

**A MODEL OF ENVIRONMENTAL EDUCATION NETWORK
FOR THE DEVELOPMENT OF SCHOOL CURRICULUM
REGARDING LOCAL - RELATED CONTENT
IN THAILAND**

MAREAM SORMAD

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
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A MODEL OF ENVIRONMENTAL EDUCATION NETWORK FOR THE DEVELOPMENT OF SCHOOL CURRICULUM REGARDING LOCAL-RELATED CONTENT IN THAILAND

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ABSTRACT

This research studied to analyze the processes and factors of successful environmental education network, to develop a model of environmental education network for the development of school curriculum regarding local-related content and to self-assessment in using a model of environmental education network for the development of school curriculum regarding local-related content. The research was divided as follows: Phase 1: The analyzing the successful environmental education network, the population was network administrators and members. Instruments were in-depth interviews, group discussion and non-participatory observation involving factors and development process of environmental education network. Phase 2 : Developing a model of environmental education network for the development of school curriculum regarding local-related content, the population was schools state and private organization, leader communities in the Municipality of Samut Sakhon. Instruments were interviews with group discussion and participatory observation. Phase 3: Self-assessment of schools, the population was administrators and teachers. Instruments were group discussion.

It was found that a model of environmental education network for the development of school curriculum regarding local-related content had four steps of processes as follows: the formation, the co-ordination, the expansion and the existence and six factors as follows: co-ordinate leader, member collaboration, co-operative objectives, member's co-ordination, shared activities and learning exchange and mobilizing resources. The model used in the Municipality of Samut Sakhon by participatory action research. The result of self-assessment of schools found that were statistically at every good and good level.

The findings suggest that environmental education network should work continuously that not only the developing of school curriculum regarding local-related content but also the linking up working together in environmental problem.

KEY WORDS: MODEL OF ENVIRONMENTAL EDUCATION NETWORK / LOCAL-RELATED CONTENT

291 pages

รูปแบบเครือข่ายสิ่งแวดล้อมศึกษาเพื่อการพัฒนาหลักสูตรสถานศึกษาในสาระการเรียนรู้ท้องถิ่นในประเทศไทย

A MODEL OF ENVIRONMENTAL EDUCATION NETWORK FOR THE DEVELOPMENT OF SCHOOL CURRICULUM REGARDING LOCAL-RELATED CONTENT IN THAILAND

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คณะกรรมการที่ปรึกษาวิทยานิพนธ์: พรธิดา วิเศษศิลป์พานนท์, ปร.ด., ศุภวัณย์ พลายน้อย, กศ.ด., ปาน กิมปี, ก.ด.

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อวิเคราะห์รูปแบบและปัจจัยในการสร้างเครือข่ายสิ่งแวดล้อมศึกษาที่ประสบความสำเร็จในระดับท้องถิ่น เพื่อพัฒนารูปแบบเครือข่ายสิ่งแวดล้อมศึกษาเพื่อพัฒนาหลักสูตรสถานศึกษาในสาระการเรียนรู้ท้องถิ่น และเพื่อการประเมินตนเองในการใช้รูปแบบเครือข่ายสิ่งแวดล้อมศึกษาเพื่อการพัฒนาหลักสูตรสถานศึกษาในสาระการเรียนรู้ท้องถิ่นในการจัดการเรียนรู้ให้นักเรียน ประชากรที่ใช้ในการวิจัยแบ่งออกเป็น 3 ระยะ คือ ระยะที่ 1 เครือข่ายสิ่งแวดล้อมศึกษาที่มีความเป็นเลิศ ประชากร คือ แกนนำ/ผู้บริหาร และสมาชิกของเครือข่าย เครื่องมือที่ใช้ในการวิจัยเป็นแบบสัมภาษณ์เชิงลึก แบบสัมภาษณ์กลุ่ม และแบบสังเกตแบบไม่มีส่วนร่วม ระยะที่ 2 การพัฒนารูปแบบเครือข่ายสิ่งแวดล้อมศึกษาเพื่อพัฒนาหลักสูตรสถานศึกษาในสาระการเรียนรู้ท้องถิ่น ประชากร คือ บุคลากรในองค์กร หน่วยงานภาครัฐ และเอกชน องค์กรในท้องถิ่น หน่วยงานด้านสิ่งแวดล้อม แกนนำชุมชน และสถานศึกษาในเทศบาลนครสมุทรสาคร เครื่องมือที่ใช้แบบสัมภาษณ์กลุ่ม แบบสังเกตแบบมีส่วนร่วม และแบบประเมินความคิดเห็น และระยะที่ 3 การประเมินตนเองในการนำรูปแบบเครือข่ายสิ่งแวดล้อมศึกษาไปใช้ในการจัดการเรียนรู้ให้นักเรียน ประชากร คือ ผู้บริหารสถานศึกษา ครูวิชาการ และครูผู้สอน โรงเรียนในสังกัดเทศบาลนครสมุทรสาคร จำนวน 6 แห่ง เครื่องมือที่ใช้แบบสัมภาษณ์กลุ่ม และแบบตรวจสอบรายการพัฒนาหน่วยการเรียนรู้สิ่งแวดล้อมในท้องถิ่น

จากการศึกษา รูปแบบเครือข่ายสิ่งแวดล้อมศึกษาเพื่อการพัฒนาหลักสูตรสถานศึกษา มีกระบวนการขับเคลื่อน 4 ขั้นตอน คือ การก่อตัว การประสานเชื่อมโยง การขยายเครือข่าย และการดำรงอยู่ของเครือข่ายสิ่งแวดล้อมศึกษา และมีปัจจัยในการขับเคลื่อน 6 ประการ คือ การมีแกนนำที่เข้มแข็ง การมีสมาชิกร่วมกัน การมีเป้าหมายร่วมกัน การติดต่อประสานงาน การมีกิจกรรมร่วมกันและการแลกเปลี่ยนเรียนรู้กัน และการระดมทรัพยากรร่วมกัน ผลการประเมินตนเองของโรงเรียน พบว่า อยู่ในระดับดีมาก และดี

ข้อเสนอแนะจากการวิจัยครั้งนี้ คือ เครือข่ายสิ่งแวดล้อมศึกษาควรทำงานอย่างต่อเนื่องและมีการร่วมมือกันทำงานเพื่อแก้ปัญหาสิ่งแวดล้อมในท้องถิ่นต่อไป

CONTENTS

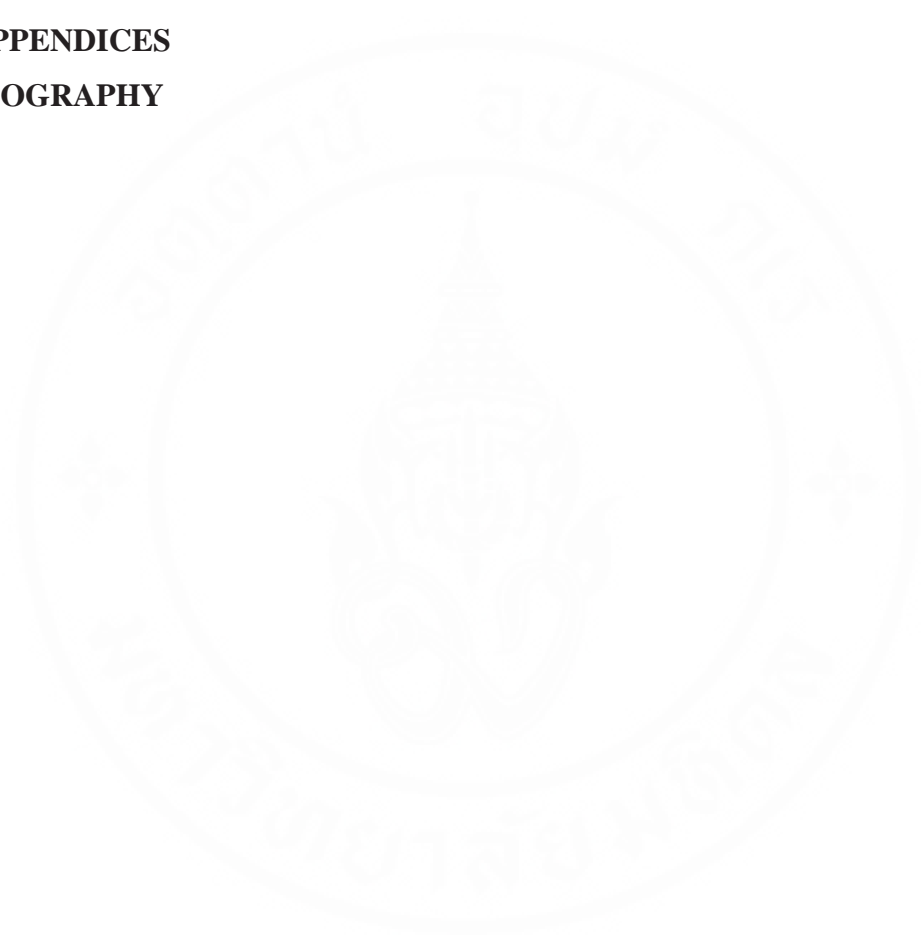
	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	iv
ABSTRACT (THAI)	v
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER I INTRODUCTION	1
1.1 Background and significance of problem	1
1.2 Research questions	9
1.3 Research Objectives	9
1.4 Scope of study	10
1.5 Research Limitations	11
1.6 Definitions	11
1.7 Conceptual framework	13
1.8 Usefulness of the research	14
CHAPTER II LITERATURE REVIEW	16
2.1 The concept of environmental education network	17
2.2 The concept of environmental education	45
2.3 Parties to a local environmental organization	52
2.4 The concept of education in the ways of the community	56
2.5 The development of school curriculum regarding local- related content	59
2.6 The concept of participatory action research	72
2.7 Basic information of the study area, the Municipality of Samut Sakhon	75
2.8 Related Research	84

CONTENTS (cont.)

	Page
CHAPTER III RESEARCH METHODOLOGY	96
3.1 Research methodology	96
3.2 Methodology	97
3.3 Verify information	110
3.4 Data analysis	111
CHAPTER IV RESULTS	112
4.1 Analysis of processes and factors in creating a success of environmental education network in the local level	113
4.2 The development of a model of environmental education network for the development of school curriculum regarding local-related content	136
4.3 Self-assessment of schools for the development of school curriculum regarding local-related content on environment	193
CHAPTER V DISCUSSION	205
5.1 The analysis of the processes and factors in creating a success of environmental education network in the local level	205
5.2 The development of a model of environmental education network for the development of school curriculum regarding local-related content	216
5.3 Self-assessment of schools in using a model of environmental education network for the development of school curriculum regarding local-related content	225
5.4 The findings and evidence that found from the research	226
CHAPTER VI CONCLUSION	232
6.1 Conclusion	232
6.2 Suggestions	244
REFERENCES	249

CONTENTS (cont.)

	Page
APPENDICES	258
BIOGRAPHY	291



LIST OF TABLES

Table		Page
4.1	The Environmental conditions required for students' learning in each sub-district	154
4.2	The opinions on guideline of environmental problems learning management in sub-district level	155
4.3	The Framework of environmental learning of schools under the Municipality of Samut Sakhon	158
4.4	The number of school personnel participating a workshop of development of school curriculum regarding local-related content	184
4.5	Results of evaluation of learning unit "Local environment" Grade 1 to 6 of teachers in schools under the Municipality of Samut Sakhon	186
4.6	Results of evaluation of learning unit "Local environment," Grade 7 to 9 of teachers in schools under the Municipality of Samut Sakhon	190
4.7	Monitoring component for the development of school curriculum regarding local-related content on environment	195

:

LIST OF FIGURES

Figure		Page
2.1	shows the key elements in building an environmental education network	35
2.2	An environmental education network	55
2.3	Shows the development of school curriculum regarding local – related content on environment	69
2.4	Shows the relationship of the environmental education network for the development of school curriculum regarding local – related content	71
4.1	A Model of environmental education network for school curriculum development regarding local-relating content	135
4.2	A model of environmental education network for the development of school curriculum regarding local-related content on environment	167
4.3	The relationship of environmental education network for the development of school curriculum regarding local-related content	182

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CHAPTER I

INTRODUCTION

1.1 Background and significance of problem

Environmental condition is becoming critical in current global environment; due to environmental issues become major problems of mankind. The impact of environmental problems is becoming more severe, affecting the survival of humanity and all creature on earth. Causes of environmental problems have come about from the imbalance of the ecosystem with two reason: the actions of nature and the actions of human beings. There are two main causes of environmental problems affecting strongly to the ecosystem and rapidly in the past 100 years between the years 1900 to 2000 A.D. (Nittaya Laohajinda, 2003: 235). causing lots of environmental and natural disaster from human beings activities towards environments. Human revolution has been affected environment changes in the whole ecological system: and cause more environmental problems than the actions of nature. (Mookda Sooksaman, 2007: 25). Environmental problems became more apparent from the beginning of Agricultural Revolution as a mono-agricultural trading, instrumentation, labor saving devices and chemicals in the cultivation. Later on, it was an Industrail Revolution era which natural resources were used a lot disregarding the environmental problems. Being dominated by the capitalists and the pursuit of wealth and richness as well as the increasing of the world population, science and technological advancement and economical expansion made human beings explore and use lots of natural resources and environment to meet the needs of good life existence. That caused natural resource reduction. The environments were destroyed becoming pollutions with lots of impacts; such as the reduction and the decline of resources and environmental problems, environmental pollution problems, water, air, soil, global warming including the changes of global climate. These are inevitable problems affecting global ecosystem.

Environmental condition in Thailand is becoming severe. The analysis of natural resources and environmental conditions (Green World Foundation : 2005) found that forest resources still remained only 17,011.20 million hectares or 33.09 percent of the country area. A survey of Soil Development Department in 2002 showed that 17.42 million hectares, or 33.95 percent of the country area were soil erosion areas. The characteristics of natural soil were not available for agriculture approximately 9.42 million hectares, 18.37 percent of the country area. It was also found that a part of Department of Mineral Resources, Mineral Statistics of Thailand, from 1999 to 2000.

In addition, a survey of Water Resources Department in 2003, found that there was a drought area in 4,336 villages of 39 provinces ; and report from the Department of Disaster Prevention and Mitigation, Ministry of Interior, found that from late 2002 until mid year of 2003, the drought covering 62 provinces had been affected more than 5.7 million people. The condition kept more intense, that became a conflict of government in problems solution, affecting extensively to people. For the Marine and coastal resources, Department of Forestry had a survey of mangrove forests in 1999, it still remained about 0.16 million hectares and the developed of shrimp farm was utilized by the government, including the community growth caused the mangrove forest decrease continuously affecting a variety of marine resources. Furthermore, the decreasing variety of biodiversity was estimated by a survey that there were 15,000 kinds of plants in Thailand and more than 779 species of herbs were utilized as medicines in the local area.(Vicha Niyom and Kitti Rattana,2004: 19)The most diversities were in the conserved area; the wildlife sanctuaries, National Park, land forests,mangrove forest and wetland area (Department of Forestry, 2003). For the environmental problems in especially the garbage and hazardous waste, it was found that there was a large amount of garbage in a number of 14.4 million tons throughout Thailand in 2003. When considering the proportion of amount of garbage to population, it was in the level of 0.62 kilograms per person per day. (Department of Pollution Control, 2004).From the Department of Pollution Control,it was found that most of the garbage in outer municipal area were eliminated by the discard pile or burned outdoors. The people in rural areas eliminated their own garbage because the

District Administration Organization which is responsible for gathering and eliminating garbage, could not reach all those areas.

According to the Thailand Environment Condition Report in 2003 – 2005 (Green World Foundation, 2005) the direction of problems occurred was still the same. Some problems seemed to be more severe for the use of resources were not reduced; including the policy mainly focused on the promotion of industrial development, trade and investment. The results were not only the reduction of natural resources and environment, pollution and waste increasing but also a conflict of natural resources competition both in local level and national level. The environmental problem solutions in the past focused on using legislations preventing and suppressing the illegal action on the environment, but it couldn't be a good solution. Environmental problem and management of natural resource still remained a problem of any government. Thus, the concept of managing paradigm on integrated environment and natural resources based was found (Vicha Niyom and Kitichai Rattana, 2004: 2) which emphasized the implementation of ecosystem management in terms of conservation and restoration in parallel with sustainable utilization of resources. Enhancing learning collaborative process in local community in accord with the National Education Act 1999 and Amendment made in 2002 (Second National Education Act) (Ministry of Education, 2002) Section 27, that, needs an educational management for developing and truly solving the local problems; thus it is because the difference of each local area both in natural context and socio-cultural context, historical knowledge, transference and utilization of knowledge and technology today to deal with the local community problems.

Therefore, the policies in recent years focus on the participation of local communities to manage local resources together. Explaining by the Tenth National Economic and Social Development Plan (2007 - 2011) (Office of the National Economic and Social Development Board, 2008) has given priority to strengthening the potential of this community to live peacefully with natural resources and environment as well as fostering the community rights and local participation process in conservation, restoration, exploitation and efficient administration of natural resources and environment in the local level; by encouraging awareness in value of natural resource and environment influencing the way of life. It is also the

decentralized local resource management for potential community to cooperate efficiently with the government in conservation, reconstruction and development of resources, nature and environment. To give a chance to local communities participate in setting direction of conversation and proper utilization is also included.

By the way, the prior cause solutions should be made for sustainable environment and natural direction for the conservation and proper use of common. However, a common natural resource conservation. That is to innovate human being's behaviors because they are natural resource and environment destroyers both consciously and unconsciously, appearing in terms of behaviors styles: (1) Selfishness, as a sense of conscience, making public minded to think of others first and do favours for the publics (2) Ignorance of human causing environmental problems as mentioned resulting mostly from human beings actions (Suthira Toolyasathien, 2001: 56) Therefore, it can be said that environmental problems arise from the lack of understanding on environment in a holistic approach covering relationship of things. It will effect to each other when natural disasters occur.

