Environmental Education in Primary Schools

by

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Abstract

It is essential that people are educated in relation to the environment in order that sustainability is achieved. The younger that children are educated on these matters the greater the likelihood that it manifests itself in life-long positive actions towards the environment.

The teaching of science, which includes environmental awareness has become mandatory in primary schools. This study researches the content of the current curriculum as well as resources available to teachers in delivering this area of the science curriculum. The curriculum is very comprehensive. There is a wealth of resources available to schools including information from private companies, non-governmental agencies' programmes and from environmentally aware individuals.

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Chapter 1 Introduction

Until recent years, the environment in Ireland was of a generally good standard, however due to rapid economic growth there is increasing pressure on the environment. The pressures experienced have been due to: -

Growth in transport and energy

Increased urbanisation

Increased number of households

Intensification of agriculture

Increased waste

Ireland needs to fulfil its international obligations in relation to environmental issues. We are already in a poor state in relation to agreed targets e.g. Ireland has already exceeded the agreed target for carbon dioxide emissions on 1990 levels by 31% against a target of 13% under the Kyoto Agreement.

There appears to be a lack of interest generally amongst the Irish population regarding environmental issues, with the exception of a minority of enthusiastic small groups or individuals. The anti bin charge campaigners in some areas of Dublin in 2003 are a prime example of the lack of commitment by individuals. Everyone needs to be committed to protecting the environment in order that it is not destroyed.

I have a belief that if children are educated at a young age that this remains with them for life. Also, children are often very effective educators of their parents.

Children are one of the most powerful consumer groups; their preferences are constantly monitored by industry. They are open to looking at things differently and can exert positive pressure on parents to make alternative choices.

The Department of Education and Science has recently introduced a new curriculum for teaching science in primary schools.

I have decided to investigate the content of environmental education within the primary school curriculum. An Taisce has also introduced an interesting scheme in recent years to encourage awareness in schools called "The Green Schools" programme. This is a voluntary scheme in which schools may participate and are awarded a green flag if they comply with the requirements. This appears to be very effective as it is a long-term programme with an award scheme, which involves pupils, teachers and parents.

This generation of children are the adults of the future; therefore it is our duty to educate them on environmental matters in order that they might make responsible decisions that will protect the environment for future generations.

Chapter 2 Literature Review

2.1 Introduction

Environmental awareness is currently being taught in our primary schools as part of the curriculum which is being phased in according to subject groups. It is included in the curriculum for Social, Environmental and Scientific Education (SESE). The SESE curriculum is being implemented in the current school year (2003/04).

2.2 Historical Situation

"Social and Environmental Studies are primarily concerned with human activity, with the child's physical surroundings and the natural phenomena with which s/he is familiar. The child has a natural urge to explore and investigate his/her own environment and thus it is good educational practice to direct and channel his/her curiosity so as to enable him/her to differentiate his/her own experiences, to organise knowledge and to form a satisfactory concept of the environment" (An Roinn Oideachais, 1971).

The primary school curriculum in the early twentieth century included many obligatory subjects, which caused frustration amongst teachers, as it was impossible to cover the entire syllabus within the school day. These concerns were voiced at the Annual Congress of the Irish National Teachers Organisation (INTO) in 1920 and a new programme of Primary Instruction was drawn up in 1922 combining History and Geography and reducing the number of obligatory subjects e.g. Nature Study and Rural Science became optional.

In 1971, Social and Environmental Studies was introduced, this included History, Geography, Civics, Nature Study and Elementary Science.

The aims were as follows; -

1. To cultivate in the child a humane attitude to living things and develop an appreciation of nature as the work of God.
2. To illumine and enliven other areas of the Curriculum.
3. To provide valuable leisure time activities which may lead to worthwhile hobbies for life.
4. To provide the children with the opportunities for planning and working together and give valuable training for citizenship.
5. To provide motivation for expressive and creative work in Language and in Art and Craft Activities and offer opportunities for wide ranging sensory training.
6. To encourage the use of reference books for identification and research and thus foster favourable attitudes towards books as sources of information and stimulation.
7. To provide an introduction to the understanding of one's physical self and an essential form of approach to the science of life.

Table 2.1

Components of Social and Environmental Studies in Irish national Schools

SOCIAL AND ENVIRONMENTAL STUDIES			
SOCIAL STUDIES		ENVIRONMENTAL STUDIES	
History	Civics	Geography	Environmental Science/ Nature Study

(INTO, 1992)

The emphasis in this new approach was to help children appreciate their environment by developing concepts and acquiring skills rather than by memorising facts.

The importance of environmental education is stressed in INTO, (1992): "*The successful management and conservation of the environment for the present and future generations depends on an educated sense of responsibility based on knowledge and awareness of natural and built heritage.*"

By the early 1990s, it was noted that there were a growing number of agencies interested in influencing the content of the primary curriculum, such as the Health Boards, National Safety Association, as well as conservation agencies. It was suggested in INTO, 1992 that change and innovation be coordinated in a structured manner through the National Council for Curriculum and Assessment (NCCA), that all bodies and agencies interested in change should submit proposals to the NCCA.

By development of a school plan, the INTO recommended that each school design its own comprehensive, coordinated programme in Social and Environmental Studies suited to local requirements.

In conclusion, INTO, (1992) states that "*In order to encourage use of the child's own environment, resources must be produced to reflect the environment.*" The Education Committee of the INTO also recommended:

1. Teachers should be seconded by the Department of Education as resource teachers, whose responsibility it would be to coordinate and provide constantly updated information on locally available resources to schools and to take part in locally based curriculum development initiatives in Social and Environmental Studies at county or regional levels.
2. Teachers' Centres should play a role in providing resource packs for teachers in local studies.
3. A comprehensive resource pack for the teaching of Social and Environmental Studies should be developed.
4. Teachers' manuals should be made available with suggested activities and information.
5. The Department of Education should provide the necessary resources and funding to allow the school library service to provide a backup resource to the teaching of Social and Environmental Studies.

The Education Committee also agreed that the local environment is a valuable resource for the teaching of Social and Environmental Studies, however studies by both the INTO, (1986) and the Department of Education, (1983) showed that the environment was not being used as extensively as it should be in teaching, especially in senior classes at primary level.

The following recommendations were included in the 1992 INTO Report in order that the local environment be used as a resource: -

1. Pre and inservice courses should equip teachers in the use of the local environment as a springboard for studying all aspects of Social and Environmental Studies.
2. Schools should be assisted in overcoming barriers against the use of the local environment and the organisation of field trips. Funding should be provided for schools in order to enable them organise school field trips, as necessary. Disadvantaged schools in particular, should be provided with extra financial assistance.
3. The local environment should be the focus for the introduction of curriculum guidelines in Primary Science and Nature Study.
4. An inventory of available resources should be compiled on a county or area basis. The information should then be available to teachers through teachers' centres.

The Curriculum of 1971 was assessed in several surveys, the main points of these were; -

- INTO (1975): Of the teachers who replied to a survey, only 69.5% felt that they taught Social and Environmental Studies satisfactorily. The two main reasons given were inadequate materials and large classes.
- A further survey carried out by the INTO, (1986) showed that 80% of teachers agreed with activity and discovery methods of learning, however the level of usage of the environment as a resource was disappointing with only 14% of teachers taking their pupils on educational walks in the environs of the school once a month or more often.
- The Department of Education set up a working group of inspectors to investigate and evaluate the implementation of Social and Environmental

Studies. It was found by An Roinn Oideachais (1983) that in junior classes, much of the teaching of Social and Environmental Studies is based on the school environment; especially using the nature table, weather recording and indoor gardening. A significant amount of time is given to teaching Nature Study in middle and senior classes. However, 30% of junior class teachers and 20% of middle/ senior class teachers do not take their pupils on outings in their environment.

- In their report Anon, 1990 endorsed the view that the local environment is a resource and that its use is a valuable pedagogical principle. This body stated that the development of school plans was vital to the promotion of suitable programmes in Social and Environmental Studies.

The United Nations conference on The Human Environment held in Stockholm in 1972 recommended that environmental education be recognised and promoted in all countries. This recommendation led to the formation of the International Environmental Education programme in 1975 by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the United Nations Environment Programme (UNEP). UNESCO, 2004.

The Intergovernmental Conference on Environmental Education, which was held in Tbilisi, Georgia in 1977, set out twelve principles of environmental education. The Tbilisi Conference recognised that environmental education was an essential part of everyone's education. Table 2.2 overleaf outlines the principles of environmental education UNESCO, 2004.

Table 2.2 Twelve Principles of Environmental Education

The following principles were identified by the Tbilisi Declaration (1978):

1. Consider the environment in its totality, natural and social
2. A continuous, lifelong process.
3. Interdisciplinary in approach.
4. Examine major environmental issues from local, national, regional and international viewpoints.
5. Focus on current and potential environmental situations while taking into account the historical perspective.
6. Promote the value and necessity of local, national and international co-operation in preventing and solving environmental problems.
7. Explicitly consider environmental aspects in planning development and growth.
8. Enable learners to have a role in planning their learning experiences and provide opportunities for making decisions and accepting consequences.
9. Relate environmental sensitivity, knowledge, problem solving skills and values clarification to every age with special emphasis on sensitivity to the learner's community in early years.
10. Help learners to discover the symptoms and real causes of environmental problems.
11. Emphasise the complexity of environmental problems and thus the need to develop critical thinking and problem solving skills.
12. Use a variety of educational strategies with due stress on practical activities and problem solving.

Third International Mathematics and Science Study

The Third International Mathematics and Science Study (TIMSS) was the largest and most ambitious international study of educational achievement ever undertaken. This study involved 40 countries with over half a million students taking part. It was organised by the International Association for the Evaluation of Educational Achievement (IEA) and was carried out in Ireland by the Educational Research Centre, St. Patrick's College, Dublin in 1996.

132 Irish schools participated, comprising 6203 students; the survey was targeted at 1st and 2nd year students in secondary school comprising 13 year olds (having recently completed primary education). Tests in Mathematics and Science were given, which had been developed by international experts.

In science, Ireland ranked twelfth of the 27 countries which met the sampling criteria for first year students and ranked tenth out of the 25 countries that satisfied the sampling criteria for second year students. Countries that performed significantly better than Ireland were Singapore, Korea, the Czech Republic, Japan, Belgium, Hungary and England.

Irish students performed above the international mean for science generally, performance was best in the areas of" Earth Science" and "Environmental Issues and the Nature of Science". The study was carried out to assess students in every aspect of science, however as this dissertation is focused on Environmental education, it is comforting to note that this

subject area scored higher than other areas of science. Table 2.3 shows how the Irish students performed in the five science content areas of the study.

Table 2.3 The Third International Mathematics and Science Study

TIMSS SCIENCE CONTENT AREAS	LOWER GRADE		UPPER GRADE	
	Irish mean	**International mean**	**Irish mean**	**International mean**
Earth Science	56%	50%	61%	55%
Life Science	52%	53%	60%	59%
Physics	51%	50%	56%	55%
Chemistry	47%	43%	54%	51%
Environmental issues and the nature of science	54%	47%	60%	53%
Total (Science overall)	**52%**	**50%**	**58%**	**56%**

Beaton et al,1996

Lower Grade refers to first year secondary school and Upper grade to second year at secondary school. It was necessary to survey students from both these years as the study was assessing 13 year-olds.

According to O'Doherty, (1994) "children learn science best when they:

- Have a variety of first-hand experiences where they can observe, touch and handle familiar objects in their environment.
- Work in groups, share ideas and plan investigations.

- Are provided with opportunities, both inside and outside the classroom to explore, investigate and use the process skills of science.
- Are involved in planning and devising their own activities.
- Learn from each other, their teacher and the wider community.
- Observe, question, wonder, hypothesise, predict, test and draw conclusions.
- Enjoy their work when learning is fun.
- Experience success.
- Use the skills of co-operation and perseverance to explore and investigate a problem.

O'Doherty, (1994) also makes the point that children will develop a respect for the environment and nature as they become more aware of the interdependence and interconnectedness of all organisms. Work with young children will begin with building an awareness of the local surroundings, caring for small animals, examining habitats and questioning our relationship with our planet.

O'Doherty, (1994) explains that starting with the school grounds can provide many useful areas of investigation for science activities, an example of an environmental study would be to carry out a rubbish survey of the school grounds.

