in local organisation of schools are often required
- Students have to be active and acquire or construct knowledge by collecting information about their physical environment

### 2.3.6 "Spare" - Energy portal

Several activities in the Network for Environmental Education are about energy. The Norwegian Society for the Conservation of Nature is responsible for a program called "Spare" which will be integrated into the Environmental Education Network in autumn 2003, with a new energy Internet portal under the Network for Environmental Education. This is an example of cooperation between a non-governmental organisation, a research institution and the school authorities. This activity has been used by several hundreds of schools in Norway. The new is that all have to report on the Internet so we are to put reports from each school on the Internet and put sample reports from all schools taking part in the program. All schools in Norway are invites to take part and the good ones will be show at a national exhibition in the autumn.

*Explicit criteria*

- Students have a concrete starting point for discussions connected to energy conservation and energy production.

### 2.3.7 Phonological observations and variations in seasons

One research institute in northern Norway carries out surveillance of changes in vegetation using satellite imagery. School children are involved in this work as observers of plant phonology (life cycles, annual growth cycles) on the ground. Their observations of seasonal patterns are then used as ground checks for the satellite

observations and mapped. About 15 schools have take part in this program so far. Next year more schools will be invited to participate.

*Explicit criteria*

- The students have a concrete starting point for discussions connected to a biodiversity and climate change.
- The activity provides room for a cross-curricular approach including socio-economic perspectives.

*Implicit criteria*

- The students can observe and develop an understanding of how long-term changes in climate may influence the distribution of plant and animals. They can discuss potential consequences on the economy and society.
- Students learn to understand how understanding plant phonology can contribute to understanding climate change and its impact on people.

## School development initiatives

### 2.4 Values project

The project is to contribute to strengthening schools' and educational institutions' awareness of values issues as well as their role in communicating values to learners. The most important target group for the project is children and youths. The project will also be directed toward adults who play an important role regarding the values foundation of schools and society: as teachers, school leaders, local politicians, school health service providers and parents.

Work in the project takes as its point of origin the value orientation of the school. Schools themselves must select a theme appropriate for local or current conditions. Work in the project should contribute to the development of a favourable learning- and living environment for children and youths. The schools are to be stimulated to continue or start up appropriate and long-term activities to instil attitudes. At the same time, schools are encouraged to think creatively and preferably untraditionally in terms of working methods and activities. In 2003 and 2004 schools can apply for funds to develop projects and activities that are by nature innovative, that can give new knowledge and experience, or that have a particularly high transfer value.

*Explicit criteria*

- Several classes are supposed to cooperate
- The initiative have to be implemented into the whole school
- The students are to work in a problem and project orientated way
- (more criteria have to be worked out at the actual school project)

*Implicit criteria:*

- contribute to the development of a favourable learning- and living environment for children and youths
- Formulation of values objectives in schools and educational institutions
- Support for the work of schools to accomplish their values goals
- Stimulation of teachers, parents, the local community and children and youths themselves to focus on the values, attitudes and environment that should characterize everyday life in the school.

**2.5 Demonstration schools**

The activity is to stimulate quality development in primary, lower secondary and secondary education through demonstration in selected schools of:

- creativity and educational innovation
- ways to promote pupils' learning outcomes
- development of a good learning environment
- goals-oriented and flexible use of the school's resources.

Demonstration schools are schools that have done excellent work over a period of time in nationally prioritised areas such as teaching in high-priority subjects, learning environment and school facilities. The demonstration schools are selected for a two-year period. 22 demonstration schools were selected for the periode 2002-2004 and 20 new schools are selected for the periode 2003-200. Each school receive a national allocation of 500.000 kroner per year.

*Explicit criteria*

- The initiative have to be implemented into the whole school
- The students are to work in a problem and project orientated way
- (more criteria have to be worked out at the actual school project, see exammmple in section 3)

*Implicit criteria*

- creativity and educational innovation
- ways to promote pupils' learning outcomes
- development of a good learning environment

**3 Case Studies****3.1 Sand School**

Address: 9056 Mortenhals, Norway

Home page: <http://home.online.no/~sands/>

Principal: Pål-E.Færøvig

Sand School is a grade 1-10 school with 140 pupils in 9 classes. Sand School has worked purposefully over a period of many years to improve the students' psychosocial learning environment.

**Quote from the school's pedagogical platform [our translation]**

"Sand School shall work to develop knowledge, positive attitudes, ability to co-operate and optimism about the future, and to teach pupils to believe in themselves. The school shall be *centred about the pupil* and teachers commit themselves to a humanistic pedagogical platform. The school shall view the pupil in a developmental perspective and prepare the pupil to take on tasks in society in their later, adult life. The school shall be aware of its responsibility to strengthening a belief in democracy and the inviolability of each individual in the school society."

**Examples of projects at the school****Pilot**

Sand School has participated in a national ICT project called "Pupils teach adults ICT" for four years. The pupils have worked with, for example: *ICT and learning strategies; computer courses for adults; arranging a meeting for seniors on the internet; working with home pages; developing the school's computer certificate; network co-operation with Hamnvåg school; working as counsellors and resource persons for adults and other pupils at the school.*

Sand School has further developed the pedagogical use of ICT at the school through the project "Development of ICT as a working method". This has resulted in, among

other things: ICT-based tests; linking of outdoor schooling with active use of skoleavisa.no (a net site for school newspapers); development of the school's home pages at each main level; use of learning strategies.

### Outdoor school

The school has developed a binding plan for co-operation with the local community in co-operation with local sources of competence and local organisations. One school project is management of a lake for fishing. Use of outdoor schooling is included in the school plan. In the past 13 years the school has started the school year by arranging a trip to the mountains where everyone sleeps in a tent, including all of the pupils, parents and teachers.

### Combined enterprises project

The school seeks to make pupils and teachers aware of the opportunities for various combinations of economic activity provided by the local environment and thus encourage optimism about a future life in the local community. Another goal is to give pupils at the school "basic knowledge" about use of boats, rules of the sea, navigation, practical fishing and local knowledge.

### Using music and drama

Sand School has developed a culture of music and drama as a pedagogical approach over a period of many years. We arrange, among other things, 7 assemblies each school year in which every class has to present their own practiced performance, be it song, music, drama, dance or a combination. This applies to the teaching faculty as well. The graduation pupils at the school organise a revue show with premiere on May 16th, the day before the Norwegian national day. This has been done over a period of many years, and is part of the school's action plan against drug use.

### Explicit criteria:

- The initiative is implemented into the whole school
- Several classes work with the program
- The students are to work in a problem and project orientated way
- The local community is involved
- Students involvement are a prerequisite
- Cross-curricular approaches are used
- The school promote democracy

### Implicit criteria

- Creativity and educational innovation
- Ways to promote pupils' learning outcomes
- Development of a good learning environment
- The students get used to ICT
- Students get "basic knowledge" about use of boats, rules of the sea, navigation, practical fishing and local knowledge.

### 3.2 Skjelnan School

Address: 9022 Krokeldalen

E-mail: skjelnan.skole@tromso.kommune.no

Home page: <http://skjelnan.tromsokolen.no>

Principal: Jorunn Fleten, e-mail [jorunn.fleten@tromso.kommune.no](mailto:jorunn.fleten@tromso.kommune.no)

The school is situated in Tromsø municipality. They are a grade 1-7 school with two parallel classes and 300 pupils, a staff of 40 and after-school program. The school property consists of forest, streams, stones and bedrock in a sloping terrain.

### Pedagogical platform

The school has developed annual plans in all subjects and for each grade about how the outdoor space is used. Learning outcomes are specified and the goals directly linked to practical instruction. The goal is that outdoor instruction should help create a much closer integration of theory and practice. The pupils' understanding is developed through practical work and logical reasoning.

### Outdoor school:

In the outdoor school pupils are divided among four stations in the local area. The pupils work in groups and learn to take responsibility for one another. The pupils are at each station for one week before switching to another station. The four stations are: fishing, farm, outlands and Sami culture.

*Fishing:* The school owns 5 boats used to teach the pupils rowing as well as fishing with various fishing equipment. The typical shoreside topics such as seaweed, mussels and life in the ocean are also studied. Pupils clean their catch and cook it themselves over a campfire. A wonderful fish meal is then served for all the pupils on the shore.



*Farm:* Topics such as cutting firewood using saws, splitters and various tools is included. Tending of animals, cultivation of vegetables and setting of potatoes are central activities.

*Outlands:* Here the pupils work with topics such as orientation in the terrain using a compass, first aid, various biotopes, fresh water fishing, animal life and basic camp skills. A natural part of the outlands activities is hikes to the nearest mountaintops.

*Sami culture:* The pupils work with Sami traditions, focusing on creating a Sami camp site – siida.

Grades 1-2 in the school have 1 day of outdoor activity per week throughout the year. The outdoor day provides a framework for creativity, fantasy and responsibility. We encourage children's' joy of being outside. Through activity and their own experiences, the pupils learn to co-operate in a group and to watch out for each other. In the outdoor plan for the school we find the same main elements that are covered outside, often on the outdoor day.

In February and March we have winter week. At this time we work with skiing ability, including handling of ski equipment and waxing, packing rucksacks for long trips, getting dress to spend time outdoors, the properties of snow including insulation qualities and of course an informal ski competition.

Program to counter antisocial behaviour and promote social competence:

The school started an activity in January 2003 to prevent mobbing. It is reorganisation of the school day. We want to prevent and limit undesirable behaviour on the part of the students through an increased teacher presence and involvement with the pupils. The goal was to develop a quite long break in which pupils could be activated to a greater degree, together with others or in teacher-steered activities. The last investigation of mobbing showed a clear decline in the group that answered that they had been mobbed during ordinary school days. This shows that a great number of adults present and a more active approach to the pupils have a positive effect on the well-being of pupils at the school.

Skjelnan has used the nearby environment of the school in the Outdoor School for 15 years. We have contact with the owner of farm property Skjelnan 14/1. The owner allows us to use the farmlands, outlands and coastal area. Here we have activities related to farm work, fishing, outdoor recreation, the local environment and Sami traditions. This work began in 1987 as the Skjelnan project.

Because the school has used untraditional working methods, we have had to find educational materials not normally found at schools today. We have bought four boats, we have two 16-person tents and a lavvo, fishing equipment, garden- and farm equipment, saws, knives, ropes, painting equipment, etc. We buy forage for the animals, but we also sell produce from the farm. The school has given priority to this within our normal operating budget.

#### *Explicit criteria*

- The initiative have to be implemented into the whole school
- The students are to work in a problem and project orientated way
- Fishing: the pupils are taught rowing as well as fishing with various fishing equipment. The typical shoreside topics such as seaweed, mussels and life in the ocean are also studied. Pupils clean their catch and cook it themselves over a campfire. A wonderful fish meal is then served for all the pupils on the shore
- Farm: Topics such as cutting firewood using saws, splitters and various tools is included. Tending of animals, cultivation of vegetables and setting of potatoes are central activities.
- Outlands: Here the pupils work with topics such as orientation in the terrain using a compass, first aid, various biotopes, fresh water fishing, animal life and basic camp skills. A natural part of the outlands activities is hikes to the nearest mountaintops.
- Sami culture: The pupils work with Sami traditions, focusing on creating a Sami camp site – siida.

#### *Implicit criteria*

- creativity and educational innovation
- ways to promote pupils' learning outcomes
- development of a good learning environment
- framework for creativity, fantasy and responsibility. (The school encourage children's' joy of being outside).

