CHAPTER IV

THE GROWTH AND DEVELOPMENT OF ENVIRONMENTAL EDUCATION IN THAILAND
The environmental education in Thailand has a short history. In this chapter, an attempt has been made to study briefly the growth and development of the environmental education in Thailand in the historical perspective under four phases:

i) Environmental education in the period of Pre-Ratanakosin upto early Ratanakosin (Before the establishment of Bangkok upto early establishment of Bangkok in B.E. 1800 - B.E. 2411 or 1257-1868.

ii) Environmental education in the period of educational reform and formal education established in the reign of King Chulalongkorn upto 1960.

iii) Environmental education in the 1970s.

iv) Environmental education from 1980 to 1990.

However, before the discussion in some more details about the growth and development of environmental education programme in Thailand, some of the Thailand profiles and its educational system are presented briefly as under:

4-1 THE KINGDOM OF THAILAND:

Thailand (Kingdom of Thailand or Muang Thai or Prathet Thai), formerly known as Siam, is a tropical southeast Asian country. It is surrounded by Malaysia in the south, Myanmar in the west, Lao P.D.R. in the north and the northeast, and the Kingdom of Cambodia in the east. Thailand is approximately of the size of France, its total geographic area covers 514,000 square kilometres while its land area equals 511,770 square kilometres. It has 3219 kilometres of coastline. Thailand has a tropical climate with a high degree of humidity, average low temperature is 20 degree Celsius and high temperature is 37 degree Celsius. It is located in the tropics between latitude 5° 37' N and 20° 27' N. longitude 97° 22' E. and 105° 37' E. The Northern region is mountainous with dense forests. The land of the Northeastern region is dry and mostly plateau land, and a great central plain covering the Central region of the country. The climate of Thailand is dominated by the Northeast and Southwest monsoons. The Northeast monsoon or cold season normally has affected Thailand from November to February. High pressure areas from the Chinese mainland usually extends its ridge to Thailand, causing cold and fairly dry weather all over the country. The Southwest monsoon or rainy season, from
the Indian Ocean causes abundant rain in various parts of the country during May to October. A short drought period is normally experienced between June and July. After this period, rainfall becomes more frequent and heavy rainfalls are expected from tropical storms which enter the country from the South China Sea. There are three seasons which include summer (March to May), rainy season (June to October), and winter (November to February). Thailand is situated in the heart of Southeast Asia and as a gateway to Indochina. Thailand has a population of approximately 61 million people in 1998. Like other developing countries, Thailand went through a period of high population growth; during the 1960s, the population growth at a rate of 3 percent per annum. With an intensive family planning campaign, the population growth rate was cut in half by the end of the 1980s and its continue to decline. The population growth rate for this decade is expected to be a moderate 1.25 percent per annum. By the turn of this century, Thailand is projected to have a population of 65 million people.

An ancient autocracy, it became a constitutional monarchy in 1932. In 1948, the country assumed its present name 'Thailand'. It is the only southeast Asian country which never taken over by a Western power. The military took over the government in a bloody 1973 coup. In 1988, there was a democratic election but again military came to power in 1991. General elections were held in July, 1995.

Interestingly, it is worth noting that the word 'Thailand' literally means "Land of the Free" as it is the only southeast Asian country which has never been colonized by the Western powers. Its independence has spanned over 700 years and is the home of what some experts of ancient civilizations believe to be the World's oldest Bronze Age culture. Because of its religious and racial value, Thailand has been able to maintain a uniformly high level of development throughout its history. It is a predominantly Buddhist Kingdom with a unique monarchy and has its own language and alphabet, along with its own literature, arts, music and architecture. The current monarch, King Bhumibol Adulyadej is widely revered and beloved for his strong commitment to the Thai people's
welfare and to rural development. On June 9th, 1996 King Bhumibol Adulyadej, world’s longest reigning monarch, completed 50 years on the throne.

Agriculture is the mainstay of the country and engages 60 percent of the population. The chief crop is rice and Thailand is world’s biggest rice exporter—target for 1996 was 5 million tons. Coconuts, tobacco, cotton and teak are the other items of agricultural exports. During the last decade, Thailand increased her export to manufactured and processed items. Industry: Cement, processed food, textiles, wood, tin, jewelry. Minerals include tin (one of the largest producers), manganese, tungsten, antimony, lignite and lead. Tourism is highly developed.

Thailand has already gone through the Seventh National Plan. The economic boom of Thailand in latter 1980s was export driven. Manufacturing became the main export sector. The enormous inflow of direct foreign investment and the prevailing world economic boom helped. Thailand register double digit growth for a few years in the late 1980s. This subsequently led to greater demand for Thailand's infrastructure as well as for higher-skilled labours. Land prices in some areas were pushed artificially high, and labour market became very tight as wages steadily increased. Thailand’s competitive position in the international market began to deteriorate, especially in labour-intensive, resource based industries. In early the 1990s, Thailand was well on its way to joining the club of Asia's “economic tigers” and enjoys among the highest growth rates in the world. But in late 1997 to 1999 the Baht (Thai currency) was devalued several times as a result of mismanagement of the economy which led to the slow down of economy and the GDP also moved down. In early 1998 when crisis deepened, the country appealed the G–7 for help.

According to the administrative model, Thailand became a constitutional monarchy like Norway in 1932. In Thailand, education is perceived as an essential means for national development. Hence, schemes pertaining to education were revised and put into practice in 1936, 1951, 1960, 1966 and 1977 respectively, and the latest one was implemented in 1992.
4.2 THE EDUCATIONAL SYSTEM:

The educational system is highly centralized in Thailand. There are two major ministries responsible for its control and organization. Ministry of University Affair is responsible for setting standards of university at higher education level while education at lower level is under the control of the Ministry of Education.

According to Thailand's National Scheme of Education 1977, it emphasized education for survival, stability and mutual happiness. Besides, it also aimed at producing qualified citizens who lived a helpful life in their societies. However, as the Thai National Education Commission has deemed it necessary to improve the National Scheme of Education 1977 so as to render the educational system efficiently responsive to emerging needs and rapid changes in Thai society, capable of enhancing quality of the workforce, the people's adaptability to those changes and their ability to create a progressive society with balance growth in economic, social, political, cultural, environmental, scientific and technological aspects, the National Education Commission, by the approval of the Cabinet, has therefore formulated the new National Scheme of Education 1992 as guidelines to direct the nation's educational programmes. The National Scheme of Education 1992 was promulgated on the 10th of March, 1992 and announced on 10th June 1992. (NEC, 1992).

According to the National Scheme of Education 1992, its structure is based upon a 6-3-3 plan, with six years of primary education, three years for lower-secondary education and three years for upper-secondary education. This new 6 : 3 : 3 system has been implemented since 1978 to replace the former structure of 4 : 3 : 3 : 2.

Primary education aims to provide and to maintain literacy and to develop in the individual cognitive ability, numeral manipulation, communication skills and adequate knowledge that may be applicable to future occupational roles. It is also aimed towards personal development and the promotion of attitudes desirable for life in a democratic society. It is compulsory for all Thai children.
Secondary education aims to provide appropriate academic and vocational knowledge compatible with the learner’s age, needs, interests, skills and aptitudes which will ultimately be beneficial to his chosen career and society. Extensive elective subjects in the academic and vocational areas are offered in the lower secondary level. In the upper secondary level, students are guided to concentrate on areas of specialization needed for their chosen career of occupation.

Higher education aims at the full development of human intellectual abilities to facilitate the advancement in knowledge and technology.

Non-formal education is organized outside the regular school system. It may be designed for specific purposes or it may be part of other educational programmes, the objectives of which are to develop ability in problem-solving, or to provide certain occupational skills or to give specific knowledge and information according to the needs and interests of the people. The educational system is shown in Figure 4.1

Figure 4.1: The Educational System of Thailand
Education in a school-related system is divided into 4 levels: pre-school education, primary education, secondary education and higher education.

1. Pre-school education is in the form of childcare and readiness development of children in physical, psychological, mental, emotional, personality, and social aspects so as to prepare them for higher levels of education. The provision of education at this level can be organized in the forms of day-care centre, kindergarten, or child development centre, depending upon local conditions and target groups. Pre-school education aims at preparing the children before compulsory education. Education at this level may be arranged as formal or out-of-school education. It may take the form of nursery home, a child centre, or kindergarten.

2. Primary education aims to provide a basis for learners to form desirable character encompassing morality, ethics, basic knowledge and ability, and to retain literacy and arithmetic ability, enabling them to be good citizens under democratic constitutional monarchy.

3. Secondary education is divided into two parts; lower-secondary education and upper-secondary education.

3.1 Lower-secondary education aims to promote learners' morality, knowledge, ability and skills beyond the primary level; to enable them to identify their needs and interests and to be aware of their aptitude both in general and vocational education; and to develop their ability for work and occupational practices relevant to their age.