Some of the recommendations made by The Irish Council for Science, Technology and Innovation Anon, (1998) were as follows; -

- Priority be given to the science syllabus in training for the curriculum

- The Department of Education and Science draw up an inventory of resources to support the new curriculum
- The Department provide for the appointment of resource teachers who can support science teaching in schools
- A corps of primary science specialists be appointed to lead the training of teachers
- Third level institutions establish diploma courses and masters as well as short courses in primary school science
- Science based industries, professional bodies, and third – level colleges prepare posters, leaflets and videos and organise open days for schools
- Third level institutions and enterprises make presentations to pupils and visits to their facilities
- Boards of Managements in schools include locally based scientists, engineers or technologists to assist them in the implementation and support of the science syllabus
- The Department of Education and Science advise primary schools to be flexible in timetabling science, so that blocks of time can be allocated for visits, demonstrations and talks
- The Department of Education and Science study primary school pupils' awareness of science as a baseline for measuring the impact of the new curriculum.

2.3 Development of the Current Curriculum

The curriculum focus on environmental science in primary schools is found primarily in the two Social, Environmental and Scientific Education Science subjects of Science and

Geography. Both subjects contain a strand entitled 'Environmental awareness and care'. This strand is concerned with fostering an awareness and appreciation of environments through an evolving knowledge of their distinguishing features and characteristics. Visiting and exploring different environments is a central methodology in the curriculum. To a lesser extent, other strands in science and geography contain elements of environmental education.

The strand 'Environmental awareness and care' encapsulates many of the attitudinal aims of the science and geography curricula.

As with all the committees involved in revising the Primary School Curriculum, the committee for science was based on a partnership model. The partners are outlined in the Education Act (1998). Each partnership organisation relevant to the curriculum development work at primary level was invited to nominate a representative(s) to the committee.

The National Committee for Curriculum Assessment (NCCA) invited partner organisations to nominate representatives to the committee. In making the nominations, the partner organisations were aware of the functions of the committee and made their nomination(s) accordingly

The committee, which had overall responsibility for the curriculum for Social, Environmental and Scientific Education, was supported by a science adviser who brought a rich experience of science to bear on the development of the science curriculum. The

relevant NCCA Education Officer too had particular expertise in Science education. The content was decided through the partnership model mentioned earlier. NCCA Education Officers familiar with the latest research, thinking and developments in primary science education supported the committee members. The science adviser too supported the committee in making decisions about content. The content was decided through an extensive iterative process over a prolonged period of time.

A draft of the curriculum for Science within Social, Environmental and Scientific Education was completed in February 1997. The final document and teacher's guidelines were published in 1999.

As science implementation began nationwide in September 2003, this subject has not yet featured in the NCCA's review, but will do so in the coming year or two.

2.4 Current Curriculum

Primary School Curriculum - Social, Environmental and Scientific Education

Science

The current curriculum has been put in place in the school year 2003/ 04.

It is now mandatory that Social, Environmental and Scientific Education (SESE) be taught in all primary schools whereas with the 1971 curriculum, Science was optional.

SESE comprises History, Geography and Science.

Anon., (1999) states the aims of the SESE curriculum in Primary Schools as follows: -

- to enable the child to acquire knowledge, skills and attitudes so as to develop an informed and critical understanding of social, environmental and scientific issues
- to reinforce and stimulate curiosity and imagination about local and wider environments
- to enable the child to play a responsible role as an individual, as a family member and as a member of local, regional, national, European and global communities
- to foster an understanding of, and concern for, the total interdependence of all humans, all living things and the Earth on which they live
- to foster a sense of responsibility for the long- term care of the environment and a commitment to promote the sustainable use of the Earth's resources through personal life-style and participation in collective environmental decision-making
- to cultivate humane and responsible attitudes and an appreciation of the world in accordance with beliefs and values

The broad objectives relating to environmental education are as follows: -

- explore and appreciate the influence that scientific and technological developments have on societies, life-styles, economic activities and the environment
- explore the environmental repercussions of human actions on physical, natural and human environments
- understand the interdependence of a wide variety of living things and their environments, recognise the importance of conserving habitats and

environments, and begin to understand that all life now and in the future depends on the sustainable development of the planet

- become actively involved in the discussion, exploration and resolution of environmental issues.

The Science curriculum is broken into the following four strands; Living things, Materials, Energy and forces, and Environmental awareness and care.

Anon, (1999) states that the curriculum area of SESE is specifically founded on the pupils' relationship with the world around them. The environment in its broadest sense is the springboard for learning, and pupils' classroom experience will be deepened and extended by direct experience of their own surroundings. The locality will provide the starting points for environmental education, and as children's knowledge and understanding grow and develop, they will encompass other places and direct pupils to Irish, European and global dimensions.

Pupils should develop a broad and balanced view of the environment. They should appreciate the ways in which science and technology can help people to use the Earth's resources for the social, cultural and economic benefits of humanity. Environmental education through science will enable pupils to understand the interdependence of all life. It will help them to understand the positive and negative repercussions of human action on local and global environments. Pupils will develop and apply scientific knowledge and skills in protecting, conserving and improving their environments. They will appreciate that

they can apply their scientific and technological knowledge and methods of working in promoting positive and responsible attitudes to the use of the Earth's resources and in contributing actively to human development and to the shaping of the environment of the future.

Curriculum Content for the strand of Environmental awareness and care

Infant Classes

The child should be enabled to:

- observe, discuss and appreciate the attributes of the environment:

  beauty and diversity of plants and animals in a variety of habitats
  attractive elements of physical, natural and human features

- appreciate that people share the environment with plant life
- develop a sense of responsibility for taking care of and improving the environment
- identify, discuss and implement simple strategies for improving and caring for the environment
  - things I can do:

    caring for clothes, toys and other possessions
    keeping home, garden, classroom and street clean and tidy
    caring for living and non-living things in the locality

  - things we can do together:

    keeping classroom, school and play spaces clean, tidy and safe
    disposing of litter appropriately
    collecting paper or cans for recycling
    caring for living and non-living things in the locality

First and second classes

The child should be enabled to:

- identify, discuss and appreciate the natural and human features of the local environment
- observe and develop an awareness of living things in a range of habitats in local and wider environments
- observe similarities and differences among plants and animals in different local habitats
- develop an awareness that air, water, soil, living and non-living things are essential to the environment
- begin to recognise that people, animals and plants depend on one another
- realise that there is both an individual and a community responsibility for taking care of the environment
- identify, discuss and implement simple strategies for improving and caring for the environment
    - caring for clothes, toys and other possessions
    - caring for living things in the locality
    - keeping home, classroom, school and play spaces clean, tidy and safe
- identify and help to implement simple strategies for protecting, conserving and enhancing the environment
    - planting trees, flowers
    - developing a school garden
    - engaging in a school anti-litter campaign

- become aware of ways that the environment can be polluted or harmed
    - litter, pollution, vandalism

Third and fourth classes

The child should be enabled to:

- identify positive aspects of natural and built environments through observation, discussion and recording:
    - colours, textures and shapes in rural and urban areas
    - diversity of plant and animal life
    - range of materials, buildings, walls and other features
    - places that people enjoy and the reasons for these preferences
- identify the interrelationship of the living and non-living elements of local and other environments:
    - plants, animals, water, air and soil in habitats
- become aware of the Earth's renewable and non-renewable resources
- recognise how the actions of people may impact upon environments:
    - planting and felling trees
    - removing hedgerows
    - draining marshes
    - constructing buildings roads and bridges
- come to appreciate the need to conserve resources:
    - recycling of materials, use of paper packaging in contrast to some plastic packaging, identifying materials which can be used for a variety of purposes, turning off lights, reducing the amount of water used

- begin to explore and appreciate the application of science and technology in familiar contexts:
    - at home: cooking, heating, vacuum cleaners, refrigerators, washing machines, toasters
    - at school: design of computer desks, chairs, pens, calculators
    - in shops: design of trolleys, use of conveyor belts in counters, ways of preserving foods
    - in designing and making activities

- identify some ways in which science and technology contribute positively to society:
    - transport, buildings, bridges, roads, information and communication technologies, insulation of houses, tools and appliances, toys, farming, medicine

- recognise and investigate human activities which have positive or adverse effects on local and wider environments:
    - enhance the built environment
    - protect flora and fauna e.g. by creating and maintaining a school garden
    - produce biodegradable and non-biodegradable waste
    - affect the quality of air, water and soil

- examine a number of ways in which the local environment could be improved or enhanced:
    - recycling campaigns
    - helping in anti-litter campaigns

- identify and discuss a local, national or global environmental issue such as:

- litter in area
- an incident of pollution
- changes in flora and fauna
- new roads, buildings
- need to protect a habitat and its flora and fauna
- proposals for enhancing the environment (e.g. need for cycleways near school)
- investigate the causes of the issue
- appreciate the roles and different views of people involved
- suggest and discuss possible actions and consider the effects of these people and the environment

- realise that there is a personal and community responsibility for taking care of the environment

Fifth and sixth classes

The child should be enabled to:

- identify positive aspects of natural and built environments through observation, discussion and recording:
  - colours, textures and shapes in rural and urban areas
  - diversity of plant and animal life
  - range of materials, buildings, walls and other features
  - places that people enjoy and reasons for these preferences

- explore some examples of the interrelationship of living and non-living aspects of local and other environments:
  - ecosystem of tree, hedgerow, stream, boglands, mountains, lowlands, river, rainforest, grasslands, desert, tundra

- become aware of the importance of the Earth's renewable and non-renewable resources
- foster an appreciation of the ways in which people use the Earth's resources:
    - mining, fishing, forestry, agriculture, using wind, water, fossil fuels, or nuclear energy to generate power
    - processing raw materials for manufacturing
    - using the environment for leisure activities
- come to appreciate the need to conserve resources:
    - recycling of materials, use of paper packaging in contrast to some plastic packaging
    - identifying materials that can be used for a variety of purposes, turning off lights, reducing the amounts of water used.
- Appreciate the application of science and technology in familiar contexts:
    - At home: microwave oven, cooker, dustbin, coffee maker
    - At school: photocopier, projector, information and communication technologies
    - In the work-place: conveyor belts and pulleys in a factory; pneumatic drill, cement mixer and crane on a building site
    - In hospitals: stethoscope, X-ray, radium treatment
    - In designing and making activities
- Examine some ways that science and technology have contributed positively to the use of the Earth's resources:
    - Purifying water, mixing materials to make new materials, medicines, processing food, preserving food, generating electricity, using fertilisers for increased agricultural yields

- Recognise the contribution of scientists to society:
    - Work of scientists past and present
- Recognise and investigate aspects of human activities that may have positive or adverse effects on environments, activities that:
    - Protect flora and fauna such as creating a wildlife area and planting trees
    - Enhance built environments
    - Affect the quality of air, soil, water and the built environment
- Participate in activities that contribute to the enhancement of the environment:
    - Organise collection of paper, aluminium cans or other materials for recycling
    - Become aware of the need to use energy wisely at school and at home
    - Compost waste for garden
- Identify and discuss a local, national or global environment issue such as:
    - Effect of building a new factory, new roads, buildings
    - Farming practices
    - Traffic congestion, road safety
    - Suggestions for environmental enhancement
    - An incident of pollution, deforestation, ozone depletion, nuclear energy, global warming
    - Investigate the causes of the issue
    - Appreciate the roles and different views of people involved
    - Identify and use ways of assessing or measuring the extent of the problem
    - Suggest possible actions and consider the effect of these on people and the environment
    - Participate in the resolution of the issue, if possible
- Come to appreciate individual, community and national responsibility for environmental care:

- Explore concept of custodianship and its practical implications
- Become familiar with the concept of sustainable development
- Appreciate the need to protect environments for present and future inhabitants

The Curriculum for Social, Environmental and Scientific Education Science is composed of four strands as previously described under Primary School Curriculum. Bacon, 2004 states that a strong emphasis is placed on the local environment within the science curriculum and that the child's immediate environment provides an ideal context for learning. The curriculum is spiral in nature, which means that the child will return to particular concepts over a two-year period, but each time at a more sophisticated level.

The Primary Curriculum Support Programme (PCSP) facilitated a Developmental Project in Science, which was conducted in 300 schools country – wide from October 2000 to June 2002. This allowed trainers to try out various activities with teachers and children. There was also feedback from teachers regarding their training requirements for teaching the curriculum. Trainers shared good practise, articles etc with the team, as well as meeting regularly for review.

In-service training for all primary school teachers began in October 2003 facilitated by the Primary Curriculum Support Programme. The format was two single day seminars, structured as follows:-

Day One: - Introduction (with emphasis on working scientifically)

Living Things

Energy and Forces

Day Two: - Environmental Awareness and Care

Energy and Forces

Materials

According to Bacon, 2004 there was a perception amongst teachers that the teaching of science was difficult and that many teachers lacked a knowledge base in science. Because of this, it was essential that the in-service training would place a strong emphasis on the skills and process as well as on the content. Practical exercises were incorporated into each session.