## Country Report Spain – Catalonia

by Mercè Guilera, Rosa Tarín, Rosa Pujol, Mariona Espinet  
University of Barcelona, Faculty of Educational Science

### 1. The state of EE and EFS

#### 1. 1. General description of EE and Es:

The implantation of a new educational system in Catalonia began in a generalised way during the 1996-1997 academic year. One of the new developments of this educational system was the concept of transversality. In this way, EE has been incorporated as a transversal axis with contents that are taught by means of curricular integration. It should be stressed that this is not a new subject but rather a constant in all areas of the curriculum.

**Environmental Education at the PRIMARY Level:** Decree 95/1992, which establishes the curricular policy of primary education, states that its purpose is to ensure that pupils attaining this level will have the capacity for understanding the physical and natural environment in its complexity and the importance of its conservation for mankind. They should also be trained to respect, conserve and correctly use material, technical and natural resources. More specific objectives are set forth in the areas of knowledge of the natural, social and cultural environment.

**Environmental Education at the SECONDARY Level:** Decree 96/1992, which establishes the teaching policy of compulsory secondary education, states that pupils attaining this level must possess the capacity for analysing the basic mechanisms that govern and control the physical environment; for assessing how human activities affect it; and for actively contributing to its defence, conservation and improvement as a determining element in the quality of life. The common curriculum of each area is summarised in the Annexe to this Decree, which defines the more specific aims having to do with conservation, respect and understanding of the environment. Moreover, the variable credits standardised by the Government of Catalonia (*Generalitat de Catalunya*) are very closely related to the transversal contents of EE.

**Environmental Education in Post-Compulsory Training:** Baccalaureate and Vocational Training: One of the main objectives set forth in Decree 82/1996, which establishes the teaching of the baccalaureate programme, is to ensure that pupils positively value and respect the natural and cultural heritage of their environment. In addition to finding environmental content in other subjects, in Earth Sciences they study the interrelations between the human system and other earth systems. Decree

332/1994, which sets forth the teaching of the vocational training programme, endeavours to give pupils the training needed to gain insight for developing professional activities while respecting the government.

### 1.2 Description of the EE and ES programmes supporting the schools Escoles Verdes

This is a programme for environmentalising Catalan schools, fostered by the Ministries of the Environment and Education of the Government of Catalonia (*Generalitat de Catalunya*) since 1998. Within the framework of Local Agenda 21, the *Escoles Verdes* programme aims to help in the environmentalisation of participating schools, to identify schools committed to environmental improvement itself, and to set up a school network. It encourages schools to include local environmental improvement projects in their action programmes, so as to promote a greater interrelation with their context. The programme constitutes a process with different stages which all schools have to go through, ranging from the school diagnosis to the design and application of a plan of action. Upon completion of the programme, the school receives the *Escola Verda de la Generalitat de Catalunya* distinction. 135 schools are currently following the programme, 45 of which have received the distinction for the first time and 12 of which have renewed it. The remaining schools are in the training and follow-up stages.

#### Agenda 21 Escolar (A21E)

Barcelona City Council has been encouraging schools to set up the *Agenda 21 Escolar* programme since 2001. Agenda 21 Escolar seeks to be a useful tool for environmental education in that it helps schools to provide a training programme on the reality and to transform this reality. Particularly the most immediate reality, since it prompts reflection and intervention in the school itself and in its approaches and activities, from philosophical, curricular and methodological aspects to characteristics of coexistence and practice in resource management. An Agenda 21 is a process with different stages, and each school presents a project to Barcelona's Agenda 21 Escolar programme, through which it develops one of the stages most in line with its own characteristics. 69 schools took part in the programme during the 2001-2002 academic year, and 96 in the current academic year (62 have been studying the project undertaken the previous academic year in greater depth).

**Camps d'Aprenentatge:**

*Camps d'Aprenentatge* are educational services offered by the Ministry of Education of the Government of Catalonia (Generalitat de Catalunya), which are geared mainly towards pupils at the primary education, secondary education, baccalaureate and vocational training levels. *Camps d'Aprenentatge* strive to facilitate the discovery of the natural, social and historic environment of the region, placing special emphasis on the contents of environmental education, while setting up a new framework of coexistence and relation between teaching staff and pupils. Pupils stay at the *Camp d'Aprenentatge* from 1 to 5 days. During this time they can study different aspects of curricular areas from an interdisciplinary angle: through observation, discovery of the environment and experimentation. There are 10 such work centres in all, visited by a total of 1135 schools in the 2002-2003 academic year. Occupancy has been close to 100% and there is a waiting list of approximately 186 schools.

### 1.3. Description of non-governmental organisation programmes supporting EE and ES

The Non-Governmental Organisations related to EE are mainly associations, entities, centres and so on devoted to designing and developing activities that have to do with the environment. For the most part these activities are carried out by the schools, although there are also organisations which aim their projects at the public at large (particularly at the local level).

The issues most frequently addressed are pollution, waste, water, air and the natural environment. The Non-Governmental Organisations section of the Annex includes the websites of the main organisations, entities and centres of Catalonia, where one is welcome to find out about the activities being offered.

Given the great heterogeneity of Non-Governmental Organisations focused on EE, it is not easy to zero in on a single programme, although there is one organisation that unites the majority of the country's environmental educators. This is the *Societat Catalana d'Educació Ambiental* (Catalan Society of Environmental Education – SCEA). The *Societat Catalana d'Educació Ambiental* is an entity created to support those who are devoted to environmental education. It seeks to promote an innovative education which tackles emerging environmental problems, and to aid in the training of a citizenry capable of analysing them and providing solutions. Although it does not create or apply EE programmes directly, it does collaborate with the *Escoles Verdes* programme by supplying teacher trainers and with *Agenda 21 Escolar* by providing

advisors from the *Centre de Recursos de Barcelona Sostenible* (Sustainable Barcelona, Resource Centre).

## 2. The Eco-schools development processes

### Report on an EE and ES Programme: *Escoles Verdes* (EV)<sup>1</sup>

#### 2.1.1. General characteristics:

##### Concept of environmental education and constructivist approach to teaching:

The *Escoles Verdes* programme has not issued any public document that gives us a clear definition of what is meant by environmental education or education for sustainability, and what its methodology is. It puts particular emphasis on the management aspects of the school and highlights the performance of activities. The programme also devotes special interest to the production of documents drafted by the schools which set forth the objectives and activities that the schools intend to carry out.

The fact that the *Societat Catalana d'Educació Ambiental* is responsible for providing advice may lead us to believe that a complex EE is being fostered from a sociocritical viewpoint. However, since this is nowhere stipulated, it is determined by the motivations and interests of the trainer-advisor.

##### The main agents involved:

- Schools: There are currently some 135 schools taking part in the programme, at all levels (from Infant Education to Secondary Education);
- The Government of Catalonia through the Ministries of the Environment and Education and the *Institut Català d'Energia* (Catalan Energy Institute);
- *Societat Catalana d'Educació Ambiental*;
- Local entities.

#### 2.1.2 Explicit criteria: operation and management

The EV programme involves the school's entire educational community.

**Prerequisites** for joining the programme:

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<sup>1</sup> Report drafted on the basis of information found at the website <http://www.gencat.es/mediamb/ea/ev/ev.htm> and an interview with Mr Rosquilla (Territorial Office of the Ministry of the Environment of the Government of Catalonia).

- *The approval of participation by 80% of the staff and student council;*
- *The direct involvement of 20% of the teaching staff;*
- *The execution of environmentally related actions prior to the programme;*

**Commitments** to be made upon joining the programme:

- *To carry out the programme for at least 2 academic years;*
- *To include EE in the School's Educational Project (PEC).*
- *To participate in staff training seminars (2 at the primary level and 3 at the secondary level);*
- *To create an environmental committee (made up of teaching staff, non-teaching staff, families and pupils, with the purpose of coordinating and promoting the EV programme);*
- *To take part in the follow-up commission (made up of the school principal, a representative of the environmental committee, the trainer advising the school, the representative of the Territorial Office of Education and of the Environment of the Government of Catalonia, and a representative of City Council) to see to the follow-up and coordination of local improvement actions, and to evaluate the Action Programme;*
- *To liaise with City Council;*
- *To supply information to the bodies in charge of inspection and evaluation, in other words to the follow-up commission.*

### 2.1.3. Implicit criteria: values and contents

The aims of the programme are:

- To help the schools advance towards their **environmentalisation**, in other words, to add the environmental dimension to management + education (curriculum) and to foster local participation.
- To identify Catalan schools committed to environmental improvement and to set up a network.

#### What do the training seminars teach?

The training seminars last 20 hours in all, and are divided into 7 sessions plus 4 hours of work at the individual level. These sessions deal with carrying out the school diagnosis and drafting the Environmental Coherence Plan (PCA). The Action Programme (AP) is discussed in the final onsite session.

There is a clear lack of theoretical work in the training programme. Only a brief segment of the second session is given over to clarifying such basic concepts as

environment, sustainability and environmental education. It is up to the trainer to deal with these aspects to a greater or lesser degree.

#### How are the diagnosis and the Environmental Coherence Plan (PCA) carried out?

The school **diagnosis** is the first step towards attaining the "Escoles Verdes de la Generalitat" distinction and it is carried out within the framework of training seminars. This diagnosis is made on the basis of a standard questionnaire provided by the trainer and which the school's environmental committee has to work with. This questionnaire is characterised by the fact that it is composed largely of closed questions or stresses data such as the area of the playground or number of waste bins. With questions of this nature, the replies are limited to the indicators put forward, impeding the school's real situation to be reflected. Such generalisation means that a great deal of more subtle information is lost.

Two contexts are addressed: the educational and the curricular.

##### a) EDUCATIONAL CONTEXT:

The life at and climate of the school are assessed. Questions are asked about objectives both met and not met, problem solving, etc. The level of involvement and participation of the entire educational community are given only a cursory glance, while issues such as how to foster participation, what this involvement consists of, etc. are not addressed at all.

Within the fields of school management (use of classroom resources, the school building, the kitchen/dining room/canteen and school surroundings), the questionnaire helps to give an idea of what the school is like and any shortcomings it might have. Yet it fails to ask about aims and acquisition criteria and use of resources (for example, if recycling or reuse takes place). Nor does it deal with communicating this information.

##### b) CURRICULAR CONTEXT:

Questions are asked about the methodology used by the teaching staff. What sets Environmental Education apart is that it educates by means of, about and in favour of the environment, and inquires about both the teaching staff and the pupils. However, it neglects to inquire about how participation is fostered, what it consists of, what dynamics are established in the classroom, the pupils' level of autonomy, and so on. The closed question typology makes the information that is gleaned very limited.

Finally, in the field of materials and didactic resources, one is asked about activity planning, facilities and, in very exhaustive fashion, about the environmental content of the subjects. It may be a questionnaire for evaluating EE transversality in the school (understanding transversality as addressing a certain environmental issue in each subject). The level of depth of the issues is not taken into account, nor whether reflection is fostered or contextualised in the emerging reality. The fact that an issue is addressed does not necessarily mean that it is significant for the pupils or is done so from a constructivist perspective.

To complete the diagnosis, the advisor extracts and analyses the data provided in the questionnaire and the results are classified according to aspects achieved (with a point score given according to the degree of satisfaction) and aspects which must be discussed and worked on (which are then classified by degree of difficulty and social effectiveness). Based on the conclusions gathered, a document is drafted with the long• and short-term aims and lines of action for environmentalising the school. This document is the **Environmental Coherence Plan (PCA)**, and it is drawn up in line with the areas explored in the diagnosis.