3.2 Upper-secondary education aims to enable learners to progress according to their aptitude and interests and acquire the basis either for furthering to higher education or for working and pursuing a career suitable for their aptitude both as entrepreneurs and paid workers; to promote their morality, ethics, and social skills necessary for working, pursuing a career and leading peaceful social lives.

In short, the secondary education follows the primary education and aims at providing the learners with knowledge and working skills suitable to their needs, interests and aptitude. Each individual will then be able to comprehend
and select work which will be useful both to themselves and society. At the lower-secondary education level, the learners are able to choose from a wide of subjects, both general and vocational according to their aptitude and interest, while at the upper-secondary education level, they should pay more attention to a group of subjects that will eventually become their line of future employment.

4. Higher education is divided into 3 levels, i.e., lower than bachelor's degree level, bachelor's degree level, and graduate level.

4.1 Lower than bachelor's degree level aims to promote learners' knowledge and vocational skills at middle level including their ability to initiate jobs and develop entrepreneurship.

4.2 Bachelor's degree level aims to promote learners' higher level of knowledge and skills in various disciplines, especially ability to apply theories to practices, to initiate both academic and professional development, to create and disseminate knowledge, to participate in national development relating to economic, social, political, cultural and environmental aspects, and to promote the role of the nation in the world community.

4.3 Graduate level aims to promote learners' specialized knowledge and skills; to strive for academic progress and excellence, especially in studies, research and development of knowledge and technology in science, humanities and social sciences; and to facilitate the adoption of modern technology and local Thai wisdom for economic and social development instrumental to Thai society.

During the past decade, Thailand had undergone rapid and marked changes due to the advancement of modern technology and communication systems and extensive engagement with the world community. Such changes were too overwhelming for both individuals and society to cope with, thus causing inequilibria in various development aspects. There have been imbalances between material growth versus spiritual development; between exploitation of natural resources with detrimental effects on the environment versus conservation; between recognition of modern/exogeneous versus...
local/indigenous knowledge and culture; and between dependency versus self-reliance both at individual, community, regional and national levels.

The State affirms the fundamental belief that education is a very important process to enhance individual development and enable the population to cope with future changes, and that education in the proper direction in accordance with national economic, social, political and cultural needs shall bring prosperity to the nation and create balanced and harmonious development. Being aware that the current educational provisions are not sufficiently responsive to the changing needs for individual, community and national development, the State therefore deems it necessary to improve the educational system with respect to principles, goals, policy directives and guidelines in order to ensure that education can help improve the quality of life for the Thai people in preferable direction and appropriate to the changing context of Thai society.

After completing the secondary schooling, graduates are provided with several options or types of education for furthering the education as follows:

1. University instruction
2. Teacher training
3. Vocational/Technical schooling
4. Military/Police training
5. Music and Dramatic Arts instruction

etc.

As a means to achieve the goal of the National Education Scheme, the five-year National Education Development Plans has been formulated since 1961. The present plan being in use is The Eighth National Education Development Plan (1997-2001). The Objectives, Policies, and Major Programmes for Educational Development under the Eighth Plan (1997-2001) are as follows:

**Objectives**:

1. To expand an extensive and equal provision of basic education for all people; and to extend basic education to secondary education level.
2. To improve the quality of education and its relevance to the needs of individuals, communities and the nation, and to enable learners to achieve their full potential for self-development.

3. To enhance Thai education in strengthening the national potential for self-reliance, and to contribute to national economic stabilization and the role of Thailand in the global economy. In order to achieve the aforementioned objectives, following are policies, targets, and major programmes for educational development.

**Policies on Educational Development:**

1. To accelerate an extensive and equal expansion, and further extension of high quality basic education services, for all.

2. To reform the teaching and learning system in order to enable learners at all levels to achieve their full potential in academic knowledge and basic skills, as well as to acquire desirable characteristics.

3. To reform the teacher education and teacher education system in order to enable teachers to improve teaching and learning to help learners to live a happy life in changing society, and to improve the teaching profession and enhance the status of teachers.

4. To accelerate the production and development of middle level skilled and higher level skilled manpower in order to enhance national economic potential, progress and stability within the global community, in the context of Thai tradition and in the spirit of self-reliance.

5. To reform education administration and management to be more flexible; to decentralize educational management so that all sectors of society are appropriately involved in decision-making, so as to provide equitable, high quality, and diversified models of education.

**Major Programmes for Education Development:**

Following are major programmes for educational development that guide the implementation.

- **Major programme 1**: Promotion of basic education for all.
- **Major programme 2**: Improvement of education quality.
- **Major programme 3**: Development of the teacher education system and process, and the development of in-service teacher education.
Major programme 4: Production and development of manpower in the areas of science and technology and social sciences.
Major programme 5: Research and development.
Major programme 6: Improvement of administration and management.
Major programme 7: Development of higher education.
Major programme 8: Educational resource mobilization.
Major programme 9: Development of an educational information system.

Synopsis of the Eighth National Education Development Plan (1997-2001), the information background; the office of the National Education Commission, under the National Education Commission Act of 1992 Section 10(3), is designated to be responsible for the formulation of the National Education Development Plan in accordance with the National Education Scheme and in relation to the socio-economic development of the country.

Regarding preparation of the Eighth National Education Development Plan (1997-2001), the Advisory Committee, appointed by the National Education Commission, is responsible for the Plan formulation. The draft Plan was preliminarily approved by the Commission and finally approved by the Cabinet in their meetings on 22nd January 1996 and 14th May 1996 respectively. (NEC, 1996)

Educational administration system, parallel to all other sectors of public administration, follows a three-level approach namely the central or national, regional and local levels. Administrative bodies at the central level represent a top-down policy, those at the local level represent the bottom-up, and those at the regional level do both.

There are four main educational agencies in Thailand being responsible for educational planning at the national level. Four of them are the Office of the National Education Commission attached to the Office of the Prime Minister is responsible for national education policies and development plan formulation. Policies and plans are transmitted to the Ministries concerned the implementation. The Ministry of Education is responsible for primary, secondary, teacher and vocational education including non-formal education. It also supervises private schools at all levels except the degree level. The
Ministry of Interior is in charge of Bangkok Metropolitan Administration primary schools and municipal primary schools throughout the country, while the Ministry of University Affairs is responsible for public and private colleges and universities. At the regional and local levels, these ministries have their own institutes and offices to provide education to the target population. Apart from these four planning organization other government agencies are also responsible for the management of education in particular fields, both in the formal and non-formal systems. The Ministry of Defense is responsible for the management of military education. The Police Department of the Ministry of Interior is responsible for the management of police education. The Ministry of Public Health is responsible for the management of health education. The Local Administration Department of the Ministry of Interior is responsible for the management of education in professional skills. The Bangkok Metropolitan Administration is responsible for organizing training in entrepreneurial skill, etc.

Education in Thailand extends over 12 years, that is, six years of primary education, which is compulsory, and six years of secondary education. All children aged seven are required to attend school until they reach the age of 14.

There are two alternative channels of education, academic and vocational. The academic channel prepares students for higher education in universities whilst the vocational channel prepares students for the skilled labour market.

**Administration in the Ministry of Education:**

The Ministry of Education is responsible for the management of most of the education in the country, from pre-primary education to secondary and some post-secondary, for instance, teacher education, technical and vocational education. In addition, it also supervises private schools at all levels except the degree level.

The Ministry of Education has 14 departments/offices including the Office of the Permanent Secretary. The Ministry is headed by a member of the Cabinet who is designated as Minister of Education, with 3 deputy ministers.
The Minister is assisted by a secretariat, the Permanent Secretary and the Director-General of each department. It may be mentioned that the Private Education Commission, the Office of National Primary Education Commission, the Office of the Teachers Civil Service Commission, and the Office of National Culture Commission are all equivalent in status and are headed by a Secretary General. Uniquely, the Institute for the Promotion of teaching Science and Technology (IPST) is affiliated to the Ministry, has state-enterprise status and enjoys considerable freedom of administration. The administration in the Ministry of Education.

**Figure 4.2: Administration in the Ministry of Education**

4–3 **ENVIRONMENTAL EDUCATION IN THAILAND**:  
As mentioned earlier, the growth and development of environmental education in Thailand has a short history. The history of environmental education in Thailand may be divided in the following four periods.
Environmental Education in the period of Pre-Ratanakosin upto early Ratanakosin (Before the establishment of Bangkok upto early establishment of Bangkok in B.E. 1800 – B.E. 2411 or A.D. 1257 – A.D. 1868).