The response to the training was generally found to be positive with many commenting on the "de-mystification" of the subject content and an increase in the teacher's confidence with teaching science.

Teachers raised the following concerns on the evaluation forms: -

Deficit in their own knowledge base

Resources required

Time and classroom management

Curriculum planning

Textbooks: although the curriculum is not textbook based, many teachers needed advice on the books coming onto the market.

2.5 Outside Agencies Input into Environmental Education

There are numerous resources available to schools to assist them in delivering environmental education. Some of these programmes are listed below with an outline of their content.

Green Schools Towards a Sustainable Lifestyle

Green-Schools is an international environmental education programme. It is run by the Foundation for Environmental Education (FEE), which is composed of a network of organisations seeking to promote environmental awareness by various campaigns. It is based on the EU EMAS (Eco-Management and Audit Scheme) approach. An Taisce operates The Green Schools Programme in Ireland in cooperation with the Local Authorities.

The approach of the scheme is holistic; it endeavours to make environmental awareness an intrinsic part of the life and ethos of the school involving pupils, teachers, other staff and parents as well as the wider community.

The scheme is a programme, which if all elements are complied with, an award in the form of a Green Flag is made to the school. It is a long-term programme, whereby the award is renewed every two years provided that the school makes continual reduction of environmental impacts.

The handbook provided to each school under the scheme gives practical information of the Green Schools Programme. It describes the aims and objectives of the programme, the seven steps involved in implementing the programme and how to apply for the award.
In order to manage the programme, it is divided into a number of themes as follows; - Litter and Waste, Energy, Water, Transport and Healthy Living.

Litter and Waste is the first theme of the Green Schools Programme and is the first area in which the school concentrates having registered for the programme. Energy is the next theme and positive steps will have to be shown in energy saving initiatives in order to renew the Green Flag Award (two years after first receiving the award). An Taisce,2002.

The themes for the following renewals are:

- Water Reduction,
- Transport Issues
- Healthy Living

Heritage-in-Schools Scheme Directory

This is a directory of individuals who are experts on various aspects of Ireland's heritage, which has been devised by The Heritage Council and the INTO.

The directory gives contact details and a brief outline of their area of expertise.

The cost to the school is €45 to €75 based on a half or full day programme. There is a reduction for disadvantaged schools. The scheme is subsidised by the INTO and the Heritage Council (INTO [ca,2003]).

Greenstreets

This is a web-based resource provided by Greenstreets Environmental Resources Ltd., an Irish consultancy firm which provides advice and training to industry on waste management. The website is divided into two sections: industry and public.

Within the public site, there is a schools section. This web-based resource deals with recycling predominately. There are many downloadable resource materials which are very useful (Greenstreets,2004).

The main headings on the site for pupils are:-

- School Recycling Plan

- Recycling A to Z; a list of recyclable materials
- Games to bring some fun into the subject
- Realstreets:- feed-back from individuals with different households and life-styles in order to follow their success (or lack of) at recycling

Irish Peatland Conservation Council (IPCC)

This organisation has moved its headquarters from Dublin city to the former Peatland World Exhibition Centre which is located at Lullymore, Co. Kildare. IPCC runs education programmes for school children as well as courses for teachers in environmental education using the bog as a tool. The IPCC, in consultation with teachers have designed a range of resource packs linked to the curriculum.

A day's course for teachers designed by the IPCC involves an ecology field trip to the Bog of Allen, followed by a session indoors on man's influence on this environment (IPCC, 2004)

Offaly and Kildare Waterways Canal and Wildlife Programme

This programme is available to primary schools in counties Kildare and Offaly. It is a canal's awareness programme to encourage children to protect the Grand and Royal Canals in their locality in order that wildlife habitats are conserved.

The programme is delivered by trained tutors who take pupils in groups of 15 to one tutor (usually equates to two tutors per class). The tutors spend four days with the same class.

Much of the time is spent in the field studying flora, fauna, man's impact on the canal and its environs. The emphasis of the programme is to spend as much time outdoors as possible, including walks by the canal, identification of plants and canal dipping to study the aquatic invertebrates.

The programme is offered free of charge to schools and is funded by the "Leader Companies" in Counties Kildare and Offaly (Anon, 2001).

The Ringo Project

This is a project on plastic, packaging and recycling designed for fifth class in primary school. I.T.W. Hi-cone, Mallow, Co. Cork, sponsors this project on plastic and recycling in primary schools with support from IBEC (Plastic Industries Association). The project material was written and produced by Blackrock Education Centre. Eanna Ní Lamhna was the project Director and Marina Stack, De La Salle College was the local Co-ordinator.

It has two aims:

- To educate pupils about plastic and packaging as part of the Social, Environmental and Scientific Education curriculum. (SESE)
- To introduce a recycling scheme for plastic Hi-cone rings (used to hold drinks cans together usually in groups of four).

This project is also noteworthy in that it directly applies to the new revised SESE syllabus for primary schools. As well as being applicable to the materials section under packaging materials, the lessons on waste disposal, recycling and the recycling scheme itself bear

directly on the strand that deals with environmental issues, concerns and responsibilities. Thus when this aspect of the primary school curriculum is implemented, teachers will have an already tested and successful set of materials available to them as a resource.

In this new syllabus, practical work has a central place. At middle and senior classes, pupils will be encouraged to solve open-ended problems. Schools will have the flexibility to deal with issues which reflect the environment of the school and are appropriate to the needs and interests of the pupils.

The success of this project emphasises its relevance to schools in an urban environment in particular. The enthusiasm with which the collection of ring carriers for recycling was carried out shows that the project has engaged the interest of pupils.

It leads on to encouraging pupils to recycle other waste materials that are recyclable (Ringleader Project, 2004).

Returnbatt

This company recently put in place a collection scheme in schools for non- rechargeable batteries such as alkaline and button batteries by using their special collection boxes. The company started collecting these primary batteries from over 120 schools in the Kildare area. This has proved a great success and this service is now being expanded into other counties (Returnbatt, 2004).

Repak Cash for Cans Initiative

The aim of Repak's Cash for Cans initiative is to get children thinking about the waste they create and how they can lessen their environmental impact through the wise use of resources (Repak, 2004).

Benefits for the school include:

- Raises funds for the school.
- Increases environmental awareness in the schools and the home
- Reduces the amount of waste going to landfill.
- Saves 95% of the energy required to produce an aluminium can from raw bauxite/aluminium.
- Educates and gets children into the habit of recycling.

Repak's Role:

- To supply and deliver Information Packs to schools, including posters, pencils, and certificates for those who make a special effort and Repak Cash for Cans bags.
- To support this scheme with television advertising.
- To help co-ordinate collections from the schools along with the school's can collector.
- To work with Local Authorities to provide incentives for schools
- To ensure that the contractor pays a minimum of 60C per bag of drinks cans or 30C per kg of aluminium cans which can be used to buy extra equipment or day trips.

To display participating schools work on their website, so that others can see what each school is doing to help our environment.

Esso Wildlife Challenge

The aim of the challenge is to encourage children to become aware of the importance of their local wildlife.

The Esso Wildlife Challenge is an annual competition, open to all children aged 8 years to 12 years in the 32 counties. Children can enter through their school, youth organisation or individually. The material can be in the form of paintings, poems or facts. There is a colouring competition for the 4 to 8 year olds.

The competition is publicised by the sending of a wildlife pack containing information and posters designed by Don Conroy to each school and scout group.

Prizes include a visit to a number of schools by Don Conroy, who plants a tree in the school grounds as well as telling nature stories, sketching wildlife etc. (Anon, 2003)

Naturally Wild Roadshow

The ecologist Dale Treadwell runs this programme having had many years experience in Australia. The programme is usually of one day's duration, but can be customised to the requirements of a particular school. The emphasis is on plants and animals, his teaching methods are fun – based using games and entertainment to educate. Dale is also involved in teacher training in ecology and wildlife gardening (Treadwell, 2004).

Action Against Litter

This is a pack designed for first and second classes in primary school. It was produced by the Blackrock Teachers' Centre for The Department of the Environment.

The pack contains information sheets, worksheets and teacher's notes. It involves five lessons as follows: -

1. Litter is waste in the wrong place
2. Litter looks bad
3. Litter can spoil our countryside
4. Litter can be a danger to animals
5. Litter can be a danger to birds

Issues such as recycling can be introduced while discussing litter; examples such as fallen leaves being naturally recycled as they decay can lead into how we can recycle (Blackrock Education Centre, 2004).

An Post Primary Schools Education Awards

This is a series of packs entitled " An Irish Riverbank", "Cois Farraige" etc. supported by An Post and Coillte. These packs contain information sheets on the flora and fauna in the particular habitat. There is also information on pollution, which in some packs is encompassed in the form of a game (An Post, 2004)

Energy Watch Day Pack

This pack includes the following books; "Energy in Our Lives" and "Energy Resources in Ireland" which are set out in a bright, easy to read format. Topics covered in these books include: -

Energy in Our Lives; - Saving energy at home and saving energy at school. Places for school parties to visit in Ireland listed under the following energy sources (Energy from Gas/Oil/Coal, Solar Energy, Water Power, Wind Energy, Energy from Peat, Energy from Wood and Other Plant Material, Steam Power, Geo- thermal Energy).

Energy Resources in Ireland: - Renewable and non-renewable resources, what happens to the environment when we use energy, the energy treasure hunt, and energy resources for the future (Anon, no date).

ENFO

Enfo is a service, which provides information on the environment free of charge to the public. It's premises is based in Dublin city centre.

Enfo is open to the public Monday to Saturday during office hours. A free tour of the facilities can be arranged for school groups, this includes an education trail, video viewing, slide presentation, use of CD-ROMs and games as well as viewing the exhibition area.

Teachers can avail of their outreach video lending service and teacher's resource pack lending

service.

There is also a children's club for children aged between four and twelve years.

An example of material, which can be used in schools is "The Orby Colouring Book for Sustainable Living". This is a fun book aimed at young children to promote environmental friendly living (ENFO, 2004).

Natural Environment Research Council

This is a United Kingdom authority which as well as carrying out research, provides educational assistance in the form of educational advisors and documentation.

However, we in Ireland cannot avail of the schools programmes, posters are available which depict a series of photographed pollution incidents, which may be used to stimulate class discussions about the environment (NERC, 2004).

Chapter 3 Objectives of this Research Project

The purpose of conducting this research was to establish the extent to which environmental awareness is being taught in Irish Primary Schools, the content of the programmes being taught and to determine what problems (if any) were being experienced by teachers.

In order to determine this, it was necessary to investigate the following: -

1. How the current curriculum was drawn up
2. The extent of training in environmental awareness for primary school teachers
3. The time given in the schools to environmental education
4. The use by teachers of other initiatives/programmes to assist them in their delivery of environmental education.

Chapter 4 Methodology

4.1 Introduction

In order to find answers to the objectives listed in Chapter 3, a few different approaches were taken, which consisted of:

- Interview with Department of Education Inspector
- Interview with Director of The Kildare Education Centre
- Interview with a facilitator for the "new" Science Curriculum
- Interview with an Environmental Awareness Officer from a local authority
- Questionnaires were developed and sent to 115 schools
- Questionnaires were sent to all environmental awareness officers throughout the Republic of Ireland.

4.2 Interviews

4.2.1 Interview with Department of Education Inspector

This interview took place on 22nd December 2003 with an inspector in the Department of Education, Dublin. A number of set questions were asked and replies were given (Appendix 1).

The aims of the interview were to establish the process by which the current curriculum was developed, the policy in regard to environmental awareness, the inspection and monitoring process for teaching the subject area, and any relevant assistance that could be offered to assist this research.

4.2.2 Interview with a Director of an Education Centre

This interview took place on 8th April 2004 with the director of an Education Centre. A list of pre-prepared questions was asked and replies given (Appendix 2).

The aims of this interview were to research the level and content of training received by teachers, the monitoring of the implementation of this element of the curriculum and any other assistance which could be offered to aid this research.

4.2.3 Interview with an Environmental Awareness Officer (EAO) from a local authority

This interview took place with the Environmental Awareness Officer, of a County Council on 15th April 2004 (Appendix 3).

The aims of this interview were to understand the role of the environmental awareness officers in relation to the education of primary school children into aspects of the environment and to pilot a questionnaire for other environmental awareness officers.