In theory, the Environmental Coherence Plan is a tool based on evaluation and assessment, with the purpose of being incorporated into the School's Educational Project and School's Curricular Project with its significance. In practice, though, there is no mechanism within the programme that obliges the school to take this step of incorporating the conclusions of the Environmental Coherence Plan into the school's projects. This means that the school is given free rein with regard to any modification of its Curricular Project and Educational Project.

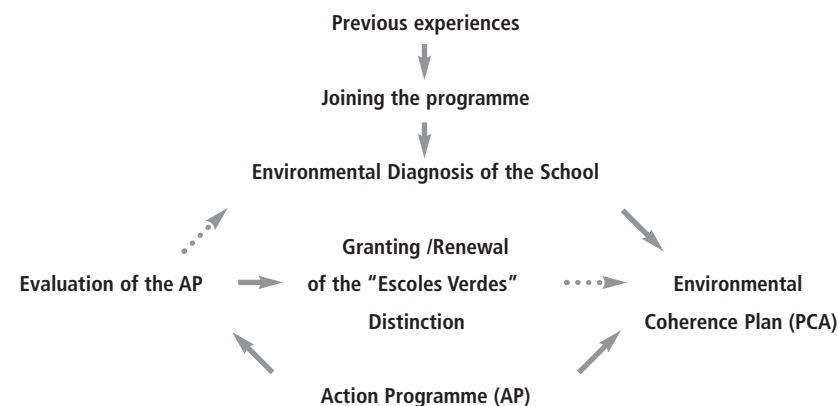
#### What is evaluated and how?

The follow-up commission evaluates the process. First it evaluates the Action Programme itself and then the manner in which it is carried out. There are no pre-established evaluation criteria, and it merely takes into account whether or not the programmed activities have indeed been performed. There is no assessment of the quality of the programme, although the trainer advises on and guides the execution of the Action Programme.

At present the programme does not include self-evaluation, continuous evaluation or the reflection of the school's philosophy.

#### 2.1.4. The process developed

**The process is developed by means of the following stages:**



1st academic year: The environmental diagnosis of the school is carried out and the Environmental Coherence Plan and Action Programme are drawn up. Training and advisory seminars are attended.

2nd academic year: The Action Programme is developed and, at the end of the academic year, it is evaluated. If the evaluation proves to be positive, the “Escola Verda de la Generalitat” distinction is granted. This distinction is valid for two years, during which time the school must design and develop a new Action Programme. This will also be evaluated and the distinction will be renewed, and so the pattern is established. During this process the Environmental Coherence Plan can also be reviewed and, if necessary, the diagnosis can be repeated.

#### 2.1.5. Type of support

- Financial support: This is minimal. Part of the fungible material used can be subsidised once the distinction has been granted. Pedagogical resources are also facilitated (videos, books, etc.). The Government of Catalonia covers the training costs.
- Personalised advice: This is given by the seminar trainer who belongs to the Societat Catalana d'Educació Ambiental. It is done during the training sessions and two 3-hour sessions during school hours, one at the beginning of the academic year and the other upon its conclusion. Contact is facilitated by e-mail and telephone.

- Bulletin: where the thoughts and comments by the different agents, educational resources and so on are published.
- Experience file: This publication, which recounts the different experiences of the schools, suggests and guides actions.
- Follow-up commission: Made up of a representation of the agents involved, it carries out follow-up action of the programme's application in the school and coordinates local improvement actions. It also evaluates.
- Escoles Verdes forums: These are periodic territorial meetings designed to prompt the exchange of experiences among the different schools taking part in the programme.
- Training seminars: 8 seminars have been set up, according to the approximate distribution of the territorial offices of the Ministry of Education of the Government of Catalonia. Each seminar is attended by representatives of 7 schools (approximately 30 people). The seminars last 20 hours during the academic year: 7 sessions outside of classroom hours (16 hours) and 4 hours of work done off the school premises. The seminar content has been described in the foregoing section.
- Programme website: This is a tool for exchanging experiences and disseminating the courses and activities of the different schools.

#### 2.1.6. The main obstacles

**Involving the entire educational community.** As with any programme, getting the entire educational community involved is never an easy task. However the fact that an environmental committee is appointed makes it even harder to diverge from the programme because it is the committee that motivates the rest of the community to participate and become involved. It also deals with the most cumbersome bureaucratic work (above all, the drafting of documents). The staff is thus freed of this task and can devote itself to designing the action programme. Yet even so, the programme work is based largely on volunteerism by the teaching staff.

**Bureaucracy.** Following the programme means filling in many forms and doing a great deal of writing, and this can cause certain schools to lose their motivation (even if this task is performed by the environmental commission). If the advisor does not succeed in motivating and helping the teaching staff, the school may eventually abandon the programme. The idea has to be conveyed to the staff that in this way everything done by the school is on paper, which leads of course to better planning.

**Insufficient financial support.** The financial question is one of the major limiting factors in drawing up the Action Programme. The subsidy received from the

Government of Catalonia is very small, or even non-existent, and the student council has to cover the financial outlay of the actions.

**Very technical training.** The seminars approach all technical aspects of carrying out the diagnosis and Environmental Coherence Plan. But all aspects related to the theoretical framework or the reflection behind an environmentalisation process in a school are neglected.

**Neither self-evaluation nor reflection are fostered.** The programme fails to consider an evaluation that goes beyond activity, nor does it give adequate attention to the process of self-evaluation or the reflection of what it is doing. This means that it focuses solely on activities that have been planned, granting no importance to really ascertaining if the school is carrying out an internal change in its way of acting, teaching and thinking.

When following the programme, it is all too easy to degenerate into an **activism devoid of content**, and for schools to join the programme for the prestige it brings, not because they truly believe in what they are doing.

### Report on an EE and ES programme: *Agenda 21 Escolar*<sup>2</sup>

#### 2.2.1 General characteristics:

##### Concept of environmental education and constructivist approach to teaching:

The *Agenda 21 Escolar* programme takes the definition of Environmental Education presented in the Belgrade Charter of 1975, and expands it with education for sustainability, understanding this to be "education that makes it possible to develop personal capacities for analysing, researching, evaluating, creatively imagining, projecting, communicating, negotiating, planning, cooperating and executing, and also reinforcing the motivation and courage necessary for the productive application of these capacities". This capacitation is sought through traineeship in action (Weissman, 2001). In general this methodology involves building knowledge, meaning that it could be regarded as constructivist although this is not clearly stated.

A21E is a programme that strives to be a tool for learning about the reality and is intended to transform it, boosting the participation of the entire educational community in the project to the utmost. The term "educational community" is

<sup>2</sup> Report drafted on the basis of information found at the website

[http://www.bcn.es/agenda21/A21\\_ESCOLAR.htm](http://www.bcn.es/agenda21/A21_ESCOLAR.htm) and an interview with an advisor from the Centre de Recursos de Barcelona Sostenible.

understood as: institutions (neighbours' associations, NGOs, etc.), school personnel (teaching staff, pupils, non-teaching staff) and families.

**The main agents involved:**

- Schools in the city of Barcelona: 96 schools at all levels (from infant to secondary education) are currently taking part in the programme.
- Barcelona City Council through the Municipal Council for the Environment and the Centre de Recursos de Barcelona Sostenible (CRBS), has appointed a 5-member technical commission to advise the schools.

**2.2.2. Explicit criteria: operation and management**

The A21E programme involves the entire educational community.

**Prerequisites** for joining the programme:

- To present an EE and ES project for the academic year, approved by the school's executive committee.

**Commitments** to be made upon joining the programme:

- To execute the project presented;
- To maintain a certain minimum degree of contact with the technical commission of the Centre de Recursos de Barcelona Sostenible so as to provide information about the members of the school's coordination team and specific aims.
- To attend: The briefing session held at the beginning of the academic year (September)
  - The programme commitment event (to be attended by representatives of the entire educational community, in October)
  - The follow-up meeting (March)
  - The event marking the project's conclusion (5 June)
- To present a report of the academic year.

**Advice:**

The schools are advised by the technical coordination team of Agenda 21 Escolar (made up of approximately 5 environmental education specialists). This advice can be given:

- Prior to joining the programme, for the drafting of the project. Here participants are urged not to make the projects mere sporadic actions, but rather a solid effort that will lead to aspects of pedagogical improvement, reflection and participation.
- During the course of the project, meetings of a general nature are called both to present and to conclude the projects of the academic year, such as training sessions where the emphasis is placed on questions of a more pedagogical nature. Advice is

also given at the school. When the school requires specific training on a given subject, a specialist will meet with the staff or the coordination team.

In addition to this advice, the Centre de Recursos de Barcelona Sostenible organises seminars for the teaching staff who may attend on an individual basis (for example, three seminars have been scheduled for the 2003-2004 academic year: on energy, biodiversity and materials, and waste).

The programme attempts to increase the school's autonomy to the utmost so that it can develop its Agenda 21.

**2.2.3. Implicit criteria:**

Given the heterogeneity of the projects included in the programme and the autonomy that each school has for developing its Agenda 21 Escolar, it is impossible to determine the criteria that are implicit when the programme is applied. Nevertheless, we shall make some brief remarks on the programme guide *Guia per fer l'Agenda 21 Escolar* (Weissman, 2001) and the evaluation system.

**What is the programme guide like?**

The A21E guide for Barcelona has two parts. The first part provides an introduction explaining just what an Agenda 21 is and how Environmental Education and Education for Sustainability work. The second part addresses each stage of the A21E.

At each stage the objectives are stated and proposals are made with regard to the steps to be taken to reach these objectives. Throughout the process the educational community places a great deal of emphasis on reflection and participation. To achieve this, work is carried out through debates (either sectorial or intersectorial) oriented with open questions related to the matter at hand. To facilitate the task, planning, diagnosis and evaluation sheets are also made available.

As for the guide's contents, special attention should be given to the school's diagnosis stage. This addresses curricular contents, how teaching and learning take place and the school context (here the emphasis is put on the school's social climate, the physical and operational aspects of the building, and the school's relations with the immediate environment). This diagnosis is based on open questions and focuses particularly on matters related to the criteria and habits of school management.

The evaluation stage is not as well developed as it should be. Even though it is prominently featured in the presentation of the stages (interacting in each stage), in the end there is only a list of possible indicators with no explanation as to how they are to be applied or developed.

While in general the guide can be judged positively, it is not without certain shortcomings. For example, the orientation questions concerning the debates are

neither presented in order of importance nor even properly organised, meaning that the relation between them is not clearly seen when there is a shift in focus. It should also be pointed out that discussion is productive and helps towards advancement and improvement when there are differing points of view and criticism of the issue at hand. It may occur that, owing to lack of training or motivation on the part of the teaching staff, these conditions do not arise. All of this may cause the debate not to be a tool for advancement but rather an obstacle. Although the autonomy given to the school for developing its Agenda 21 is very worthwhile and positive, the training prior to the debates or the presence of the technician at them, to advise or offer guidance, is also important.

#### What is evaluated and how?

I advocate an evaluation based on the report presented at the end of the academic year.