In this period, the traditional educational system was mainly informal and non-formal, the education process in Thai society had always been informal and non-formal both in the period of Sukhothai and Ayutthaya (the old capital cities of Thailand). The family, temple, and palace were the non-formal educational institutions par excellence, for them did not formally organize any class, nor fix any syllabus, nor time-schedule. The teacher-parents/grand fathers or grandmothers, teacher-monk, and teacher-experts respectively gave lessons to their sons or daughters, pupils or learners on an individual basis and at a time convenience to themselves. The main purpose of this system was mainly vocational, religious or traditional and culture which they are the elements of the environment. For instance, the vocational education in this period mostly comprised of folk arts and crafts, culinary art etc.

In the culinary art, Thai cooking is an art form. There is considerable skill, know how and even mythology involved in the cooking process. It is true that one cannot be an expert Thai cook without considerable practice at cutting, as well as focusing on the actual process going on in the cooking utensil. It seems that every chef has his or her own idiosyncrasies about process of cooking. The process of cooking tells the tradition, culture and lifestyle of the Thai family. The parent will teach their children to help in the kitchen work; it can be noticed that the Thai cooking culture creates closeness and good relationship among each other, adults and children. The family will become a unit the produces valuable member of the society in the future.

Like other aspects of Thai culture, Thai cooking owes so much to China and India, but at the same time, it still retains the essential Thai-ness of native food. Thai food, like many other Southeast Asian countries, rice is the staple food of Thailand. But unlike the others, Thai people enjoy one way of eating rice immersed in icy scented water during the extremely hot summer season.
rice is eaten with several kinds of food and vegetables, all of which are specially prepared to have a decorative appearance. For example, the vegetables are sliced and carved to take on ornamental shapes. This may be regarded as an art form (ONCC 1997). The curriculum development of food and nutrition area in the period of Pre-Ratanakosin, e.g. Sukhothai and Ayutthaya was non-formal education and aimed at practice. Learning and teaching how to cook was in family, temple, and palace. Until the early Ratanakosin period (early the establishment of Bangkok), it was the same as Sukhothai and Ayutthaya period. In the reign of King Chulalongkorn or King Rama V of the Royal House of Chakri (1868-1910), formal education was established through school. Subsequently there were changes, improvement and development in curricula to suit the social and technological changes. (Tepneeramit, 1990).

ii) Environmental education in the period of educational reform and formal education were established in the reign of King Chulalongkorn (1868-1910) upto 1960s

In this period, the government was concerned about the problems of modernization and the elimination of illiteracy. It began with the setting-up of the ministries and departments in Thailand and it was also prior to the introduction of modern schooling system. The study of environment was officially introduced in Thai education which initiated educational reform. In theory, the study of environment applied equally to primary and secondary education. It was not treated as a separate subject but started in the early stages, and was later combined regularly or occasionally with almost all the subjects. The applications and examples relating to which were, as far as possible, drawn from everyday life and the surroundings. It was combined with the subjects such as reading, writing, drawing, composition, arithmetic, languages, geography, history, physical and health education, agriculture, civics and Thai literature, etc. It was also combined with other school activities e.g. practical work in the school garden and with youth movements etc. took place.
iii) Environmental education in the 1970s

In 1975, after Thailand's significant role in the United Nations Conference on Human Environment at Stockholm, Sweden in 1972, it set up the office of National Environmental Board (NEB), and the Improvement and Conservation of National Environmental Quality Act was promulgated. The environmental education was one of the six chapters in the policy which was drawn up by the NEB and it had been approved by the cabinet. In those years, many Thai school teachers were only familiar with other concepts such as population education, drug education, and consumer education programme. In 1978 (B.E. 2521), Thailand made a major change in its primary education curriculum, and the "Thailand's Life Experiences Programme: Environmental Education for Primary Schools" was implemented to replace the old primary education curriculum. In the past, the primary school curriculum was designed around subject areas such as Thai language, Mathematics, Natural Science and Social Studies, but the new primary education curriculum of 1978 (B.E. 2521) adopted a completely different approach. The approach did not treat environmental education as a separate subject but was integrated with four areas of study viz. basic skills, life experiences, character education, and work experience. The 'life experiences' programme integrated amongst other subject areas; social studies, environmental studies and health. The area 2 - Life Experience emphasizes the process of solving social problems. The selected content concerns problems and issues such as health, population, politics, government, society, religion, culture, economics, technology, natural environment and communication.

The environment has been singled out in the description of Area 2 – Life Experience and in the general objectives of the Life Experience Programme. This is because the environment is considered to be closely associated with the life of every child, environmental problems exist at every stage and level of community life. Thus, the concern for the environment appears as an objective of the primary education curriculum. In the late 1970s, the environmental problems were among the major concerns of the nation, so educational
activities had more become part of the joint efforts to promote environmental quality in every level of education. Thai educators and curriculum specialists began to have on high alert to revise the primary and lower secondary school curricula, and upper secondary school curriculum as well as the fields of study concerning the environment in tertiary level both in-school and out-of-school programmes.

iv) Environmental education from 1980-1990:

In the early 1980s, for many Thai school teachers the term "environmental education" was still an unfamiliar one, although they were imparting such knowledge to their students without identifying it as such. It is a term, however, which is becoming very important to educators and curriculum specialists together with other new concepts such as population education, drug education, and consumer education, and which can be identified in curricula from the primary school level up to university, in both in-school and out-of-school programmes. Meanwhile, the phrase “educational reform in Thailand” appeared on everyone's lips and educators were working on the magic formula to fulfil goal. There were so many special debates to discuss school reforms. The officials and experts discussed both the 'educational environment' and 'environmental education' for improvement. Due to the rapid industrial development resulted in increase in energy consumption, it created a complex situation in which pollution of water, land and air became common problems in Thailand in those years, environmental education has been discussed by the educators, scientists and experts. It is the key for promoting awareness of the ethics and the environmental management. This education also enabled people to participate in environmental management planning from an informed standpoint. Therefore, environmental issues were incorporated into other aspects of the curricula in every education level. In the late 1980s, environmental education was also integrated into all levels of out-of-school education. The functional nature of the Ministry of Education's out-of-school programmes, with their emphasis on problem solving, made integration easy. In addition to the Ministry of Education and other agencies, both governmental
organizations (GOs) and non-governmental organizations (NGOs), participated in out-of-school education activities, such as radio and television programmes, articles in newspapers, books, journals, pamphlets, special lectures and exhibition. In the market several supplementary readers in environmental conservation for both the first and second levels, prepared by the Ministry of Education and private publishers were available in the market. Teacher’s guides in the teaching of environment and conservation of natural resources were tried out for the secondary level. A number of teaching units were introduced as models in these guides for teachers. Each unit focused on one existing environmental issue problem. Teachers were encouraged to select the units which concerned issues on problems relevant to their localities, or to develop their own teaching unit using the model unit as a guideline. There was no special training for teachers of environmental education at the certificate level. In the pre-service teacher training programme elective, environmental science courses were offered under general science. Graduate training in environmental studies was provided at some universities. Kasetsart University offered an M.Sc. programme in Environmental Science and Mahidol University which introduced two master's degree programmes. One of these is an M.Sc. in the Technology of Environmental Management, offered by the Faculty of Environment and Research Studies; the other is and M.Ed. in Environmental Education, offered by the Faculty of Social Science and Humanities. For the primary and lower-secondary levels no special training in environmental education and out-of-school education has been considered necessary for teachers who are teaching the subjects in an integrated form. The teacher’s guide and some in-service training on the teaching-learning process were considered adequate in the late 1980s.

In the 1990s, different types of strategies have been adopted for the implementation of environmental education and public environmental awareness programmes and special area projects have been also adopted in Thailand. For the implementation of environmental education and public environmental awareness. The Ministry of Education (MOE) Ministry of
Science, Technology and Environment (MOSTE), Ministry of University Affair (MOUA), and the Ministry of Interior (MOI) respectively are the major governmental agencies for tackling the environmental problems. In addition, the Department of Environmental Quality Promotion (DEQP), MOSTE and other related bodies have promoted environmental activities for environmental studies in schools. MOE and MOUA are playing the crucial roles in the implementation of environmental education because they disseminate knowledge, provide necessary skills and help in forming certain attitudes in preventing and preserving the environment. In short, at present environmental education in Thailand, in primary education level it has been integrated into life-experiences (environmental studies). The main areas of learning life experiences concern the environment around us. In the secondary education level, it has been integrated into sciences, social studies, and population education. At the tertiary education level, it has been integrated into the fields of study concerning the environment in the form of environmental sciences, ecology, environmental health, environmental management, environmental engineering, environmental technology, and so on. Accordingly, Chulalongkorn University and Mahidol University in Bangkok, are offering the environmental and global education programmes and the environmental education programme respectively. Some more details about the programme are presented in Chapter V.