4.2.4 Interview with a facilitator for the "new" Science Curriculum

A telephone interview was made with a facilitator for the new Science Curriculum on 19th April 2004 using a list of prepared questions to which replies were made (Appendix 4).

The aims of this interview were to establish the degree of training received by teachers in environmental awareness and care.

4.3 Questionnaires

4.3.1 Questionnaires to Primary Schools

A questionnaire (Appendix 5) was developed and sent to 115 schools throughout the Republic of Ireland. The schools were selected at random from the "Department of Education and Science List of National Schools 1997-1998" (Appendix 8), apart from 10 questionnaires that were sent by a teacher friend to her contacts as we were assured that these would be returned. The questionnaires were posted along with a covering letter (Appendix 6) and a stamped addressed envelope to the principal of each school.

The questionnaire was structured in such a manner as to encourage precise responses to questions with ease. It was laid out in a concise format with most questions requiring the respondent either to tick boxes or give a rating based on importance. The reason for using this format was to:

- facilitate the respondent by keeping the questionnaire simple and less time-consuming to complete;
- aid the interpretation of results afterwards, in order that meaningful conclusions could be made

The aims of the questionnaire were to establish how well equipped teachers were to deliver environmental education, if there were problems associated with teaching the curriculum, and the extent to which other bodies were utilised in assisting the teaching of this subject. It was also designed to establish if there were any trends between category of schools and the teaching of environmental awareness and care.

Questions 1 to 5 were general questions regarding name and address, school size and category.

Questions 6 to 11 were developed to ascertain the level and quality of training received by teachers in environmental awareness and the degree to which it is delivered to the pupils.

Questions 12 to 15 were aimed at finding out whether schools availed of programmes by outside agencies or the community.

The majority of schools responded promptly, those who failed to reply after 3 weeks were telephoned, a very small number of additional forms were received as a result.

4.3.2 Questionnaires to Environmental Awareness Officers.

This questionnaire was very concise (one page) in order to encourage respondents to complete it. The questions were mainly tick box style, which also facilitated ease of completion as well as aiding the interpretation of results.

The contact details of Environmental Awareness Officers were sourced on the ENFO website. Questionnaires (Appendix 7) with a cover note were sent by email to all (43) of the Environmental Awareness Officers listed on the ENFO website.

The aims of this questionnaire were to ascertain the uptake by schools of local authority initiatives in environmental education, the response to the Green Schools Programme in their area and the success of their involvement with primary schools.

The questionnaire was constructed as follows: -

Questions 1 and 2 were name and address.

Questions 3 to 10 dealt with programmes delivered by education officers in schools and how they rated the level of interest shown by teachers.

Questions 6 and 7 dealt specifically with the Green Schools Programme.

Emails were re-sent to those who did not reply after one week. Hard copies with a cover letter were sent to those whose emails were undeliverable as well as those who failed to reply.

Chapter 5 Results

5.1 Introduction

The results of the interviews and questionnaires are presented in this chapter. This Results Chapter follows the same order as the previous chapter on Methodology. The responses to questionnaires are presented in order of question.

5.2 Results of Interviews

The results of interviews, which were held with four professional individuals involved in various aspects of education and environmental awareness, are outlined in the following sub-sections.

The questions for the interviews with the Department of Education and Science Inspector and the Director of an Education Centre are not transcribed below as a substantial amount of discussion developed during these interviews and often a number of questions were answered in one reply

5.2.1 Interview with a Department of Education and Science Inspector.

Questions 1 to 5 and 7 to 9, which all related to policy on the teaching of environmental education were answered by indicating that the policy is contained in "The Primary School Science Curriculum". The Curriculum Committee for Social, Environmental and Scientific Education developed this document. This committee was composed of 26 members representing the Irish National Teachers' Organisation, the National Parents' Council, the Catholic Primary School Managers' Association, the Church of Ireland General Synod

Board of Education, the Department of Education and Science, the Teaching Brothers' Association / Association of Primary Teaching Sisters, the Management of Colleges of Education as well as two Education Officers and a Science Advisor.

The aims of the curriculum are set out in the above document, the most relevant for the purpose of this study being " to encourage the child to behave responsibly to protect, improve and cherish the environment and to become involved in the identification, discussion, resolution and avoidance of environmental problems and so promote sustainable development" (Anon, 1999).

Questions 6, 18 and 19: the implementation of the curriculum is taking place in the current school year (2003 / 2004).

Question 10: a full review of the teaching of the new curriculum will take place 7 years after implementation.

Question 15: trainee teachers are taught science as a subject in college.

Question 16: in-service training in science was available to all working teachers.

There were some questions to which the inspector did not have responses, however direction was given in order to source this information, as well as other helpful advice and contacts.

5.2.2 Interview with a Director of an Education Centre

Question 1: the policy is included in the Primary Science Curriculum.

Question 2: the policy was drafted by the National Council for Curriculum Assessment (NCCA).

Question 3: all parties are committed to the implementation of the policy on teaching environmental education in primary schools.

Questions 4, 5 & 12: a discussion developed around the idea of comparing Ireland to other countries i.e. using the tool of Best Practice, however it was advised that this would take considerably more time than that available for this research project.

Questions 6 to 10: direction was given to a facilitator to address the questions regarding training.

Question 13: evaluation of the curriculum is systematically performed by members of the Primary Curriculum Support Programme.

Question 14: the Quinlan Report can be sourced in Trinity College, Dublin archives or from the NCCA.

5.2.3 Interview with a Local Authority Environmental Awareness Officer

Question 1. What are the duties of the Environmental Education Officer?

Promotes awareness on waste management issues throughout the county to businesses, community groups and schools.

Question 2. How many schools you cover?

114 Primary and 14 Secondary Schools

Question 3. Contact with schools proactive/ reactive?

Information is sent to each school outlining services, however it is up to the school to invite Environmental Awareness Officer to make presentation or a talk.

Question 4. Is Green Schools the main initiative?

It is important, 60 schools in this county are registered, and 22 have the Green Flag.

Question 5. Can level of interest in Environment be categorised by type of school?

A ratio of 60:40 Rural : Urban

Question 6. Outline a typical programme with a school?

Visit the school to give talk or presentation depending on the age group one or two times in the school year.

Topics covered include: - Litter Problems, Recycling, Sustainable Development, Wildlife, encourage schools to use Returnbatt services, in addition to this, meetings with Green Schools committees in an advisory capacity.

Question 7. Do you work directly with children?

Yes, particularly on Green Schools Committees.

Question 8. email contacts for other Environmental Awareness Officers

ENFO website

Question 9. Questions I should ask (on Questionnaires to other Environmental Awareness Officers)?

Effectiveness of their role in promoting environmental awareness. Participation in Green Schools Programme. Other environmental initiatives offered to schools.

Question 10. Research results on Green Schools, who carried out this research; can findings be substantiated by local authorities?

An Taisce results, no statistics by Local Authority, but would agree with findings by An Taisce.

Question 11. Are you involved in delivering Summer Courses to teachers?

Yes in various schools and in the regional Education Centre.

5.2.4 Interview with a Facilitator

Question 1. How were facilitators selected?

Open application process for qualified teachers, selection by interview.

Question 2. Was a knowledge of science among the criteria for selection?

No, as training was given. Many teachers do not have a science background.

Question 3. How much training did the facilitators receive?

6 – 7 weeks, comprising of 3 weeks involving science workshops by science professionals, 1 week preparation for training, 1 to 2 weeks observing other qualified trainers followed by 2 to 3 training sessions working in pairs. Following 3 weeks working as an individual, a review of the delivery of training was undertaken.

Question 4. What qualifications did the trainers have?

Professional scientists, could be academics or from industry.

Question 5. How much training did the teachers receive?

The breakdown of the training delivered to the teachers in schools was as follows: -

Introduction:- one afternoon in individual school with teachers outlining the entire science curriculum.

Three days in-service training:-

Day 1: General Introduction, Living things, Electricity and magnetism.

Day 2: Environmental audit of the school surroundings and easy accessible sites located nearby.

Day 3: Environmental Awareness and Care, Forces and Materials.

5.3 Results of Teacher Survey

113 questionnaires were sent to school principals, of which 59 were returned (52.2%).

The first section covered general questions about the school, pupil numbers, teacher numbers, school type etc.

Question 1. Name and address of school: this information is confidential; it was used to check which schools had replied.

Question 2. Total number of pupils: ranged from 16 to 475, average = 161

Question 3. Total number of class teachers: ranged from 2 to 26, average = 7

Question 4. Type of school: a. Single sex = 11 (19.3%) b. Co-Ed = 46 (80.7%)

c. Gaelscoil = 4 (7%) d. Disadvantaged = 8 (14%) e. Rural = 24 (42.1%)

f. Urban = 33 (57.9%)

All single sex schools surveyed were urban; the Co-ed. Schools were almost evenly divided between urban and rural with 22 and 24 respectively.

Three out of four of the Gaelscoil were in urban areas. Six of the eight (75%) of the disadvantaged schools were urban. The two schools, which noted that they were special, were also urban (special school was not included as a category on the questionnaire).

Question 5. Size of school:

The reason for including this question was that this is a classification for school size often utilised. It was also used to determine if there were additional teachers e.g. resource teachers that could be of assistance when bringing pupils outdoors.

This shows that most schools studied fell into the small category; the next highest group were classified as being large, whereas the average from question 3 was seven teachers. The percentages in these categories vary somewhat from the statistics from the Department of

Education and Science. Category a. is in line with statistics; category b. was under sampled with categories c. and d. over sampled.

Table 5.1 Breakdown of School Size according to number of teachers.

Category	Survey Results	Statistics*
a. less than 4 teachers	20 (35%)	37%
b. 4 - 7 teachers	12 (21%)	33%
c. 8 - 11 teachers	10 (18%)	12%
d. > 11 teachers	15 (26%)	18%

*Department of Education and Science, 2004a

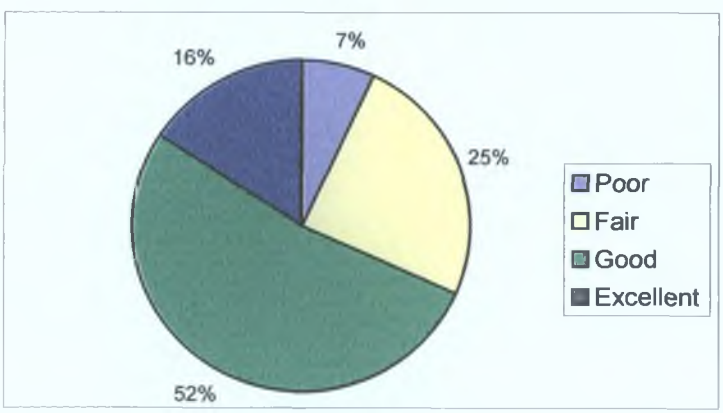
Question 6. What percentage of the total science curriculum taught in your school is dedicated to environmental awareness and care?

a. < 10% = 2 (3.5%) b.10 – 25% = 28 (49%) c. >25% = 27 (47.5%)

Question 7. How would you rate the quality of in-service training in science?

a.Poor = 4 (7%) b. Fair = 14 (24.6%) c. Good = 30 (52.6%) d. Excellent = 9 (15.8%)

Fig. 5.1 Teachers' Perception of Quality of In-service training



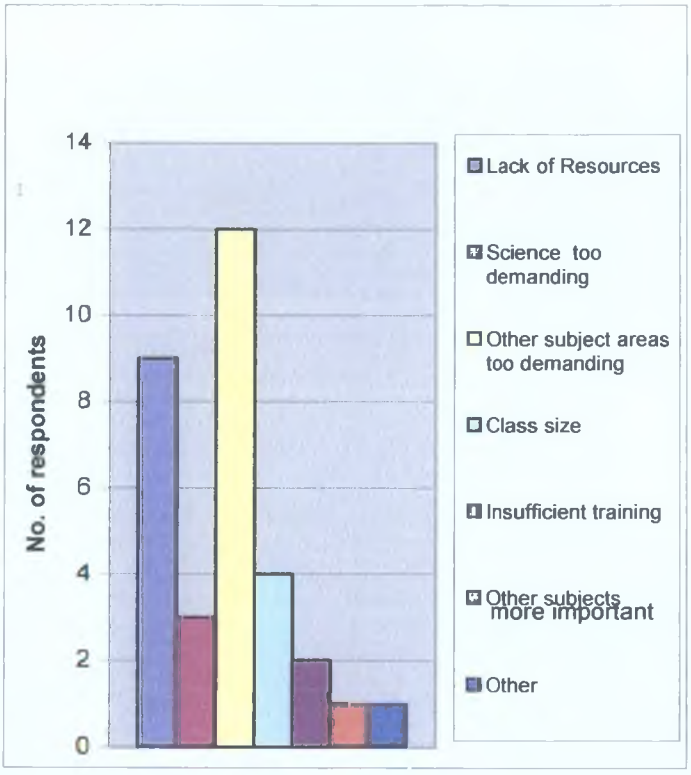
Question 8. Does your staff generally feel sufficiently well equipped to teach Environmental awareness and care? YES = 51 (89.5%) NO = 6 (10.5%)

Question 9. Is it possible to deliver the full programme of Environmental awareness and care as out-lined in the current curriculum? YES = 27 (47.4%) NO = 30 (52.6%)

Question 10. If No, please rate reasons for not delivering the complete programme as outlined in your school plan in Environmental awareness and care from 1-7 (rating 1 as most important reason 2 as next important etc.)