#### 2.2.4. The programmes developmental process

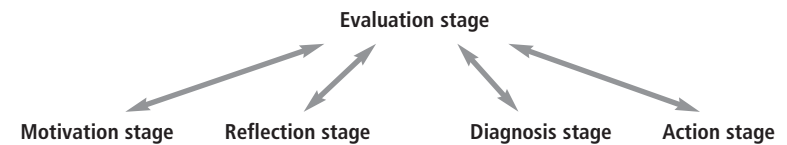
The programme's developmental process is as follows:



The Agenda 21 Escolar programme lasts one academic year. During the last quarter of the previous academic year, schools interested in pursuing it must design and present one or more projects (depending on the characteristics of the school). The schools will be notified if they have been accepted in the month of June.

The signing of the commitment to the programme takes place in October and the projects are applied in the course of the academic year. At the end of it, the school has to present a report on the academic year for evaluation. The commitment to continue following Agenda 21 Escolar is renewed each academic year with the submission of a new project.

An Agenda 21 Escolar guide is available to assist in the design and application of the project. This has different stages and each school can start with that which is most in line with its own characteristics. The Agenda 21 Escolar stages are:



#### 2.2.5 Type of support

- Support material: a guide with practical tips for carrying out the process, information and suggestions for the project.
- Advice: a commission offers personalised, ongoing technical and pedagogical advice throughout the academic year.
- E-Bulletin: published bi-weekly with News on Agenda 21 Escolar.
- Occasions for holding meetings between the schools and other mechanisms for exchanging experiences.
- Financial support for state schools is determined by the project the school presents. The funds are provided during the academic year and accounted for in the report.
- Programme website: This is a tool for quick access to administrative information (application deadlines, project submissions, the report, etc.) and for locating interesting pedagogical resources. Certain experiences of other schools can also be found.

#### 2.2.6. The main obstacles

**Involving the entire educational community.** As with any programme, getting the entire educational community involved is never easy. Because staff approval is not essential for joining the programme, the project may become the responsibility of a very small group of teaching staff (who will appoint the project coordinating team, stimulate and guide it). Yet the experience gained from these three years of programme life show the results to be good and that, in the end, the educational community becomes involved to a greater or lesser degree. Despite all this, participation in the programme still depends on teaching staff working in a volunteer capacity, receiving no remuneration whatsoever for the extra work involved.

**Financial support.** Only state schools are eligible for financial support. The financial endowment is determined by the project presented by the school and will be provided during the academic year (and must be justified in the report). The amount may be enough to cover the cost of fungible or specific material for a particular action (such as containers, plants, etc.). Problems arise though when more ambitious renovations are intended, such as replacing the heating system or installing double glass in the



windows, because the budget is insufficient and involves the intervention of the Ministry of Education of the Government of Catalonia.

**Excessive school autonomy.** Each school is free to begin Agenda 21 at the stage it believes best suited to its characteristics and possibilities. However, if it is not properly advised, it may find itself reduced to an activism devoid of content and reflection. The school also has complete autonomy to design the project for the academic year and, since all projects are generally approved, this may also lead to poor quality in the project or a lack of affinity with the programme's philosophy. Although the programme design may be correct for a school's environmentalisation, when the time comes to apply it, the goals that has been set may not be achieved.

### 3. Case study

#### Ceip Escola Estel<sup>3</sup>

##### School description:

CEIP Escola Estel is a state school located in the town of Molins de Rei, near Barcelona, which offers infant and primary education. It has only one class per academic level and capacity for 225 pupils and 14 teachers.

The infant education building is separate from that for primary education, and has its own playground. The primary education building has the standard classrooms for each level and also specific classrooms for information technology, music, library hour and language teaching. Its recreational area includes a track, clay playgrounds and a porch. The school's general objective is the active development of all options for boys and girls in terms of intellectual, emotional and physical training and guidance, their health and participation in social and natural reality, and also knowledge of and expertise in sciences and the environment based on technology in the broadest sense of the word. Prior to joining the Escoles Verdes programme, the school had already carried out EE experiences and actions, with the intention of continuity. There was also a clear intention on the part of the teaching staff to develop EE's transversal axis. However they believed that joining the programme would help them towards establishing a written definition of and giving greater order to the activities they were already pursuing at the school. It would also facilitate the implantation of environmental issues

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<sup>3</sup> Case study drawn up on the basis of information obtained in the course of an interview with Teresa Roca (a teacher at the CEIP Escola Estel school).

at all levels and in all areas, in addition to encouraging the involvement of the AMPA (Parents' Association) and improving local actions.

#### Description of process

**2001-2002 academic year:** When the staff agreed to join the programme, it appointed the environmental commission, which was made up of three teachers, the head of the dining room and one parent. This commission answered the school diagnosis questionnaire. Once the data had been gleaned from the survey, the aspects achieved were classified, as were the aspects that needed further work. The staff expressed its opinion on the degree of success and the priorities of these aspects, in order to mark the actions.

Using these data as a base, the final diagnostic document was drafted. The process up to this point was not very costly and the training sessions were very highly ranked. On the whole, staff involvement was considerable.

The next step was the drafting of the Environmental Coherence Plan. This was done by the advisor and amended and passed by the staff.

**2002-2003 academic year:** In the early academic year, the environmental committee met to draw up the Action Programme for that timeframe. This was presented to the staff who passed it and to the student council who covered the costs.

The Action Programme was developed during the academic year.

#### School action programme

**The following activities have been carried out** (AA.VV., 2002):

- School garden: The school had possessed a garden at some earlier point in time but, since the soil was very clayey and the results were less than satisfactory, the project was abandoned. They have now replanted it. During the academic year different activities have been carried out to replant the garden and to grow a variety of crops. This is interrelated to activities linked to saving water and promoting vegetable consumption.
- Overall planning of activities related to knowledge of the environment and school programming. In recent academic years, didactic units have been designed and elaborated in the field of the natural environment during "Environment Week". This week coincides with the town's *Fira del Planter* (Gardening Fair). This academic year, it was decided to put together a didactic unit related to an environmental

knowledge topic, and to work with it as the transversal axis of all curricular subjects.

The selected topic was water. The objective was to teach that water is a vital element through practice in all aspects.

The contents were adapted to the level of each academic year and to the concerns of each teacher, and an attempt was made to work from the most complex approach possible (advice was provided by the Department of Mathematics and Experimental Sciences Education of Universitat Autònoma de Barcelona). Thus they worked from the water cycle to its molecular structure, tackling the problems caused by the “Prestige”, the oil tanker that sank off the coast of Galicia in northwestern Spain. The week concluded with an activity in which the whole school took part.

- Painting the porch. The school porch was very grey and dull and the idea was put forward to make it brighter and more cheerful. Using a design created by the father of one pupil, the families, pupils and teaching staff worked as a team to paint the porch.
- Using cloth napkins. Paper napkins had previously been used. However, it was thought that in order to be consistent with the programme, and to underline the idea that “throwaway” culture was not environment-friendly, paper napkins should be replaced by cloth ones. To effect this change, a storage chest had to be built and the families informed.

**Activities as yet undeveloped** are as follows:

- School regulations. Although the way the school operates would indicate the existence of a culture or awareness of environmental matters, this has not yet been put to paper. It has thus been suggested to draft a set of regulations concerning environmental issues for all pupils, families, teaching staff and non-teaching staff. It is also hoped that certain operational habits will be changed.

This will be done on the basis of ideas and proposals put forward by the children.

The staff will collect the proposals and draft a definitive document that will be distributed to the entire educational community. Signs designed by the pupils will also be made and strategically placed to transmit the information.

It is clear that the activities proposed for this academic year do not involve major objectives. Instead, the Escoles Verdes programme encourages schools to strive towards small, attainable goals, which will enable them to raise the quality of the school little by little.

## Strong and weak points

The school is proud to belong to the Escoles Verdes programme, because this has helped it to document activities that they have been carrying out for some time. They also believe that the role played by their advisor was crucial when drafting the Environmental Coherence Plan, since his assistance greatly facilitated the process. They also found the periodification scheme of the programme to be correct, since, although there were deadlines for submitting the documentation, these were quite flexible. Thus a work pace was set that was more or less constant, but without excessive pressure.

The programme’s most obvious shortcomings are the scant financial support provided and the lack of a referential framework that explains just what environmental education is.

## References

- AA.VV. (2002): Programa d’Actuació del Centre, curs 2002/2003. Unpublished document.  
Weissmann, H.; Llabrés, A. (2001): Guia per la l’Agenda 21 Escolar. Ajuntament de Barcelona.

## Websites

- Escoles Verdes: <http://www.gencat.es/mediamb/ea/ev/ev.htm>  
Agenda 21 Escolar: [http://www.bcn.es/agenda21/A21\\_ESCOLAR.htm](http://www.bcn.es/agenda21/A21_ESCOLAR.htm)  
Camps d’Aprentatge: <http://www.xtec.es/cda/>  
Societat Catalana d’Educació Ambiental: <http://www.pangea.org/scea>

## Non governmental organisations

### Organisms:

- ACCA: Associació Catalana de Ciències Ambientals => <http://www.icnet.es/acca>  
ADENA => <http://www.wwf.es/home.php>  
ADENC: Associació per la Defensa i l’Estudi de la Natura => <http://www.adenc.org>  
CEPA: Centre d’Ecologia i Projectes Alternatius => <http://www.pangea.org/cepa>  
DEPANA: Lliga per la Defensa del Patrimoni Natural => <http://www.depana.org>  
Fundació Terra => <http://www.terra.org>  
Greenpeace Barcelona => <http://www.greenpeace.es/barna/barnao.htm>  
Mediterrània. Centre d’Iniciatives Ecològiques => <http://www.metiterran.org>  
SCEA: Societat Catalana d’Educació Ambiental => <http://www.pangea.org/scea>

The **census** of all **entities and centres** working on Environmental Education can be found at the following website: <http://www.gencat.es/mediamb/ea/cens.htm>

# Country Report Sweden

by Evalotta Nyander, National Agency for Education

## 1. The state of EE and ESD

### 1.1.1. National Strategy for Sustainable Development

The Government decided on a National Strategy for Sustainable Development in 2002. Sweden aims to be a leading knowledge nation with a high standard of education and lifelong learning. Since people's attitudes and lifestyles are established at an early age, the work of increasing their interest in and knowledge of sustainable development starts in pre-schools in Sweden. This learning is then reinforced throughout the official education system. Pupils and student are encouraged to have a say and take responsibility. The policy measures in the school education sector are directed at disseminating new knowledge and new educational methods in order to strengthen the role of education in a lasting shift to sustainable development. An important task for the education sector will be to implement the Agenda 21 for Education sector in the Baltic Sea Region.

### 1.1.2. Agenda 21 for Education sector in the Baltic Sea Region

The Ministers of Education of the Baltic Sea region agreed to develop an Agenda 21 Education Programme for the Baltic Sea area, named as Haga declaration, at a meeting at the Haga Palace in Stockholm in 2000. According to the Haga Declaration, Education for sustainable development (ESD) should be based on an integrated approach to economic, societal and environmental development. The Haga Declaration states that ESD demands an educational culture directed towards a more integrative, process-oriented and dynamic mode emphasising the importance of critical thinking, social learning and the democratic process. Agenda 21 for the Education sector in the Baltic Sea Region with an action plan for implementing was adopted in January 2002.

### 1.1.3. National documents governing EE/ESD in school.

The Education Act, the curricula, the programme goals (upper secondary level) and the syllabuses are the national documents governing the activities in pre-school, in school and in formal adult education. The parliament and the government give here the goals and guidelines for the activities and the municipality is responsible for carrying it out.