In 1993, the Department of Non-Formal Education (DONFE) MOE decided to employ 'Thaicom', Thailand's first satellite, in its distance education programmes. The Department focuses on general education areas from literacy to high school education, while the open universities i.e. Ramkhamhaeng University and Sukhothaithammathirat University focus on tertiary education, the environmental education programmes are also promoted in its distance education programmes so as to reach practically all nooks and corners of the country. The promotion of environmental education networking of both governmental and private agencies to support and co-ordinate the provision and management of environmental education programmes, are also helpful to expand the environmental education programmes effectively.
Most recently, the Ministry of Education (MOE) has incorporated environmental studies in the curriculum at secondary education level which the environmental issues are also incorporated in other aspects of the curricula such as social studies, science subjects, and extra curricular activities e.g. Environmental camping, Boy scouts, Girl guides, and School Junior Red Cross etc.

The 1990s was the most challenging development decade for Thailand, as the country’s economy became more dependent on dynamics of the world economy. Thailand also faced severely degraded natural resources, increasing environmental problems, and declining comparative advantage in the highly competitive world market. Therefore, the environmental education programme and the environmental awareness were encouraged in Thailand to find a more efficient approach for the use of its natural resources if sustainable development is to be achieved during the 21st century.

Before the discussion about the implementation of the environmental education programmes in Thailand, It would be worthwhile to make the following brief mention of the environmental problems in Thailand. Thailand has proved to be one of the most active developing countries in the international environmental arena, and is currently working to develop a national strategy to mitigate certain types of pollution. Nowaday, the major environmental problems in Thailand are briefly presented as under:

1. Severe reduction of forestland. At present, there is only 25% of forest left in Thailand;
2. Deterioration of the quality of soil due to using of toxic pesticides without any information about its hazards;
3. Shortage of surface water resources due to a rapid increase of population, industrial growth, demand for agricultural irrigation and an increasing trend toward water pollution;
4. Serious conflicts of land-use due to the rapid urban and industrial expansion, construction works, such land-use has reduced fertile
agricultural land and degraded the quality and quantity on natural resources;
5. Air pollution due to industries and transportation;
6. Degradation of the quality of marine resources, e.g. encroachment of mangrove forests, toxic wastes and oil spill pollution, and coastal recreation;
7. Waste problems from settlements, agriculture, commercial centres and industries;
8. Maldistribution of population, shortage of housing, and increase of slum areas, particularly to improper urban growth.

Statistics of public complaints caused by environmental problems to responsible agencies, namely, Pollution Control Department (PCD), Department of Industry (DOI), Department of Health (DOH), and Bangkok Metropolitan Administration (BMA) in 1995, totaled 5,961 cases, indicating an increasing trend every year. When compared to the past year, it was found that the types of pollution complained through various media, consisted of air pollution and noise 4,605 cases or 77.25%; water pollution 495 cases or 8.30%; waste and hazardous waste 355 cases or 5.96%; and other pollution 506 cases or 8.49%. These statistics indicated that not only pollution problems have increased every year, a high percentage of them were caused by air pollution and noise. (PCD; MOSTE, 1996)

The summary of Thailand State of the Environment Report (1995-1996), has also mentioned about the following environmental problems and issues:

1. State of the Environment:
1.1 Natural Resources
   - Forest and Wildlife Resources i) Forest ii) Wildlife iii) Situation of Preserved Marine Wildlife; Dugongs, Sea Turtles, and Dolphins
   - Mineral Resource
1.2 Pollution
- Air pollution
- Noise pollution
- Water pollution
- Solid Waste and Night Soils
- Hazardous Waste
- Toxic Substances

1.3 Natural and Cultural Environment
- Natural Environment
- Cultural Environment

1.4 The Role of the Public Sector in Natural Resource and Environment Management
- Newly Initiated Measures
- International Agreements

2. Special State of Environment:
2.1 Urban and Rural Environment
- Sor Por Kor 4 – 01 Land Document
- Flood Situation 1995 and 1996
- Traffic Congestion
- Green Areas and Urbanization
- Fire Accident in Buildings

2.2 Public Participation
- Elevated Train Project by Metropolitan Rapid Transit Authority (MRTA) and the Bangkok Transit System Cooperation (BTSC)
- Ban Krua Intersection Expressway Project
- Waste Thermal Power Plant in Chiangmai Province
- Hazardous Waste Treatment Plant in Rayong Province
The 8th National Economic and Social Development Plan (1997-2001)
Environment and the Role of Non-Governmental Organizations and Private Sectors
Environmental Education

2.3 The Conservation of Cultural Environment
- Buddha-Buchar Road Project, Pra-Prathom Pagoda.
- The Improvement of Archaeological Sites : A Case of Pasak River Basin
- Master Plan for Rattanakosin Area Conservation
- Old Historic Buildings in Phuket

2.4 Invasion to Protected Areas
- Khao Sam Roi Yot National Park, Prachuap Khiri Khan Province
- Thale Noi Non-Hunting Area, Phatthalung Province
- Thung-Yai-Naresuan Wildlife Sanctuary, Kanchanaburi Province.

(OEPP; MOSTE, 1996)

Thailand has already gone through the Seventh National Plan (1992-1996). Since then the latter Five-Year National Development Plan also studied the environmental problems and suggested following measures:

1. Short-term measures
   i) Relevant laws and regulations such as those concerning city planning, traffic, foods and beverages, control of industries, and so on. They have to be strictly enforced to prevent environmental problems.
   ii) Budgetary support must be given to those environmental development projects which are urgent problems or else promote environmental quality.
   iii) The participation of public as well as private agencies must be encouraged to work to preserve the environment.

2. Long-term measures
   i) A National Environmental Development Plan should be formulated to serve as a guideline for the governmental activities.
   ii) Co-operation in environmental efforts among governmental agencies must be stimulated to produce mutual benefits in terms of exchange of
information and technical knowledge. Such co-operation will ensure that all efforts will be made within the national plan and environmental development policy.

iii) Controls and standards for environmental quality should be established so that government and private agencies can use them as guidelines in the developing projects. By weighing the advantages and disadvantages these agencies can avoid projects that might have a bad effect on the environment. Firm regulations concerning water and air quality as well as the operation of fisheries must be declared to ensure more effective control.

iv) Recommendations should be submitted to various agencies concerned for reorganization of their administrative system in order that they may conduct environmental activities effectively.

v) Public relation activities should be organized to stimulate public awareness of the environmental matters. Training in environmental education can help government personnel plan and carry out activities in their respective agencies to promote management and reconstruction of the environment.

vi) City planning must be completed throughout the country with careful consideration of the environmental problems.

vii) Industries must be properly provided with preventive measures for environmental impact control before their establishment can be authorized. The government must also strictly enforce the regulations concerned and close those industries which fail to observe them.

In addition to the above suggestions some educational activities were also undertaken as a part of combined effort to promote environmental quality. In Thailand, Item 52 of Section 6 of the National Scheme of Education 1977, pointed out that “The State shall undertake to inculcate the awareness of the importance of conservation of natural resources and environment as well as population education”. (NEC, 1977)
At present, the National Scheme of Education 1992, under Item 2 of Section 1 Principles and Goals also state that "Being a part of nature and with the necessity to coexist in harmony with and underpinning nature, human being must realize the importance of judicious utilization and conservation of natural resources without causing detrimental effects to the environment." In order to achieve the stated principles and goals, under Item 13 of Section 3 Policy directives state that "To promote and support the participation of family, community, other social institutions and mass media in the educational process and the conservation and development of natural resources, environment, culture and local wisdom." (NEC, 1992)

**Environmental issues; the National mandate:**

Under Section 65 of the Constitution of October 1974, which is currently in operation it was stated that "The State shall maintain the balance of the environment and eliminate pollution that is damaging the public health." This statement indicates the national awareness and concern about the environmental problems and shows the way for constructive attempts to solve such problems.

In 1975, the Thai government played a significant role in the United Nations Conference on Human Environment at Stockholm, Sweden in 1972. After the conference, the Improvement and Conservation of National Environmental Quality Act was promulgated and the National Environmental Board (NEB) was established. One of the most important functions of the NEB was to recommend an environmental development policy to the government. Such a policy was drawn up by the NEB, and has now been approved by the Cabinet. The policy comprises six chapters: General, Management of natural resources, Pollution control, Population distribution, Conservation of nature, and Environmental education (UNESCO, 1981).

For the past three decades, the Royal Thai Government has prepared the five-year National Economic and Social Development Plans to help guide the social and economic development of the country. Recently, Thailand started the 8th National Economic and Social Development Plan (1997-2001). The
development of Thailand has drastically changed from agricultural based economy to agroindustrial and industrial-oriented economy. Thailand's economic growth over the past decade has been very rapid. This has contributed to a drastic decline of natural resource stock and environmental quality. Forestland has declined continuously to a critically low level, while competition for water resources has intensified. Air and water quality in Bangkok and its vicinity has deteriorated. Environmental control and natural resource protection have not been sufficient to cope up with the impacts from the rapid growth of its economy. Thus, Thailand must set up the strategies to balance a more equitable social and economic development with resource and environmental stability. This is the challenge for Thailand towards the sustainable development in the next century.