	Most important reason %
c. Other subject areas too demanding	40%
a. Lack of resources	30%
d. Class size too large	13.3%
b. Science Curriculum too demanding	10%
e. Insufficient training in this subject	6.6%
f. Other subjects are more important	3.3%
g. Other reason(s), state which	3.3%

Fig. 5.2 Reasons for inability to complete the curriculum



Question 11. How often are classes brought on field trips, including both the immediate locality as well as trips to places of specific environmental interest?

The question was asked for each pair of classes e.g. junior and senior infants, 1st and 2nd class etc.

The results are summarised as follows

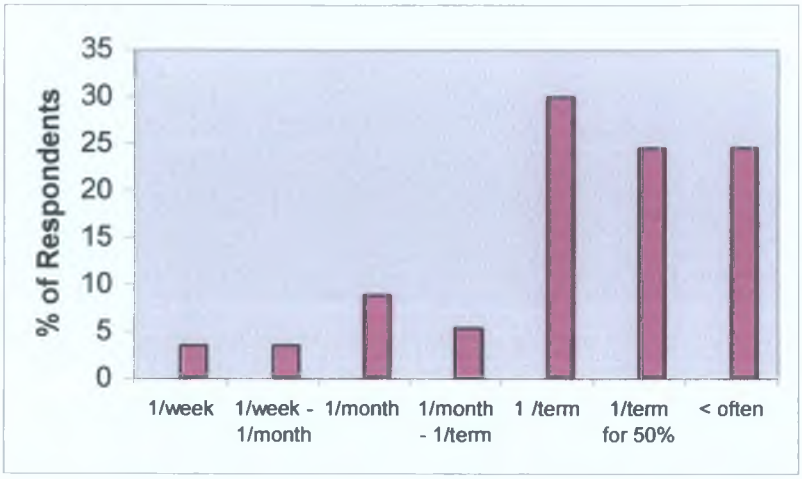
Once / week = 2 (3.5%) between weekly and monthly = 2 (3.5%)

Once / month = 5 (8.8%) between monthly and once / term = 3 (5.3%)

Once / term = 17 (29.9%) once / term for half the pupils = 14 (24.5%)

Less often = 14 (24.5%).

Fig. 5.3 Frequency of Field Trips



Question 12. Does your school have any of the following environmental education programmes: - a. Green Flag = 20 (35%) b. Anti - litter campaign = 36 (63.1%) c. Green Streets = 1 (1.75%) d. Member of ECO =1 (1.75%)

e. Other environmental initiatives =17 (30%)

Other initiatives included the following: - recycling, Ringo project, ESSO Wildlife competition, ESB environmental award, Tidy towns, local authority competitions, composting and wildlife gardens.

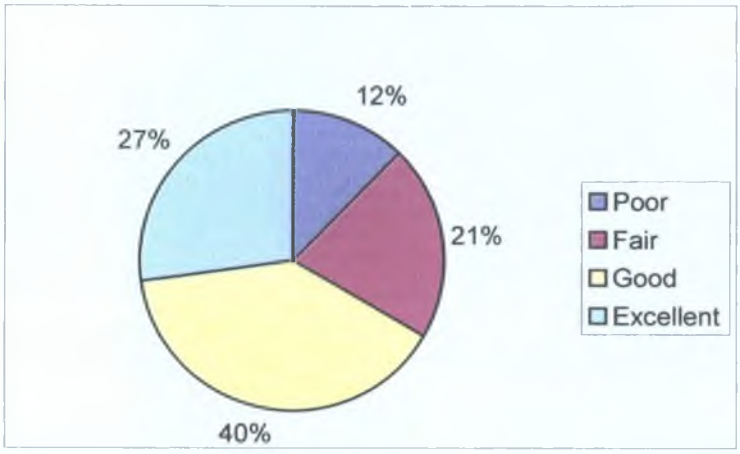
Question 13. Do you receive educational assistance and resources from the Environmental Education Officer in your local authority?

YES = 30 (52.6%) NO = 27 (47.4%).

Question 14. If yes, how would you rate this assistance?

a. Poor = 4 (12%) b. Fair = 7 (21%) c. Good =13 (40%) d. Excellent =9 (27%)

Fig. 5.4 Rating by Teachers of Assistance from Environmental Awareness Officers



Question 15. Do you avail of resources in your community such as parents' expertise on environmental topics? YES = 26 (45.6%) NO = 31 (54.4%)

If YES, Give brief outline

Examples of responses by those answering yes were: - "school gardening, maintenance of school environment", "advice and support on recycling", "parents on Green Schools committee", "visit to local civic amenity site", " parents give talks and demonstrations", "national park close by", " organic farmers", "parents help teach care of the environment", "parents help to sow trees and seeds", "talks on wildlife and nature", "sponsorship from companies for plants", "provide sponsorship for projects", "visit to wastewater treatment plant as relative of pupil working there", "visits by environmentalists, bee-keeper, fisherman, litter warden, game-keeper", "Local authority parks department, ENFO visits", "questionnaire by local authority, teacher attended summer course on environmental issues (excellent), Environmental Officer talk", "parents assisted children in ESSO Wildlife challenge", "attempted green schools, but too difficult as this school is only an infant

school", "remarkable expertise in parent body used in the school", "visit to local surf and wildlife club"

5.4 Results of Environmental Awareness Officer Survey.

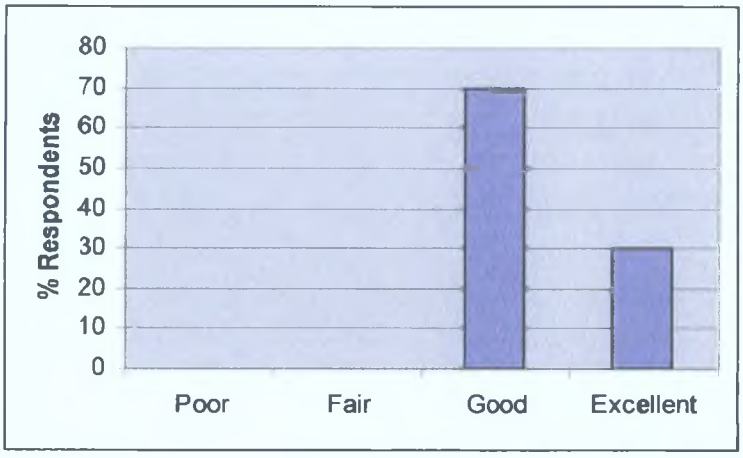
27 (63%) of these were returned; the percentage might in fact be higher as some of the contacts on the list were not acting Environmental Awareness Officers.

The following is a summary of the results: -

Questions 1 and 2 dealt with names and addresses.

Question 3. How would you rate the effectiveness of environmental awareness in the schools in your local authority area? Poor 0% Fair 0% Good 70% Excellent 30%

Fig 5.5 Effectiveness of environmental awareness programmes in the schools rated by Environmental Awareness Officers.



Question 4. Do you deliver talks on environmental issues to children in primary schools?

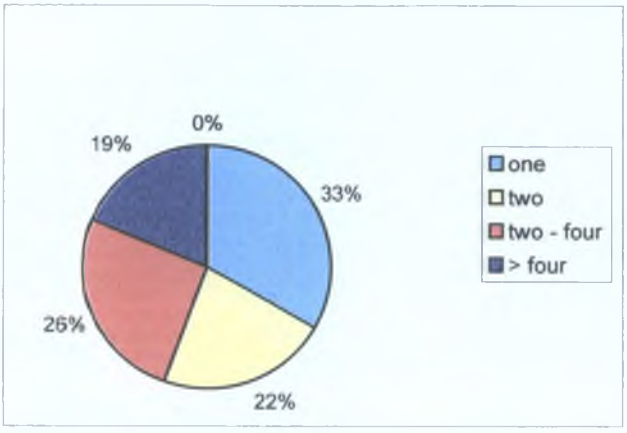
YES 100% NO 0%

Question 5. If YES, how many visits per year per school on average?

One 33.3% Two 22.2% Two – Four 26% more than Four 18.5%.

The results are presented in figure 5.2.

Fig. 5.6 Number of visits to schools per annum by Environmental Awareness Officers



Question 6. Do you promote " The Green Schools" initiative in your area?

YES = 100% NO = 0%

Question 7. If YES,

a. How many primary schools are registered? Between 8 – 102; average = 44

b. How many of the above have a Green Flag? Between 1 – 30; between 3 – 54% of those registered, average 22%

Question 8. What other programmes do you promote/ deliver in primary schools?

The following quotes were taken directly from completed questionnaires. The respondents have been given a code number for confidentiality reasons.

Comment No. 1

"Race Against Waste, ENFO Projects, An Taisce Projects such as National Spring Clean, Blue Flag Programme, National Tree Week, Energy Awareness Week etc, "

Comment No. 2

"Tidy Schools Competition, Recycling Competitions in schools."

Comment No. 3

"Conservation Volunteers Ireland – 'Operation Conservation, 'Naturally Wild' – Ecological Awareness, Sustainable Energy Ireland Roadshow, Enfo Roadshow

Anti-Litter Awareness Shows,

Reduce –Reuse - Recycle Activites e.g. Paper Making Workshops, Making puppets from recycled materials, arts project etc."

Comment No. 4

"We promote a wide range of projects and programmes, but always try to work through the Green Schools programme, as it is effective in sustaining change. Examples include a project to collect plastic bottles in 15 communities through local schools, a battery collection programme where schools can collect batteries and deliver them to us. We take recyclables from schools free of charge at our recycling centres and facilitate collection from some schools in more isolated areas of the county."

Comment No. 5

"Spring Clean campaigns, Recycling Week, Tree Week, various awards and competitions including County Environmentalist of the Year."

Comment No. 6

"Water protection, hedgerow conservation."

Comment No. 7

"Energy awareness workshops, composting workshop, national spring clean events, drama workshops for litter awareness, 'bringing waste to life' making puppets from waste, litter

logo competitions, grimebusters competition, tidy schools competition, free compost bins, bags, gloves, litter pickers. Some schools offered free battery recycling services and one school has a vermicomposter sponsored by the county council."

Comment No. 8

"National Tree Week, Spring Clean week, etc."

Comment No.10

"Tidy Schools Recycling and waste minimisation programmes."

Comment No. 11

Anti-litter poster and calendar competitions. ENFO initiatives. REPAK & Race-Against-Waste recycling competitions. Spring Clean. Environmental theatre. Spring Tree Planting. Autumn Bulb Planting. Energy Workshops. Sustainability workshops (Fashion from Trash, fancy dress competition). Mayors Anti-Litter Talks. Anti-Litter promotional pens."

Comment No. 12

"Wetlands Project, Woodlands Project, Anti-Litter Projects, Various Art Competitions."

Comment No. 14

"Field trips to gas and Compost facility. Competitions, posters, litter monsters, calendars, Spring Clean, Waste & Recycling, Photography competitions. National Recycling Week (Drama performances for schools)."

Comment No. 16

"County Council runs Schools Environmental Competition each year for primary schools, prizes are awarded."

Comment No. 18

"Under various Grant Schemes, I bring Theatre/shows into Primary Schools, The Clean Army Heroes is an Anti-Litter Play which the children love and really relate to. I fund an Artist who does Art Workshops with the pupils, again on an environmental theme. We give each school that registers for the Green Schools Programme a Battery Box for recycling batteries and a composter to start them off. I then visit each school advising them on the Green Schools Programme."

Comment No. 20

"Pride of Place Competition, Schools Enviro Newsletter, Schools Anti-litter League."