The Swedish

Education stipulate that all school activity shall be carried out in accordance with fundamental democratic values and that everyone working in schools shall encourage respect for the intrinsic value of each person as well as for the environment we all share.

The government has decided on curriculum for the pre-school, compulsory school and for upper secondary school and other non-compulsory types of schools. One of the fundamental values in the pre-school curriculum concerns environment and nature conservation. The children's own role is stressed since one task of the school is to ensure that children acquire a caring attitude to nature and the environment. Also, one goal for the school is to give the children opportunity of understanding how their own actions can have an effect on the environment and to try to ensure that children develop the ability to accept responsibility. In the curricula for the compulsory and the non-compulsory school systems one task of the school is to impart some general perspectives. One of these perspectives is the environmental perspective. From the curricula for the compulsory school: "An environmental perspective provides them with opportunities not only to take responsibility for the environment in areas where they themselves can have a direct influence, but also to form a personal position with respect to global environmental issues. Teaching should illuminate how the functions of society and how our ways of living and working can best be adapted to create conditions for sustainable development".

The curricula also include other components relevant to ESD. Democracy forms the bases for the national school system. A holistic approach is supported by the stressing of the importance of some general perspectives: besides the environmental also the international, the ethical and the historical perspective. Social aspects are formulated in the fundamental values that the school shall impart: the inviolability of human life, individual freedom and integrity, the equal value of all people, equality between women and men and solidarity with the weak and vulnerable. Critical thinking is a task, which the school shall impart. Pupils shall train themselves to think critically, to examine facts and their relationships and to see the consequences of different alternatives. Action competence is another main component in ESD which has support in the curricula. Acquiring and using knowledge and skills are seen as important.

In addition to curricula, school activities are also governed by syllabuses. These are binding regulations containing the requirements set by the state for education in different subjects.

The National Agency for Education are continuously reviewing core curricula and syllabi. The current set is decided during 1999 and 2000. In those the concern for sustainable development have been underlined. More significance has been given to the broader sense of sustainability, covering economics, ecology and social aspects of societal development. Sustainable development requires that these aspects be integrated and taken into account in a balanced way. The syllabuses are designed to define what all pupils should learn and also provide great scope for teachers and pupils to choose their own materials and working methods. At each school and in each class, the teacher must interpret the national syllabuses and plan and evaluate teaching jointly with the pupils on the basis of their circumstances, needs, experiences and interests. EE / ESD is clearly defined for nine subjects out of eighteen in the syllabuses for Compulsory school: home and consumer studies, physical education and health, biology, physics, chemistry, geography, social studies, crafts and technology. For example in the social orientation subjects one aim is that knowledge in the studies provides a foundation for participating, taking responsibility and acting as citizens in a democratic society and also contribute to the sustainable development of society.

Almost all students who have completed compulsory basic school enter upper secondary school. There are 17 national upper secondary school programmes. The programme goals have been revised and the new ones were adopted in 1999 and in those the concern for sustainable development have been underlined. There are eight core subject courses in all programmes, which constitute about on third of the total time. Three of the eight courses have stated aims concerning EE/ESD: science studies, social studies and physical education and health. For example, action competence is stressed in social studies, for which one goal is to develop the students' knowledge so that they can form their own views and act on local, regional and global issues, which are of importance for an ecologically sustainable society. Two of the courses have stated aims relevant to components of the Haga declaration. In Swedish and religious studies reflecting and critical thinking are key words.

#### 1.1.4. Documents on municipality level governing EE/ESD

The goals and guidelines for education specified in the School Act, the curriculum, the programme goals and the syllabus, shall be elaborated in the local planning. The measures the municipality intends taking in order to attain national goals for the school shall be clearly stated in the school plan to be approved by the municipal council. The environment is given priority in most of the municipal school plans. Those plans explain that the environmental dimension should play a prominent part in

teaching. Some mention that it should permeate all teaching. Issues of democracy have a similarly high profile in the school plans. Emphasis is placed on student participation and influence over their day-to-day school lives. The local work plan for the individual school shall specify how the goals are to be realised, and how the activity is to be drawn up and organised. The environment is often highlighted in the working plans for individual schools or school districts. The plans generally state that school activities should be made more environmentally friendly and specify how the environment is to be taught. In some cases there is a detailed elaboration of the objectives of teaching. For example, plans for the lower school years often emphasise the importance of teaching out in the countryside. Other plans mostly discuss the way teaching is to be organised, eg, in the form of school camps, theme days and optional courses.

#### 1.1.5. Present situation in Swedish schools

A national survey on environmental education (EE) and Education for Sustainable development (ESD) of Swedish schools was done in 2001. The overall aim was to create a basis for developing and implementing an action programme for education in the field of sustainable development in the Baltic region. The specific purpose of the survey was to describe the pre-sent situation for environmental education (EE) and education for sustainable development (ESD) and to identify the conditions (obstacles and potential) for further development of these activities in school. A summary of the result:

The governing documents play an important role in school according to the teachers; above all the curricula and the syllabuses. Teachers in the subjects that have clear goals in their syllabuses do cover EE/ESD in their teaching. The recently made revision (2000) of the syllabuses on both compulsory and upper-secondary level, where the environmental goals were concretised and clarified, are expected to have an impact on EE and ESD in schools in Sweden and further improve the situation. A continuous follow-up, evaluation and improvement of the governing documents are therefore needed.

A majority of the teachers claim that the content in their teaching and the working methods are close to the tradition of ESD. At the same time the teachers expressed an uncertainty about what ESD is and what approaches would catch the interest of the students. Most teachers and school managers regarded the environmental and sustainable development as important. Many of the teachers currently teaching about the environment felt a need to go further and develop their teaching, "take the next

step". We can therefore expect that there is great interest among the teachers and school managers to introduce new perspectives and approaches in their schools. Many also mention the importance of finding a central theme and a progression within EE and of developing the practical approach, particularly in terms of interdisciplinary co-ordination. There are already many good examples but these are treated as discrete segments. There is no overall perspective, a context bringing all the parts together. Sustainable development could perform that role. Similarly, several teachers reported that students have an interest in moral issues (particularly animal rights) and that environmental issues are treated from a conflict viewpoint.

## **1.2. Support from the Swedish National Agency for School improvement**

The government has during the last decade supported environmental education and later on education for sustainable development by supporting several international and national projects. The Swedish Government decided to divide the National Agency for Education into two separate authorities from 1 March. National Agency for Education are responsible for follow-ups, evaluation and supervisory work and The Swedish National Agency for School

Improvement have the task to stimulate and support school development and communicate research about School improvements.

### **1.2.1. The Baltic Sea Project (BSP)**

The Baltic Sea Project (BSP) was initiated in 1989 on the initiative of the Finnish National Commission for UNESCO and the acute problems of the Baltic Sea was the starting point. The aim of the project was to increase environmental awareness among students in the Baltic region and to develop environmental education. Increased knowledge was seen as necessary not only about the causes of environmental problems, but also about how environmental questions are linked to our lifestyle and how we plan our society. About 200 schools take part in the Baltic Sea Project and 60 of them are Swedish schools.

The project is realised through the creation of networks. Seven programmes and five themes have been developed by schools. In every country there is a co-ordinator whose role is to activate the network and support the development work with experiences of teachers as a base. Finland, Sweden and Denmark have been responsible for the international co-ordination and now the responsibility lies with Germany. Joint activities

are organised as courses and semi-nars, both nationally and internationally. Newsletter is published twice a year and to implement the pedagogical ideas developed in BSP methodological books, Learners' Guides, are published. Four books have been published so far.

### **1.2.2. The GLOBE-project**

The GLOBE-project was established 1995 on an initiative taken by the former American Vice-President, Mr. Al Gore. The aim is to develop: the environmental consciousness of the participating pupils, develop natural sciences knowledge about the climate, life and structure etc. of the earth and develop the pupils' insight into relevant mathematical and natural sciences methods. Pupils collect different kinds of data, depending on the form level e.g. data about the weather, soil conditions or water quality. These data is used for calculations and comparisons conducted by the scientists and published on the Internet. More than 12 000 schools in about 100 countries take part in the Globe project and 45 of them are Swedish schools.

### **1.2.3. The Green School Award**

In 1998 the Swedish government instructed the National Agency for Education in consultation with the Swedish Environmental Protection Agency to produce criteria to be achieved by pre-schools and all other schools wishing to qualify for the Green School Award.

The purpose of the award is to encourage and support the development of methods for teaching and learning about sustainable development. The criteria came into force in 1999 and cover all aspects of school life, both teaching and the school as a workplace. The basis for the criteria has been the curricula and the syllabi. The democratic principles of being able to influence, accept responsibility and be involved permeate the requirements set forth in the criteria.

Schools are expected to review their activities according to the criteria and develop an action programme to improve their activities. When the improvements have been achieved the pre-school and school shall apply to the National Agency for Education for the Green School Award. The award is valid for a period of three years and in order to retain the award the pre-school or school must submit a new action programme and then the process is repeated every three years. 41 pre-schools and schools have received the Green School Award and further 24 pre-schools and schools have an approved action programme.

## 2. The Eco-schools development processes - The Green School Award

### 2.1. General characteristic

The Green School Award is an initiative from the Swedish Government and the purpose of the award is to encourage and support the development of methods for teaching and learning about sustainable development.

A distinctive feature of a Green School is that children, pupils and staff are involved as active participants in development of a sustainable society. The criteria cover all aspects of school life, ie, both teaching and the school as a workplace and therefore seen as a tool for school development.

In a Green School the children/pupils acquire sufficient knowledge to become aware of the importance of the environment and to adopt a critical and thoughtful attitude to environmental issues. Activities/teaching help the children/pupils to develop a lifestyle and patterns of consumption compatible with ecologically sustainable development. On the basis of problem areas using the local environment as a "workshop" in a global perspective, all those involved endeavour to achieve creative solutions which help to prepare for ecological sustainability. Efforts to achieve sustainable development are mainly made as part of regular activities, although other for as such as environmental parliaments, environmental groups, Agenda 21 groups and environmental councils also play an important part.

The school strives to ensure that all children/pupils and staff have a good working environment – both physically and psychologically – which promotes safety and good health in both the short and long term.

The school strives to achieve ecologically sustainable development, i.e., protect the environment and use global resources efficiently. The use of artificial substances and substances hazardous to health and the environment at the school is to be gradually reduced. The school's efficient use of energy and materials helps it to prevent damage to the environment and to conserve resources. In working to achieve sustainable supply, the school primarily uses renewable resources and takes account of the need to recycle materials.

In the report *Developing an overall approach- Efforts by pre-schools and schools to achieve the Green School Award 1999 – 2001* the National Agency for Education has drawn the following conclusions.

The collated material shows that the aims of this government-instigated scheme are being fulfilled. Pre-schools and schools are finding that staff and students have become more committed and more involved. Students also have more influence and parents are seen to have become more involved. Three schools explicitly say that there is now more of an overall approach, whereas others describe the big picture in different ways. Emphasis is being placed on skills development. Environmental issues have become more integrated in teaching. Moreover, there is greater focus on management by objectives, the approach being based on environmentally-related objectives in governing documents. Similarly, there is a perception that occupational safety and health has been given greater priority. In other words, development is taking place on a broad front.

41 pre-schools and schools have received the Green School Award and further 24 pre-schools and schools have an approved action programme.

In the end of year 2002 and the beginning of 2003 the agency held three seminars for pre-schools and schools working to achieve the Green School Award. About 80 new pre-schools and schools attended the seminars and now have started to work for the award.