Environmental solution should reverse human beings' behaviors by making them understand environmental problems and being awareness, having attitude towards environmental and natural resource conservation, skills and competencies of problem solutions and utilization of natural resources wisely for the greatest benefits of society and the least effects to environment, which is the goal of environmental education (UNESCO, 1976: 2). Furthermore, the United Nations has declared the roles of environmental education as a key strategy of international countries on fighting the crisis of global environmental problems. Later on a number of conferences were held involving the importance of environmental education. A superb conference effecting a driving of an environmental education was held in 1992 as a UN Summit, with the subject of Environment and Development. It was announced in the Action Plan 21 (Agenda 21) as to provide environmental education measures as the exit of a long term environmental conservation and identified the importance of promoting education. In the year of 2002, UN Summit of Environment and Development made an agreement on sustainable development at each level of educational system, emphasizing the importance of environmental education development for all people in educational system: external education system and lifelong education. UNESCO also provided

educational management for sustainable development as mentioned “ Using partnerships between sections and social organizations including media and private sections with unlimited patterns and educational management as well as training course to create awareness and to promote understanding on sustainable development (Alisara Chuchat,2006:1-4).

Learning management of environmental education in Thailand has found that it was provided in Primary Education Curriculum A.D.1978 and Secondary Education Curriculum A.D.1978 later in the year 1997, there was a development of environmental science courses and became a compulsory course for upper secondary students. As far as providing environmental learning activities (Alisara Chuchart, 2006 : 11), appeared that teacher-centered approach still be used both in primary and secondary levels. Teacher transferred knowledge through by lecturing and assigning tasks as reports on more academic environment than using environmental surroundings as learning stimulus. The Basic Education Curriculum A.D. 2001 was announced in eight learning areas and the integrated environmental education to each learning area; and learning standards by the way, environment obviously appeared in Science, Social Studies, Religion and Culture and Health and Physical Education. (Ministry Of Educaton , 2001).

The Basic Education Curriculum A.D. 2001 was revised the Basic Core Curriculum A.D.1998. From the study of the Basic Education Curriculum revision framework (Ministry of Education, 2002:11) appeared that concepts of formulating learning standards of eight learning areas as the aims of learners’ development still be the same; but a little bit difference on the change of new curriculum structure identifying the same core learning standards throughout the country, : the change of indicators to grade level standard and learning expectations to level indicators for compulsory education (Grade 1 to Grade 9) and grade level indicators for upper secondary level as well (Ministry of Education, 2006: 11). The environmental education wasn’t identified in terms of intergration as in The Basic Education Curriculum A.D. 2001, but it was stipulated spacially in learning area of Social Studies Religion and Culture, Science, Health and Physical Education that made less importance of environmental education in line with the result of national Education Curriculum analysis (Alisara Chuchat, 2006:10). It revealed that Thailand has

throughly provided environmental education from the past to the present, only the environmental introduced in the curriculum was discontinuous. In stipulating and managing learning activities on environment in every grade level, especially The Basic Education Curriculum A.D. 2001 has provided only learning standards as the framework of school curriculum development. All schools had no guidelines for environmental development, especially the continuity of environmental education in every grade level. The concept and the principle of The Basic Education Curriculum A.D.1998 and The Basic Education Curriculum A.D. 2001 were the same.

Therefore, to introduce environmental education to The Basic Education Curriculum is necessary to be in line with The National Education Act A.D.1999, and the Second Revised Education (2) A.D.2002 identified in Article 27 that the Basic Education Commission formulated the principle of the Basic Education Core Curriculum essential to developing quality of Thai life, good citizenship of the nation, life existence, earning living including further study. The schools had a role to create curriculum content involving state community problems and local wisdom society, desirable characteristics for good family memberships. (Office of Basic Education Commission, 2006). Moreover, in section 29 has stipulated the cooperations of schools with people, family, community, community organizations, local administration, private organizations, professional organizations, religious institutions, working places and other social institutions to support strengthening of community by providing learning process within the community such as seminar, acquiring knowledge, information, news, and make a good selection of wisdoms and other academic knowledge to develop the community in accord with problems and needs including finding ways to encourage the exchange of experience on development among communities (Ministry of Education, 2006)

The National Education Act aims to provide school curriculum from the collaboration of different groups brainstorming of planning directions of local education in every aspect: economics, social, traditions, culture, arts, environmental and natural resource conservation and so on. The brainstorming for school curriculum development should collaborate truly on school curriculum development and its solution as local needs; but the educational collaboration often be in terms of joining activities for supporting mostly fund resources or budget, as said in The National

Education Act that local people should truly have the collaborations on managing education in the local level according to local problems and needs. The problems of local environment and natural resources became the major problem of the world, countries and local level. The local area was strongly effected by the environmental problems both in direct and indirect ways. Therefore, providing education according to The Basic Education Core Curriculum A.D.2008, focus on knowledge of local environment for students' understanding, skills, knowledge, attitude, collaboration in environmental solutions and ability to assess environmental conditions according to the goal of managing environmental education learning of the United Nations. By the way, the method of making people's collaborations in local level leading to formulating directions of environmental learning using concepts of environmental education network is truly one of collaborative strategies in making people's collaboration, consistently with (Narumon Nirathorn 2000 :10) as said, "Using a network is one way to make development successful; for it is developed from people's needs directly".

The concept of network for solution had been used for a long time, such as parents network, teacher network, community forest network and so on. There had been an effort of forming up environmental education network with community collaboration. From Academic Report on the title of "The Policy of Education and Environmental Information", (Alisara Chuchat, 2004: 17) found that network of environmental education which was supported by Department of Environmental Quality Promotion in the of 1996 were promotions of environmental activities for conservation and environmental solution in the local level throughout Thailand. The Provincial Education Center was established by the provincial committee of environmental education appointed which consists of both private and state personnel. The outstanding school on environment was the center of working. From observing the project mentioned, appeared that only few teachers carried out activities outside the schools and irrelevant to teaching and learning activities as in the curriculum. The mission of the center became greater to teachers and couldn't extent their tasks. Both students and schools themselves received the least benefits from this project.

Moreover, the concept of environmental education network was used in schools interested in environment as the project of Strengthening Environmental

Education in Thailand (SEET) but there was a limitation of organization groups in collaboration of sections lacked of various ideas and didn't cover problem issues and local needs which was cooperative supporting rather than cooperative thinking; local people did less cooperation. Creating environmental education network for collaborative working in development and making solutions truly, it is beneficial in making people's collaboration according to the Constitution of the Kingdom of Thailand, A.D.2007, and the National Education Act A.D.1999 and Revised Edition (2) A.D.2002. Therefore creating the environmental education network for the development of school curriculum regarding local-related content needs to focus on willing collaboration by the relationships of state and private organizations, local organizations and local people who are interested in environment as well as being aware of local environmental problems. All of them share collaborations in creating directions of environmental education for local youth by presenting guidelines of school curriculum development regarding to local environment and natural resources for sustainable environment and natural resources. Besides this, the personnel, sections and local organizations can exchange their concepts of natural resources and environmental administration to each other. Therefore, it can be said that, guidelines of school curriculum development by environmental education network is an environmental development by group working for school curriculum in local related-content. The main point is to find the collaborative guidelines of environmental conservation or environmental solutions by the community. That is the collaboration of many sections for the development of school curriculum regarding local-related content using environmental education network.

From the importance mentioned, makes researcher interested in studying the model of environmental education network for the development of school curriculum regarding local related-content for the purpose of making solutions of environment and natural resource changes effecting life-existence of local people using environmental education process in developing people at the early age to have advanced knowledge, awareness, attitude, skills of making solutions and behavior changes to be friends with environment in their own local level. The successful method is the collaboration of organizations, sections, schools and local

people with consciousness and needs of development and making solutions of their own local level; share ideas on managing education for the community. Furthermore, it is a process of local learning exchange, causing collaborative learning for reducing conflicts peacefully in competing benefits from natural resources and environment. That is a guideline of sustainable declined problem reduction. Furthermore, the environmental education network can reduce conflicts and complexities on environmental works of state and private organizations and local people as well. It is an integrated idea of people involved (Vicha Niyom and Kitichai Rattana, 2004: 35) in order to cooperate environmental management in the local level; for natural resources and environment are limited source and worthy used for the future generations.

1.2 Research questions

What is a model of environmental education network for the development of school curriculum regarding local – related content in Thailand ?

1.3 Research Objectives

The objectives of this research is to study and develop the model of environmental education network for the school curriculum regarding local-related content in Thailand. The objective are as follows.

1.3.1 To analyze the processes and factors of creating successful environmental education network in the local level.

1.3.2 To develop a model of environmental education network for the development of school curriculum regarding local-related content in Thailand.

1.3.3 To study self-assessment of schools in using a model of environmental education network for the development of school curriculum regarding local-related content for student's learning management.

1.4 Scope of study

1.4.1 Study area

Phase 1: Study the best practice of the environmental education network of : 1) Natural Conservation Club of Khok Kham, Samut Sakhon Province 2) The Club of I love Tha Chin River, Nakhon Pathom Province.

Phase 2: Creating a model of environmental education network for the development of school curriculum regarding local-related content using participatory action research from organizations, state and private sections, local organizations, community leaders, and schools under the Municipality of Samut Sakhon, Samut Sakhon Province, covering the area of Mahachai District, Tha Chalom District, and Krokkrak District.

Phase 3: Self assessment of schools under the Municipality of Samut Sakhon in using a model of environmental education network for the development of school curriculum regarding local-related content for student's learning management in the schools under the Municipality of Samut Sakhon

1.4.2 Target group study

This research is to create a model of environmental education network for the development of school curriculum regarding local-related content in Thailand which is a cooperative network of both state and private section, local organizations, community leaders, NGOs, schools, local wisdoms, environment and people who are interested in environment, to collaborate in an environmental education network for the development of school curriculum regarding local-related content in Thailand. This study will be only an environmental education network in the local level. So, the target group consists of state and private organizations, local organizations, schools and people who are interested in local environmental education

1.4.3 Study content

The synthesis of the process and factors of environmental education network for the development of school curriculum regarding local – related content in Thailand.

The development of a model of environmental education network for the development of school curriculum regarding local – related content in Thailand .

The scope of school curriculum regarding local – related content in primary and secondary level.

1.5 Research Limitations

Due to the Ministry of Education Provision that, all schools in Thailand had to revise school curriculum from the Basic Education Curriculum A.D.2002 to the Basic Education core curriculum A.D. 2008 (enacted on 11 July 2008) within the year of 2010. Local – related content has to be assigned in the new school curriculum. The orientation on school curriculum management need to be done within the academic year of 2010, and use the same core curriculum throughtout the counntry. Therefore, the development of school curriculum regarding local-related content should be provided in time to the Basic Education Core Curriculum A.D.2008. The Ministry of education had announced schools throughout the country using a new curriculum in academic year of 2010. Thus, this study will actually be for the development of school curriculum regarding local-related content by local collaborations.

1.6 Definitions

Environmental Education Network refers to organizations, and private sections, local organizations, local wisdoms, people who are interested in the environment and the schools under the Minucipality of Samut Sakhon willingly gather together exchanging knowledge between individuals, organizations and learning resources collaborated in managing environmental knowledge, becoming a

linking system to development of new knowledge application and being alert to solve the problems or develop knowledge in local level with the purpose of creating awareness, knowledge, attitude, skills, collaborations and behaviors to protect and improve a better environment.

Factor of creating environmental education network refers to important mechanism factors causing environmental education network which consists of united members, a common goal, co-ordination between member internal and external network, exchanging knowledge to each other, having united activities, mobilizing resources and having leader to co-operate the environmental education network in the Municipality of Samut Sakhon.

The process of driving an environmental education network refers to the development of characteristic transferring according to the procedures of originating a network, linking co-operation, network expansion and stability of environmental education network in the Municipality of Samut Sakhon.

A model of the environmental education network refers to process and factors in driving the environmental education network consists of managing of environmental education network from the origin of network, linking co-operation, network expansion, including the stability of environmental education network with the factors of creating environmental education network which consists of united members, united goals, co-ordinating between member internal and external the network. Exchanging knowledge to each other, having united activities, mobilizing united resources and having leader co-operating environmental education network are included as well.

School curriculum development refers to school management on issues prescribed in the framework of the Core Curriculum and Local-related content or educational management of local school under the Municipality of Samut Sakhon including part of additional course as school provided consistently to social status and learners' abilities. Therefore, creating the school curriculum regarding local-related content on environment by school committee, teachers, school administrators, local representative and local wisdoms; using environmental indicators in the Core Curriculum or local education provision frameworks as well as problems and needs on local environment from environmental education network

are implemented to create local curriculum which consists of core courses, additional courses, learners' development activities as well as time allocation, course description, course structure, learning unit design that are composed of learning content, worksheets or tasks assigned for learners to perform learning activities and evaluation criteria linking to standards or indicators as the goal of those learning units.

Local refers to area, natural surroundings and socio – culture where people live familiarizing themselves with their livings, covering in the Municipality of Samut Sakhon in Mahachai District, Tha Chalom District and Krokkrak District.

Local-related content refers to information details including content knowledge involving local aspects: such as landscape, climate, resources, environment, historical background, economy, society, life-existence, earning livings, arts, culture, traditions, wisdoms and so on; including the problems and things transferred and developed in the community society as prescribed by the school in order to provide local experience for students in the community in the Municipality of Samut Sakhon.

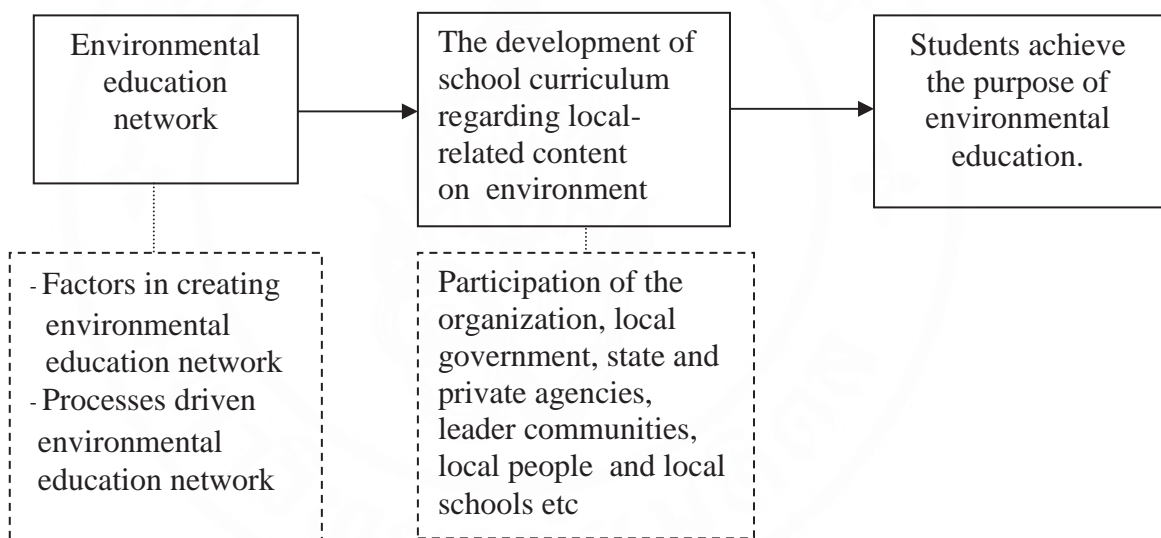
Student refers to students in schools under the Municipality Samut Sakhon School. The primary and secondary education such as Grade 1 to Grade 9.

1.7 Conceptual framework

Conceptual framework of this study is a model framework of researching to achieve the objectives by thinking based on stipulating conceptual framework from different theories as follows: environmental education framework from conceptual network with thinking based on theory of exchange, theory of symbolism, theory of roles, united concept, environmental education concept and collaborative concept of local environmental network are aware to environmental problems in their local level that makes collaborations developing the youth in terms of providing education. This causes of united environmental education network for the development of school curriculum regarding local- related content and being integrated in the Basic Education Core Curriculum A.D.2008, to be

factors of school in driving to conservation. The youth know how to conserve sustainable environment in the community by developing school curriculum regarding local- related content from thinking based of community education using the theory of participatory action research as a broad method in the research.

Conceptual framework of the research: A model of environmental education network for the development of school curriculum regarding local- related content in Thailand



1.8 Usefulness of the research

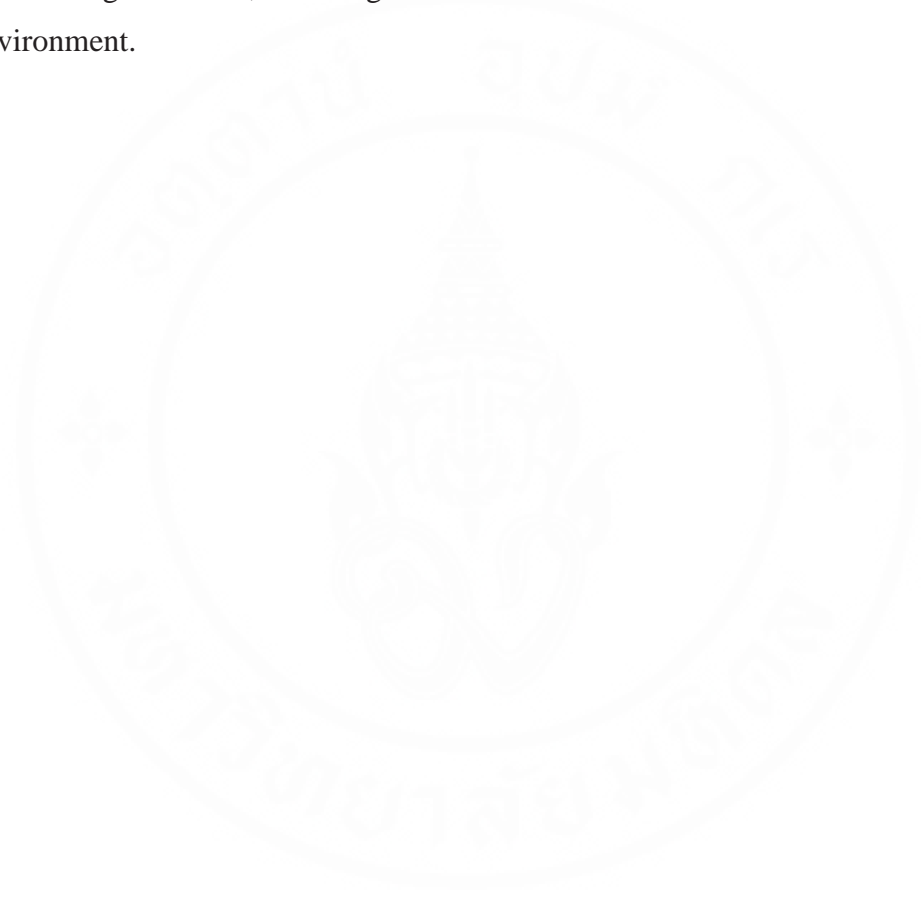
1.8.1 A model of environmental education network for the development of school curriculum regarding local-related content can be the model of environmental education network in other area by applying the other context area which has the same or similar problems.