Comment No. 21

"Various environmental education programmes linked in with the race against waste campaign & annual bilingual competitions e.g. poetry, art (e.g. make your favourite animal from recycled materials), decoration / design competitions."

Comment No. 22

" Our own talks on waste, recycling and Litter Competitions and promote other resources available to schools. Race against Waste."

Comment No. 23

"Ongoing competitions, such as Blue Flag Beach, Christmas tree decoration competition"

Comment No. 25

"Organise Anti-litter Poster Competitions annually and art from waste competitions."

Comment No. 26

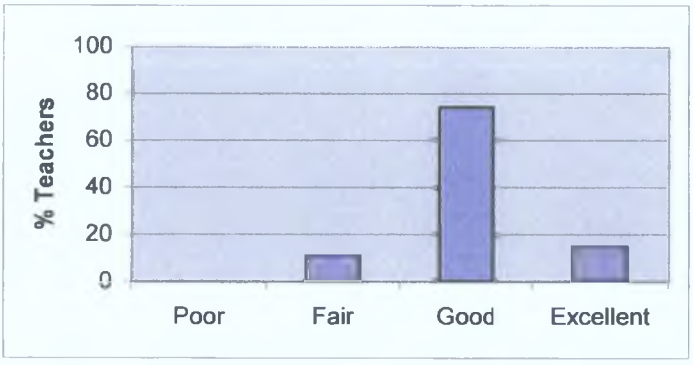
"Litter programs, clean up competitions, environmental shows, talks and walks, advice on reducing waste. The composition of waste, what it is made from etc."

Comment No. 27

"Litter campaigns, sustainable development, recycling, returnbatt, wildlife"

Question 9. How would you rate the level of interest by teachers to environmental awareness generally? Poor 0% Fair 11% Good 74% Excellent 15%

Fig. 5.7 Rating of Teachers' Interest in Environment by Environmental Awareness Officers



Question 10 Comments

These are the individual quotes taken directly from the questionnaires. The respondents are each given a number in order to maintain confidentiality.

Comment No. 1

"I feel that the Department of Education should help fund environmental initiatives in schools".

Comment No. 3

"A national standardised format for environmental education in schools would be welcomed with pre-prepared presentations, worksheets, video etc.

This would help to ensure that the messages that are being delivered nationally feed into a coherent programme for environmental education.

Different age groups need to be catered for and action sheets and activities carried out.

This would help to evaluate the effectiveness of a national environmental education programme for schools."

Comment No. 4

"Interest by teachers is a key factor in the success of the Green Schools Programme. It is never a problem getting students involved where there is commitment to the programme from staff. Parental involvement in the committee can make a huge difference in the success of a green school programme and is an under-utilised resource in many schools. Often a parent with an interest in environmental issues can make a huge difference to the implementation of a programme. The Green Schools Programme is by far the most effective way to raise awareness about environmental issues and to create sustainable change in attitudes and practice. Many other projects and programmes are short term and will produce quick results in the short term but a poor impact over the long term."

Comment No. 5

"With 119 schools in the county, support is given to schools that contact me. I have taken a number of schools on visits to Recycling Centres and the new landfill facility. We run a number of projects such as Birds in the School Yard, Composting Doctors, Battery recycling in schools and provide free composters to schools. Schools are encouraged to use the "Heritage in Schools" scheme where experts in various fields can be booked to visit the school."

Comment No. 6

"Primary school children are now quite often more environmentally aware than their parents."

Comment No. 7

"Find that promoting the green schools model is very effective and that it is better to help schools get it going (talk to staff, go to committee meeting, launch it to whole school etc) than to visit schools to give random talks on the environment, which don't really have benefit afterwards in terms of follow up by students."

Comment No.11

" Long-term sustainable environmental behaviour is dependent on the awareness and commitment of today's children who are tomorrow's adults."

Comment No. 12

"Primary school pupils show great interest in recycling and reducing their waste, they actually show a greater interest than the pupils in secondary school."

Comment No. 13

"Generally, environmental education talks and visits are easier to arrange in primary schools. It can sometimes be harder to reach second level students."

Comment No. 18

"I find the interest now by teachers and pupils in the Green Schools Programme is growing steadily. A lot more schools are getting involved. They all want recycling bins and environmental talks by myself and the Litter Warden. I think the younger you educate the children in environmental issues the better, it then becomes natural to them and they will learn life skills."

Comment No. 19

" We also encourage participation in wildlife competitions and broader environmental issues."

Comment No.21

"Some schools do not want to get involved, thinking they will have too much to do – I generally encourage the input from all parents to support the Green Schools programme at home as well as encouraging their children in school. Often, those who are slow to adopt the programme remark the fantastic community spirit that is achieved in the school. It is an extremely beneficial, enjoyable and worthwhile programme."

Comment No. 22

"Awareness has increased especially over the last year. Most schools are very interested and there is a big demand for information and talks at present. Schools also need recycling facilities so they can learn practically as well as the theory."

Comment No. 24

Due to constraints timewise, I do not get to visit schools as often as I would wish. We have more than 260 primary schools and I am the only person dedicated to environmental awareness, making it difficult to be there for everyone".

Comment No. 26

"There are 88 schools in my area; as environmental education is only part of my work (approx. 30%) it is impossible to visit all schools. Awareness in schools has increased over the last 3 years; however there should be a significant change in the curriculum in order to have a true effect. The Green Schools Programme is not ideally suited to all schools because of paper work, size of school and teacher resource. In addition, Green Schools should be run by the students; you will find that in primary schools this is not always possible or there will be a strong teacher influence and direction.

I always find that schools want to recycle straight away, instead of looking at reducing. This should be stressed more in the Green Schools Programme and the curriculum. Children know about recycling, what they don't know is why we do it, what products are made of and then ultimately the strain on resources that mankind is contributing to. The ethos should be Reduce first."

Chapter 6 Discussion

6.1 Introduction

This chapter outlines the issues that arose from the results of the interviews and the questionnaires as described in Chapters 4 and 5.

6.2 Interviews

The interviews were of assistance in this research primarily in giving direction to obtain useful sources of information and in supplying contact names of individuals in relevant organisations.

The education professionals interviewed certainly gave an insight into the process of developing the current curriculum which was a long process involving a large committee formed from all the stakeholders involved in education. The degree of training given to existing teachers was also explained in detail.

Interviewing the environmental awareness officer resulted in an understanding of this role as well as supplying helpful advice on constructing a questionnaire for EAOs.

6.3 Questionnaires

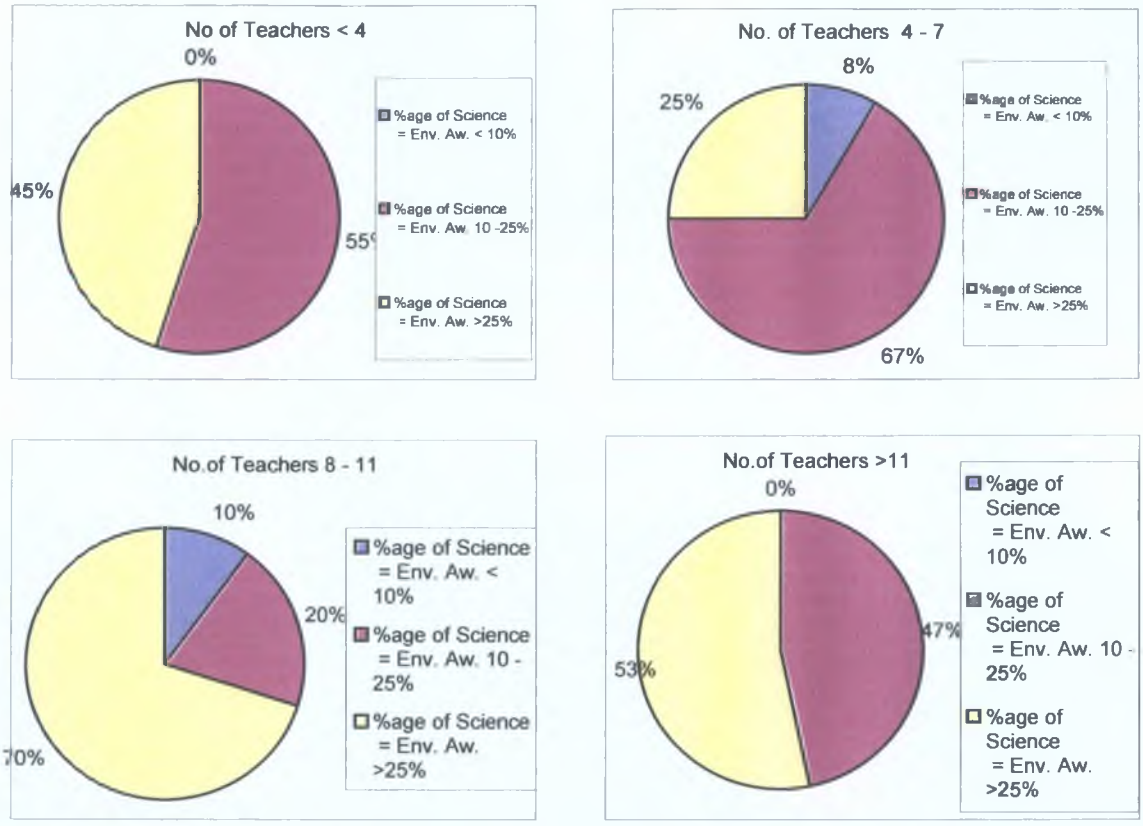
The results of the two surveys carried out for the purposes of this research project are discussed below.

6.4 Teacher Survey

52.5 % of the 113 questionnaires sent were returned; this is considered a good response rate to a postal survey. This is possibly due to the inclusion of a stamped addressed envelope, the format of the questionnaire being user-friendly and an interest by schools in the subject, (some respondents commented on this). Of course it must be considered that the schools having more positive attitudes were those that responded.

As the science curriculum is divided into four strands, it seems logical that approximately one quarter of the time spent teaching science would be dedicated to environmental awareness and care. However, the results of this survey indicate that there is a considerably greater amount of time given to teaching of environmental awareness and care. This varies within the size categories with the schools having the larger number of teachers often spending in excess of one quarter of the science time. This may be partly due to this being a shared strand with geography; the smaller schools would have mixed classes within the one classroom, which can be problematic for teachers in covering all areas of the curriculum. Only two of the schools that responded spent less than 10% of the science time on the environmental topics. See Fig. 6.1.overleaf

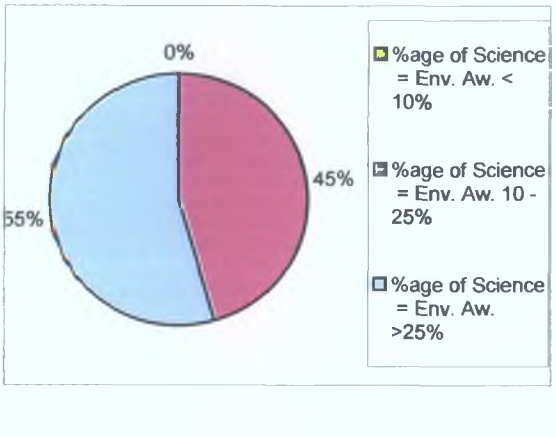
Fig. 6.1 Percentage of the Science Curriculum time spent teaching Environmental Awareness for different school size category



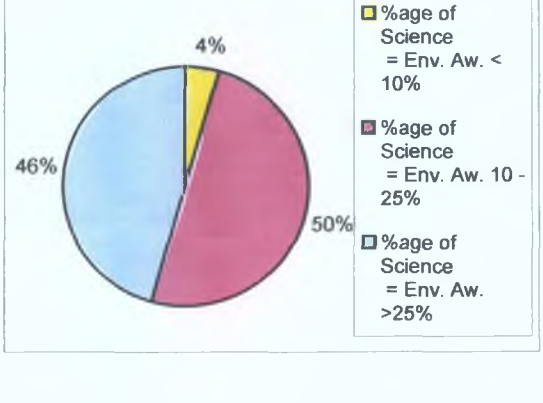
Single sex schools gave slightly more time than Co-Educational schools and the rural schools were also found to be giving a greater proportion of their science teaching time to environmental awareness, however the differences are not significant. The one category which was shown to have most schools with over 25 % of science time dedicated to environmental awareness was the disadvantaged schools, however there were only eight of these in this study, and this may be too small a sample to draw conclusions. Notwithstanding the foregoing, it may well be possible that this is a trend in disadvantaged areas, as nature and the environment often stimulate children in this category of school.