The strategy for implementing the environmental protection activities is the establishment of standards for environmental conditions and the introduction of regulation standard. Although these ideas have been introduced, the actual implementation is far below a satisfactory level. In Thailand, it is a great need to have environmentally conscious citizens who are concerned for saving the environment from disaster. It might happen only when people are knowledgeable about their environment and problems occurred; are aware of the solutions to those problems and are motivated to work for that. This means change in the attitude and behaviour of people themselves. Education has played the crucial roles in this part because it disseminates knowledge provides necessary skills and help in forming certain attitudes in preventing and preserving the environment in Thailand.

Environmental education is an important instrument in the enhancement and conservation of the environment of the country. It is the key to promoting awareness of the ethics of sound and responsible environmental management. This education also enables people to participate in environmental management planning from an informed standpoint. Besides, one of the key factors in sound environmental planning is the consideration and inclusion of human resources in the development process. For this reason, the Ministry of
Education (MOE) has incorporated environmental studies into the secondary level curriculum. This has been achieved by initiated new courses, such as; Population and Environment Subject, Energy and Environment Subject, etc. Environmental issues are also incorporated into other aspects of the curricula such as social studies, science subjects, and extra curricular activities. In addition, the Department of Environmental Quality Promotion (DEQP), Ministry of Science, Technology and Environment (MOSTE) and other related bodies have promoted environmental activities for environmental studies in school.

At primary level, the environmental education has been integrated into many subjects, especially in the Life Experience Group from Grade 1-6. In 1978, the new curriculum designed to cultivate various qualities and outcomes, including: the ability to survive and live in harmony with the social and natural environments. The main areas of learning Life Experiences concern the environment around us as well as the universe and space.

At secondary level, the objectives of the curriculum for lower secondary level is among other things, to love and be committed to one's community, to know how to maintain the environment in the interest of community development, and to promote Thai arts and culture as well as to promote understanding and peaceful co-existence among mankind.

At the upper secondary level, the objectives of the curriculum are to provide knowledge, understanding, and appreciation of the values of technology, the arts and culture, and the skills required to utilize and conserve natural resources and the environment. The principle behind the curriculum is to encourage the students to apply their knowledge and ability together in conserving the environment and developing their societies.

At the vocational education level, the content about environment was included in the subjects of every educational level, for example, resources and industry, natural resources and environment, environmental technology, environment and safety education etc.

At the teacher training college level, the environmental education contents are provided in selective subjects and requirement subjects, for
instance; Human being and environment, Natural resources management, Air pollution, Water pollution, Soil and water conservation, etc.

At the university level, environmental education was provided in both requirement basic course, and special courses, for students in post graduates and up.

Some other activities about the environmental education under the Ministry of Education (MOE) are:

1. The Department of Curriculum and Instruction Development has developed the curricula and instructional materials, training courses and others.
2. The Department of Religious Affairs is in charge of the preserving environmental surrounding conditions in the monasteries and also carries out some activities concerning; saving resources, and energy recycle.
3. The Department of General Education (DOGE), the Department of Vocational Education (DOVE), the Office of the National Primary Education Commission (ONPEC), the Department of Non-formal Education (DONFE), the Office of the Private Education Commission (OPEC), the Office of Rajabhat Institutes Council (ORIC), and Rajamangala Institute of Technology (RIT) perform the similar environmental activities, for instance, training personnel, producing learning materials, launching environmental projects with other agencies (exhibitions, campaigns).

Scope and Role of Environmental Education in Thailand

As discussed earlier Thailand National Education Scheme 1977, environmental education may be interpreted as a learning process to create an awareness of the importance of conservation of natural resources and the environment, and to induce responsible behaviour towards such conservation. Thai educators have further elaborated this idea specifying that it is a learning process:

- where students will acquire knowledge and understanding about the environment which they will be able to apply to their daily lives, as appropriate;
- which induces proper attitudes and values concerning environmental and related problems among students; and
- which makes students realize their role and responsibility personally as well as in the community, in preventing or solving problems of the environment and in helping to preserve the life of the earth.

Objectives and strategies for environmental education in Thailand

The objectives of environmental education may be summed up in general as follows:

(i) To induce knowledge and understanding about environmental problems and their causes as well as ways to prevent or solve such problems on a personal as well as a social basis.
(ii) To create an understanding about the interrelationship between humans and their environment.
(iii) To induce an awareness of and interest in the environmental problems, both present and past.
(iv) To induce proper attitudes, values and a sense of responsibility towards conservation of the environment.
(v) To demonstrate effective and economical utilization of natural resources.
(vi) To enable learners to make their own decisions properly and rationally in solving environmental problems.
(vii) To enable learners to utilize their knowledge about the environment in creating and improving the standard of living on a personal as well as social basis.

The Strategies

Thailand has a completely revised school curriculum from grade I–VI (elementary level) to grade VII–IX (lower–secondary level) since 1978, on a one–grade–per–year basis.

At both the elementary and secondary levels there are certain common characteristics. For example, the new curricula are designed to be more
functional, with more integration and less concentration on esoteric subject matter. The curriculum at each level is designed to be complete in itself.

With regard to environmental education, for both in-school and out-of-school programmes there is one basic approach, the problem-solving method. It can also be said that the learning experiences are more process-oriented than content-oriented. Differences among levels of education do exist to comply with the specific purposes and emphasis of each:

**Elementary (primary) Level (grades I – VI)**

The new elementary school curriculum, introduced in 1978, is no longer made up of separate subjects, but it is divided into four integrated groups of experiences. They are, first, basic skill, which include language and computational skills; second, life experience, which include social studies, environmental studies, health education, and others; third, character education, covering fields such as ethics, arts and physical education; and fourth, work experiences, providing some pre-vocational training and vocational orientation.

The new curriculum also has three basic orientations – for individuals, local and community growth, and for national development. Environmental education can be integrated easily and effectively into such a curriculum especially in the second – life experiences – group. Contents relating to environmental concerns in the elementary school curriculum are listed according to grade is shown in Table 4.1.

**Table 4.1: Contents Relating to Environmental Concerns in the Elementary (Primary) School Curriculum**

<table>
<thead>
<tr>
<th>Grades</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades I and II</td>
<td>1. How to clean the house</td>
</tr>
<tr>
<td></td>
<td>2. How to dispose of household garbage</td>
</tr>
<tr>
<td></td>
<td>3. How to help keep the school environment clean, beautiful and healthy</td>
</tr>
<tr>
<td></td>
<td>4. How to behave according to school rules and regulations</td>
</tr>
<tr>
<td></td>
<td>5. How to keep our community beautiful</td>
</tr>
</tbody>
</table>
Thailand's "Life Experience" Programme: Environmental Education for Primary Schools

Thailand underwent a major change in its primary education curriculum in 1978 (B.E. 2521). The change, which involved the whole six years of compulsory education (Pratom 1–6), affected not only the subject matter but also the teaching process. The three major goals underlying the new primary curriculum are the following:

1. Primary education is to be regarded as education for all people. Every child has a right to receive and is entitled to benefit from primary education regardless of his/her family status or occupation, or the location of his/her home.

In all the teaching/learning process at the first level, considerable use is made of community resources with due emphasis on out-of-classroom activities.
2. Primary education is meant to be education for daily life. All knowledge and experience gained at this level of education will be useful in the daily life of all learners.

3. Primary education will contribute towards national unity with regional variations. It will serve as a tool for creating national unity in such areas as language, economics, politics and governmental system. Every member of the nation should have the same background and have a common understanding of the administrative system; regions are allowed certain variations relevant to their local problems and needs. However, such variations can include occupations, cultural traditions, arts and crafts. Each region can develop additional content and teaching materials which may differ from others but will be relevant to its own everyday life.

Areas of Experience in the Curriculum

In the past, the primary school curriculum was designed around subject areas such as Thai language, Mathematics, Natural Science and Social Studies, but the new primary education curriculum of 1978 (B.E. 2521) adopts a completely different approach. It takes the learners as its focus, and is arranged into four areas of the child’s experience as follows:

Area 1 – Basic Skills

These are Thai language and Mathematics. This area represents the key subjects which enable the learners to gain more knowledge.

Area 2 – Life Experience

This emphasizes the process of solving social problems. The selected content concerns problems and issues such as health, population, politics, government, society, religion, culture, economics, technology, natural environment, and communication.

Area 3 – Character Education

This deals with experiences necessary for the development of good character. It includes moral education, art, music and rhythmic movement, and physical education.
Area 4 – Work Education

This emphasizes basic practical work experiences. It covers household work, handicrafts, wood-working, agriculture and optional topics relevant to local situations and needs.