1.8.2 Local organizations, state and private organizations and environmental interested groups have guideline in creating environmental education network for truly collaborations.

1.8.3 Ministry of Natural Resources and Environment. Ministry of Education and local organizations have guidelines in collaborative working on education for environmental solution.

1.8.4 Schools have guidelines in creating environmental education networks for collaborations of local people, government organizations and local organizations in developing school curriculum.

1.8.5 Clarify the collaborative guidelines between organizations, state and private organizations, local organizations and local administration in working on environment.



CHAPTER II

LITERATURE REVIEW

Research of a model of environmental education network for the development of school curriculum regarding local-related content in Thailand. Researcher studied the network of environmental education. The corporation is an environmental education network by collaboration of the local government, local school and people in the local community by driving through educational management in schools. This research aims to develop a model of environmental education network for the development of school curriculum regarding local- related content, to develop a model of environmental education network for the development of school curriculum regarding local- related content and to school self-assessment in using a model of environmental education network for the development of school curriculum regarding local- related content used learning management for students. So researcher has been studying concepts, theories and research related to the research as a framework for research in this purpose of environmental education network for the development of school curriculum regarding local-related content as follows :

- 2.1 The concept of environmental education network
- 2.2 The concept of environmental education
- 2.3 Parties to the local environmental network
- 2.4 The concept of education in the ways of the community
- 2.5 The development of school curriculum regarding local- related content
- 2.6 The concept of participatory action research
- 2.7 Basic information of the study area, the Municipality of Samut Sakhon
- 2.8 Related Research

2.1 The concept of an environmental education network

2.1.1 Definitions of the network

The network refers to the relationship that links a complex network which means in many dimensions. This could mean that the interaction between humans and could mean the network of public utilities by PraMaha Sutit Apakaro (2005: 5) to unit into a continuous network. The network is defined as both a pattern and non-pattern of the relationship including size and form relationships/links to the different and diverse.

Yothana Waroonpitikul and Supita Reongjit (1999: 174) explained that formation and coordination to be network of civil society groups were the civic infrastructure, which was the supportive factors driving the process of the civil society relying on interaction of people and collaboration to work, which was similar to the umbrella organizations. It linked organization members and members together and became the channels of communication. It needed exchanges interested issues and brainstorming from different people to solve and to develop awareness of human bond. It also built data network and shared resources among each other regardless being either the human resources or budget.

Schuler (1996: 91) explained that the network was the fabric of social relations. There was a unity strong support for the link and support each other. Similarly, the technology was the bond that links the relationship and the communications of people in society by computer technology. Through radio, television, telephone and communications systems would play a role in building the network in various forms of members of the network together, regardless of race, national origin, religion, gender, age and economic status.

Frederickson, George H. (1999 : 704) defined the network functions as a compositional structure of the relationship between the organization or organizations which had formal and casual. The relationship was dependent on one another reciprocal of the various organizations within the network with the goal of professional values and the ideology to work together.

Ariya Sawattama (1999: 191) referred to the network for community leaders and developers. A network meant the unity in the community that was

extensive to build relationships, social justice and creating an extensive network than in the past to send along a strong community network, or to trick the network of the internet technology.

Kriangsak Chareonwongsak (2000: 28) explained the individual or organization, agency or institution that had agreed to cooperate linked together under the agreement or one common system. The aim is to reform education. The network groups have expressed an action activities.

Nareumon Nirathon (2000: 43) explained that the network functions as a form of cooperation or to lean on each other, so the network was defined as a coordinated group of people or organizations, voluntary exchange of information between them or did activities together to help each other by direct contact between the groups. The format or organization that remained independent, with a loose form of integration as necessary. The structure was clear. The importance of working in a network form of organization was seeking to have flexibility. The horizontal structure was independent of each other able to respond to the complex changes. These were consistent and competitive.

Pussatee Monzon (2003: 2) suggested that the social networks in the development of social relationships these were built to learn, shared ideas and activities to enhance the efficiency with which they were members of society. It was a loosely connected group of individuals, organizations and institutions which were members of the network activities as appropriate under the rules, or goals. The practice did not lose its identity and philosophy as well as working together in solving coordination of benefits and expanded it.

Parichat Sathapitanon and Chaiwat Thirapan (2003: 5) explained that the network means that people gather together and did things that benefit them. Because there was a link between the mind's relationship with the network. By the need to focus on the relationship between them on the basis of equality in various fields, especially the opportunity to communicate and access information and decide on issues together.

Pra Maha Sutit Apakaro (2005: 36) explained that the social networks was a significant and meaningful difference to the opinions, views and experiences of individuals. This could be explained by the dimensions of human social interaction.

Both the methods and strategies of social movements were shown to form relationships within the individual groups and network with each other. The dimensions of the relationship and the processes and activities in society such as communication is to share their learning, coordination of benefits, trust and generosity was the key to its members or other parties with a commitment to strengthen the power to fix and change things around.

Consequently, network meant groups of individuals together with the voluntary the relationship between cooperation and joint activities by the communication network that allowed members the opportunity to be recognized and exchange of knowledge between them. It viewed to achieving the common goal of all parties.

2.1.2 Network concept

Social network was a concept and process of organizing relations among individuals, community groups and organizations to provide complementary and interlinked. Parichat Walaisatian, et al., (2003: 304) discussed the concept of the network. The concept was an important and widely used in describing the motion of the image to include a network to create a powerful force in driving the development process or change in any material from the research. Wassie Kebede and Alice K. Butterfield. (2009: 357) had also studied the social networks of women living in poverty in the slums of Addis Ababa Ethiopia. The results showed that social networks of this group had social capital of the neighborhood together. The neighbors' together, family relationship as well as bound by the same gender and race. The network was not an official of the society. There were psychological and financial assistance. Social network analysis was a means of promoting the development of co-existence in society and collaborates in a society in Africa.

Pra Maha Sutit Apakaro (2005: 35) described that the base idea network was divided into two groups as follows: The base idea network of first group was the true nature of things. Network was systematic relation and network was the structural design and structural nature. It described the network as a network of life . Moreover the network was a phenomenon that occurred naturally, and the interaction of the

various relationships that unite to explain everything. Then create a task-oriented interaction with each other into lasting relationships. The virtual mesh was connected and complex. In addition a chain of things that were woven together tightly but with flexibility and independence in their own. It was a process that was dynamic and changes all the time. The second group was a relationship in human society. That was the cultural relationship, power relationships and knowledge sharing. And networking was to extend the power and growth. It described the social network on the basis of truth in human society, the relationship between man and man both in relation to each other in terms of human culture. These power relationships were both in the field of conflict and domination on the rights and benefits by means of developed a relationship with the learning process. The whole concept of five factors that were important to the understanding of their network. The introduction of the life network was a network of social life related aspects of the relationship that unite

Nancy Katz, et al., (2004: 332) explained how to make a small network of people that included the study of social networks was to explain the theories. It was reasonable to use the knowledge base on how to access the network using the lecture. The theory of their own interests was social exchange theory or dependence, theory of mutual interest, theory of perception and understanding, and the same nation.

Therefore, it was said that concept network was the idea for the study of social relations between individuals, which were linked together due to the behavior of individuals. Social institutions and rules of different individuals belonging to the theoretical concepts which were fundamental to the concept of social networks that described the network in operation, there were several theories. It had been found that the key to such a theory to explain the emergence of network sharing, exchange theory, symbolic theory and concept of power gathering. This was consistent with the research study. (Nancy Katz, et al. 2005: 332 and Nareumon Nirathon, 2000: 11-14)

Exchange Theory

Homanns George (1958) believed that the combination was the basis of the theory of exchange of society, "Social behavior was an exchange" was a powerful combination for collaboration and exchange of human testimony. This theory was

based on economics, psychology and sociology. Exchange theory, a look at social psychology and sociology to explain social change and the existence of society. Negotiation was a process of exchange between the groups. The theory was based on the assumption that exchange. The relationship of all humans were caused by thinking about the interests of the individual and how to survive. But the benefits were not needed, but that there was no relationship between this theory, the exchange had developed a second model and the model network (Cook.K.S., 1977) and modeling market (Emerson.R., 1987).

Thus, exchange theory explained the relationship between the parties. Social networking was not just individuals acting in the role of social expectations or norms that had been trained to convey. However, the relationship between the parties based on the decision. In exchange for a reciprocal relationship between the pair, both in material and immaterial, which meant the item of assistance such as financial or emotional ties, or in terms of loyalty to be rewarded in the next future. The main reason to make the network happen to be voluntarily was that each party to see the benefits they would receive from joining the network. This would lead to a willingness to cooperate together or join the network.

Symbolic Theory

The theory of the sociologist of symbolic interactionist, including Mead Goffman and Blumer, as well as an anthropologist named Raymond Firth, all of which provide that a society is created by human interaction rather than through the institutions of society. It explained that the bonds of human society, people, relationships in a complex and on the same lap and maintained by the interaction between individuals in society or their community. Therefore, it can be said that if we are to understand human behavior to understand a society or social network together. It can be seen that the interaction of individuals. It is the behavior that led to a network of connected people in society has a relationship to the individual, individuals, groups or organizations, that depend on the social and cultural patterns of society.

Role Theory

The network analysis was explained by the theory that was the social system or social network consists of individuals who were related to each other by

their given role in society. Which individuals had the same role. Each person had a role to play several roles in everyday life. The role of the network consists of thousands of people, a recently established long time ago. The network analysis should be based on theoretical analysis of the role.

Synergy

Working together which would lead to a doubly valuable or more of the strengths of each organization would be working alone, with the belief that joining forces will cause the value to double.

The ideas and theories that was seen that the network was a combination of the principal bases for thinking that things were interdependent and interlinked. And the idea about the power relationships that the state required to the social movements. The cultural ideas of the people with the help of a supportive culture, and dependence. In addition, the study of social relations of various people had the theory of the basic ideas of social networks that related to a person's behavior and social institution rules that the individuals were belonging to such as a theory of exchange, Symbolic theory, the role theory and concept of synergy power.

The concepts and theories of the cause of the above networks could explain the emergence of social networking seemed to be coming from each side to see the benefits they would gain from joining the network, the willingness to harmonize the relationship, the mission and collaborative process. Thus, the interaction of individuals is behavior that led to the network, individual, individuals groups or organizations that had similar activities, and the results of the work or concept to a group of other organizations to strengthen the power to fix and change things through the communication process by making network members to have the opportunity to recognize and exchange of knowledge between them.

2.1.3 The classification of network

Network is a collaboration of organizations, institutions or agencies, with coordination between people involved and interested to mobilize the achieve mutual benefits of knowledge, ability and resource to work together. It is integration of thinking, decision and take action, evaluation of working together and find ways to

resolve the issue with common development. It is not complicated to operate. This is consistent with the idea of running a network of local community in Thailand that is a research project. "The new way of local governments in Thailand." of Wirasak Kreuthap (2007) and administration of government by using network: a new dimension of the government of Chak Tingsapat and Krisada Pramottana (2009)

Nareumon Nirathon (2000) mentioned the classification of the network. There are several dimensions as follow :

1. The area of network operations, such as village , district and province, region and nation level.

2. The type of activities or issues, such as the children's network, economy's network, community development's network, environment's network, public health's network and human rights' network etc.

3. By professional or social networks such as labor's network, women's network and teachers to protect children's rights' network

4. According to the structure or relationships, Identified using this criterion will be two types of networks, vertical networks and horizontal networks.

4.1 Vertical network refers to the network structure that is a relative layer between the unequal internal organizations of network. The organization has a higher status and are in a position to assist the client organization. Vertical networks found in investment of network such as business as a franchise to which the network must rely on the origin company in the trademark. The network must pay for benefits to be gained from the host.

4.2 Horizontal network is a network of relationships between organizations within the equal network that exchange to help support each other. Communication within the network is contact between the person or organization responsible for coordinating the network, such as meetings, distribution of information or to be central to the operation together. Coordinating organizations have equal status with other organizations within the network and most networks in developing is a horizontal network.

Kriangsak Chareonwongsak (2000 : 45) classified the network to the purpose of the classification of a group of people that are easy to understand. Criteria

for classification of the various networks is depending on the purpose of use. The two criteria can be summarized as follows.

1. The size of the group is divided into (1) Network (total network) and (2) Sub-network as well as a huge social network in the overview. The sub-networks are as a social group in the larger society.

2. The area is divided into (1) Network-level villages in the district (2) Network of village level across the district (3) Network between the sub-district (4) Network-level district (5) Network in the district or province (6) Cross-border network of provincial and district level (7) Network between the provinces in the region.

3. Issues of common interest, the classification of network depends on the interesting network issues such as the reform of teaching and learning network for local reforms, network of school administrator, network of learning and local wisdom, which a network may have several interesting issues including the network.

4. The profession of group members divide to profession levels of member such as a network of politicians, network of scholars, network management schools, network of teachers, network of community leaders, network of religious and network of leaders.

5. The parties to participate in the network have two main ways: (1) the horizontal network to build a network of people who are socially similar and similar problems such as integration between institutions. The joint between the foundation and NGOs, etc. (2) The vertical network is the creation of networks between the different parties such as the integration between government agencies and community organizations, the integration between business and education, the integration between the local organizations with the foundation of its business, etc.

6. The level of commitment, The criterion used to break the bond between the center of the network with different partners of the major networks. This may be divided into a network with close ties to a higher level and network with ties in the secondary network to the commitments in the far away. The division in this manner helps to evaluate the influence of the individual at the center of the network that will connect with people in a network.

Network can also be divided into many different types according to the criteria set up a network, however, classified according to these criteria as only theory

for easy understand. The operation of the network may overlap in several criteria, such as some networks may be formed to tackle the study of the local geographic area. That member of network will consist of members of various groups of people. While some networks may be due to problem with the local knowledge applied to teaching. It is a geographical cross-border integration which is currently building a network between people in different geographical borders can be easily done. The routes can be easily connected to each other. The development of media, information accessed by a wide range of areas.

Therefore, it is said that environmental education network is a network working in the environmental context of the physical environment, cultural, economic and political similarities. It is also a network that is a party to work together in a plane between the parties. In addition a network that has an interest in the issues together. Thus, in such networks are complex integrated into the network. Because of the many partners who are interested in similar issues of individual groups may be intended to resolve issues and developments may vary. Therefore, the management or network backbone to make a link to see the benefits of working together. However, in the same context, reveals the problems and needs to close.

2.1.4 Integration into groups and networks

Group is the basis for the integration into the network or the other side the network is the development of the integration of the group. (Parichat Walaisatian, et al., 2003: 19) explained the importance of the movement of the merger from the federal level as a group or network as well as the power to assist. If this has not isolated groups scattered intercourse or a combination of a lack of creativity and eventually decay.

The combination of similar point both groups and networks is awareness and interest of objectives or goals such as to solving problems and protection of the benefits to build for changing power, etc. In addition to the grounds which make the integration as a group or network. The combination also needs to be done together to achieve the objectives or goals. Sometimes there are rules to the members of the group or network. There are A communication between members and groups such as a "lead" or " core of network" to serve as a center for coordination. The obvious

difference between the combination group level and network is size of the merger by incorporation in the combination group of individuals and of different sizes. As a result, the power and capabilities of the network is higher than group level.

Pussatee Monzon (2003: 2) The social networks that are different from the "group" is a group or organization. Usually associated with individuals closely together with the identity and philosophy of work is clear. The network is linked loosely connected group of individuals, organizations and institutions by members of the network activities as appropriate under the rules, or goals and the practice does not lose its identity and philosophy, and work together both specific work and coordination of benefits that expanded.

Parichat Sathapitanon and Chaiwat Thirapan (2003:10) explains the similarities and differences between "groups" and "network" that the group is comprised of individuals who have the same ideas, beliefs, experience together in various activities, and mission together and actions to achieve the same goal. While the network consists of people who have the different or same ideas and beliefs, However, everyone focuses on actions to achieve goals together. While the target person or group who is a member of the network may vary. Which can be determined by the idea that the experience of the mission and goals.

Therefore, it is said that the group is based on the network and the networks is cooperation between individuals or organizations that is the same objectives or goals, the activities, the liaison between members and external networks, and leader in coordinating. So the people who participate in the network does not necessarily have the same ideas and beliefs, as well as together as groups but everyone in the network, focus on actions to achieve goals together.

2.1.5 The creation of network

The need to strengthen the integration of the network can be said that the social network which brings together. The group relies on help in the development of a learning group process. (Parichat Walaisatian, et al., 2003 : 456) said that the network has been used to describe the integration of various aspects of society, whether it is a business network, social networks, network learning or developing network. The integration in each classification of the networks have a reason or the need to connect to the network in similar and different aspects of the integration for

mutual benefit and to resolve problems. It is said that group is as a starting point of the network. Therefore, the study group and network integration is necessary to create a network.

Pra Maha Sutit Apakaro (2005 : 55-58) explains the need for a network that has three main principles involved.

1. Situations and environments, including the issue of redundancy, and expanded beyond the capabilities of any group or organization that will be solved, need to join forces with an effective management mechanism to fix the problem.

2. Creating a social space. The network is a strategic tool and vital resource mobilization and opinions of the parties to lead to problems and changes that need to expand the development. Using the power of networking as a tool can be considered as part of social activities that leads to learning and creating a social space. When groups in a society with similar needs ideas or ideals as well. come together to exchange information with other organizations, groups or individuals and groups in society to make themselves feel that the social areas are clear. This is a psychological response, confidence, and the other side is creating a social space to adapt to the social gap between the parties which resulted in the learning process and a great relationship. This is necessary to strengthen the network.

3. Coordination of equal benefits is coordinating for benefits of all parties that have been responded for their goals. Because all groups, organization or network have coordination of common benefits as dependence. As a result, network learning and development activities are ongoing . This will allow an efficient management system and new knowledge and new processes by coordinating those benefits. It may not mean only benefits are reciprocal. The benefit from joining the network will stimulate to create network and maintain the old network of mutual obligations. Including, it also is a factor contributing to the ongoing process of network development.

Therefore, it can be said that is creating a network that combines the benefits together to resolve problems by using the network as a result of the group to mobilize resources and opinions from various parties together to resolve issues with the aim / goal of the network.