### 2.2. Explicit set of criteria

To qualify for the Green School Award, Schools are expected to review their activities according to the criteria and develop an action programme to improve their activities. The criteria are divided into four criteria areas.

#### A. General aims:

Support, participation and procedures for monitoring and evaluating achievement divided into 5 criteria.

1. Support is obtained from the school's governing body and its management.
2. A survey is made of school activities and their impact on the environment.
3. An action programme for promotion of sustainable development is drafted jointly by the school management, teachers, other staff and children/pupils.

4. The school gives notification that it wishes to qualify for The Green School Award.
5. An appraisal of the school's environmental performance is made each year.

#### **B. Activities:**

4 sub-areas involving a total of 13 criteria.

- Teaching
- Competence and training of staff
- Cooperation and integration of activities
- Interaction with the local community

#### **C. The working environment and physical welfare:**

2 sub-areas involving a total of 12 criteria.

- Occupational health and safety
- Health care and physical welfare

#### **D. The physical environment:**

9 sub-areas involving a total of 45 criteria.

A limited number of criteria area used to start with; the number increases with each new action programme.

- Materials and products            \_ Air and air flows
- Food, foodstuffs and kitchen    \_ Local environment
- Waste and waste disposal        \_ Transport
- Water and water flows            \_ Buildings
- Energy and energy flows

### **2.3. Implicit set of criteria**

The democratic principles of being able to influence, take part and accept responsibility are central to the whole process of achieving the Green School Award and involve everyone at the pre-school/school. The government's instructions include avoiding the risk of individual enthusiasts tiring or interest in the project waning if a key person who has been a driving force behind the project leaves the workplace: "In order for a school to receive the award, its pupils and staff must work together so that emphasis in teaching and other activities is placed on the creation of an ecologically sustainable society" (Green School Award Ordinance, section 2).

Participation and influence by children/students is also important, since efforts to achieve the award affect educational content and form, which, according to the curricula, children/students are also intended to have a say in. The curricula provide that teachers and children must jointly plan, implement and evaluate the learning process on the basis of the ability of the children/students.

### **2.4. Kind of development**

When a decision has been taken to work for the award, a survey begins based on the various criteria. The point of the survey is to ensure that efforts to achieve the award start out from the current situation. During the survey all staff and student categories, whether they be at a small pre-school or a large school, should be given the opportunity to consider what they are already doing in relation to the various criteria, what assets and shortcomings they experience in their day-to-day work and document this as a basis for their own objectives in the action programme.

Schools are expected to review their activities according to all the criteria in areas A and B, applicable parts of area C, depending on type of school and 15 criteria according to choice from the area D.

The pre-schools and school shall develop an action programme to improve their activities according to the criteria. Next step is to notify the Swedish National Agency for School Improvement of its intention to work to achieve the Green School Award by sending a letter of intent signed by the school management and the governing body of the school submitted by the Action Programme. After approving the action programme it is published at the homepage of the National Agency for School Improvement.

When the improvements in Action Programme have been achieved the pre-school and school will write a documentation of the way the criteria have been met and the results that have been achieved. In order to receive the Award the pre-school and school shall apply to the National Agency for School Improvement. The application signed by the school management and the governing body of the school shall contain the documentation of the way the criteria have been met and the results that have been achieved. Pre-school and school receiving the award receives a diploma and the right to use a logotype. The award is valid for a period of three years.

In order to retain the award the pre-school or school must submit a new action programme within one year containing proposed ways of improving performance. Before the end of the three year period the pre-school and school must submit the documentation showing results achieved in accordance with the Action Programme. The National Agency for School Improvement may extend the Green School Award for a further three years and then the process is repeated every three years.

## 2.5. Support

The National Agency for School Improvement has been given the task of producing reference material and otherwise supporting and monitoring pre-schools and schools in their efforts to qualify for the award. The reference material and supporting material is available at the Agency's homepage, which is continuously being developed and supplemented.

Meetings are arranged on the basis of stated needs to exchange information and maintain a dialogue on continuing support from the agency.

All pre-schools and schools working to achieve the award are offered ongoing support by the agency in the form of contact with the experts who will be assessing the documentation submitted by the pre-school/school. The expert expresses views on the clarity of the documents submitted and suggested various areas for improvement. The expert answers questions and acts both as an advisor and a sounding board. When a pre-school or school has received the award, it receives a summary of the agency's appraisal and proposed areas for development to help it when drawing up the next action programme.

27 of the 33 pre-schools and schools whose result reports had been approved to the end of 2002 said that they receive various forms of municipal support in their efforts to achieve the award. The support most commonly described comes from nature centres, municipal departments and other municipal organisations able to contribute to the process of achieving the award. In 6 municipalities a contact person has supported pre-schools/schools. A small number of municipalities have also established local networks engaged in environmental issues and/or the Green School Award. Many pre-schools and schools also receive support from parents, e.g., in the form of commitment and involvement in practical work in the schoolyard.

12 municipalities have taken a political decision on the Green School Award. For example, Orsa Municipality has decided that "all school management areas will have at least one work-place that has received some kind of environmental award by 2002". The evaluation has shown that the support of the governing body is very important. Pre-schools and schools in municipalities that have a contact person to support them are often able to meet to exchange information and establish contacts and cooperation with actors in the community.

The National Agency for Education's seminars for pre-schools and school have revealed that school management's educational leadership, involvement and various forms of support play an important part in the process of gaining support, and also in making further environmental progress in order to achieve lasting changes and thereby qualify for the Green School Award – particularly as regards formulating the next action programme having received the award.

How do pre-schools and schools that have received the Green School Award view the support they receive from school management? A principal may play a key role with regard to educational leadership, having overall responsibility for the entire process of attaining the award, including documentation and contact with the National Agency for Education. Other principals delegate responsibility for the environment to environmental representatives but still take part, eg, by via the environment council. It may be deduced from a few result reports that the principal has not been involved to any great extent; his/her role has perhaps been confined to acting as adviser or assuming responsibility for the criteria for systematic work environment management.

## 2.6. Main obstacles

Pre-schools and schools are asked in their result reports to describe any obstacles and problems arising during the survey and preparation of the action programme. The majority mention factors such as shortage of time, too many criteria, too much documentation, and difficulties in reaching students and parents or keeping broad involvement alive. There are also examples where no problems are reported to have been experienced.

The difficulty of finding times when everyone can meet to discuss the efforts to achieve the award is a problem most likely shared by pre-schools, schools and day-centres. The documentation also takes a lot of time and some pre-schools and schools want to



spend their time to do the practical work to fulfil the objectives instead of writing documents. Other schools find it difficult to get time to coordinate and gather the material.

Lately, we have noticed a change in attitude among the pre-schools and schools when it comes to the necessary and usefulness of documentation. We have changed our routines for comments and demand of clarification in the action programme and result report we get from the pre-schools and schools and that could be one reason for the change in attitude. Another possible reason deals with the demand of the quality report. Under the Quality Reporting Ordinance from 1997, each school must produce a written quality report each year; each municipality must produce a quality report by 1 May each year. These reports constitute part of the ongoing monitoring and evaluation of the action plans and school plans. Very few municipalities had a quality report 1999 when the Green School Award started but almost everyone had one last year, so there has been a parallel development. Now the pre-schools and schools reports the documentation within the Green School Award are useful in their work with the quality reports.

Certain documents need to be enclosed with the result report in order to achieve the award. These are: a plan for teaching on the subject of ecologically sustainable development, a long-term plan for staff skills development, a working environment management plan and a jointly drafted local working environment policy. Pre-schools and schools beginning work on achieving the award make a survey of existing documentation in view of the fact that certain appendices must accompany the result report. The agency's experience has been that when pre-schools and schools perform this survey, they discover that some documents are missing, some are too old, have been gathering dust, or that there are many documents dealing with the same phenomenon but which overlap or are perhaps even contradictory. A clear example of this is the action plan for the working environment.

One of the more difficult tasks during the phase to achieve the objectives laid down in the action programme may be to keep the broad involvement alive. It may be necessary to establish procedures so that each individual contribution can be seen in the growing documentation, and to enable everyone involved to follow overall progress made at the pre-school/school towards achieving the award." Pre-schools and schools have discovered various ways of enhancing the visibility of joint efforts to achieve the award. Small children are often encouraged to document progress by drawing pictures.

Some pre-schools and schools also document progress using a digital camera. A result form can be put up on notice boards or at a single central location, so that everyone is able to fill in their contribution to the project and follow the growing record of results achieved. Some larger pre-schools/schools have described how they have made the mounting record of results both accessible and visible using the school Intranet.

In the first few years of the Green School Award scheme the Agency found it fairly common for pre-schools and schools to have difficulty in setting clearly defined objectives whose fulfilment could be evaluated. The same applies to formulation of results; it cannot be taken for granted that pre-schools and schools formulate concise, clearly-defined results in relation to their set objectives. The survey should present an overview of the breadth and depth of what is already being done, what may be lacking and what aspects of pre-school or school activities should be improved. The agency's experience that this does not always take place.

However, there is reason to assume that these are "teething troubles" – that staff at pre-schools and schools are not used to setting their own specific, clearly-defined objectives. They probably also lacked procedures for monitoring, evaluating and documenting results. The Green School Award should therefore serve as a means of developing the ability to document activities governed by objectives. Lately the Agency got more action programmes from pre-schools and schools with clearly defined objectives whose fulfilment could be evaluated. It is difficult to say if the work done by the Agency plays an important role or if it is a change that takes place regardless the Green School Award.

There are many conceivable reasons why broad support is not obtained. Lack of time is an obvious factor, which also appears to be one of the general obstacles to improving environmental performance according to pre-school and school result reports. The seminars for pre-school, school and municipal representatives during the pilot project have revealed that small pre-schools and schools have good prospects of succeeding in gaining support and the broad involvement of staff and children/students. This is reasonable enough: the fewer people and activities involved, the easier it is to coordinate the project, allocate responsibility and find time to coordinate. The situation is different at large centres/schools. This may be one reason why most Green Schools are found among pre-schools and compulsory schools for the early school years. It may be seen from the result reports that larger units often have a working group that is responsible for the efforts to achieve the award and that allocates responsibility and tasks. On the one hand, this approach is quite certainly often necessary; on the other

hand, the challenge faced is to ensure that everyone (or as many people as possible) feel in-volved as well as responsible, even if they do not belong to a working group with overall re-sponsibility for certain issues.

Pre-school and school result reports display differences in perceptions of support and in-volvement in attaining the award on the part of school management. The National Agency for School Improvement has also seen signs that efforts to achieve the award at some schools have waned following the departure of the school managers who provided the original impetus. According to the result reports, there is usually broad involvement among various staff categories, but it is not equally clear whether children/students have been involved in deciding the content of the action programme. (Students often do participate in the survey and during the phase to achieve the objectives however.)

In their action programmes and result reports pre-schools often say that their teaching/learning activities are based on the children's questions, which means that the children can influence content even if the adults have already planned the external framework of activities.

School surveys show that the students are generally well able to exercise formal influence via class councils, student councils and other formal democratic forum. There are also examples of schools where student working environment representatives are appointed down through the school years, thus pre-empting the formal requirement that year 7 and upwards should have these representatives. However, school action programmes and result reports indicate that there is a need to improve the scope for more informal *influence* by students, ie, ways they can affect day-to-day life throughout the school, which thus includes their own activities, their own learning. In reality, genuine influence by students over their learning is a question of being able to influence content as well as approach in relation to chosen objectives.