Fig. 6.2 % of the Science curriculum spent on Environment Awareness by school type.

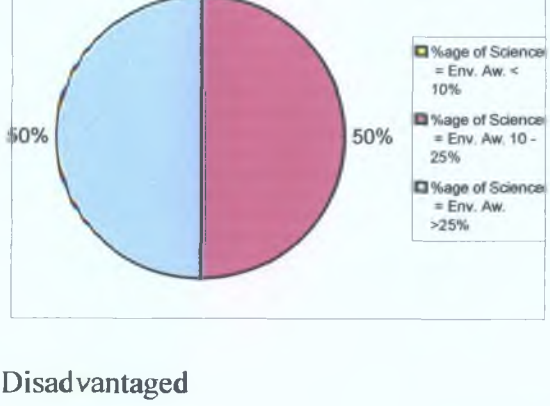
Single Sex



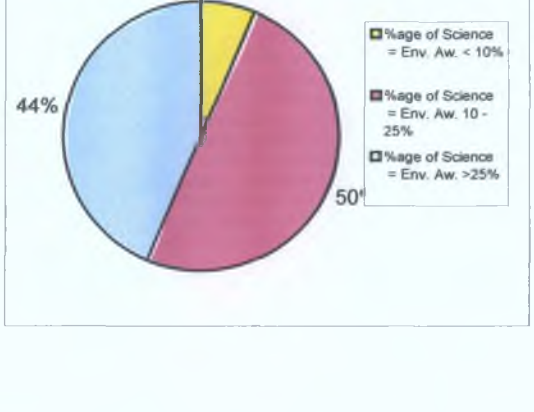
Co - Ed



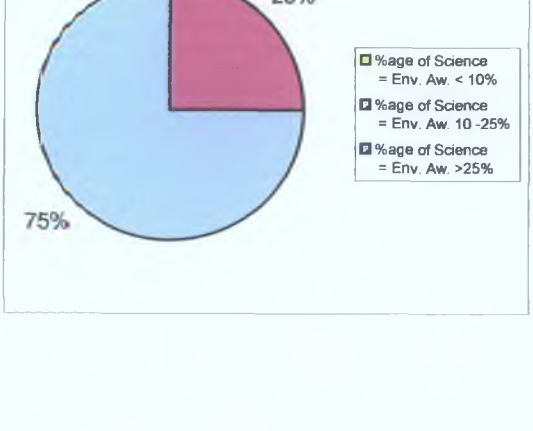
Rural



Urban



Disadvantaged

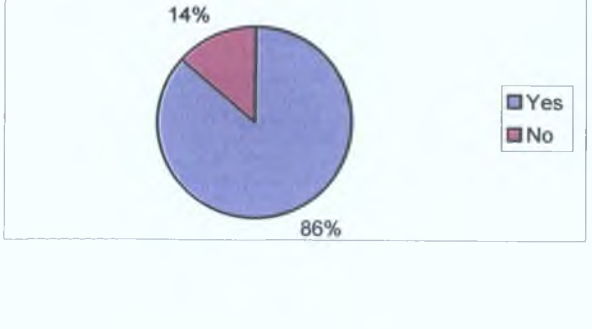


While the quality of in-service training in science was found to be at least good by over two-thirds of those surveyed, it may be of concern that 32% rated it fair or poor. The majority of schools (89%) stated that they felt competent to teach this subject, however more than half the respondents have problems delivering the entire environmental awareness element of the curriculum due to general curriculum pressures, followed by class size. The science curriculum was considered too demanding by over 5% of schools.

Less than 16% of teachers take their classes on walks in their own locality once per month or more frequently. This is comparable to the INTO survey in 1986 where it was reported 14% of teachers took their classes on educational walks.

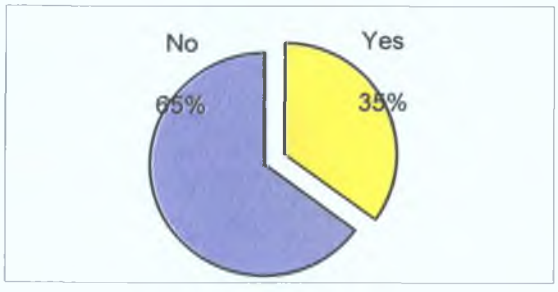
There was a positive response to the use of outside resources, competitions etc, with 86% of schools stating that they use some or in several cases many initiatives. However, there is a heavy focus on recycling, litter awareness, tree planting and gardening whereas pupils need to become more aware of sustainability and that issues such as recycling are bottom of the waste management hierarchy. There are many resources available to schools, some of which were described in Chapter 2 and which were not utilised by the schools surveyed e.g. Green Streets.

Fig. 6.3 Use of outside agencies / competitions on environmental topics in schools



The Green Schools programme was found to be well accepted by those schools taking part (which amounted to 35% of those surveyed as illustrated in Fig. 6.4). It must be assumed that this figure includes schools that are registered but have not as yet obtained their Green Flag award. This figure shows a marked increase on that found by Clancy, 2000, where 21.2% of randomly selected schools were part of this programme. The total number of primary schools awarded the Green Flag status to the end of school year 2003/ 2004 was 361 out of 1241 registered (An Taisce, 2004). It is often the means by which parents become involved with environmental issues through their children and creates good community spirit.

Fig. 6.4 Participation rate of Primary Schools in the Green Schools Programme according to this study.



Of the 26 (46%) respondents who use resources from the community and parents, it was found that only about 50% of those responding positively involved parents in environmental education. Many of these are members of the Green Schools committee or are involved in practical work such as planting seeds and trees.

6.4 Environmental Awareness Officer Survey.

There was a very good response rate (63%) to the survey, which in reality was most likely higher as the list included some people who were not employed in this role.

The results of the survey of Environmental Awareness Officers (EAOs) showed that in every case they considered environmental awareness to be effective in schools with a considerable number (30%) finding it to be excellent. However the EAOs' perceived level of interest shown by teachers was rated much lower with 15% excellent, 74% good and 11% fair. This might indicate that the children were showing a higher level of enthusiasm for the subject than the teachers or that whereas generally the schools were interested overall, individual teachers do not sustain the same level of interest.

The contact with schools was found to be high with over two- thirds of the EAOs making more than two visits per annum. All respondents promote the Green Schools Programme as well as many other initiatives. This is important as some schools find the Green Schools programme too demanding.

The question relating to Green Schools should have included a total number of the schools in the area in order to extrapolate the level of interest in the Green Schools Programme. However the numbers recorded indicate a varied interest in this programme with between 3% and 54% of those registered having been awarded a Green Flag. It is not possible to conclude why the degree of variation exists from the information gathered in this study.

The main emphasis of the campaigns provided by local authorities apart from the Green Schools Programme is litter awareness, recycling and waste initiatives. This is due to the fact that the role of EAOs was developed as a result of waste management plans to educate people on waste reduction.

It is the opinion of a number of EAOs that young children, particularly at primary school age, are more receptive to learning about the environment. The level of interest by teachers is improving and it would appear that when parents become involved in Green Schools Programmes, they are surprised at the benefits. Some EAOs felt under resourced, i.e. cannot reach all the schools in their locality. There also appears to be a need for resource materials to suit various age groups.

Chapter 7 Conclusions

The main aims of this dissertation, which were to assess the level of environmental awareness being taught in Irish primary schools (see Chapter 3), and to study the resources available to such schools has been successfully achieved.

Commitment to the teaching of science and encouraging a greater interest in this subject area by The Department of Education and Science has been illustrated by the development of a comprehensive curriculum. This is also shown by the investment in training of employed teachers and the inclusion of science as a subject in teacher training colleges. Making the teaching of science in primary schools compulsory was an important decision on the part of the department to illustrate the significance of this subject in modern society. The topics surrounding environmental education can be taken to amount to 25% of the science curriculum.

The general responses from teachers and environmental officers were positive with regard to the level of environmental awareness in schools. However difficulties with teaching this subject were cited by over 50% of respondents to the survey, of these 40% felt that other subject areas were too demanding and 30% felt that lack of resources prevented them from fully delivering the programme.

As the curriculum is designed to be used without the use of textbooks, there may be some difficulty by teachers in delivering lessons in all of the strand units and the topics within the strand units. On the other hand, the use of textbooks may not cover all areas in a balanced

fashion and local issues may be overlooked. The compilation of a directory (possibly web-based) listing all the environmental resources available to schools would provide teachers with easy access to many resources.

In order to ensure that the curriculum is being delivered adequately, some form of assessment would be required. The procedure at present allows for a new curriculum to be in operation in schools for seven years before the department inspectors carry out assessments in the schools. This is a very long time given that children spend eight years in primary school. In business and industry, many different types of audits (e.g. financial, safety, quality) by outside regulatory bodies are performed at least annually, so why not apply a similar system to the education of our children? In a press release on 16th July 2004, Mr. Noel Dempsey T.D., Minister for Education announced that standardised assessments will be made by teachers of pupils three times in primary school. He proposes that these standardised tests be introduced from 2006-2007 (Department of Education and Science, 2004b). This may alleviate the fear of inconsistency in the content of education being delivered, however if all subject areas are not covered by standardised testing a tendency to put greater emphasis on the subject being tested might arise.

In this study, it was noted that the main activities centred around the environmental awareness aspects of the curriculum including: - nature study, recycling and litter awareness. Even though these topics are important, most schools need to put more emphasis on waste reduction, sustainability, air, water and noise pollution in their teaching programmes. Many of these issues could be dealt with by introducing an environmental system into schools,

whereby a policy is developed and adhered to. Rather than teach environmental awareness as a subject, it then becomes part of everyday life. The Green Schools Programme is a good example of such an initiative.

To protect this planet from human destruction, environmental awareness must be part of our thinking and doing, not just a subject we learn and leave to others to worry about. Environmental education should enable individuals to assimilate the values, the basic concepts and the practical knowledge to appreciate the importance of protecting the environment.

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Appendix 1

Interview with Primary School Inspector

1. What is the overall policy in relation to Environmental Science in schools?
2. Is the policy available in written format (i.e. report, circular letter)?
3. Can you have a copy of the policy statement?
4. The policy was drafted by whom/how/when?
5. Has the policy been discussed with the various stakeholders (teachers, unions, parent representative organisations, representatives of second and/or third level education, professional bodies etc.)?
6. Is there a timescale and/or specific budget for the implementation of this policy?
7. Is the policy realistic?
8. Are there any obstacles in the way of achieving the policy?
9. Is there a commitment by all concerned to implement the policy?
10. Is there any on-going assessment or review of the policy or its implementation?
11. Which country has the best performance? Singapore or any other benchmark?
12. In what way are they the best?
13. How can the system be improved in Ireland?
14. How much training did existing teachers receive in Environmental Science?
15. Are student teachers trained in college?
16. What proportion of teachers/schools have received training?
17. When was the science curriculum revised?
18. Is the "new" curriculum fully implemented in all schools?
19. If not, where is it implemented best/worst and why?

20. Other documents recommended?

21. Other people I should contact?

22. Documents I have:-
    Curriculum,
    Green Schools Pack,
    INTO Social & Env. Studies Current Issues and Concerns
    INTO Heritage Directory
    Primary Science Starts Here
    TMSS study

23. Other Documents recommended

24. Where can I source UK curriculum and those of other countries

Appendix 2

Interview with Director, Kildare Education Centre

1. What is the overall policy in relation to Environmental Science in schools?
2. The policy was drafted by whom/how/when?
3. Is there a commitment by all concerned to implement the policy?
4. Which country has the best performance? Singapore or any other benchmark?
5. In what way are they the best?
6. How can the system be improved in Ireland?
7. How much training did existing teachers receive in Environmental Science?
8. Who did the training?
9. Was the training evaluated / if so, by whom?
10. How were the trainers trained / what qualifications ?
11. Other Documents recommended
12. Where can I source UK curriculum and those of other countries
13. Assessment by inspectors after 7 years, is there any evaluation of the curriculum in the meantime?
14. Quinlan report, where can this be sourced?

Appendix 3

Meeting with Environmental Awareness Officer of a Local Authority

1. What are the duties of the Environmental Education Officer?
2. How many schools you cover?
3. Contact with schools proactive/ reactive?
4. Is Green Schools the main initiative?
5. Can level of interest in Environment be categorised by type of school?
6. Outline a typical programme with a school?
7. Do you work directly with children?
8. email contacts for other Environmental Awareness Officers
9. Questions I should ask?
10. Research results on Green Schools, who carried out this research, can findings be substantiated by local authorities?
11. Are you involved in delivering Summer Courses to teachers?