2.1.6 The environmental education network

Creating a network of environmental education for the development of school curriculum regarding local-related content. It is characterized by a combination of agencies, schools, community leaders and citizens who want to develop and solve local environmental problems by operating through the local education system such as the learning environment management in schools. Therefore the environmental education network will be instrumental in coordinating to create activity and exchange of environmental knowledge of local people. Thus, environmental education network that is formed the main goal of the network environment. But the network can achieve objective and goals of people and organization. This is consistent with the concept of Pussatee Monzon (2003), Parichat Sathapitanon and Chaiwat Thirapan (2003).

Therefore, Creating environmental education network is a consortium of organizations, agencies and individuals willing to expand the relationship of the people who have a need for development and cooperation in environmental issues that has activities to promote the learning process, to develop knowledge of environmental education, to interact with continuous individuals, groups and organizations, mobilizing fund to develop their own and together push the appropriate policy with the model of the development process an environmental education network based on the sequence of steps. So creating process of an environmental education network requires study and application to suit the network.

2.1.7 Composition of the formation of a network

The study documents and related research have shown that creating of the networks have important elements in driving for the formation of the network as follow:

Kriangsak Chareonwongsak (2000 : 37) Network is a key element in at least seven elements are as follows.

1. The recognition of a common perception must have the mutual recognition of the reasons for joining the network, such as understanding and awareness of the problems to solve common problems ,needs similar assistance ect.

The network will contribute to a sense of engagement in activities to solve common problems.

The mutual recognition is the heart of the network that make the operative network continuous. If a member does not have an understanding of how to join the network, result in the coordination and cooperation in the implementation is difficult. People use the different framework because vision problem or needs go in opposite directions. However, it does not mean that members of the network can not think of a different opinion. The different opinion would be helpful in creating the work but the different opinion is subject to a common point of the network member.

2. Common vision

Shared vision is the vision of goals for future cooperation between group members, awareness to understand the same direction and aims to help together a unified, powerful movement and help alleviate the conflicts arising from the view that the different opinion. On the other hand, any vision or personal goals conflict with the vision or goal of the network. The behavior of its members will start differently from a common vision of the network members, so even if it's something that takes time to build it from happening. However, it is necessary to make it happen and network members and should have a personal vision that is consistent with the vision of the network. It may not have a close overlap with the vision of the network but at least it should meet in the same direction.

3. The benefits and mutual interests

Networks create from each member who is required their own needs. However, those needs can not be achieved if each person is not work together. This limit is based on a combination of benefits that will attract enough to include of networks. Therefore, the combination is a network that base on of the sharing benefits.

4. The participation of all stakeholders

Participation of members in the network. It is a very important process of developing a strong network. The participation of all stakeholders in network is a condition that would cause me to think of sharing a joint decision and joint action, so the presence of an active member in the network. It should be in the form of equal status as a "partner network, which ties the horizontal relationship are equally represented in relation to the vertical relationship. This means that if the merger is a

network between the state and the local community. Government must put its own status as a member of the public network but is not a place as ruler over the people. However, even this is difficult in practice because in many cases rely on the concept of the network and creating a context to the other. Otherwise it is also necessary to be done to build a strong network.

5. complementary relationship

Elements of the network is carried out continuously. The members of the network are to enhance the strengths of each party to resolve the weaknesses of the other party. This will make the return or benefit arising from the incorporation into the network over a network but not work together, for example, scholars who understand local conditions and conduct research by collaborating with the local people are helping to accumulate knowledge of the systemic locality that is beneficial to the community. While the local people provides information and cooperation in the research or the foundation's financial support to businesses and public organizations. At the same time the success of the organization's make reputation to the business. In addition, the combined network would be sufficient cause to strengthen each other in the network. If properties of members is insufficient to reinforce each other. It would have to expand the network further to seek new members added to sufficiency the network.

6. Interdependence

Due to the limited nature of the network members in terms of manpower and financial resources and knowledge ect. The network can not live completely on their own. The goal will be achieved. Members need to rely on each other between the members in the network to strengthen each other. The partnership enable relative network members and need to feel that each partner. If some partnerships go out of the network that it will fall. The existence of partnership, each person is essential to the existence of the network. This mutual dependence based on the result of interaction between members has to be automatic.

7. Exchange interaction

If members of the network have no interaction, no people work together, no way to be cooperative and truly collaborative networks, so members of the network must do together to the interaction between members, such as through the

consecutive writing or meet exchange ideas with each other. The combination of conferences, which have the effect of this interaction to cause changes in the network as well. Such interactions, the relationship is reciprocal exchange. No interaction is unilateral exchange more members to interact more closely. It's even more the ties between the inside only to achieve a level of strong relationships. This interaction also allows for learning and growing. This will allow the network stronger.

Parichat Sathapitanon and Chaiwat Thirapan (2003: 13) discussed the concept of network management. "Partner of the stars" or "Star Alliances" that is the concept of this cause issues strategic importance to the management network, which has six aspects, with the synchronize properly to link the light of the stars as follow:

1. Common goals : The network will be high effective if all parties can be great together to define common goals . In particular, the goal of all parties and would like to make it happen.

2. Person : The individuals of the network must have a conscience , an aptitude for the work done and participate in the process to benefit of membership in the network.

3. Links : The network needs to have a strategy on the appropriate link. It may be connected to each other through various activities connected with the center and connected by technology.

4. Creating a common sense: After joying is to the network, then all parties must have felt with the process of the network to achieve the power to push for the goal.

5. The development of a transparent monitoring system of the network must be able to develop a transparent system of governance and accountability of all parties that creates a great feeling to win and who will join as part of the network.

6. Systematic information: Communication and information systems are critical to the sustainability of the network. Because it allows the sharing of knowledge and how do the movements of the network.

Juthatip Pathawat (2006: 23) has discussed ways to develop a sustainable network. It is necessary to develop skills, experience and vision to leaders/groups/ organizations appropriately in order to be ready to manage the network, The regulations agreement and budget of operation including evaluation of results. Creating

a forum exchanges knowledge on a regular basis continuously to share their learning because it creates a powerful unity, cooperation and surmount obstacles to achieve a common goal, under the changing environment.

Tiradach Chayarun (2008: 17) Lesson-learned of area based management in case study : The driver of the concrete practices of social networks to promote and protect human rights in driving the process is key to driving conditions as well that lead to desired output of concrete practice area in the promotion and protection the human rights. From the analysis of case studies have found that the 10 cases, corresponding to 10 steps.

1. Adhering to the goal constancy of the working party and the network found that certain areas are targeted. The revised targets are always in different stages.

2. Commitment to the community have noted that villagers in the area of concrete practices in the promotion and protection of the most human rights who fight for human rights are staking their untiring best wishes to the community or by a desire to be free of structural problems that enter the community.

3. Familiarity and trust between the provincial team and networks, as well as community leaders are familiar. Local developers have experience working together before. Familiarity and trust, will drive up the area quickly.

4. The clarity of the objectives and goals. The concept is the essence of the movement area of operations. The working group agreed on several areas together in a movement to communicate ideas and network with people involved as quickly and thoroughly.

5. Learning design. It is very important to drive the operating conditions on a public platform to share and learn but the issue of human rights is relevant to the arguments of the parties that need to be designed to learn as well by integrate on the local context.

6. Participation is another condition that affects learning that found in many operating areas. The villagers took part in every step of the areas through community participation is that people choose but every public forum, people will come to the stage throughout.

7. The continuity of the operations area of operations are areas of ongoing activity. Volunteers working in some areas are working according to plan. A summary

of the lessons and plan to continue to work. Continuation of this operation makes it possible for the operating area.

8. Learning interaction. In many areas has been to persuade other sectors that are relevant to the problems of the villagers as well as central and local government or the private sector to join in the arena. This condition makes their learning more intensive exchange of people attending each one. Residents have the opportunity to question the policy. At the same time be aware of these facts to push the policy as well.

9. There are rules in the area of operations. This condition is found in areas that have been operating for a long time. And there are many networks. It has to be how to work together.

10. The use of media to communicate. Each area will have to use different media. But overall, it's aims is to communicate as a network of several groups with the tools necessary to coordinate these groups in order to know the tricks. It will also be instrumental in disseminating the results of the workshop area as well.

Therefore, the formation of the network element can conclude a process of network element that is an important condition for the formation and development of a network element, broadly based on a network that represents relationships in human society. A network of relationships is collaboration with the mission and processes.

2.1.8 Elements of the environmental education network

From studying the process of building networks mentioned above that is the idea of a network represents a network of social relationships and networks to learn the relationship of cooperation and the mission and processes. The synthesis process of creating a network that contains elements that are important in terms of the formation and development of model building. Network elements in a network environment are as follows:

1. The common goal is that network members have common goals and principles. This may include a sense of shared responsibility for the target audience to develop a common policy, facing similar problems, or even an interest in learning to solve problems in the same issue. It also needs to be made ideals and principles that form the basis of some sharing. Otherwise, it will cause conflict in the long term.

2. The members come together means that members come together with willing and participate in the activities of the network regularly and continuously.

3. Coordinate with the internal network and external networks is to spreading of network information that is a media coordinator to the members' knowledge and understanding for the same one and feel together. It is an opportunity to meet and exchange knowledge and share work or activities in addition to the exchange of information when network members have the opportunity. Besides developing information systems to serve its members and the public to help with mobility and coordination can be expanded quickly.

4. Activities and learning together is members who have the exchange of knowledge and other information used to indicate the movement of each other in their development and activities. It means members to participate in joint activities and approaches and solutions to local environmental issues together.

5. Mobilization of resources to work together is mobilization and coordination to use of resources, knowledge of equipment, buildings and budgets. So that agencies can use these resources effectively for local development and reduce redundancy and waste as much as possible.

6. Leader in coordination who act as leaders or a host of coordinator must have knowledge experience in environmental education and information to understand the philosophical concepts, and objectives of the network completely, ability to coordinate with the critical thinking, open attitude to accept the opinions of individuals and other organizations are responsible for serving its members in the organization between organizations have the ability to manage and communicate.

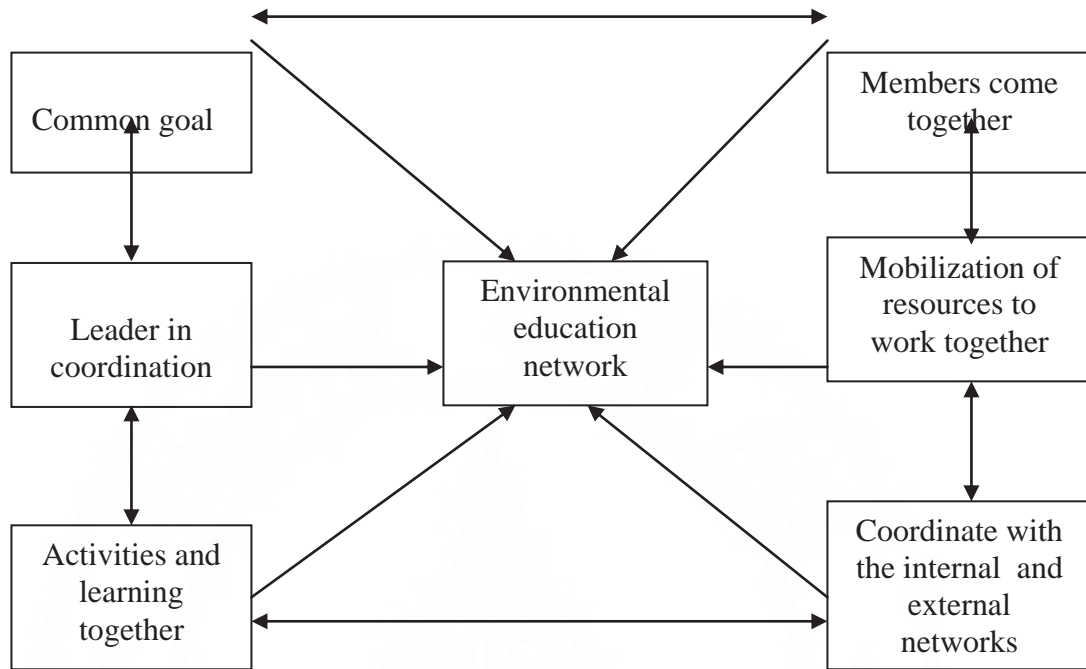


Figure 2.1 shows the key elements in building an environmental education network

Consequently, the elements in an environmental education network consists of the members together. A common goal of coordination between member and outside the network is to share and learn from each other. Mobilization of resources to work together has lead the coordination of the network. These elements are the mechanisms that cause to formation of the network, and process in building the environmental education network.

2.1.9 The pattern of the process of building a network

The process of building a network is the development process of the broadcast networks in different stages of the network in each step. The pattern and implementation mechanism used to achieve the goal of each procedure varies, so it is said management network, there is a variety of ways that set up from individuals, groups, organizations and networks . And studying review literatures and the relevant documents have concluded the concept of the pattern of the process of building a network as follows:

Wimonluk Choochat (1997: 44) has analyzed the concept of building a network of experts tell us that networking is the process of building a network of the following four steps.

1. The formation of network both the internal and external organization

- 1.1 From the internal organization by the organization to learn new experiences from people outside the organization or from the various sources of knowledge, then combined to create a network.

- 1.2 From the external organization by external agents, both from government and private sector organizations to explore information processing classified information. The seminar provided a forum to exchange information. Knowledge and experience of each person in your group or organization, problems and needs of local people and a network of learning organizations in the community.

2. Coordinate networks has done in several different ways depending on network conditions, such as public relations members to network, get to know the information, events and activities of the network. Meeting of members to coordinate cooperation in the use of durable building materials, budget, human resources, the sharing of one network to another network is one of the more common coordination.

3. Extended network is to spreading of network information, activities of the network through the media to network used to gain knowledge with each other movements. Expansion of the network, it can be done by meeting, saminar, workshop and learning exchange ect, to collaborate and combine to be learning organizations both small and large network.

4. The existence of the network is used to provide a network that already exists to sustain. There are individuals and organizations have proposed that the arrangements for members to meet regularly as well as formal and casual. Supporting the activities of the network is to provide value to its members morale, encouraging joint activities, exchange messages with each other. Members cultivate a sense of ownership of the enterprise and cherished local resources. The two leaders are required to maintain the network sharing rules, the members agreed to strictly.

Kriangsak Chareonwongsak (2000: 49) have discussed the life cycle of the network which is comparable to the organism. Therefore, it can be used to frame the idea of the life cycle into the network to look like a living organism is that the

nature of the network must have grown up, need to adapt to changing environments and must be fought for the survival of the network in such a way as living organisms. When the network stops growing. Network are declining to the end. When mention the network life cycle must think to assumption as follows.

1. The growth of the network will follow the sequence through the four stages is the formation of long-term growth, prosperity and recession but only some of the network can move on to Stage 5 is the recovery period.

2. There may be a network that can not develop to full term as the fourth stop on the long form. Or it may be a problem in expanding the network to be shut down and so on.

3. Each time the network development life cycle from one phase to another one will vary by the type and composition of the network, some networks may only take a few months while some networks may take many years.

4. The growth of the network in each period based on a quantitative criteria. and qualitative criteria.

5. In the early stages of their life cycle requires a different strategy. We can not use the same tactics as a strategy for building a range. In the same way that we can not use the same tactics as the network type.

Ronnachat Pootsankom, et al., (2004) The presentation of research: The . networks and the news media and youth. "Multiple eye movements " which are a form of communication in the consolidation and expansion as a sequence of steps.

1. The establishment. "Pineapple eye movement."

The incorporation of key elements in the initial three reasons. such as face a common problem, activities together, and consciousness together.

2. The expansion of the network have some form of network communication varies according to the period of development.

Period of development

- 2.1 Expansion of the network by increasing the use of third party communications.

- 2.2 The network expansion by adding a newsletter to communicate.

2.3 The network expansion by adding a radio program for children and youth.

2.4 The network expansion by adding a nationwide radio network.

2.5 The establishment of news agencies, children and youth. "Multiple eye movement."

2.6 After the establishment of children and young people's news.

3. Stabilization

Individual-level factors, the most important one is to have a leadership that is unique to have strong and capable leader. In addition, the enterprise communications, another important factor that affects the stability, is easy to become a member. The members participate in it. And from the event easily, one of the motivations that allow people to step in as part of the network, regardless of the decisions to the disadvantage that to happen.

Pra Maha Sutit Apakaro (2004: 123) Network management, network life cycle is very different and diverse. It is maintained the network management process that emphasizes self-management of the network based on the life cycle stages of the network is also important to consider that network management is effective. Members and those involved in the network must have knowledge and understand the process and life cycle of the network. Because the development of the network each time is different situation. Thus, the network is divided into four stages according to the network life cycle.

1. The awareness and the formation of the network

The awareness and the formation of a network is a very important step. It was the beginning of the power group and its network to manage the happening situation. That the members of the network and stakeholders in the development of the network must have a better understanding of the process. In order to promote self-management within the network properly.

2. Commitment and network administration

Creating obligations and managing the network are the result of the collaboration and managing network both internal and external networks to maximum benefit to all parties of network.

3. Developing relationships and taking advantage

Relationships and use that knowledge management. Expanding range of activities and concepts to it. The process of creating a culture to eliminate the conflict. And a system to build credibility and trust. Including inspection of all parties and the key is to use the network as a platform to exchange knowledge and experience. The whole process will be part of an effective network management.

4. Maintaining relationships and continuity

Maintaining a good relationship with the activity and communication between them. This allows the network to strengthen and develop a continuous process.

From process of the network management has the four stages that are life cycle of networks. It can be seen that in each phase of the cycle network. Process and how to manage a variety of different methods can be applied in almost all stages of network management, such as reviewing and summarizing lesson, knowledge management is continuous, strengthening leadership, and the important is maintaining to good relationships between members in the network which is all methods and processes will help management of more efficiently network.

Praphapan Un-ob (2009: 48) Creating and developing a network of area research and a network of local researchers found that the occurrence and the existence of these networks are often comprised of five main steps to this process as follow:

Step 1: Preparing a group or network formation by raising awareness to the issues in the area to understand the research process (the ideas, principles, goals and processes) in the global network of researchers and local researchers across the stage to discuss both formally and informally.

Step 2: Creating a shared commitment is learning group, making mutual benefits, seeking a good leader, building coalition of network ideas from the same experience people who has experience working with spatial development in the past.

Step 3: Developing a relationship is activity group by a formal agreement between the roles and responsibilities of network members and creating the conditions for the internal communication of network.

Step 4: Stages of learning. It aims to learn from participatory action of network members through all stages of research that time is competent development for network members from situations and needs with various methods such as training, case study of successful exchanges and exchange learning with other research networks.