Presently, the environmental education in the primary education level is integrated into the Area 2—Life Experience. The general aims are translated by the primary education curriculum objectives for the Life Experience Programme as follows:

1. To develop basic understanding of and exhibit proper behaviour towards physical and mental health at individual and community levels;
2. To develop basic knowledge and skills necessary for survival;
3. To adapt to a changing environment and to apply science and technology in daily life;
4. To see the relationship between the individual and the environment, be it the natural, physical or social environment;
5. To develop understanding and faith in the constitutional monarchy through the realization of one’s own duties and responsibilities towards oneself and others;
6. To understand the principles of living together in a society and be able to follow those principles in which one believes;
7. To be informed about the danger of drug taking; and
8. To have pride in being a Thai and to cherish national sovereignty.

Environmental Education in the Life Experience Programme

The environment has been singled out in the description of Area 2 – Life Experience and again in the general objectives of the Life Experience Programme. This is because the environment is considered to be closely associated with the life of every child; environmental problems exist at every stage and level of community life. Thus, it is appropriate that concern for the environment should appear as an objective of the primary education curriculum. Environmental problems are among the major concerns of the nation, so educational activities have become part of the joint efforts to promote
environmental quality. Thus, it may be assumed that the Life Experience Programme translates national policy into programmes of activities.

The content of the Life Experience area of the primary education curriculum is organized into units as follows:

**Grades I and II**
- Unit 1: Living Things
- Unit 2: Family Life
- Unit 3: Our Surroundings
- Unit 4: The Thai Nation
- Unit 5: News, Events, and Memorial Days

**Grades III and IV**
- Units 1-4: Same as in grades I and II
- Unit 5: Occupations
- Unit 6: Energy and Chemical Agents
- Unit 7: Universe and Space
- Unit 8: News, Events, and Memorial Days

**Grades V and VI**
- Units 1-7: Same as in grades III and IV
- Unit 8: Neighbouring Countries
- Unit 9: Population Education
- Unit 10: Politics and Government
- Unit 11: News, Events, and Memorial Days

Although the same title is used for units in all grades, the content varies in both detail and scope. In grades I and II the topics will generally be concerned with the pupils' immediate surroundings, such as the school environment, the quality of life in school and maintaining cleanliness. It will also deal with beauty and the balance of nature in the environment of the community, and give brief consideration to the nature of the earth's crust.

In grades III and IV the concern is still with community life but in more detail than in grades I and II. The topics also include water and air in terms of their importance, pollution problems and conservation.
Grades V and VI cover environmental activities which may not be so local to the school, such as deforestation and forest conservation, and water conservation, degradation of the biosphere and its protection. Environmental problems will also be mentioned in related units such as Population Education, Energy and Chemical Agents, Living Things, and Occupations.

**Other Teaching Materials and Aids:**

In order to create learning situations where pupils will acquire problem-solving skills and be able to look for answers themselves, various kinds of materials are used. Reading materials are necessary to supply facts and information, not to provide direct answers to the problems being discussed or questions being asked. In grades I and II, there are no textbooks for the Life Experience area, but starting from grade III there is one Life Experience reader being developed for each grade. These readers are meant to be used as reference materials for pupils. Besides these specific readers, there are many other supplementary readers being developed by the Department of Curriculum and Instruction Development, and private publishers. Those areas developed by the Department of Curriculum and Instruction Development, MOE and concerned with the environment include:

- Life of Plants and Animals
- The Sun and the Moon
- The World We Live In
- Water
- Our Home
- Scientific Experiments
- Forest Resources
- Tour Around the Zoo
- Our School
  etc.

These are being supplied to primary school libraries, and schools are being urged to acquire more. Prototype teaching materials are also being
developed together with teachers' handbooks on how to make teaching aids which have been recommended in the lesson plans.

When the primary education curriculum was first being drafted in 1974 and 1975 environmental education per se had not yet been recognized among those participating in the drafting committee. But they were all aware of environmental problems because their lives were very much affected by them, no matter where they lived in the cities or in the remote areas. Since the Life Experience Programme is centere on the problems of the learners in daily life, it contributes strongly to environmental education. (Prasarttong-Osoth, 1981)

Secondary Level (Grade VII – XII): Three years of Lower–secondary and three years of upper–secondary)

The new Lower–secondary curriculum, introduced in 1978 and have been revised edition in 1990 of the 1978 lower–secondary school curriculum. It is divided into five semi–integrated areas. Within one subject area there is considerable integration (See Table 4.2 below).

<table>
<thead>
<tr>
<th>Table 4.2 Structure of the new Lower–secondary curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject area</td>
</tr>
<tr>
<td>Language</td>
</tr>
<tr>
<td>Thai</td>
</tr>
<tr>
<td>4 4 4</td>
</tr>
<tr>
<td>Foreign</td>
</tr>
<tr>
<td>– – –</td>
</tr>
<tr>
<td>Science and Mathematics</td>
</tr>
<tr>
<td>Science</td>
</tr>
<tr>
<td>4 4 4</td>
</tr>
<tr>
<td>Mathematics</td>
</tr>
<tr>
<td>4 4 –</td>
</tr>
<tr>
<td>Social Studies</td>
</tr>
<tr>
<td>5 5 5</td>
</tr>
<tr>
<td>Character Development</td>
</tr>
<tr>
<td>Health and Physical Education</td>
</tr>
<tr>
<td>3 3 3</td>
</tr>
<tr>
<td>Art</td>
</tr>
<tr>
<td>2 2 –</td>
</tr>
<tr>
<td>Work Education</td>
</tr>
<tr>
<td>4 4 4</td>
</tr>
<tr>
<td>Employment</td>
</tr>
<tr>
<td>– – –</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>26 26 20</td>
</tr>
<tr>
<td>16 20 46</td>
</tr>
</tbody>
</table>

130
In this structure an integrated approach is adopted to environmental education by combining it in the areas of Science and Social Studies. At this level, the emphasis has been broadened to cover national development. Contents at the lower-secondary level (grades VII – IX) relating to environmental concerns in the lower-secondary curriculum appear in Table 4.3 below.

Table 4.3 Contents Relating to Environmental Concerns in the Lower–secondary Curriculum

<table>
<thead>
<tr>
<th>Grade</th>
<th>Subject area and topics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade VII</strong></td>
<td><strong>Science</strong></td>
</tr>
<tr>
<td></td>
<td>1. How to prevent or overcome water pollution</td>
</tr>
<tr>
<td></td>
<td>2. Utilization and conservation of minerals</td>
</tr>
<tr>
<td></td>
<td>3. Relationship between humans and their environment</td>
</tr>
<tr>
<td></td>
<td><strong>Social Studies</strong></td>
</tr>
<tr>
<td></td>
<td>4. Environmental conservation at the provincial level</td>
</tr>
<tr>
<td></td>
<td>5. Environmental effects on daily life on a regional basis</td>
</tr>
<tr>
<td></td>
<td>6. Roles and responsibilities towards the community</td>
</tr>
<tr>
<td></td>
<td>7. Regulations on the conservation of our surroundings</td>
</tr>
<tr>
<td><strong>Grade VIII</strong></td>
<td><strong>Science</strong></td>
</tr>
<tr>
<td></td>
<td>1. Soils and their conservation</td>
</tr>
<tr>
<td></td>
<td><strong>Social Studies</strong></td>
</tr>
<tr>
<td></td>
<td>2. National conservation of natural resources: forest, animals, water, soil, air, minerals, population and others</td>
</tr>
<tr>
<td></td>
<td>3. The role and responsibility of the individual</td>
</tr>
<tr>
<td></td>
<td>4. Regulations on the preservation of animals</td>
</tr>
<tr>
<td><strong>Grade IX</strong></td>
<td><strong>Science</strong></td>
</tr>
<tr>
<td></td>
<td>1. Effects of population increase on the environment</td>
</tr>
<tr>
<td></td>
<td>2. How to adapt the environment to the benefit of daily living</td>
</tr>
</tbody>
</table>
3. Causes of deterioration of the environment
4. Causes of water and air pollution and how to prevent them
5. Garbage and its disposal
6. Soil degradation
7. Effects of energy utilization
8. Preventive control of noise pollution
9. How to work toward a balance in nature

Elective courses: **Humans and their environment**

- Population distribution and peoples' occupations as related to the environment; utilization of resources; environmental problems; environmental pollution; prevention and revision of laws concerning the environment.

**Thai Society**

- Various social problems in Thailand and how to solve them: Poverty; land holding for cultivation; illiteracy; crime; juvenile delinquency; drugs; traffic; migration; food deficiency; slums; strikes and national security.

At the upper-secondary level, the environmental education is included in a manner similar to the lower-secondary level approach, both by integration in the subject areas and by elective courses in social studies.