Pre-schools and schools working to achieve the Green School Award have a large number of criteria to interpret before setting their own objectives for their activities. The present criteria have now been in place for four years. The evaluation of the work done at pre-schools and schools to achieve the award and the comments made by pre-schools and schools justify a re-view of the regulations and criteria, as well as the number of criteria to be addressed by pre-schools and schools in the various stages. The greatest challenge lies in developing the regulations so that far more pre-schools and schools choose to begin working to achieve the award, while at the same time retaining the breadth of the efforts being made to achieve sustainable development.

### 3. Case studies

The Case studies are selected to represent schools with students in different ages. Fjälkestad School have students from grade three to five, and Gripenskolan is an upper secondary school. They are also selected to give a typical example of a school working with environmental education.

#### 3.1 Fjälkestad School

Fjälkestad School stands alone in the middle of an agricultural area some ten kilometres north of the southern Swedish town of Kristianstad. The school was built in the 1950s and is on two floors. The after-school centre is in an annexe to the main school. A newly-built waste disposal unit, where all refuse is sorted, occupies pride of place. Behind the school there are several compost bins and plenty of land for cultivation. Potatoes, tomatoes, pumpkins and leeks are some of the vegetables grown by students for many years. The students have also recently helped to plant hawthorn bushes and trees and have built a fine den out of willow. There is also a barbecue and shelter, built as a joint effort by students, parents and teachers. On a hill-ock there is a copse where the children have tied ropes around tree trunks for games and balancing exercises.

Fjälkestad School received the Green School Award in 2000. The school has almost 100 students, comprising third, fourth and fifth years. Six teachers work at the school, together with a remedial teacher, recreation instructor, an accounts assistant and a class monitor. Two handicraft teachers come to the school once a week. All teachers include the environment in their teaching. Because the school is small, all the teachers work together as a team. They often visit each other's classes and sometimes a teacher with special knowledge or skills in a given subject will take over all teaching in that subject over a school year. Decision-making at the school is quick and flexible, which enables teachers to plan their timetables week by week. Only handicrafts and physical education and health have set timetables.

Two teachers and the recreation instructor have had overall responsibility for environmental education, although in practice the environmental dimension permeates the entire school. Each class tends its own vegetable garden; one of the year's high points is when students harvest potatoes and leeks and make a soup out of them over an open fire. The school's recreation instructor is responsible for practical work out of

doors. She is also on the environment council, together with two students from each class. The council meets once a month.

The environment council is involved in the sorting of refuse; council representatives are responsible for teaching their classmates to sort waste into the right buckets, which are placed outside the classrooms. Students also submit proposals to the council as to how the outdoor environment of the school could be improved. The school also has class councils, which meet once a week. Each class appoints two student council representatives to the student council, which meets every other week. The student council takes initiatives and may contact the principal and school management, for example. There is an adult with responsibility for the student council.

#### Environmental topic weeks

Every school year Fjälkestad School has two weeks where there is a break from regular teaching. There is a "forest week" in the autumn and a "technology week" in the spring. During these periods the teachers are not tied to their own classes; they teach in their specialist subjects. Teaching in both weeks is very much based on the idea of sustainability.

There is an area of woodland and open countryside called Balsberget about one kilometre from the school. This is much visited during forest week. Teaching is arranged according to the students' level. For example, the third and fourth years accompany some of the teachers to look at animals and animal spoor, lichens, leaves, mosses and fungi. The fifth years help to thin the stands of trees at Balsberget. Students also visit local companies in the forest products industry during forest week. These include wood manufacturing, prefabricated house manufacturers and a paper mill. Students are well prepared with questions for these visits. One day is spent on practical work at the school on the theme of wood. Among other things, students learn how to make paper from wood chips as well as newspaper; they make baskets out of old newspapers and learn to weave on forked twigs. Theory and practice are interspersed throughout the two weeks.

Teaching is also arranged according to level during the school technology week in the spring. The third years focus on chemistry, in which environmental aspects are integrated. Students are asked to make a list of hazardous substances at home and study the health and other warning labels on them. Much time is also devoted to water, the aquatic ecocycle and environmental risks. The fourth years make an in-depth study of metals and engineering. The technological theme for the fifth years is energy

and electricity. Students are given the role of entrepreneurs selling energy and they then have to find out facts about various sources of energy such as oil, coal, biogas, natural gas and biomass fuels. When they present these products, students also have to explain the environmental implications of using that particular source of energy. They also have to find out how their home heating system works and present it to their classmates. Students make a number of study visits during the week, including a hydropower plant and an agricultural college, which has a wind power plant and a biogas unit.

Individual classes also have topic weeks with an environmental dimension. For instance, the fifth years usually spend two weeks working on climate and weather.

#### Integrated environmental education

Environmental issues are also integrated in day-to-day teaching. One teacher explains: "Actually the only subjects where it is difficult to incorporate the environmental dimension are English and maths. Otherwise I always explore the possibilities and ask myself: Is this something to do with the environment and ecocycles or sustainability?" Another teacher explains:

*"If a major oil spill occurs when I am class teacher for the third years, I naturally bring it up then; I don't wait until they are in the fourth or fifth year. But it is also important not to present an overly pessimistic picture; we must also present good examples so that the children get the idea that problems can be solved. Naturally, the school vegetable garden very much represents the lighter side of things, the ecocycle idea. We use the compost we produce and now we have also started deep-bed cultivation. The children themselves have weighed the crops and seen that we get better yields from the deep beds."*

The school's environment council has found it is actually possible to make a difference. The students themselves discovered that a refuse collection vehicle passes along the road just outside Fjälkestad School once a week. They got in touch with the municipality and suggested that the vehicle should also collect the school's refuse. At first municipal officials were not keen, but the students stuck to their guns, wrote a letter to local politicians and were invited to attend a meeting of the municipal environment committee. The students have now been promised that the refuse truck will stop at Fjälkestad School, explains the school recreation instructor *"Things like this give the students faith in democracy and the idea that it is possible to make a difference if you get involved and have sound arguments."*

### 3.2 Gripenskolan

Gripenskolan is the largest upper secondary school in Nyköping situated 100 km south of Stockholm. It has some 1,200 students on ten study programmes, of which the two largest are natural science and the specially designed science and social sciences programme. The school has a school manager, four principals and just over 120 teachers. The school has a total staff of about 170.

The school is participating in the Baltic Sea Project (BSP), and has a long tradition as a school with an environmental profile. Nyköping municipal environment policy and action plan states that environmental education is to be incorporated in all school subjects and that environmental studies should be a natural feature of learning at all schools in Nyköping municipality.

One aspect of Gripenskolan's environmental profile is *Vattendraget* ("Watercourse"), a school website run by the students themselves. *Vattendraget* unites students and schools in a regional project entitled *Örsbacken*, which spans three counties and thirteen municipalities. The aims of the *Örsbacken* project are to achieve unpolluted watercourses, a good marine environment and favourable conditions for flora and fauna along three major Baltic catchment areas. *Vattendraget* is developing a knowledge bank and has a question page linked to researchers working on the *Örsbacken* project, which provides scope for student research and special studies.

"World Water Day" is arranged each year at Gripenskolan. Students play host to all compulsory school students in Nyköping. In 2001 900 students took part in a variety of activities, such as various water experiments in the sports hall and study of aquatic animals with magnifying glasses in the schools biology laboratories.

Gripenskolan has recently built a pond, which purifies storm water from the school grounds. The project has involved students from several programmes at the school. The idea came from students on the natural science programme, who also planned the pond, which has a well for collecting the water, which is then pumped into the pond. Students from the Construction, electrical engineering and vehicle engineering programmes dug, excavated and built the pond and well. Aquatic plants will now be introduced and the students will then be able to measure levels of nitrogen, phosphorus and metals at various times. Nyköping compulsory school students will also use the pond to study insects and other small aquatic animals.

### Integrated environmental education on the natural science programme

One of the biology teachers has taken the initiative in integrating her subject with social studies, Swedish and English.

*"We discovered there wasn't enough time to include the Baltic Sea Project in the ordinary course. This gave us the idea of designing a course integrating the Baltic Sea and making it interdisciplinary in order to include the historical and sociological angles. This would also give us plenty of time for studies in the field."*

The biology teacher has outlined the way her courses are arranged:

The first year students study ecology in biology; this includes either studies of a terrestrial or an aquatic ecosystem. Local issues are dealt with in the first year of science, regional issues, including the Baltic, the second year and major topics concerning water, food supply and climate change during the third year. Each course includes at least one assignment, where the students themselves have to submit a report. They are given set questions to follow and have to decide how to arrange their report, whether it should be based on their own observations, questionnaire responses or something else. They also learn how to evaluate and collate information. During the first year of science she makes extensive use of the *Ren påverkan* ("Pure influence") material produced by the Swedish Association of Field Biologists. Students have been given the task of studying shops in Nyköping and their own homes, and examining water consumption at the school.

Students choosing the third-year environmental studies option have to confront global issues. Amongst other things, they have completed a global warming role-play produced by the Swedish Environmental Protection Agency. Students have to represent countries negotiating a climate convention. The role-play resembles the major global environment conferences. Students have to prepare and obtain as much information as possible about "their" country – its environment and natural resources. The course has a great deal of information available on the Internet. Each student then gives an oral presentation of the way his or her country considers the convention should be drafted. The "conference" should result in a protocol that everyone is prepared to sign. "There is usually a very lively and high-quality debate. Students have to put themselves in the position of other countries; for example, what should a poor country with large coal reserves do?"

### Excursions and lectures on nature conservation

Environmental studies also includes a course on nature conservation. Amongst other things, students have reviewed municipal environment policy and invited officials to the school to participate in a discussion at which the students have also submitted their proposals for the local Agenda 21 planned by the municipality.

Students have carried out assignments on agriculture and the agricultural landscape. An organic farmer has paid a visit and given a talk. Excursions, including one to a forthcoming nature reserve, are also part of the nature conservation course. Another component is learning how to create a nature reserve and the necessary decision-making process involved.

Students make a study visit to a local factory under the section entitled "Industry and the environment". They also have to make highly specific life-cycle analyses.

Last year they had to get on their bikes and buy a litre of water in a glass bottle, plastic bottle or paper carton. They then had to work out what it cost, from extraction of the raw materials to recycling. We get on to social studies and politics in almost every context; the subject is such a broad one.

An integrated approach to the teaching of different subjects is also appreciated by two teachers of social studies who have taken part in BSP. One also teaches geography, the other history. Both teach students on all school programmes. *"When the students were studying the Baltic in biology and science, they studied geographical and historical aspects and the forms of government in the countries around the Baltic at the same time. We discussed the fall of communism and the recent introduction of democracy in the former eastern bloc states,"* say the teachers.

### Integration of environmental studies with social studies

The environment is also a dimension of the various elements of normal social studies lessons, as a teacher in that subject explains: "The subject "Media and influencing public opinion" is important since it opens the way for discussion about power over the agenda of public debate, who defines what is a "social problem" etc. So we want to lay the foundations for an understanding of the problems surrounding lobby groups and the battle for media attention."

In "Labour market" examples are given of the classic conflict between employee and employer, eg, with regard to the question of occupational health and safety and sick leave.

The subjects "Democracy," "Political ideas," "Forms of government" discuss society's ways of dealing with conflicts of interest in purely practical terms.