Step 5: The expansion of activities and groups and areas includes to expand the issues of driving of network.

However, each network operates in different procedures and may not necessarily follow the steps mentioned above. The period of development is certainly not fixed and may not be equal in each step.

The analysis of the creating and developing network of area research have five stages that find the step 2, the common commitment as a learning group, and step 3, the developing relationship is a learning group which there are consistent types with the coordination of the network. And step 4 the learning is the activities of the network to existence forever.

The analyzing the process of a creative network of many experts can summarize the creative network in four steps as follow :

1. The formation of network
2. The coordination of network
3. The expansion of network
4. The existence of network

From the study found that The process of creating network has 4 steps as follow :

1. The formation of network

The formation of network can arise in two types 1) the common interests of members are a network that arises from learders internal groups to push the formation of network and 2) the network of the arising of the drive from external the network.

2. The coordination of network

Coordination of the network have the link of the internal and external networks. Network arises from common interests that will link with thoroughly coordination by using the various methods. For network arises from the establishment resulting from the establishment. The link between the organizations and agencies mainly support. these two characteristics of network are linked to the promotion and information through various channels and coordination to mobilize the resources together to work together to mobilize resources for member development.

3. The expansion of network

Network expansion is the process of growing the two types of expansion by increasing the number of members and enhance the quality of its members.

4. The existence of the network.

The existence of networks is capable management of the core of a group. It make the group member . Bring the purpose or goal of the network make theirs concrete by the activities and learning exchanges to repond the needs ongoing and regular, coordination with members and the outside network at all times. These make members to know the information thoroughly and do activities to respond the interests of members concretely.

Consequently, the model of the process to create a network consists of four stages of the network, coordination networks, network expansion and the existence of the network.

2.1.10 The steps of building of an environmental education network

From the study documents and related research that was consistent with academy, experts and people worked in the network found that the building process, social networks, and various learning networks had the building process of the network environmental education similar to those already mentioned above. There may be somewhat different by depending on the specific characteristics of each network. However, the study found that the process of building an environmental education network based on both natural and cultural society that is based on the idea of nature was a natural system that must be linked into the network was the integrative looking and based on society, It was looking at the social and human relations in

various fields such as human relations and cooperation, and the mission and processes. (Pra Maha Sutit Apakaro, 2004: 36 – 46)

However, the building process of an environmental education network needs to think for two groups such as the idea of nature and a social idea including concept, theories on the network to help achieve the environmental movement in the process of an environmental education network. There are development by transferring the building steps of an environmental education including the four steps such as formation, coordination, expansion, and existence. And each step have factors that encourage the development of an environmental education as follow :

1. Have come together
2. A common goal
3. Coordination of internal and the external network
4. Activities and learning together
5. Mobilize resources together
6. The leader in coordination

These are the key factors that make the network able to drive it. Therefore the successful and sustainable building of an environmental education network for developing of a network need to understand factors in building of network to promotes the effective factors

From study model of building process of the network is as follow :

The model showed that the process of creating a network.

1. Formation is a network of different types that affects the building process of the network. So, the building process of the network is necessary to analyze the information in the formation of a network by common interests or network arises from the establishment. In addition, the network may have the characteristics of the different nature of two of the foregoing to plan of stakeholders to set guidelines for the development of the network.

2. Guidelines of the development of the network formed by the group itself. The formation of a network should have guideline for supporting factors in the network can not be done alone such as the support for human resources, capital equipment, technology, the venue for a conference seminar and training providers of

knowledge related field, knowledge to lead in the management of the organization. The support and promotion should be based on the needs of the network from evaluation of the performance of the network through the analysis of the problem and needs sharing of networks and agencies or persons concerned. Therefore the network defines the needs and the aid from agencies or organizations or stakeholders to plan continue to support further.

Thus, the supporting factors that related to building process of the network should be in the nature of the support network needs to be appropriate and in accordance with the requirements of the network and the network is stronger and more sustainable. The agency or related person to the network operators in the order or enforcement. Because these networks were formed with the aim of the group. If the action does not meet the requirements and want to network members, it can not exist. But the existence of the network results from operations to meet the goals and needs of the majority of members. Therefore, to study the problem of a network of common interests is very important. The problems and needs of each network define the guidelines for further development.

3.The guideline to develop a network that has been pushed to the network should promote the primary factor in building a network in six such factors by starting from the agencies and stakeholders and raise awareness among personnel in the area to be aware of the importance and necessity of developing a solution together, using collaborative networks by following the model of the network as follows.

Step 1 The formation of network : Promoting integrate of the combined network and push the leaders or group leaders who understand and see the benefit of the community,Leaders or group of learders are selected by the members who will be executives that manage formally of network. After that network executives operate by defining the common goal for the development of a network by sharing the members to set a common goal. In order to needs of its members will have to coordinate their operations together and have a good understanding of each other.

Step 2: The coordination of network: Supporting and promoting to spread information, concept of the work and objectives of the network to build mutual understanding between the network members, promote a continuous learning process. I encourage the member's role, and recognizes the shared responsibility and promoting

the bond between the members and encourage mutual cooperation in resource mobilization including human resources, budget, etc.

Step 3 The expansion of network: the process of growth of the network performance is acceptable to members and guests to make the network grow. Relevant agencies should be encouraged to educate leaders or group of leaders in the organization's internal management system, allocation of responsibilities and the rules and the agenda of the leadership network to participate and promote the planned network expansion, with public information and open membership.

Step 4: The existence of the network: the existence depends on the ability of leaders to manage as well.

1. To promote the development of next generation leaders. The operation of the network must have at all possible. Leaders must be acceptable to members. If the leaders who are competent in managing the condition will affect the existence of a network in the future.

2. To promote the objectives of the network is set to make concrete. The activities and knowledge sharing, continuous and consistent and to promote integration and social ties between members in order to form a wide network including the Annual Meeting or meeting to plan the work, and informally

3. Foster liaison with members across the formal and informal, to provide information about the movements of the network all the time, able to participate in the activities of the network and encourage coordination with various external networks. to mobilize the cooperation in various fields. The exchange of knowledge and experience with the external members are very active and get new ideas to work and new knowledge.

4. To promote the management of network resources in a fair method of sharing and participation. Members to be recognized in financial management. And are involved in financial management will be transparent. Members will see the need to raise funds to support the work of the network.

5. Promoting activities and to share and learn continuously.

6. To promote the network, can continue. Should have evaluated the performance of the network by all stakeholders to recognize the obstacles, problems

and achievements of the network, in order to promote the effective development and joint problems. And so the network is sustainable and can be operated manually.

Therefore, it can be concluded that The process of creating a network of environmental education consists of the factors that caused the driver of the network as a common goal, the members have come together, the network backbone coordination both within and outside the network the activities and knowledge sharing and, the sharing of resources and mobilization. In addition development of environmental education network consists of four steps, including the formation, the coordination, the expansion and the existence of an environmental education network.

2.2 The concept of environmental education

2.2.1 Definition of environmental education

Environmental Education is a process to educate to the public. In the past, always talking about environment that people are the definition of environment is a natural environment both the living and non living and man - made environment as well as physical structures such as historic buildings, art or the environment is an abstract culture, lifestyle and social environment, technological environment. But the word "environment" means more than the foregoing. There are many scholars have referred to as follows:

United Nations (1993). The meeting in Tbilisi Soviet Union in 1977, the definition of environmental education concluded that "environmental education is a process aimed at creating the world's population. The awareness and concern for issues related knowledge, attitudes, skills and commitment and commitment to find solutions to challenges and prevent new problems both their own and in collaboration with others".

Environmental Quality Council (Council on Environmental Quality, 1994: 221 - 222) has a meaning. Environmental Education is an educational process that helps students understand the nature of all the parts and know the relationship of each part with each other and to other parts of the study focuses on several areas simultaneously is not. studies that focus specifically on the ecology or human ecology,

but also to the importance of the environment is everything around the man and guidance that how human behavior and the environment should play a role,

Winai Wirawatananon (1994: 126). the definition of environmental education as a process study on the relationship between humans and the natural environment. And man-made, the relationship between population, pollution and wasteful of resources, resource conservation, transportation, technology and urban planning and rural environment surrounded by people of all kinds.

Pasinee Piampongsan (2005). Environmental Education refers to the process of education to develop the human population to understand environmental problems. and a sense of nature by focusing development of human potential that is ready to participate in the solution, the co-existence and harmony with nature.

Consequently, the concept of environmental education is the process of imparting knowledge, understanding of both physical and cultural environment to public awareness, attitudes and skills to act on the environment and can change the behavior of living in a sustainable environment.

2.2.2 Principles of environmental education

UN had the Conference on Human Development in Tbilisi in the Soviet Union in 1979, with the purpose to define the principles of environmental education to guide the practice of other countries.

1. Considering the environment is a holistic approach both natural and man-made environment.
2. Environmental education is a lifelong learning process.
3. Environmental education is organized in an interdisciplinary manner by integrating content from different courses together.
4. Examining environmental issues from different contexts, from local to global, regional countries. So that students will have a thorough understanding of the situation of the environment in different geographical areas.

5. Emphasizing the current environmental situation considers the state for the past.

6. Promoting the value and necessity of cooperation in preventing and solving environmental problems are both locally and internationally.

7. To consider the environmental aspects of planning for the development and progress clearly and carefully.

8. Environmental education allows students to play a role in planning learning experiences and opportunities to make decisions and accept the consequences of those decisions.

9. Environmental education makes awareness, knowledge and skills to solve problems, and the values about the environment for learners of all ages and focus on the community sensitive to their environmental problems.

2.2.3 Environmental education and educational management

Environmental Education began to discuss seriously the environmental crisis in 1962, the UN Conference on Human Environment in Stockholm, Sweden, which has concluded that Environmental education is an important tool to solve problems and improve environmental quality. Later in 1965 the UNESCO organization. The meeting was held in Belgrade operating environment, Yugoslavia to call for countries to cooperate in the preparation of environmental education to citizens of the country and a joint declaration called “The Belgrade Charter” in the Belgrade Declaration was a declaration of the goals of the environmental study. Population education is to develop an awareness about the environment and related issues. Including the knowledge, skills, attitudes, motivation to cooperate to prevent problems occurring and occurs on both a personal and powerful groups (Phasinee Piampongsan, 2005: preface), then there has been an international conference in Tbilisi in the Soviet Union. The declared goal of environmental education and has been widely accepted. As a starting point that other countries have to develop their environmental policy. The goal of environmental education as follows (UN, 1967).

1. Promoting public has explicit awareness and a matter of concern related to political, economic, social and ecological in both urban and rural areas.
2. Giving people the knowledge, values, attitudes, actions and decision-making skills necessary to protect and improve the environment.
3. Creating model of a new behavior to the person individuals and the overall society to the environment.

In a meeting at the Tbilisi City has also discussed the objectives of environmental education in various fields are summarized as follows: (UN, 2000).

1. Conscious awareness. In order to achieve awareness and sensitivity to respond to environmental issues and events that cause environmental problems. Developing the ability to recognize and distinguish what we have been developing a good and spacious and use the ability of this new situation in many forms.
2. The knowledge is to understand the basic operation of nature, the relationship between humans and the environment, environmental problems and solutions.
3. Attitudes make values and feelings about the environment and incentives for participation, preserving and improving the environment.
4. Skills to achieve the necessary skills in identifying problems and implementing monitoring and find solutions to environmental problems.
5. Participation. In order to have experience in knowledge and skills to be used to find solutions to various environmental issues.

The global environment and their importance to environmental education. In addition to the teaching and learning in schools already. It is the policy of educating the general public. This is an overview of the whole country and local level. Because the Constitution of the Kingdom of Thailand BE 2550 (Secretariat Of the Senate : 2010). has indicated that the local government and the law in the management of local natural resources and the environment itself as well as people turn more attention to environmental issues.

Therefore, it is said that environmental education is focused on local education because it is process to education, understanding of the environment to the public awareness, attitudes and skills to act on the environment that can change the

behavior of living in a sustainable environment and participate in solving the problem, environmental management and use of environmental resources at local cost and helpful to most people.

2.2.3.1 The importance of education on the environment

Education is the process of training and personal development to improve the physical and mental integrity, intelligence, knowledge and integrity, ethical and cultural life and can co-exist happily with others. But humans in the environment is occurring in nature and man-made. If anyone does not recognize the use of natural resources and environment, efficient and cost-efficiencies. Natural resources and environment in the future may not rest on the next generation. So if humans must protect the environment in existence forever. Humans are necessary management of environmental education to knowledge and understanding about the environmental characteristics of the various elements of the problem and make changes from the original environment as well as learn how to conserve and development environment to remain in a state of benefits to the environment, living things that rely on a balanced and sustainable ecosystem in the world, so the study is important for the environment (The Academic Commission of Environment Technology and Life, 2008: 139 - 140).

1. Education will know the truth about the environment. The truth about the environment refers to the rules that associated with survival, changes, and problems that are causing environmental problems.

2. Education has to develop and learn how to solve the problem of the environment and to proper conduct towards the environment . Education make knowledge problems arising out of natural such as wastewater problems, loss of fertile land. The extinction of some species of animals and plants. The public water supply was destroyed and drought, etc. The study makes an appropriate method such as what can be used in reforestation, soil and climate conditions, river conditions and the color. Practices appropriate to the natural environment that is most important being a moral and ethical environment. The good people behave appropriately to the environment.

3. Learn to recognize the value of the environment.

2.2.3.2 The concept of the learning environmental education

Learning environmental education in basic education brings environmental education into the Curriculum of Primary Education and Secondary Education 1978 (Revised 1990), a group of subjects to enhance learning experience in primary and secondary education is located in science courses and the division of Social Studies. However, to improve the Basic Education Core Curriculum 2008, environmental education are identified as subject to the integration of all learning. The standard of learning in learning Science, Social Studies, Religion and Culture, and occupation and Technology and moreover, the Basic Education Core Curriculum 2008 define learning standard, indicator of environmental education.

The concept of the learning environmental education

In the learning environment in Thailand has introduced the concept of the UN conference on the environment. Which started from 1972 onwards, and from the National Education Act 1999 and amendments made in 2002 (Second National Education Act), the legal framework for the management and education. The sections related to environmental education in Section 4, each section has a set of guidelines and education about the environment.

Section 22 The teaching environmental education to the students is important and the process of education should encourage students to develop their natural and full of potential.

Section 23 Guidelines for environmental education learning is the study in the formal education system to must the emphasis on knowledge, integrity and use of the learning process, Integrated basin water content as appropriate each level follows.

1. There is knowledge about themselves and their relationship to family, community, national and global environment and society as well as knowledge about the environment in the history of the society.

2. There is knowledge and experience, maintenance management and utilization of natural resources and balancing environmental sustainability.

3. There is the knowledge and understanding about Thai culture and the application of wisdom.

Section 24 the environmental education activities provide school and related agencies to manage for studies.

1. Activities of the environmental education learning should be consistent with the interests and aptitudes of the students, taking into account differences between individuals.

2. Prevention and solving of environmental education must the training skill by using process of management thinking and confront the situation.

3. The environmental education learning provides students to learn from actual experience, practical training to made possible and solve the problem.

4. The environmental education learning must be combined knowledge in various proportions and balance including cultivate virtue, good values, desirable features in the conservation and environmental development.

5. Supporting facilities in management of the surroundings, instruction media to allow students to learn, and knowledge and can be researched as part of learning.

6. Cooperation of all parties in the management of learning and environmental resources for learning both in school and community.

Section 25 Guildelines of the environmental education learning shall provide adequate resources for learning and performance such as libraries, zoos and botanical gardens, parks, science centers and technology, etc.

Section 26 learners assessment of the environmental education learning are assessment by considering for the development of students and testing in parallel in the appropriate teaching process by using a variety of assessments.

Section 27 the preparation of the Environmental Education Program of the core curriculum and standards and standards of learning to prepare a curriculum to suit local conditions, to solve community and society.

2.3 Parties to a local environmental organization

2.3.1 The definition of local area

The Royal Academy Dictionary 1982 gives the meaning of local that. "Any area of a particular locality," so there may be broad or narrow. The local residents have location, the territorial and sizable government such as the village, district or province.

Ministry of Interior that divide the forms of local government in Thailand is the five models, such as municipality, sanitation, provincial administrative organization, tambon administrative organization, and a special form, including Bangkok and Pattaya and later changed the position of the Municipal Sanitation 1981 nationwide. This is in accordance with the provisions of the Constitution of the Kingdom of Thailand, BE 1997, Section 285 (Ministry of Interior : 2005).

Therefore it was concluded that the local area in which we live with the territorial government and the village, district or province by the local government into five types: Municipality of city, Municipality of Tambon, Provincial Administration, Tambon Administration Organization and a special form, including Bangkok and Pattaya.

2.3.2 The role of environmental organizations, agencies and local people

Environment is with human being from birth to death. The man can not be separated from the environment. If environmental issues have also affected the life of all kinds as well. The local environment is the responsibility of the local community to help maintain stability in the environment and contributing to the livelihoods of local people forever. In addition, a person who is a very important role in managing local environmental organizations, various government agencies and private citizens who act on the environment must work together to manage the local environment, in a network environment. We need to focus on the role of an intelligence agency, local leaders and local people. Took part in the direction you need to develop a local environmental problems(Wicha Niyom and Kitichai Rattana, 2004: 5) An important organizations working in local government has been listening to the needs of local

people in environmental management, environmental education network. Therefore, as a platform to exchange ideas and the direction of the local environment together. It also eliminates the conflict of local environmental issues. You can use the network as a platform to share their learning environment of the local environment as well.

Wirasak Kreutap (2007: 110) outlined the innovative work of local 526 of the environmental issues brought about by the 76 parties to the role of networks in solving environmental problems and conservation of natural resources. The study found that a network of relationships with partners to solve environmental problems and conservation of natural resources and central government agencies, regional government, public organizations/voluntary organizations, international organizations, the private sector. The general public in the area, academic / professional organizations. Other local governments, private businesses and volunteer groups and the public sector continues to play a central role in managing such problems. The parties have been involved with that decision and the problem continues of focus group at Surat Thani Rajabhat University on April 27, 2005, the management of local government to see that the empirical data that "The establishment of a group of volunteers. Or packing conservation activities in the school curriculum and students into the area. Known as a conservative, long-term strategy to fight "the other hand, regional governments have a role in environmental work in the problems rather than away from civil society. Although these organizations will have personnel with the expertise to handle any particular issue. This is consistent with (Wicha Niyom and Kitichai Rattana, 2004: 43) have discussed the role of environmental agencies and local organizations. The framework set by environmental agencies and departments into ministries in order to make resource management and environment by the community based did not receive much attention. Since the legal framework, regulations do not permit. The government has not decided on the basis of the participation of the people. If the conflict continues, the functioning of government, organizations and local people do. The complexity of the budget, the total time required to participate in the decision of the people and the environment, so the network should be possible to complete the integration of different sectors.