At the tertiary education level, the environmental education integrated into the fields of study concerning the environment and ecology which are presented in chapter V.

**Promotion of Environmental Education and Public Environmental Awareness Encouragement in Thailand:**

The GOs and NGOs also provide the environmental education programme and public environmental awareness encouragement in Thailand both in-school and out-of-school programmes. Besides, the environmental education is being implemented in formal education in schools, colleges, and universities. Non-Formal Education Department (DONFE-D). MOE has realised that
it is necessary to provide environmental education which make learners fully aware of the problems connected with their environment and develop new attitudes and behaviour patterns to enable them, together with the other members of their community to make decisions concerning the necessity of preventing the deterioration of the environment, greater solidarity with love of nature and increased involvement with natural environment.

The principles of implementation of environmental education in Non-Formal Education, the patterns for conducting environmental education are emphasized on the development consciousness awareness attitudes and the values of social responsibility, concerned for others and harmony with nature. Actions which will lead to development and reinforcement of these values should stem for a problem-solving situation focus on environment. Moreover, contents on basic knowledge for accurate understanding of environmental problems approach for problem-solving and organization of real life experience should be more systematically re-structured as educational contents.

The value development strategies that will yield the best results are those which emphasize the provision of opportunities for the learners to act on their values. Learning is not limited to the classroom but extends to the home and community. As the result more effectively educating and informing the public about the community are put through the use of media and new communication and information technology, it means that patterns of implementation should be in harmony with lifelong learning process. These environmental education should be organized in variety of programmes to offer a broader opportunity to learn throughout life. The provision of environmental education programmes are flexible, varied and relevant to the needs of particular groups.

The promotion of environmental education networking of both governmental and private agencies to support and coordinate the provision and management of the environmental education programmes, are also helped to expand environmental education effectively.
At present, the Non-Formal Education Department, MOE has provided the environmental education programmes and activities in 3 major areas; Basic education programmes, Vocational skills training education programmes, and Informal education programmes. These programmes are carried out both in urban and rural areas, at 5 NFE regional centers, 75 NFE provinces, 4 NFE centers in Bangkok, 8 vocational training centers, 12 provincial science centers for education. At district level, there are 855 district NFE service centers, and 3422 sub-district NFE centers. At community and village level, there are adult schools, a great number of distance learning groups and self-study centers. Besides, there are 600 hill areas learning centers in the mountainous area in the northern part of Thailand (Samanasena, 1995).

The role of the National Science Center for Education (NSCE) in raising the environmental awareness in Thailand, in recognition of the impact that the field of science had had in Thailand and its people, the Center for Educational Museums in 1994 became the National Science Center for Education (NSCE). A division under the Non-Formal Education Department of the Ministry of Education, the NSCE promotes information and learning regarding general science and technology, astronomy and environmental science. In particular, the relevance of these fields to everyday situations is emphasized. The NSCE plays an important role in raising the environmental awareness of Thai people and does so through a number of interactive educational activities and programmes.

The NSCE is located on Sukhumvit Road close to the Ekamai Bus Terminal, Prakanong district, in Bangkok. It consists of the Bangkok Planetarium, the Science and Technology Building and the Natural and Environmental Science Building. It also has mobile units to bring science education programmes to schools and communities all over the country. At present, there are also two provincial science centers in Thailand, with another ten under construction in different provinces. Ultimately, it is planned to have a science center in each of the provinces of Thailand.
Raising the environmental awareness; the informal “drop-in” style of the NSCE, as well its role in enhancing formal and non-formal education curriculum, provide excellent opportunities to make environmental education readily available to all facets of Thai society. Through a programme of interactive exhibition, environmental camps, and further educational activities, the NSCE and its associated provincial centers attempt to raise the environmental awareness of Thai people. These, and future plans for environmental education are briefly discussed as below:

**Exhibitions:**

In the NSCE itself, there are three exhibition galleries that deal with the environmental awareness. These are:

- **The Energy World**
  
  A hands on exhibition giving practical demonstration on the use and conservation of energy in every-day life. Multi-media generated activities encourage the participants to plan energy efficient trips and demonstrate methods of saving energy around homes and workplaces. This exhibition is the result of collaboration between the NSCE and the National Energy Policy Organization of Thailand.

- **Man and the Environment**
  
  Information is given in this exhibition about a variety of ecosystem types, both on a local and global level. Changes in the environment due to the influence of humankind are also outlined, as a ways in which to preserve and conserve the environments.

- **Tropical Rainforest**
  
  This temporary exhibition shows which rainforest products are utilized by humans for food, medicine, building products, etc. Highlighting the importance of the rainforest and its resources to our daily survival, this exhibition attempts to encourage rainforest preservation and sustainable use of its products.

**Camping Programmes:**

Giving school-aged children a chance to be directly involved with some aspects of environmental science is a highly effective way of raising
environmental awareness. Hence, a number of environmental study camps are run at the NSCE and provincial science centers, with each center ensuring that the topic of their camp is relevant to its location. At the NSCE, day camps are organized in which air and water pollution problems are addressed and participants test the quality of the air and water around them.

The future plans of the NSCE, the NSCE acknowledges that it has not long established and that it has the potential to increase its influence in raising the environmental awareness in Thailand. It has therefore actively planned for the future and a number of exciting projects are being developed. The most important of these is the establishment of a science center in every province. One of the key aspects of effectively teaching environmental education (or any kind of science for that matter) is accessibility and this will be greatly increased as more provinces in Thailand have a fully functioning science center.

To enhance formal school curriculum in regard to environmental science an educational package is being prepared by the NSCE. This three-hour-programme would involve school classes coming to the NSCE and taking part in the environmental education activities. A lecture and video presentation on the environment would begin the programme and followed by worksheet stimulated activities in the environmental exhibits of the center. These worksheets would encourage deeper thinking and discussion regarding the environmental issues.

As the provincial science centers grow in number, it is also proposed to invite community involvement in revegetating empty sections of land around the centers. This hands-on activity would be an excellent way of teaching environmental science to people as all take part in planting and maintaining an ecosystem.

The NSCE is also very determined to foster links with local and international environmental agencies in regard to raising environmental awareness. It is hoped that these links will be able to help pinpoint areas of environmental concern on both a local, national and international level and to
develop effective ways of communicating these to Thai society. (Jantrasilpin, 1995).

Since the 1980s, environmental issues started to get coverage in communication media. Global concern about environmental degradation, gradually deteriorating ecology within the country and realisation of the responsibility of raising environmental awareness by Thai journalists and several other factors have provided a comfortable ground to flourish environmental journalism. Various types of media are used in promoting environmental awareness among Thai people. These include group meetings, mass media, personal contacts and combination of all these. Followings are the major categories of media utilised for the promotion of environmental education and awareness.

1. **Radio**: Radio Thailand, the country’s only broadcasting service, is a popular and wide reaching medium for information. Radio can reach areas where other means of communication cannot and because of the low price, most rural families can afford to possess one. It broadcasts informative and entertaining programmes targeted at different sectors of the society. Conservation oriented programmes such as those relating to environment, forestry, agriculture, health and sanitation, popular science, etc. are also transmitted on a regular basis. Radio Thailand also broadcasts public interest notices regarding environment such as forest protection, clean campaigning, energy saving, recycling projects, health issues, and so on. Many radio stations under governmental agencies and private sectors also broadcast both AM and FM services covering Bangkok and adjoining areas as well as almost every province in Thailand. These are very popular among urban youths and rural youths which the environmental issues are also aired regularly.

2. **Television**: There are five television channels in Thailand. The government run television stations, reaches the urban and rural areas due to the modern technology of using the ‘Thaicom’ satellites to expand its service areas and thereby provide a greater coverage of the country. The documentaries on
environmental conservation themes like community forestry, wildlife conservation, health and sanitation, global environmental issues etc. are regularly aired by every channel. Environmental topics also feature prominently in the news programmes as well as periodic panel discussion programmes. Some environmental education programmes are regularly aired by Television of Thailand, Channel 11. These relate to natural calamities such as floods and cyclones, land erosion, water and air pollution, deforestation, industrial effluent, destruction of wildlife and so on. Every channel of Thailand television, the short ad–programmes and clippings on issues such as importance of tree–plantings, efficient use of gas and water, health issues especially about the spread of HIV/AIDS, narcotic namely “crazy drug" or amphetamine and its prevention and so on are being frequently broadcasted. Also the Thailand’s Environmental Day is observed every year on 4th December by the different governmental agencies as well as NGOs operating in the environmental field, to raise Thai people consciousness about the environment.