Appendix 4

Interview with Faciliator for Science

1. How were facilitators selected?
2. Was a knowledge of science among the criteria for selection?
3. How much training did the facilitators receive?
4. What qualifications did the trainers have?
5. How much training did the teachers receive?

Appendix 5

Environmental Education in Primary Schools

Questionnaire

1. **Name and Address of School:** _____

_____

2. **Total number of pupils:** ☐

3. **Total number of class teachers:** ☐

4. **Type of school:** (tick all relevant boxes)

   a. Single sex ☐ b. Co-ed ☐ c. Gaelscoil ☐

   d. Disadvantaged ☐ e. Rural ☐ f. Urban ☐

5. **Size of school:**

a. less than 4 teachers ☐ b. 4 –7 teachers ☐

c. 8 -11 teachers ☐ d. > 11 teachers ☐

6. **What percentage of the total science curriculum taught in your school is dedicated to Environmental awareness and care?**

   a. < 10% ☐ b.10 – 25% ☐ c. >25% ☐

7. **How would you rate the quality of in-service training in science?**

   a. Poor ☐ b. Fair ☐ c. Good ☐ d. Excellent ☐

8. **Does your staff generally feel sufficiently well equipped to teach Environmental awareness and care?** **YES** ☐ **NO** ☐

9. **Is it possible to deliver the full programme of Environmental awareness and care as out-lined in the current curriculum? YES** ☐ **NO** ☐

10. **If No, please rate reasons for not delivering the complete programme as outlined in your school plan in Environmental awareness and care from 1-7** (rating 1 as most important reason 2 as next important etc.)

a. Lack of resources ☐
b. Science Curriculum too demanding ☐
c. Other subject areas too demanding ☐
d. Class size too large ☐
e. Insufficient training in this subject ☐
f. Other subjects are more important ☐
g. Other reason(s), state which _____ ☐

_____

11. **How often are classes brought on field trips including both the immediate locality as well as trips to places of specific environmental interest?**

Infant Classes	Once/week	once/month	once/ term	less often
1st & 2nd Class	Once/week	once/month	once/ term	less often
3rd & 4th Classes	Once/week	once/month	once/ term	less often
5th & 6th Classes	Once/week	once/month	once/ term	less often

(Circle closest frequency for each class)

12. Does your school have any of the following environmental education programmes: -

h. Green Flag ☐ b. Anti - litter campaign ☐

c. Green Streets ☐ d. Member of ECO ☐

e. Other environmental initiatives ☐

If other environmental initiatives, outline briefly_____

_____

13. Do you receive educational assistance and resources from the Environmental Education Officer in your local authority? YES ☐ NO ☐

14. If yes, how would you rate this assistance?

i. Poor ☐ b. Fair ☐ c. Good ☐ d. Excellent ☐

15. Do you avail of resources in your community such as parent's expertise on environmental topics? YES ☐ NO ☐

If YES, Give brief outline_____

_____

_____

Appendix 6

33 Lakeside Park
Naas
Co. Kildare

15/04/2004

Dear Principal,

I am currently studying for a M.Sc. in Environmental Protection by distance learning from the Institute of Technology, Sligo as a mature student.

A large proportion of the course involves writing a dissertation. I have chosen for the title of my dissertation "Environmental Education in Primary Schools". In order to research this topic, I have prepared a questionnaire, which I am sending to a representative sample of schools throughout the 26 counties.

I would be very grateful if you would take the time to fill out the enclosed questionnaire and return it to me in the stamped addressed envelope supplied.

Yours sincerely,

_____

Joan Hunter

Appendix 7

Questionnaire to Environmental Awareness Officers

1. Name _____
2. Local Authority _____
3. How would you rate the effectiveness of environmental awareness in the schools in your local authority area? Poor ☐ Fair ☐ Good ☐ Excellent ☐
4. Do you deliver talks on environmental issues to children in primary schools?
   YES ☐ NO ☐
5. If YES, How many visits per year per school on average?
   One ☐ Two ☐ Two – Four ☐ more than Four ☐
6. Do you promote " The Green Schools" initiative in your area? YES ☐ NO ☐
7. If YES,
   a. How many primary schools are registered? _____
   b. How many of the above have a Green Flag? _____
8. What other programmes do you promote/ deliver in primary schools?
9. How would you rate the level of interest by teachers to environmental awareness generally? Poor ☐ Fair ☐ Good ☐ Excellent ☐
10. Any other comments _____
    _____
    _____

Thank you for taking the time to fill in this questionnaire

Joan Hunter, 33 Lakeside Park, Naas, Co. Kildare
Email shawr@eircom.net

Appendix 8 Schools List

SchoolName	Address	Address 2	City	County
Ballyglisheen N.S	Borris			Co. Carlow
Bishop Foley Memorial School			Carlow	Co. Carlow
St. Clares Primary School			Cavan	Co. Cavan
Kilnaleck Mixed N.S.	Kilnaleck			Co. Cavan
Doolin Mixed N.S.			Ennis	Co. Clare
Quilty N.S.	Quilty		Ennis	Co. Clare
Gael Sc Mhichil Chiosog			Ennis	Co. Clare
Maria Assumpta GNS	Ballyphehane		Cork	Co. Cork
Greenmount Monastery N.S	Greenmount		Cork	Co. Cork
St. Lukes Mixed N.S.	Mahonys Ave		Cork	Co. Cork
Holy Trinity School	Newport Rd.		Westport	Co. Mayo
Dromleigh N.S.			Macroom	Co. Cork
SN Naomh Padraig			Mallow	Co. Cork
Ardara mixed N.S.			Ardara	Co. Donegal
Scoil Bhrighde	Min a Chladhaigh		Gort a Choirce	Co. Donegal
Scoil Choilmcille	Convent Rd.		Letterkenny	Co. Donegal
Baldoyle BNS	Baile Duill Br Clochaise		Baldoyle	Co. Dubllin
Carysfort N.S.	Convent Road		Blackrock	Co. Dublin
Monkstown Educate Together N.S.	Monkstown Community Centre		Monkstown	Co. Dublin
Swords Borough N.S			Swords	Co. Dublin
Central Senior Mxd School	Marlboro St.		Dublin 1	
Howth Rd.Mxd N.S.	Howth Rd.		Dublin 3	
Gaelscoil Lios Na nOg	An Ospideal Rioga	Domhnah Broc	Dublin 4	
St. Davids N.S.	Kilmore Road	Artane	Dublin 5	
St. Micheals Hse Special School	Raheny Rd.	Raheny	Dublin 5	
Kildare Place N.S.	96 Upper Rathmines Rd.		Dublin 6	
Christ The King BNS	Cabra		Dublin 7	
Bantiarna Na mBuanna G	Ballymun		Dublin 9	
St. Raphaels N.S.	Dominician Convent	Ballyfermot	Dublin 10	
Scoil Naisiunta An Dea Aoine	Whitehall Rd.	Churchtown	Dublin 14	

SchoolName	Address	Address 2	City	County
Whitechurch National School	Whitechurch	Rathfarnham	Dublin 16	
Gardiner St. Convent	gardiner St.		Dublin 1	
Rutland St. N.S.	Lwr. Rutland St.		Dublin 1	
City Quay Boys NS	City Quay		Dublin 2	
St. Columbas NS Mixed	North Strand		Dublin 3	
St. Joseph's for the Blind NS		Drumcondra	Dublin 3	
Scoil Treasa Naofa	Petrie Road	Donore Ave	Dublin 8	
St. Damien's NS	Beechfield Close	Walkinstown	Dublin 12	
Youth Encounter Project	41 Main St	Finglas	Dublin 11	
St. Brigid's Mxd NS		Castleknock	Dublin 15	
St. Francis Senior NS		Priorswood	Dublin 17	
Sacred Heart NS	Sruleen	Clondalkin	Dublin 22	
St. Brigid's NS		Foxrock	Dublin 18	
St. Michael's Special School		Glenmaroon	Dublin 20	
St. Mary's School	Greenhills Road	Tallaght	Dublin 24	
St. Mark's Junior School	Springfield	Tallaght	Dublin 24	
Bushy Park NS	Bushy Park		Galway	
Holy Family School	Renmore		Galway	
S.N. Caomhain	Inis Oirthir	Aran		Co. Galway
S.N. An Fheachtais	Tir an Fhia	Lettermore		Co. Galway
Loughguitane NS	Cill Airne		Killarney	Co. Kerry
St. Oliver's NS	Ballycasheen		Killarney	Co. Kerry
Tarbert National School	Tarbert			Co. Kerry
St. David's NS	Dublin Road		Naas	Co. Kildare
Scoil Bhride			Kildare Town	Co. Kildare
Scoil Naomh Aingeal	The Lawn		Castlebar	Co. Mayo
Lisdowney NS	Ballyragget			Co. Kilkenny
Church Hill Mxd NS	Cuffes Grange			Co. Kilkenny
Scoil Naomh Eoin Dea			Kilkenny	
Paddock NS	Paddock	Baile Chaisleain	Portlaoise	Co. Laois
SN Mhuire	Presentation Convent		Portlaoise	Co. Laois
Gortletteragh Central	Fornocht		Carrick-on Shannon	Co. Leitrim
St. Michael's NS	Glenfarne			Co. Leitrim
Scoil Ide	Corbally		Limerick	

SchoolName	Address	Address 2	City	County
St.Micheals	11 Barrington St.		Limerick	
Limerick School project	Upper Cecil St.		Limerick	
Knockea NS	Ballyneety			Co. Limerick
Cappaghmore Convent NS	Cappaghmore			Co. Limerick
Kildimo NS	Kildimo			Co. Limerick
Longford Mxd NS	Battery Road		Longford	
Scoil na Mbraithre	Chapel St.		Dundalk	Co. Louth
Scoil Mhuire Fatima	Dublin Road		Drogheda	Co. Louth
Convent of Mercy NS			Castlebar	Co. Mayo
Stackallen NS	Stackallen		Navan	Co. Meath
Kilmessan Mxd NS	Kilmessan			Co. Meath
SN Naomh Brighde	Baile an Bhothair		Trim	Co. Meath
Drumcorrin NS	Drum			Co. Monaghan
Scoil Mhuire			Monaghan	Co. Monaghan
St. Brendan's Monastery			Birr	Co. Offaly
Scoil Mhuire			Tullamore	Co. Offaly
SN Naomh Padraig	Beal Atha Fearnan		Boyle	Co. Roscommon
Scoil Na Mainstreach	An Cuar Bhothar		Roscomain	Co. Roscommon
Sligo School Project	The Mall		Sligo	
Our Lady of Mercy NS	Pearse Road		Sligo	
Riverstown No.2 School	Riverstown			Co. Sligo
St. Mary's Convent			Nenagh	Co. Tipperary
Loch Mor Maigh NS	Templemore			Co. Tipperary
Powestown NS			Clonmel	Co. Tipperary
Moyglass NS	Moyglass		Fethard	Co. Tipperary
St. Saviours NS	Ballybeg		Waterford	
Gaelscoil na nDeise	Wadding Housse	Lady Lane	Waterford	
Holy Cross School	Ballycarnane		Tramore	Co. Waterford
SN Phoil Naofa			Athlone	Co. Westmeath
Castlepollard Parochial NS	Castlepollard			Co. Westmeath
Kilpatrick NS			Mullingar	Co. Westmeath
Faythe Convent	St. John of God's Convent		Wexford	

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St. Joseph's NS	Kilmuckridge			Co. Wexford
SN Mhuire	Ballyhogue	Bree	Enniscorthy	Co. Wexford
An Tinbhear Mor BNS			Arklow	Co. Wicklow
SN Muire			Blessington	Co. Wicklow
Nun's Cross NS	Ashford			Co. Wicklow
Scoil An Choroin Mhuire			Wicklow town	
CBS	Newport Rd.		Westport	Co. Mayo
Drumcondra NS	Church Ave	Drumcondra	Dublin 9	
Masterson NS			Manorhamilton	Co. Leitrim
St. Patrick's Mercy NS	Altamount St.		Westport	Co. Mayo
Ballintubber NS			Claremorris	Co. Mayo
Cloughjordan No. 1 NS	Templemore Rd.,		Cloughjordan	Co. Tipperary
Flowerfield NS	Trim Road		Navan	Co. Meath
Holy Rosary GNS	Dominician Convent		Wicklow	Co. Wicklow
Delgany NS			Delgany	Co. Wicklow
All Saints NS			Mullingar	Co. Westmeath
Killeigh NS			Killeagh	Co. Cork