2.3.3 **Limitations of the management of shared resources of the community**

Wicha Niyom and Kitichai Rattana, (2004: 43) mentioned the resource management and environmental community. It is a limitation caused by a related and affect the normal life of the community. The analysis is as follows.

1. The missions of the agencies are different. Collaboration can not be continued. The separate management of agencies and communities are different in the profession, So the collaboration of activities are different as well.

2. Organizations in community are not strong and lack of availability management, lack of support/activities, most still rely on support from the government. This is the traditional understanding. The tendency to collaborate and expand the network of people in the community should encourage direct

3. Can not establish a joint leader. Collaboration requires leadership and integration of the two parties to come up with a leader. The joint leader of the people in the community to be selected as appropriate to consider the activities to be carried out by community.

4. The governmental agencies do not provide ongoing support. In particular, the support activities, the budget subsidy, support in the larger network. The sincerity of cooperation is to faith and acceptance of each other.

5. Lack of data of the resources and the environment in communities. Most people know and understand the environment but does not have a record collection and analysis of a concrete reason. So when there is collaboration between the lack of information in the link to the target areas important resource. Basin sub watershed and so on.

6. Lack of the source of funds for the activities together, mobilizing financing and budget. It is estimated that the community must seek to provide an activity that is consistent with the objectives set. Although external funding sources to support some of them. However, when considering the needs of the community with a lot of it. It is a budget only a few. It has spread throughout the financial support of government, private organizations, international assistance is indispensable to drive the awareness and further cooperation.

Therefore, it is said. Environmental work based on the roles of each. Government agencies, private sector, local organizations. Educational institutions and the public sector should aim to respond to problems or needs to develop an environmental community and should be willing to work with and analyze the environmental situation together to work together to solve a set of guidelines or local development.

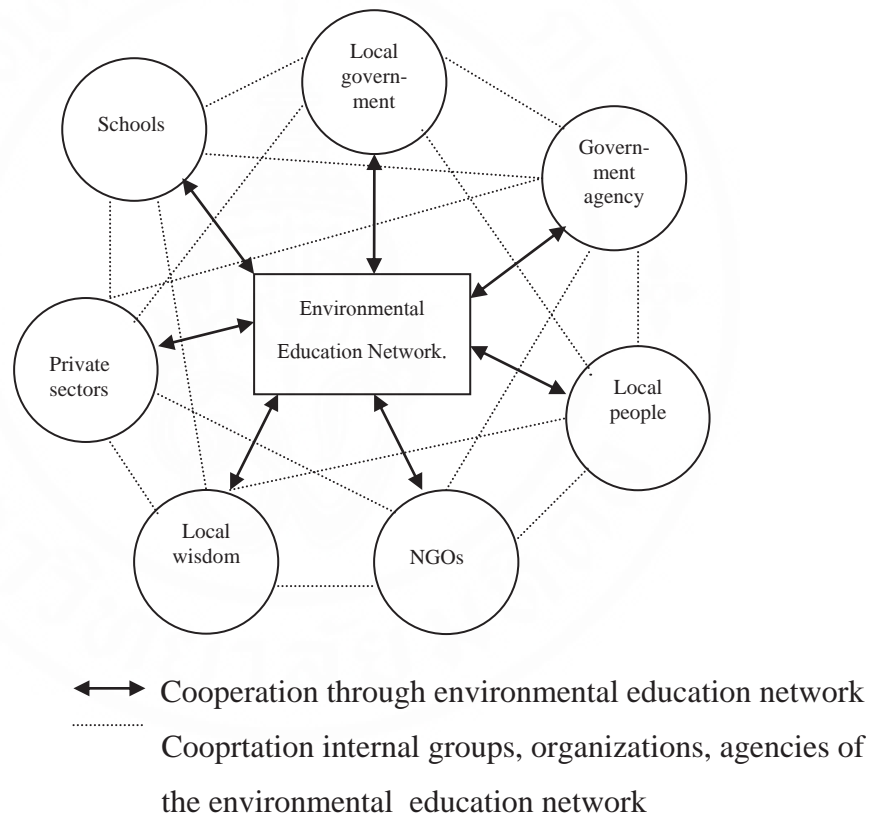


Figure 2.2 An environmental education network

Consequently, the environmental education network is a collaboration of local environment by arising from the cooperation of government agencies, private sectors, schools, non government organizations (NGOs), local wisdom and the people who are interested and have the role of environmental cooperation. Which has the same goal in the environment and collaborative planning to bring into action the goals. There are ways to make the local environment better. Therefore should promote the role in the environment with these important groups. In addition, the individual groups

and organizations that are interested in the especial local environment. But it is important role that is driven by the goals and objectives of environmental education to focus public awareness on local knowledge, attitudes, skills and participation in solving environmental problems, Therefore the individual, groups and organizations, both public and private sectors need to recognize and participate in decision making about environmental issues and local development environment. Especially on issues that affect the communities in which they live.

In addition, the environmental education network that makes groups, local agencies has the opportunity to share and learn knowledge and the channel information through a network of environmental education and collaboration between organizations, agencies and groups, etc., or a collaboration of organizations, agencies and groups without going through any environmental education network. However, joint operations, or to solve local problems to be done in the integration of collaboration.

2.4 The concept of education in the ways of the community

2.4.1 The meaning of community

Prawas Wasi (1997: 33) the term "community" refers to any number of people share the same objective, communication, or grouped together. The generosity of one another shared learning in action and managed to achieve success common purpose.

Jintana Sujjanan (2006: 44) The community refers to people who are in the same vicinity and there are relationship between culture

Amornwit Nakorntap, et al. (2008: 29) The member agencies of social communication descended from strengthening and social relations that are both dynamic adaptation, the combination of conflict and harmony, the continuity and change are the most important as follow : a social community is not independent or isolate or separate from other social units.

Therefore, it is concluded that the community is a social unit that live together as a group and it is the relationship of both conflict and harmonious blend. However, there are mutual benefits.

2.4.2 The education of the community

Education of the past to Reform Education under National Education Act 1999 and amendments made in 2002 (Second Nation Education Act) is scheduled to take action to school. "School community" and identify the role of local education in Section 41, the local government have the right to education level or any level of readiness that are suitable and needs of local areas. Because the education of local communities are the educational needs of the local variety, differences of each locality in particular as well as knowledge of local traditional knowledge of the local community to determine direction and the real goals of education. The education of local communities are indicated the potential of community education for local development. Amornwit Nakornatp, et al., (2008: 29). The researchers studied 17 projects related to the role of the school/public educational agency finds that the path to success, it must have helped to make the process of education in the community as a way to smooth and more sustainable.

The following proposal, schools must be driven and initiated a program integrated with community life continues. It is a concrete and sustainable ways to gradually open space needs of the local identity and expression in the education system.

1. Schools must play a role in the development of teaching and curriculum development. The Board of Education, which includes representatives from the community gathered in it. Although the role and participation of the school and the community in teaching and learning will be challenging and may have limitations in many cases, it is a direction that ought to be done and needs to gradually build confidence. to participate in the education of the community.

2. Schools should be opened to a wider variety of community activities. Especially in the areas of mutual learning for both children and adults of the community to the role of the school as a learning community with the support system to learn the relationship between the school and the community better.

3. Schools administrators need to emphasize the development of students to be more effective than. Just because the problems that beset children and young people more in the current. However, to demonstrate and build confidence and trust in the capacity of the school and the children in our community.

4. The area of education shall consider and push for the creation of local programs in their areas, especially areas that reflect the cultural district with a clear cultural identity. It supports the school community providing programs and continuous improvement may rely on the cooperation of institutions of higher education in the region are parties to work with.

5. Education area should accelerate the development of the course that is good or best practice examples of local programs in the area. The strategic use of knowledge management and network management and innovation to expand into more broadly.

6. The area should be trained and assigned to intensive supervision and monitoring of education to be effective.

7. Ministry of Education should have a clear policy in support of the local curriculum. In particular, stimulate and encourage the study area is considered a more important mission. Also play an important role in extending the best practice in the local curriculum in both content and process effects to other local schools in the greater.

8. Ministry of Education should adapt to various conditions conducive regulations. Development and education to meet the needs of local identity, such as improving the allocation of the workload of teachers and the school administration and finance at all levels. The teachers are dedicated to teaching and learning even more. It is should also improve the migration of teachers and administrators packed into different areas to be flexible and conducive to the development community, teachers can work continuously. As well as encourage the youth in the community have the opportunity to return to school as a teacher to act more locally.

9. Office of Standards and Quality Assessment should improve. External quality assessment of the dimensions of collaboration between schools and communities is an important dimension of quality. The local cultural knowledge with high potential. There should be flexibility in assessing the weight to focus on this more.

Therefore, the education community will respond to change in the production of a community whose way of manufacturing that is consistent with the natural environment and local culture. And collaboration to solve problems and find

solutions to local development is important and essential to the local environment will be different. As well as local values and knowledge as a philosopher was to solve the problem. The local development of the knowledge accumulated from the past as a source of local knowledge that is useful for a long time, so education is an effective and conducive to the development of a truly local should arise from the opinions and needs and to develop local solutions for local people took part in the comments and to determine the content and the goal of basic education of the local.

2.5 The development of school curriculum regarding local-related content

2.5.1 The Basic Education Management

Education is the foundation of the nation. Prosperity of the country was dependent on the quality of the nation. Thus, education and compulsory education to cover must think of the quality of schooling. The quality of education must meet the good quality of life of the nation and education as a tool to work with. The National Economic and Social Development Plan No. 1-8 (1961- 2001) will focus on the education of people employed in the sector and industry aimed at pulling people out of the local community. At the same time it was made of local natural resources and the environment to deteriorate as a raw material in industry cause environmental problems both in urban and rural communities. Urban environmental problems are mainly related to solid waste pollution and congestion of living space and arable land, etc. (Green World Foundation, 2005) at the same time. Issues related to rural women and exploitation of natural resources for agriculture, forest reserves, discharge waste into rivers, soil degradation, etc. These problems are severe and affect the lives of the majority of the country. Cause of immigration is to seek a new career in the industry. Of these conditions can be seen that the National Economic and Social Development Plan No. 9 - 10 (2002 -2011). They turn to focus on developing people, focusing on the quality of people that have good quality of life and career have been appropriate to their local environment. This means that the development of local people to live their happily can adapt and use of natural resources and environmental benefits of sustainable living. The national education policy has been modified by the Education

Reform Act of 1999 to accommodate changes in the era of globalization and issues of national education. The basic education given to local participation in education, management education in order to meet the needs of a truly local.

Later, with the amendments to the National Education Act. The National Education Act 1999 and amendments made in 2002 (Second Nation Education Act) requires the preparation of basic education to the Thai good citizens of the nation. Life and career as well as to education and basic education use to prepare the contents of the course in respect of the environment and local communities, feature for the good of families, communities, societies and nations and the National Education Act requires a 9-year compulsory education (Ministry of Education, 2002).

Of such importance, Ministry of Education by virtue of Section 74 of the Transitional Provisions of the National Education Act 1999 shall be given to the Basic Education Curriculum 2001 by the principles of unity and diversity policies in practice. The core program is a flexible program structure which is the goal of learning as a whole 12 years of learning. Standards of learning for each group. Standards of learning in class and to provide basic education to achieve the goal set. Schools need to be coordinated relationship and collaborate with parents, guardians and communities to improve the quality of education in schools is ongoing. (Ministry of Education, 2002).

The Basic Education Curriculum has improved in the Basic Education Curriculum 2001 and the Basic Education Section of the Ministry of Education has adopted the Basic Education Core Curriculum 2008 (Ministry of Education, 2006) to the area of education, local agencies and schools under the management of basic education for all used as a framework and direction for the development of curriculum and education to Thai children and young people have the knowledge and ability, features and desirable standards of learning and indicators of learning were defined in the program.

However, the Basic Education Core Curriculum 2008 have been distributed to local authorities and schools have a role in the development of the course in terms of education plays an important role in developing the curriculum. The body of persons, including school board, parents, community networks and agencies took part in the operation by developing a curriculum that must be consistent with the

core basic education and details of the study area, agency or other local agencies can do more. However, education is more in relation to the problems in the community and society, local knowledge and the needs of learners in the context of the study.

2.5.2 The Basic Education Core Curriculum

In A.D. 2003 the Ministry of Education announced. The Basic Education Core Curriculum 2008 to schools across the country to use such courses is to provide a significant educational role in the preparation of the course material. The standard of learning at the national level 8 group learning is the goal and direction in developing the curriculum, management education, evaluation and measurement to the potential development of Thai youth to a higher standard and the ability to compete with international civilized country. (Ministry of Education, 2002) results of research and evaluation of the program is ongoing (Ministry of Education, 2006) From and monitoring and evaluation using of the curriculum of 2004 to 2008, and in-depth research to develop the process of creating standards-based curriculum will be 2004 – 2005, the synthesis of such information. Including, the data from the monitoring of the educational reform of the Secretariat of the 2004 data from the Office of Inspector General and the 2005 evaluation and research related issues were a major obstacle. the development of basic education is the lack of understanding at odds with the basic curriculum issues "core curriculum" of the Ministry of Education is prepared to serve as a guide for the course The Ministry of Education to prepare and promulgate "Basic Education Curriculum 2001" was used instead of the core curriculum, the document said the only standards of learning. The overall number of students in each of the groups. This is a course that is a framework rather than a core curriculum. (Ministry of Education, 2006: 4) There are also issues about lack of knowledge in the development of teachers and staff at practice (Suwimon Wongwanit and Nongluck Wiratchai, 2004). This is mainly due to the uncertainty, of course, the core itself. As a result, most teachers still lack the expertise to provide a quality program and the context in each school, so it has improved the Basic Education Curriculum 2001. It is of course the core of the Basic Education Core Curriculum 2008, but the update operation is based on the concepts and principles of the course. Focus on developing detailed and practical guidelines to help schools to prepare students for teaching quality and more

effective. (Ministry of Education, 2006: 7), which affect the quality of the students and the nation in the future.

2.5.3 The preparation of the core curriculum

Ministry of Education (2006: 27) mentioned that the National Education Act 1999 and amendments made in 2002 (Second National Education Act) specified in Section 27 "The Board of Education. The core curriculum for basic education to the Thai, the citizenry of the nation's life and livelihood. The study "and make the school more in line with the conditions and requirements of their own. Board of Education will set the course for the core of every student and opportunities for further development in the local schools that comply with the conditions and needs of the students/community, which may vary in each area.

The core curriculum is implemented as follows.

1. The core content

The core content of the analysis of knowledge and skills specified in the measure that is defined in the class were to determine the scope of topics/issues that every student in basic education for students and occupation.

2. Course structure

Learning areas. The group is still learning on eight groups.

- 1) Thai
- 2) Mathematics
- 3) Science
- 4) Social Studies, Religion and Culture
- 5) Health and Physical Education
- 6) Art
- 7) Occupation and Technology
- 8) Foreign language

The study determined that eight of learning areas in all students in compulsory education Grade 1 - Grade 9 and in high school Grade 10 - 12 allowed students to choose courses according to their aptitude and interest increase within a defined framework.

The learning areas consist of the eight content, learning standards, detailed content and Indicators

3. The evaluation criteria

The central agency will define central criteria. Including the number of credits/ minimum time of learning in each learning areas and the end of the course as a framework for schools to use in determining the evaluation criteria of the study.

2.5.4 The preparation of the school curriculum

Since schools are the source of knowledge. Schools must have their own courses, the curriculum must respond to changing society, economy and change the nature of the study. Teachers must improve their teaching and learning process to meet the changing needs of learners and the effect of changing economic, social and cultural education will grow even further if the course is updated according to the needs and requirements at all times.

2.5.4.1 The management of the school curriculum

The school curriculum comprises all learning and other experiences that schools plan to develop for each student. The content must be prepared to learn. The course is core courses and selective courses annually, or semester, activities to develop students every semester, and a desirable characteristics, standard of basic education. This is a critical component of the curriculum.

2.5.4.2 The aim of the school curriculum

Schools must work with families and local community agencies, schools and temple both public and private sectors locally to achieve the purposes of the school curriculum. The aim of these two important as guidelines that the schools must develop curriculum within the context and these ways.

1. The school curriculum should develop to fun and enjoyment of children in learning to strengthen the students' interests and experiences and develop confidence, to learn and work independently and confederate. And the school curriculum should provide students with important skills to learn to read and write the information into the calculator and communication technologies , promote a spirit of curiosity and the reason.

2. The school curriculum should promote the development of spiritual, social and cultural ethics and in particular the principles developed in the classification between right and wrong, understand and believe in their faith, different faiths and cultures. That influence to develop personal and social integrity and independence of students help them become responsible citizens and can help society to be fair equality, should develop awareness, understanding and accepting environment in which they live, adhering to the agreement on sustainable development in both the personal level, local level, national and global levels. The school curriculum should be ready to become an informed consumer decision and independently and understand their responsibilities.

2.5.4.3 Responsibility of school for the development of school curriculum

The elements of persons include the school board, parents, community networks and agencies that took part in the operation. Akarin Simahasan (2008: 15)

1. Managing the school curriculum
2. Planing and operating of the curriculum use
3. Quality improvement of the curriculum with the research and development
4. Evaluation of the curriculum use
5. Improvement and development of the curriculum

The development of the curriculum must be consistent with the curriculum. The Basic Education Core Curriculum and details of the Educational Service Area Office or other local agencies that add local content. But education can add regarding local- related content that relate problems in the community and society, local wisdom, and the needs of learners in the context of education.

The analysis of the principles and goals of Basic Education Curriculum 2001, and of the Basic Education Core Curriculum 2008 are defined the educational management to the localities that manage the school curriculum by the schools. According to the study of nation is international character of the core curriculum and is associated with the localities of each school. The curriculum should

arise from the involvement of local community organizations to come together and determine the direction of the local educational goals. And the content is specified to have the students learn the core curriculum and the curriculum because of the care and preservation of natural resources and the environment is defined in the National Education Act 1999 and amendments made in 2002 (Second Nation Education Act) which relate to a life well-being of the people. Learning about the environment is very important.