"Socio-economics" involves a deeper analysis of the conflict between economic growth and sustainable development. The subject "Socio-economic resources, supply and energy etc" may well be the most important of all, since it deals with resource management. The idea is that students begin studying the subject by freely trying to formulate a vision of sustainable development and prudent management of resources. This is followed by a discussion of various approaches and how differences of opinion on approaches to resource management can be dealt with without open conflict.

As part of international relations, we discuss the situation on the global plane, the part played by international organisations in creating a better climate of cooperation on environmental issues. We also want to examine the link between social issues such as poverty and conflicts and environmental issues. The course concludes with a team assignment where the students jointly plan a society from scratch. The idea is to incorporate all the other elements in the assignment. For example, students must decide how resources should be allocated, how conflicts of interest between various actors are to be resolved, how to ensure the long-term survival of their society etc.

### Ecology and the working environment on the construction programme

Gripenskolan's commitment to the Baltic Sea Project can also be seen in the vocationally-oriented courses. The science course has been split up into four main elements: ecology, energy, environmental problems and ergonomics.

Occupational health and safety is an important component in the school's vocationally-oriented programmes. Among other things, students measure noise levels, lighting and temperature. Chemical health hazards, repetitive strain injuries and stress are also covered.

Building materials, sorting and recycling are directly related to the occupation. *"This is also something the students discover when they do their stint of work experience on construction sites. Then they have to learn to sort all materials."*

There is a new project to plan, build, market and sell a garden shed/outhouse in accordance with the criteria for "sustainable development at school". This is a joint project between the disciplines of Swedish, science, sport and health, mathematics, projects and enterprise, together with the vocational subjects on the construction programme.

The students are allowed a great degree of control over the project so that they will feel in-volved in the democratic process and to give them practice in critical analysis and cooperation. All decisions are taken democratically. The proposals to be considered are formulated by the student teams. The environmental dimension is ever present as a compelling argument in discussions.

## Quality criteria for ECO school development

Finn Mogensen and Michela Mayer

### A proposal to the Ensi network

The comparison of the criteria leading the Eco-schools movement in every country and the construction of a common set of quality criteria has been in the Ensi programme for many years. An opportunity to start with this line of research was given by the two meetings, in Reichenau and in Weilburg, organised by Ensi where the SEED Proposal for an European Network was finalised.

According with the Ensi Programme and with the SEED proposal we invite the interested participants to start with the research and to discuss a common guideline for a national report concerning 'Eco-schools' and the criteria underlying their recognition, or certification, as such.

The aim of the guideline is to collect the criteria used, implicitly or explicitly, in different countries in order to guide, support or award schools who are involved (or intend to be in-volved) in a process of developing sustainability and quality in the whole school plan.

In fact, national activities within the field of EE and EfS rest on diverse ideological back-grounds and are written in different ways, using different phrases and structures. In order to get comparable material for the analysis a common framework must be developed. Therefore, this activity of developing a guideline will help in making the descriptions of each country initiatives to be similar in form and structure.

For this description and analysis we ask the partners to select environmental and sustainable education projects that demonstrated their contribution to innovative learning processes and brought about innovative practices in school.

The units of references of the study are schools as well as classes or groups of students working in the framework of EE or EFS. This means we are looking for experiences from both the classroom level as well as whole school involvement. The focus of the research in both cases will be to highlight the process of change from 'classroom initiatives' to eco-schools.

The study will follow an approach to environmental education inspired by the Ensi aims and methodologies, an overall pedagogical approach inspired by constructivism, and a

research approach following a process-oriented, participative, action research. The image of school we refer to is school as a learning organization.

This means that:

- the term environment embraces the natural and the technical environment and the social and intellectual environment as well;
- the “ecologization” of schools has to be examined at the three levels of pedagogical, socio-organisational and technical/economic level (Posch, 1998)
- particular attention will be given to projects focusing on the learner as a constructor of his/her own knowledge by means of intentional and active learning processes - and in this way enhancing her/his active involvement and role (dynamic qualities);
- particular attention will be given to projects focused on the involvement and participation of all the stakeholders, and on the construction of learning networks which links schools with families, communities and workplaces.

The ENSI approach thus means that that knowledge is not passively appropriated but actively constructed by the students and has active participation as a central precondition. Furthermore it relates knowledge to spheres of socially important action related to the environment and requires the interrogation of the assumptions and values that configure controversial issues. Finally, it encourages critical reflective and democratic actions.

### **A Guideline for a National report on implicit and explicit criteria guiding a ‘school development process’ inspired by the values of EE.**

Each country report will consist of three main sections

- The state of EE and EFS (max. 3 pages)
- The Eco-schools development processes ( max. 6-7 pages)
- Case studies (max 3 pages/each)
- A short presentation of the national educational system (max 1 page)

#### **1 - The state of EE and EFS**

- Short description of the main contents and guidelines of official national or regional pro-programmes/documents that support EE and/or EFS in the country – including the link to general national curricula.

- Short description of the main contents and guidelines of official national or regional programmes/documents that support school development in the framework of the values inspired by EE or EFS.
- Short description of the main contents and guidelines of more interesting initiatives guided by international, national or local NGO supporting either classroom initiatives in EE or school development,

For each point, give an appraisal of the real diffusion and realisation in the country of such programmes or initiatives.

#### **2 - The Eco-schools development processes**

Among the initiatives existing in the country for ecoschool-like development processes, the national responsible will choose the more interesting, according to their

- a) diffusion in the country;
- b) relevance from the point of view of the ENSI approach to environmental education;
- c) relevance from the point of view of the pedagogical constructivistic approach
- d) relevance from the point of view of the participation in the process of many stakeholders.

For each type of initiative chosen the report will describe

1. the **general characteristic** (if it is institutional or not; diffusion, relevance according the three points of view listed)
2. the **explicit set of criteria** that rule the belonging to the initiative, i.e. the expectations the school have to fulfill (if class or school initiatives; integration into the pedagogical school plan, co-operation with the local community, active involvement of parents, teacher teamwork; ...)
3. the **implicit set of criteria** that rule the belonging to the initiative, i. e. (aims and general values proposed; importance given to one set of explicit criteria compared to others - e.g. 20 criteria for the care of physical environment, few or no criteria for the planning of the school curriculum -; the way explicit criteria are realised in practice,.....);
4. the **kind of development** process the initiative proposes (number and type of steps; role of self-evaluation; role of the community; research based processes; presence of external evaluation...);
5. the **kind of support** offered to students, teachers and principals to enter and to participate in the process of school development;

6. the **main obstacles** encountered by the initiative (opposition or lack of interest from the school authorities, difficulties in involving the whole teachers staff; lack of interest from the schools; unforeseen hidden barriers...)

**All those point have to be extracted from official documents or from eventually inter-views with actors in the programme. For every chosen initiative, add your personal opinion about its relevance and effectiveness according to your criteria.**

### 3 - Case studies/ description

One or two examples of innovative practice (best or problematic practice) on the contribution of EE or EFS to school development, presented in a "lively", descriptive and close-to-practice way

### 4 - Presentation of the national educational system

The aim of this part is to clarify the national terms used in the report. A table, which demon-strates the educational system of the country, suggested.

### Expected outcomes for ENSI and SEED

Each country report will be about 10 pages (less if the initiatives to describe are a few ones). The main part of the report will be dedicated to the Eco-schools development process. From 3 to 5 pages can be added for each case study.

Based on these national reports a comparative analysis will be prepared for discussion, high-lighting strengths and weaknesses of EE and Efs projects in the different countries. Such analysis will be useful not only for current EE and Efs projects but also for schools that want to innovate their future projects in this field or want to develop quality programmes.

The outcome of the work will be a publication comprising the national reports and a com-parative analysis.

## The state of arts of Environmental Education

Dear Madam/Dear Sir,

In the framework of the School Development through Environmental Education - SEED network of the European Union we are conducting a research on the state of art of environmental education. We would very much appreciate if you could help our work with filling in this short questionnaire below.

Please state if your answers refer to the whole of your country or to your region, and gives its name in English

Country \_\_\_\_\_

Region (part state, community, ...) \_\_\_\_\_

1- In your country (or region), have the Ministry of Education and the Ministry of the Environment agreed upon a common document (or concept, or programme) for Environmental Education hereafter EE, or for Education for Sustainable Development hereafter EfSD?

<input type="checkbox"/>	a) Yes
<input type="checkbox"/>	b) The document (or programme) comes only from the Ministry of Education
<input type="checkbox"/>	c) The document (or programme) comes only from the Ministry of the Environment
<input type="checkbox"/>	d) No official documents are available

2. In your country (or region), do you have any common definition, document or programme about school development?

<input type="checkbox"/>	a) Not at all
<input type="checkbox"/>	b) There are definitions and/or documents
<input type="checkbox"/>	c) There is at least one programme for school development

If your answer is b) or c) please give a short explanation about what school development means in your country or region:



If there is a programme about school development does it have any elements of EE or EfSD?

	a) Not at all
	b) To some extent
	c) There is at least one school development programme with EE/EfSD focus.

3 - Is EE present in the national curriculum in your country?

a) In compulsory education (primary schools and lower secondary, Grades 1 to 8-9)

	Not at all
	Yes, as a subject
	Yes, as a cross-curricular theme
	Yes, informally as part of one or more of the following subjects:
	Natural science
	Social science
	Geography
	Physical education
	Others (specify) ...

b) In secondary education (Grades 8-9 to 12-13)

	Not at all
	Yes, as a subject
	Yes, as a cross-curricular theme
	Yes, informally as part of one or more of the following subjects:
	Natural science
	Social science
	Geography
	Physical education
	Others (specify) ...

3. Which of the following school activities are recognised and/or suggested in the National Curriculum?

• Project work

	a) Not at all
	b) In primary education only
	c) In secondary education only
	d) In both

• Outdoor activities

	a) Not at all
	b) In primary education only
	c) In secondary education only
	d) In both

• Team teaching (teachers working together, on a common plan, partially in the same hours with the same group of students)

	a) Not at all
	b) In primary education only
	c) In secondary education only
	d) In both

• Other school activities, useful for the diffusion of EE (specify) ...

4 - The Eco-schools initiatives in your country, if any, are based on

	a) an official Ministry of Education programme or project
	b) NGO offers and programmes
	c) both Ministry of education and NGO programmes
	d) they don't exist

5 - How many Master courses on EE, or EfSD do you know about in your country, if any?...

6 - How many PhD courses do you know about in your country on EE, or EfSD, if any?...

## Notes on the editors/authors

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## SEED NETWORK

The European COMENIUS 3 network, "School Development through Environmental Education" (SEED) is a group of educational authorities and institutes who promote Environmental Education as a driving force for School Development.

Within the 14 European SEED partner countries and 6 SEED member countries, Environmental Education fosters an innovative culture of teaching and learning that promotes Education for Sustainability.

SEED invites schools, teacher education institutes and educational authorities to work together, to learn from each other's experiences and to accumulate their knowledge in their quest in working towards sustainable development.

## TARGETS

Because of the creation of the COMENIUS 3 networks, SEED is able to encourage co-operation among its stakeholders by working on existing, completed and prospective COMENIUS projects. Stakeholders associated with the network benefit from these environmental education developments.

SEED also facilitates a close dialogue and better understanding among policy makers and practitioners in the various education systems. The ultimate target group is the pupils who benefit from innovative teaching practices and modern teaching and learning pedagogies.

**[www.seed-eu.net](http://www.seed-eu.net)**