3. Print Media: Because of the multi–party democracy in Thailand, there is a mushroom growth of newspapers. Although most of the newspapers and magazines prominently carry news on politics and other topics of general interest. A number of Thai language newspapers play an important environmental education and awareness role. They have lately been giving wide coverage to environmental issues by combining in science and technology education especially relevant to industry. Most well–known newspapers have some permanent columns devoted to the environmental issues. They include the Thai Rath has permanent columns ‘Vidhyakarn–Karnkaset’, ‘About medicine’, ‘Beautiful animals’, and ‘World of children’; the Daily News has permanent columns titled ‘Life and health’, ‘Article–cartoon’, ‘Education–agriculture’; the Matichon Daily has permanent columns titled ‘Environment–public health’, ‘Education’, ‘Urban community’. Besides these most well–known newspapers, other newspapers such as the Banmuang, the Khaosod, the Daily Mirror, the Siam Rath, the Siam Post, the Naewna
etc. have also devoted to the environmental issues occasionally. Two of the English language newspapers, the Bangkok Post as well as the Bangkok Post student weekly, and the Nation as well as the Nation Junior Magazine also publish news on the environmental issue as well as features analytical articles on environment. Apart from this, some specialized journals published by professional societies and newsletters brought out by various organizations also carry environment related articles and news.

NGO Activities:

The Thai Environmental and Community Development Association (TECDA) is one of the most active NGOs in Thailand. It began to work in the early 1980s with the aim of educating all the Thai people to be environmentally aware. At the time the programme was launched environmental education was a relatively new concept in Thailand. TECDA hoped that awareness would lead to action, initially in Thai people’s own domains (in the house, outside the front gate), and then to participation in developing the community and the country as a whole. Thus, the idea of ‘issue ownership’ referred to earlier, was being put into practice to develop responsible citizenship. The ultimate aim of the project was to develop a love for, and attachment to, one’s environment, so that people would no longer allow others to pollute, but would rather encourage them to conserve the environment. The important point was to present complex environmental problems simply and to show how they affect individuals.

TECDA’s basic mass education began with the ‘MAGIC EYES’ HELP KEEP THAILAND CLEAN CAMPAIGN. The Thai population is young: 60 percent are under 25 years old. Young people have a major influence on society today, and they will be the future economic leaders, industrialists and policy makers. Therefore, the campaign was developed with children and youth as the main targets, and adults as secondary targets. A series of cartoon advertisements on television was directed at children to persuade them to put rubbish in its proper place and encourage them to ‘police’ adults and shame them into doing the same thing with the words ‘Ah–Ah! DON’T LITTER! MAGIC EYES SEE YOU’.
The campaign started in 1984 with advertising and promotion to get people involved. Life-size puppets, television advertisements, badges, stickers, T-shirts, posters and handbooks were used to promote the Magic Eyes. The logo of MAGIC EYES is shown in Figure 4.3.

![Figure 4.3: The Logo of MAGIC EYES](image)

From the anti-litter campaign, the programme expanded to address problems of water pollution and forest destruction. The slogan was changed to HELP KEEP THAILAND GREEN AND CLEAN. Kindergartens are now teaching MAGIC EYES jingles the way nursery rhymes are taught as a means of instructing children not to litter.

In developing this programme, partnerships have been build up with various sectors of the community. In particular, they involve community leaders of various kinds, government officials, the private sector in the community, and schools. Financial contributions have been received from supporting companies, followed by actual participation and involvement whenever possible.

Activities and campaigns have also been launched to encourage the general public to participate in order to increase understanding of environmental problems and to raise the consciousness of different institutions (for example,
factories, businesses and open-air markets) to their responsibilities for maintaining a good environment. Activities include tree-planting and anti-litter campaigns, contests among different groups (such as clean factory, clean market, street sweepers, and riverbank and floating restaurants), painting competitions, slogan contests, cartoon drawing and essay contests.

In January 1990, the Chao Phya River programme was launched to draw attention to the rapid deterioration of this river which runs through eleven provinces and has always been considered Thailand’s life-line. The MAGIC EYES logo is used, but in a blue colour scheme. Since the start of the programme, interest in the Chao Phya River has increased markedly among individuals, communities, schools, university groups, mass media and the government. Examples of action include a trial programme to collect garbage along the riverside by boat and the introduction of short-and long-term measures to solve the problem of water pollution at the Bangkok Fish Market.

The TECDA programme has been tremendously successful in getting Thai people informed about and involved in improving local environmental conditions. The number of people actively participating in the programme grew from 15,000 in 1984 to over 500,000 in 1989. (Rao, 1996).

At present, about 197 NGOs work on natural resource and environmental development. At present 87 of them are registered with the Ministry of Science, Technology and Environment (MOSTE). The main reason why these NGOs are registered with the MOSTE is to be eligible to apply for financial support for development activities from the Environmental Fund. In 1996–1997, 15 projects of NGOs are supported by the Environmental Fund. The government will further encourage NGOs to apply for the support from the Fund. The range of NGOs in Thailand is very wide and comprises the following types of organization:

1. Grassroots NGOs and People’s Organizations.
2. Student Organizations.
3. National NGOs.
4. International NGOs. (Tabucanon, 1998)
At present, the environmental problem has become apparent. Both governmental and private organizations have been interested and have seriously supported the co-operative efforts to solve it. Thai people have also been aware of the kindness of His Majesty the King, Her Majesty the Queen Sirikit, and all the members of the Royal Family who have always been interested in the country’s environmental problems. Their Majesties have also worked hard to solve the deteriorating natural resources and environmental problems as well as the serious pollution problems which could endanger the people’s quality of life. His Majesty was also concerned about the environmental problem which the Thai people had been facing. His Majesty asked his populace to join hands to seriously and prudently solve the environmental problems. His Majesty regarded this as everyone’s duty to act, not only for Thailand but also for the world’s safety. His Majesty King Bhumibol Adulyadej has dedicated himself to development work for the well-being of the Thai people since his accession to the throne as a constitutional monarch. The development projects cover these areas: (1) agriculture; (2) environment; (3) public health; (4) occupational promotion; (5) water resources development; (6) communications; and (7) social welfare and others.

Since the King’s accession to the throne on June 9th, 1946, the Thai people have realised that their king has ceaselessly assisted his subjects in an effort to alleviate distress and bringing forth happiness to them. On the occasion of the Celebrations of the Golden Jubilee of His Majesty’s Ascension to the Throne in 1996, the Thai people were all aware of and recognize his great benevolence in pursuing his concerns for the benefits and happiness of the people. He uses all his wisdom and efforts in initiating development works, all of which bring forth true happiness to the Thai nation (Supipat, 1996).

Also the ‘Thailand’s Environmental Day’ is observed every year on 4th December by the different governmental agencies as well as NGOs operating in the environmental field, to raise Thai people consciousness about the environment. History of Thailand’s Environmental Day; on December 4th, 1989 which marked His Majesty the King’s birthday, at the Chitra Ladda Palace, His
Majesty the King made a royal remark to the visiting audience concerning the country's and the world's environmental situation which had become more critical. His Majesty was also concerned about the environmental problem which the Thai people had been facing. His Majesty asked his Thai people or his populace to join hands to seriously and prudently solve the environmental problems. He regarded this as everyone's duty to act, not only for Thailand but for the world's safety.

His Majesty's remark is considered to be the starting point of all parties' movements for the environmental operation. The governmental and private organizations have supported the social campaigning activities to build up the people's common sentiment for the protection of the environment. In particular, the private sectors have seriously given importance to the environmental issue. They have been concerned about the environmental effects and the environmental rehabilitation in their business operation and in their other processes of production. Environmental and natural resource conservation and development programmes have been initiated for the benefits of the communities and the country's society as a whole. Besides, new organizations in the forms of foundation, forum, association, etc. have been established with the objectives of protecting the natural resources and the environment. These show the country's joint force to protect the country's environment.

Therefore, in their meeting dated November 12th 1991. The cabinet resolved that December 4th of each year was to be 'Thailand's Environmental Days' as had been earlier proposed by the Ministry of Science, Technology and Environment (MOSTE), and that the Ministry of Interior (MOI) and the Ministry of Education to cooperate in the implementation. For instance, activities on the Thailand's Environmental Day, December 4th, 1997.

For this year's Thailand's Environmental Day, the Department of Environmental Quality Promotion, MOSTE organised activities to be held at the Lumphini Park in Bangkok on December 4–6, 1997. Interesting activities were: Natural class–room, puppet show, discussion, youth's camping activities, musical show, and observing the birds in the Lumphini Park. The Slogan for this
year Thailand’s Environmental Day was: “To know how to live with to make use of, and to care for environment” (Thongyou, 1998).

Indeed, the Government of Thailand considers environmental education as one very importance strategy for development. The Cabinet instructed the National Economic and Social Development Board to include the environmental education in the Eighth Five-year Plan (1997–2001) as an integral part of the overall environment and development plan.

It is hoped that the environmental education programmes in Thailand will help to improve the quality of life of the Thai population by enabling individuals and groups to confront problems that emerge from the interrelationship between population size, the quality of life, and available resources.