2.5.4.4 Environmental education in the Basic Education

Ministry of Education has published the Basic Education Core Curriculum 2008 in the curriculum, given the environment in the three learning areas : 1) Science 2) Social Studies Religion and Culture, and 3) Health and Physical Education. However, the analysis of learning in each learning areas showed that in learning areas Occupation and Technology and environmental learning standards are in it. The details are as follows:

The learning areas of science

Standards of learning that provides learners with knowledge and understanding about the environment by determine in the learning standards as follows:

Strand 2: Life and the Environment

Standard Sc2.1: Understanding of local environment; relationship between the environment and living things relationship between living things in the eco-system; having investigative process for seeking knowledge and scientific reasoning; and communicating acquired knowledge that could be applied for useful purposes

Standard Sc2.2: Appreciating the importance of natural resources; utilisation of natural resources at local, national and global levels; and application of knowledge for management of natural resources and local environment on a sustainable basis

Strand 8: Nature of Science and Technology

Standard SC8.1: Application of scientific process and scientific reasoning in investigation for seeking knowledge and problem-solving; knowing that

most natural phenomena assume definite patterns which are explainable and verifiable within limitations of data and instruments available during particular periods of time; and understanding that science, technology, society and the environment are interrelated

The learning areas of Social Studies Religion and Culture

Standards of learning relate to the environment by the standards of learning are as follows.

Strand 1: Religion, Morality and Ethics

Standard So1.3: Practice in the principles of Buddhism and religious ceremonies or religion in their honor. Values are pretty good and can be applied to the development of the own. Social awareness of the environment to coexist peacefully

Strand 3: Economics

Standard So3.1: Understanding and capability of managing resources production and consumption; efficient and cost-effective utilisation of limited resources; and understanding principles of Sufficiency Economy for leading a balanced life

Strand 5: Geometry

Standard So5.1: Understanding of physical characteristics of the Earth and inter-relationship of various things in the natural system which affect one another; utilisation of maps and geographical instruments for searching, analysing, drawing conclusions from, and efficiently utilising geo-data and information

Standard So5.2: Understanding of interrelationship between man and physical environment leading to cultural creativity; awareness and participation in conservation of resources and the environment for sustainable development

The learning areas of Health and Physical Education

Strand 4: Health-Strengthening Capacity and Disease Prevention

Standard H 4.1: Appreciation and skills in health-strengthening; maintaining one's health; disease prevention and strengthening capacity for healthy

Strand 5: Safety in Life

Standard H5.1 Prevention and avoidance of risk factors, behaviours detrimental to health, and accidents; use of medicines; addictive substances and violence

The learning areas of Occupation and Technology

Strand 1: Living and Family

Standard O1.1: Understanding of the concept of work; possessing creativity and skills in various respects: work processes, management, problem-solving, teamwork and investigation for seeking knowledge; morality, diligence, and awareness of the need to economise on the use of energy, resources and the environment for one's living and for family

Strand 3: Information and Communication Technology (ICT)

Standard O3.1: Understanding, appreciation and efficient, effective and ethical use of information technology in searching for data, communication, problem-solving, working and livelihood

2.5.5 The preparation of local learning

Section 27 paragraph two of the National Education Act 1999 and amendments made in 2002 (Second National Education Act) requires that schools have a duty to keep the contents of the course in respect of the problems in the community, social, local knowledge, and the desirable feature to be the members of the family, community and nation.

Guidelines of Development for local related-content should be implemented by committee of school. The important step is Step 4 (Ministry of Education, 2006: 10).

Step 1 Analysis the local related-content framework of the Education Service Area Office and local educational agency requirements to determine the scope of the contents and knowledge about the localities of schools.

Step 2 Analysis the school curriculum to know the focus or the important issues of schools in the local related-content and should be placed in any group, class level, basic course or additional courses and there should be a lot or less, According to define of the school curriculum.

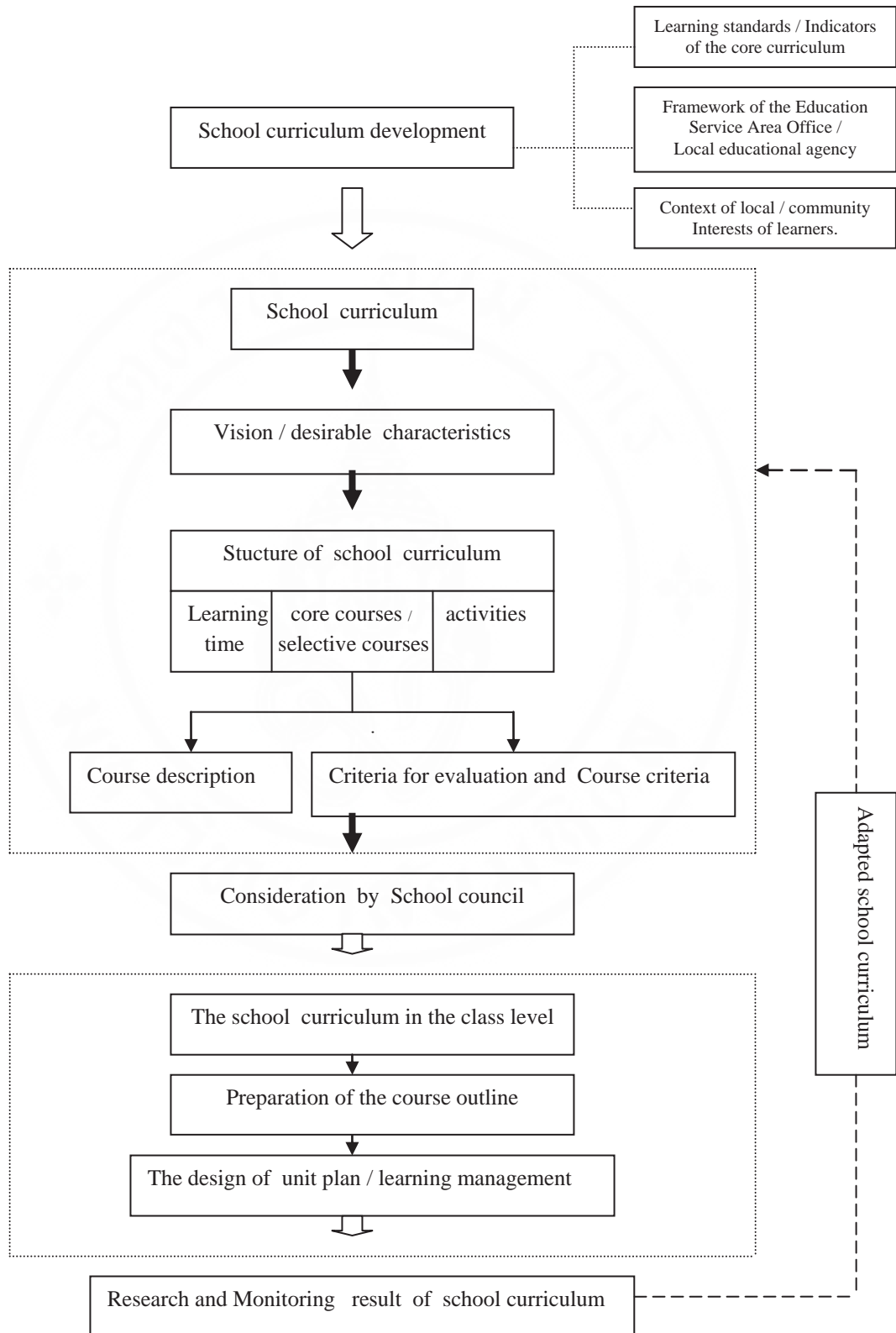
Step 3 Analysis of the school and community information. Information was provided to do completely in the local related-content.

Step 4 Preparation of the local related-content of schools. The board of schools are associated to determine the appropriate local related-content. According to the context, the focus of the school and community. This should provide the local knowledge together as a class and at the same grade, so teachers can plan learning. The students in different groups to achieve the learning standards set forth by the structure of the curriculum. The teacher can proceed in several ways. Bringing local knowledge to the learning experience is as follows.

1. Inserted in the basic courses that the indicators reflect the local nature. It may be adapted to teaching, the content, learning materials, by integrating in various subjects.

2. Prepared for additional courses. Schools may provide students with the basic courses as core course and the course as selective course.

3. Activities aims to develop students' full potential and promotes the abilities of students.



Adapted from the framework of the Basic Education Curriculum 2001

Figure 2.3 Shows the development of school curriculum regarding local – related content on environment

Figure 3 Shows the relationship for the development of the school curriculum, which consists of three parts: 1) the core defined by the center 2) related communities and localities by developing for the Education Service Area Office and local education agencies, 3) developing to addition by schools to consist with social condition, interests and needs, and abilities of students. By bringing the local to provide the learning experience in the school curriculum by integrating in core courses and providing the selective courses and activities.

The school curriculum development above found that the various agencies, organizations are involved in developing the curriculum for each school including 1) educational organization, office of Education or other educational agencies involved in the education of those schools 2) local organizations 3) board of schools include the local people in the school, and persons in school 4) parents and the general public, 5) the students. Therefore these are the stakeholders in local education management that the National Education Act 1999 and amendments made in 2002 (Second Nation Education Act) mentioned that participation of citizens in local communities to define the direction of local education. Therefore, a network is created by local people to develop the school curriculum. The idea is to develop a school curriculum to the needs of local issues and local development that caused by the cooperation of the government's wisdom to know the local with the knowledge from the outside through the process of learning in the school system to improve the knowledge of the local youth.

For the context of the local environment of the countries most affected by human activities that cause environmental problems. Therefore, it is said that one of the local environment is an issue that should be fixed properly and urgent to happiness of local people, but the environmental problems that arise. The solution requires the cooperation of all parties in the local area and should cause a problem is to educate the public. Especially the youth, thus creating a network of environmental education for development of school curriculum regarding local-related content that benefits to the educational development of a truly local. Because the environmental education network mobilizes the cooperation of the environmental persons and people who interested in local issues and need to develop local environment from brainstorm ideas and propose ways to improve the local environment and take into account the limited

local resources. But the local population has increased more in real time so the consistency between the development of educational resources available in the local environment will impact the quality of the population and the balance of the ecosystem. Therefore the process of environmental education network will create awareness, knowledge, attitudes, skills practices and participate in solving problems, and collaborate on the development of the local environment.

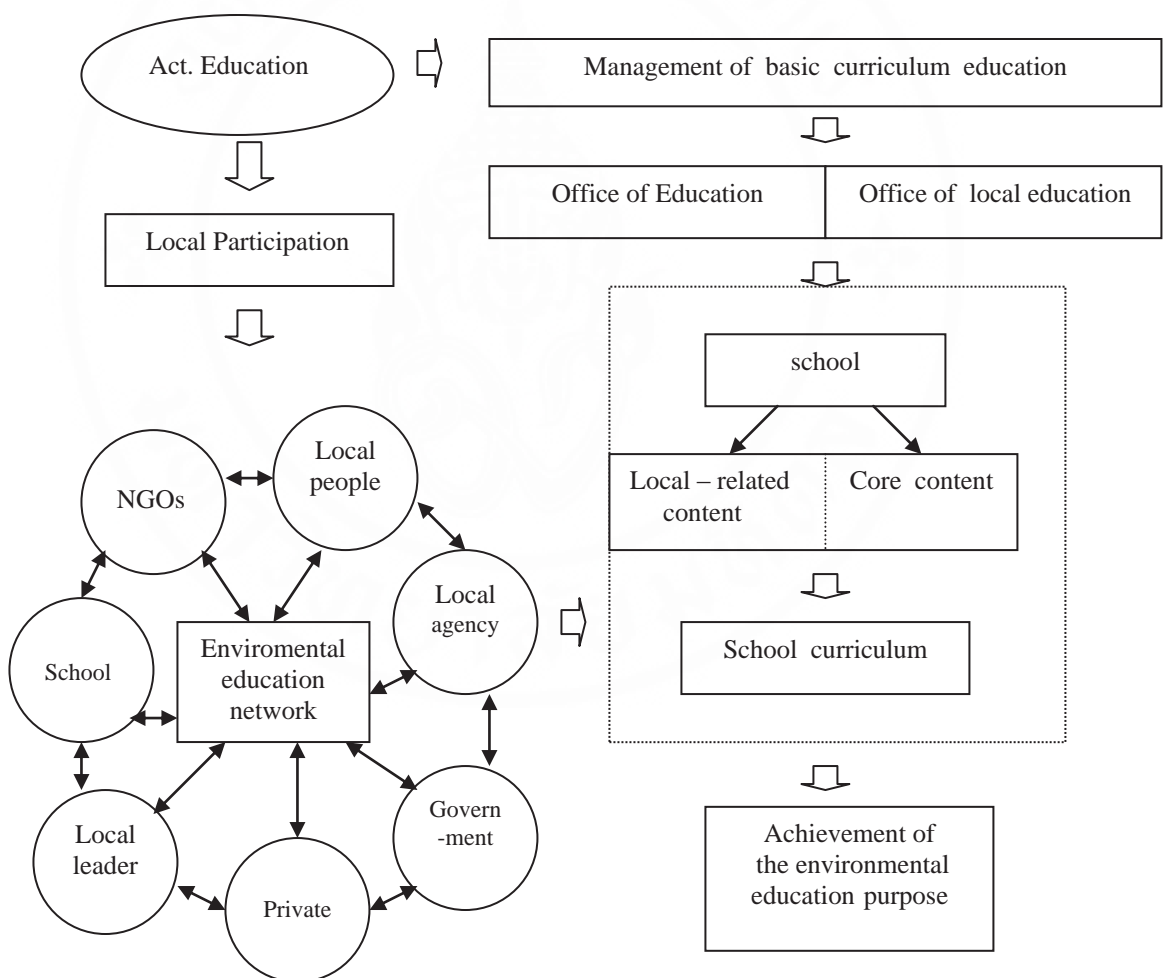


Figure 2.4 Shows the relationship of the environmental education network for the development of school crriculum regarding local – related content

From figure shows that the relationship of the environmental education network for the developoment of school crriculum regarding local-related content

involves in private and government organizations, local government organizations, schools and the people who are interested in the problems and needs in the development of the local environment which is based on the concept of the National Education Act 1999 and amendments made in 2002 (Second Nation Education Act) and the local environmental requirements in the school curriculum regarding local – related content. The school curriculum is as follows: 1) integrated in the core course 2) selective course 3) activities for student development.

2.6 The concept of participatory action research

2.6.1 The definition of participatory action research

The participatory action research (PAR) is the process of research to further develop the concept of Action Research in the field of education by combining research and practice to focus on solutions.

Robson, (2002). has described that the participatory action research as a science as one paradigm that is critical paradigm to focus on problems in the research process. Knowledge arising from research, that can be immediately use right away and do pararell with synergy power. Power in negotiations to join the research process, to changes in social relations and lead to changes in society.

U-taitip Jiawiwangul, (2010: 11). has been explained the concept of operational research participatory. It is believed that research focused on actual participation and equality among all stakeholders to develop a critical awareness of the people, to improve the quality of life conditions, as well as infrastructure changes and relationships in society. In addition the stakeholder group is to be the own of their knowledge production. The transition from being a research study, unleash the power of learning and lead to social change that finaly is sustainable.

Therefore, the participatory action research is one way of research in real situation with emphasis on the research process to solve the problem as well as a link between researchers and users of the system are equal.

2.6.2 Principles and process of participatory action research

There are composed three key elements of the participatory action research as follows.

1. Research means a clear question and problem of research and operation of the methodology.
2. Action would have to take action to fix the real problem, according to the method which derived from the research process.
3. Participations of all stakeholders have to involve in all steps of the research process.

The research would be focused on the three elements are mandatory that is a participatory action research (U- taitip Jiawiwangul, 2010: 20)

2.6.2.1 The principles of participatory action research

Stringer, (2007). has described the principles of an action-oriented research. There are four ways to participate as follow :

1. The relationship is important in terms of PAR by need to focus on building horizontal relationships. The equality between all parties are involved. The objective is to try to establish a good relationship of trust and acceptance of each other.
2. Principles of communication have to consider to communicate the true principles of openness and sincere to each other among all parties involved to create a good understanding, and acceptance of one another.
3. The principle of participation should be considered to participate in the relationship between common practice and support each other include to create mutual success.
4. The principle of inclusion is conducting participatory action research that should take into account both the individual and group or organization. Then must take into consideration of all issues that related to the problem and eliminated. At the same time PAR have to take into account the cooperation and mutual benefit of all essential parties.

2.6.2.2 The action of the participatory action research

Kemmis & Wilkinson, (1998). has divided process of the participatory action into four stages: planning, implementation and monitoring and reflective that operated in a continuous cycle. The spiral continues to be a circuit as follows.

1. Planning

Community study and target group is the first step that very important for continuing research in the next step. Researchers have studied the potency of community and have to study to cover the potential cost of the community in all areas of human resources include political, economic, social and cultural knowledge of the problems with the community. Further to participate in the study analysis, sharing ideas and the ways to solve or improve the condition of the community to plan and design projects to solve common problems.

2. The act

Communication plan/Community awareness project is the process to makes a common understanding of all stakeholders in the community prior to the implementation of the plan. In addition, when all parties understand it to be implementation of the plan, all parties must participate equally is also required to review the common practice of continuous operation. The action plan may be modified to suit in the changeable situation in order to achieve planned.

3. Observation

In every step of the research process must be observed in conjunction with what is happening and storing it further to analyze the data together. This process is done by using various methods and tools both qualitative and quantitative methods.

4. Reflecting the performance

Reflective practice is very important process that all parties get together to discuss and analyze and evaluate the implementation of the plan. The information to be shared between researchers and stakeholders to reflect the addition of reflective practice. It needs to be done both during implementation through the end of practice. Reflect the effect of deep sharing will learn from the operation of all parties involved. That is the key point of participatory action research process.

Therefore, it can be concluded that the participatory action research is a significant element of research, practice and participation. The key is to doing participatory action research on the relationship, principles of communication, principles involved and the principle of inclusion. Research process is including planning, implementation and monitoring and reflective practice by cycle continues or spiral process.

2.7 Basic Information of area study in the Municipality of Samut Sakhon

Area study is the Municipality of Samut Sakhon in Samut Sakhon Province and a large local government. There are areas of 10.33 square kilometers.

2.7.1 The local government of Samut Sakhon Province

Administration of Samut Sakhon Province is divided into 3 districts, 40 sub-district and 288 villages as follow :

1. Muang Samut Sakhon District: the administrative government is divided into 17 the district municipality.
2. Kratumban District: the administrative government is divided into 10 the district municipality.
3. Ban Phaeo District: the administrative government is divided into 10 the district municipality.

2.7.2 General characteristics of Samut Sakhon Province

Topography

Samut Sakhon Province has the topography of the coastal plains above sea level, about 1.00 to 2.00 meters at the Tha Chin River that flows through the central province. Winding along the north-south flow into the Gulf of Thailand, Muang Samut Sakhon Long, about 70 kilometers in the district on Ban Phaeo, and Kratumban District and has an abundance of land and the river network that interconnected canals scattered over an area of over 170 lines, making it ideal for

the cultivation of many kinds, and some industrial and residential district. The lower areas of the province in Muang Samut Sakhon District is about 41.8 kilometers stretch of coastline are ideal for professional fishing, aquaculture, coastal, and salt. The Metropolitan province is about 30 kilometers away from Bangkok with an area of 872,347 square kilometers

Climate

The climate is tropical rain. Due to the influence of sea breezes and the southwest monsoon wind during the summer. As a result of high humidity, moderate amounts of rainfall average 1120 mm. per year, average temperature of 26-28 degrees Celsius, and relative humidity minimum 50 maximum 95.

Career population

Samut Sakhon Province is the perimeter of Bangkok, with its social conditions both semi-rural and semi-urban. Population living in urban areas populated mainly concentrated along the main and secondary roads. In rural areas the houses are scattered along the river, canal boats, mostly Thai-Chinese population. Raman and lineage.

Social and economic condition

Samut Sakhon Province is the perimeter of Bangkok that have been directly affected by the growth and expansion of Bangkok with the provincial infrastructure and inputs for the investment industry. It is interested to mostly invest in the industrial area of Samut Sakhon. There are factories in Samut Sakhon Province, located in an area of 132 674 million 3329 investment in manufacturing industry employed 62,715 people. Most factories are located in the city and Kratumban District. by operating of the food industry and food processing (357 plants), the plastic industry (427 plants), the textile industry (392 plants), metal industry (283 plants), and metal products (379 plants), the investment industry in Samut Sakhon has increased, due to continued investment are ongoing.

Natural resource and environment

1. Soil resource

The land in Samut Sakhon Province can be divided into two parts.

1.1 Muang Samut Sakhon District. It is a clay and salt. The areas are shrimp farm, brackish fish and fish products. Some areas are used to grow coconut.

1.2 Ban Phaeo District, Kratumban District and some of Muang Samut Sakhon District are the areas far from the sea away. Flood waters and flood waters up to the nature of the soil is a loam soil mixed with clay. These areas use to cultivate such as agricultural areas, crops, vegetables, fruits and flowers.

2. Water resource

Part of the Tha Chin River is an important water source of the province. Water used to sector of the population live along the riverbanks and canals in the province and neighboring provinces and water resource of approximately 262 lines.

3. Forestry resource

Samut Sakhon Province has border with the sea along the coast that located on the estuary of Tha Chin River to make including a brackish water ecosystem, carried out the sediment and nutrients and organic matter that floats on the river's estuary deposits of mud lane to make the beach sediment along the coast of long lane area of approximately 6,400 acres of rich and Samut Sakhon Province. Therefore coastal land is fertile and the town of Samut Sakhon Province. In general, mangrove species that depend on the sea such as Samae white, Lamphu, Tabun and white mangrove. Now has a National Forest boundary. Destruction of forest areas to prevent intrusion of two wild forest.

Samut Sakhon environmental problem of Samut Sakhon

Samut Sakhon Province has developed very fast. The province is supporting the growth and expansion of Bangkok especially in the industrial sector and the community that has a very high growth rate. The migration of population from other provinces to work a lot such a phenomenon causing problems of pollution and the increasingly intense, almost to the crisis, resource issues, natural and environmental importance. The main problems include the following four reasons.

1. Garbage problem begin to greater impact on the environment and is expected to be a major problem in the future of the province to accelerate the implementation of prevention. Because the garbage from households and factories were as high as two hundred tons per year. The garbage collection in the province is the most responsibilities of local government agencies. The solid waste collection services can not be done thoroughly. The amount of residual waste each day, many especially in the area of the larger community. In addition, this method of waste disposal can not be sanitary because it uses only outdoor garbage dum and partially burned.

2. Wastewater from a variety of economic activities along the coast. Tha-Chin River, including the cultivation of shrimp pond, farming pigs and industry. Waste water of activities that are lack of control and waste water from the community building stores-food being released into rivers, as well as wastewater from Bangkok to move through and into the canal such as Phasicharoen canal and Taweewattana canal flow down to the Tha Chin River and Gulf of Thailand. Which cause water of the values BOD exceeding standard set.

3. Problems of mangrove degradation. In the past Samut Sakhon Province had area in the fertile mangrove along the coast that is length about 41 kilometers of mangrove have been designated as National Forest. Due to waves and tides that threaten to blow toward the coast for a long time the mangrove forest was destroyed and a few remaining forests. There are patches in the mouth of the Tha Chin River National Forest.

4. Problems of flooding have been faced with flooding problems for a long time. Especially in Samut sakhon Province, the Municipality of Samut sakhon, and

the border. Because there are various reasons such as the influence of the sea driven, the influence of the water above, the influence of rainfall and subsidence caused by underground drilling. It is the last area to accommodate the water from the city and neighboring provinces. As a result, people have suffered and damaged of enormous economics.

2.7.3 General of the Municipality of Samut Sakhon

The Municipality of Samut Sakhon located at the Tha Chin River, which flows into the estuary and Gulf of Thailand is Mahachai bay in the lower central Thailand.

Physical appearance

The plains and mangrove area is composed of three sub-district, Tha Chalom krockrak and Mahachai Sub-district . The Tha Chin River flows through the center of the province through the municipality. The plains area was flooded and some coastal waters and islands, mountains and wetlands, minerals, the mouth of the Tha Chin River is about 1-2 meters above sea level near the coast of Samut Sakhon and flows into the Gulf. It is advantageous to facilitate the professional fishery and activities related to fishing. The soil is a clay loam soil mixed with clay and river mouths and some of the salt. Due to the influence of sea water, which flows along the Tha Chin River and Mahachai canals and branch canal other.

Economic characteristics

The three branch is the branch of industry, commercial fishing without having to rely on one particular branch and make the economy stable, support and replace the value of production in each branch. However, the fishing profession is a remarkable career. The development of modern technology cause downstream industries such as industrial refrigeration, canned foods, pet food, which makes it a hub for food distribution and export of the country. For promoting tourism in the municipality of Samut Sakhon. There are places of interest in travel especially the next morning for the evening to attract tourists, both Thais and foreigners. The city of Samut Sakhon has the potential to promote and develop tourism near Bangkok The

seafood is fresh, fresh fruits from farmers and processed fishery products can be purchased for home with ease.

Social characteristics

Demographic information from the registration as of May 2009, There are the total population about 55,074 people and 17,205 households over the number of homes, In addition there is also a hidden population of people into a career such as Cambodia, Lao and Burmese migrant workers, about 25,000 people.

Education in the Municipality of Samut Sakhon. Education from kindergarten to primary school education and secondary education in the area for education in schools is the responsibility of the municipalities in six of the schools .

Public health in Municipality of Samut Sakhon. There are three health centers.

The sanitation and environmental health. The management of food and nutrition sanitation, market as well as consumer protection by the office of Control the operation of a health hazard, Prevention and control of the nuisance variety. Public health problem in the area an important is the number of people who lived intensely, the latency of the population, mostly migrant workers and some workers who are not legitimate. The burden of disease prevention or provide more health services.

Development community. The Municipality is divided into 32 communities, each community has a selection of 9-15 people to coordinate their activities.

Natural and environment

Mangrove Forest, which had in the past have transformed into a residential community and the industry already.

Water resources and the Tha Chin River, Mahachai canal and the canal from the other branches of the canal

State of water pollution both water quality and smell in the process of editing. The community has a lot of heavy industry and the impact of the dam to prevent flooding. Now researchers are studying the data and determine how to solve both problems by using biological and water circulation system.

Land subsidence. The surface water system investment instead of digging artesian well to minimize land subsidence, and improve water quality.

Waste of the Municipality of Samut Sakhon. The landfill is about 150-180 tons/day are now studying how to manage waste. The extraordinary concept to change waste into energy alternatives.

Disposal of garbage. The Municipality of Samut Sakhon is responsible for maintaining the cleanliness of the municipal solid waste collected in the amount of 180-200 tons/day, store all day, everyday. The garbage collector cars, used cars for a total of 17 units at an average of 1-2 flights per day of waste water collection. The waste water collection has a fleet of waste collection will be transported to the disposal of municipal solid waste. The waste will be isolated to one part water to extract microbes and the rest will be eliminated by tillage, compaction and landfill waste, but since there is a lot. Some of it is landfill and bulk waste on the floor of the infection. Infectious waste will be stored waste. From hospital in the frequency 2 times/week eliminated by using a furnace, pollution control and 5 tons/day in this same area, the disposal of sewage. The collection-get rid of the private concessionaire of the municipal authorities have also provided mobile toilets for outdoor events and to facilitate the identification number of a car.

2.7.4 The relevant environment and the basic education in the Municipality of Samut Sakhon

2.7.4.1 the relevant authorities

The Municipality of Samut Sakhon has the relevant authorities about environment and education such as Division of Public Health and Environment and Education Division. The details related to the environment.

Division of Public Health and Environment

1. Department of Public Health Administration : Responsibilities relate to environmental health include public health and environment, public health planning, health center, and keep clean.

2. Department of Public Health: Responsibilities include work on environmental issues and training, health promotion : Prevention and control of communicable diseases.

Division of Education

1. The plans and project

2. Department of Education : Responsibilities related to the environment in the field of education such as early childhood education, school works, Activities of students , the quality and standards of the curriculum and media and technology development.

3. Department of Education : Religion and Culture responsibilities relate to non-formal and formal education, job of training and career, libraries, museums and educational networks, activities for children and youth, sports and recreation and promote cultural and religious traditions.

4. Educational Supervisor : Responsibilities relate to education and promote the school management and teaching.

2.7.4.2 Environmental government and the local government authority

The center environmental government

1. Office of Management Conservation Area
2. Marine and Coastal Resources Conservation Center No.2 (Samut Sakhon)
3. Center for Career Development and Fisher
4. Research and Development of Mangrove Forest Station No.5 (Samut Sakhon)
5. Samut Sakhon Education Service Area Office

Local Government authority

Office of Samut Sakhon Provincial Office of Natural Resources and provinces

2.7.4.3 NGOs and groups of people to pay attention to the local environment

1. Non Government Organizations (NGOs)
2. Community leaders, village headmen, priests and religious leaders etc.
3. Corporate Voluntary Protection of Natural Resources and Environment Board
4. Various groups such as occupational groups, conservation groups., local knowledge, etc.

2.7.5 Schools of the Municipality of Samut Sakhon under Department of Local Government, Ministry of Interior

1. Ban Mahachai Municipality School is in Mahachai Sub-district. Educational management have 3 levels from kindergarten, primary and secondary school.

2. Wat krokrak Municipality School is in Krokrak Sub-district. Educational management have 3 levels from kindergarten, primary and secondary.

3. Wat Chetsadaram Municipality School Educational management have 3 levels from kindergarten, primary and secondary level.

4. Wat Chong Lom Municipality School is in Tha Chalom, Sub-district, Educational management have 3 levels from kindergarten, primary and secondary.

5. Wat Laem Suwannaram Municipality School is in Tha Chalom, Sub -district, Educational management have 3 levels from kindergarten, primary and secondary.

6. Wat teuk Maha Chayaram. Municipality School is in Mahachai Sub-district. Educational management have 3 levels from kindergarten, primary and secondary.

From the study of basic education schools of the Municipality of Samut Sakhon found the schools have problems of the suitable local curriculum and participation in the educational management of local communities. In addition, the

Department of Education Standards and Assessment Standards. (Public Organization) has recommended the development of education in the direction of further study.

2.8 Related research

2.8.1 Research on the factors in the creation of a research network as follows:

Pan Kimpee (1997) studied of the development of non-formal education learning network to self- reliance of communities was the study of the possibility and factors related to network development by studying the three learning networks, research results showed that (1) a learning network has evolved from the realization of economic problems and needs of the community with community leaders serve as change leaders. There was the use of social networking to be central to the community and expanded and associated with the organization and its network of private sector business community and academic organizations to stimulate the learning process. and community involvement continues. The goal of community self-reliance was the important principle (2) educational activities of non-formal education found that learning network had the activities to develop skills, learning and problem of the basics of life, development of information and professional development skills through the learning process together, learning on their own, The activities of the official transfer of knowledge by the relevant network, learning process consists of using knowledge from formal education with additional education and learning to enjoy the elegant and the 3) success factors of the learning network of non-formal education was important that external factors included the dissemination of ideas about development and the importance of continuity of the state, development of community self-reliance policy, cooperation and support from external organizations. And internal factors included awareness of community issues, the community leaders who had the ability to make the learning process of the group, Non-formal education activities in the model and the right approach to solving the problems of the community. As well as the ability to coordinate associated with the enterprise network by focusing on the process of learning to self-reliance.

Prakaitip Wonghom (2000) studied of the network of organizations in the management of non-formal education had research purposes to study the factors in creating a network to study the process of establishing the network and to study the feasibility of creating a network of NGOs and non-formal education. The population studied was the officer responsible for management education. The results were summarized as follow: A network of NGOs that work with similar objectives. There are other issues that work together. The experience at a micro level that was different issues come together to bring a broad perspective to induce change and strategic development of national and international level. Factor in creating a network of NGOs should be considered on an individual concept, resources, how to work within a coordinated network must consistently and constantly says on the factors that make the network of NGOs, the success of the collaboration, the concept of work, expectations of members, fairness and equality. Network can be sustained if there was a common mission, coordinated support to negotiate a more powerful movement, the benefit to members, continuous and strong coordination of network. And members of the network's relationship must to occur from the nature of learning activities consistently and continuously.

Pannipa Chinawanichkij (2005) studied the factors that affect the sustainability of the network, AUN / SEED-Net aim of this research was to understand the concepts that affectd the sustainability and the environment in the office network. A pale UN connection to analyze the factors that would contribute to the sustainability of the network, a qualitative study, using in-depth interviews, and the lessons learned. The results showed that factors that affected the sustainability of the network included the seven areas of cooperation and relationship was a strong financial cooperation in the network, strong leadership, the human network in the common goal and to live by themselves. All of these factors, factors that affected the most such as cooperation and strong relationship and ollowed by financial factors, respectively, each of which would result in the network to achieve a common goal. That meant the network in the region to develop the economy, society and sustainable environment.

International research

Nancy Katz, et al., (2005) studied the network theory and small groups. This study described the network approach to small groups. First, the core constructs that compose social network research was explained. The primary theories that provided the intellectual underpinning of the network approach are described, including theories of self-interest, theories of social exchange or dependency, theories of mutual or collective interest, cognitive theories, and homogeneous. Highlights of the empirical work examining the internal and external networks of small groups was summarized. Finally, the primary challenges researchers face when applying the network perspective to small groups, and the primary benefits that accrued to researchers who adopt that perspective, was enumerated.

John – Paul Hatala (2006) studied the application of social network analysis in the field of human resource development found an exhaustive review of the literature, this article looks at the applicability of social network analysis (SNA) in the field of human resource development. The literature review revealed that a number of disciplines have adopted this unique methodology, which has assisted in the development of theory. SNA is a methodology for examining the structure among actors, groups, and organizations and aids in explaining variations in beliefs, behaviors, and outcomes. The article is divided into three main sections: social network theory and analysis, the social network approach and application to HRD. First, the article provides an overview of social network theory and SNA. Second, the process for conducting an SNA is described and third, the application of SNA to the field of HRD is presented. It is proposed that SNA can improve the empirical rigor of HRD theory building in such areas as organizational development, organizational learning, leadership development, organizational change, and training and development.

Wassie Kebede and Alice K. Butterfield (2009) have studied the social networks of women living in poverty in the slums of Addis Ababa Ethiopia. The results showed that social networks are social capital for poor women living in a slum neighborhood in Addis Ababa, Ethiopia. Based on neighborhood, friendship, kinship,

gender and ethnic ties, informal networks provide social, emotional and financial support. Social network analysis is a promising method for community development and participatory social work in Africa.

Wirasak Kreutap (2007) studied many international research that has shown working network to cause a part of successful enhancing of the performance such as the empirical study of Meier (2000) and O'Toole (2002), which was research study to answer question of the network performance in the educational area level (school District) to increase learning achievements of students is not such a study using data from the study from state of Texas in United States, many of which are 507 years between 1995 to 1999) analysis found that areas of study that focuses on networking and education are correlated positively with the success of students. The study, the control variables, differences in educational resources, knowledge of the teachers and institutional factors. This was consistent with the study of Smith and Wohlsteller (2005) concerning the cooperation between schools and communities that contribute to quality education or not by using information from the school, there are rules in Chartered school in 22 schools, 10 states in the United States by using purposive sampling under the conditions established and data between the years 2002–2003 study found that the network has increased the quality of education. This is because the network has helped to mobilize resources for education and help develop the capacity of educational personnel more over more.

From related research of the creation of a network-wide research in the country and abroad concluded that the network caused by the need to work together to solve problems or improve business unit or subject area. There are factors to involve in a common goal, activities and exchange of knowledge, having a strong leader, mobilization of resources and members interact with each other and coordination.

2.8.2 Research on a model of the process to create a research network

Wimonluk Chuchai (1997) presented the process of creating a network of learning in the conservation of forest resources by proposing of the development of a learning success network that showed the stages of development of

network-level people – people to people – groups and group - group. The process of creating a network of learning are as follows :

1. The formation of a leader. It may be a natural leader by rising from within or outside the community and get support from other parties to provide leadership in solving community problems.

2. To expand and link synchronization focus on building an integrated organization, a strong community, joint solution, learning together to interact by developing from the knowledge base and create new knowledge by linking traditional and modern knowledge.

3. The existence emphasize members of the network on an ongoing learning activities to development of learning, interaction and collaboration solution. It has been expanding its network to support the planning and targeting.

Chareonsin Intapat (2002). studied to develop a network of community organizations working on HIV at district Aims to study the potential of the community to continue working with the District AIDS and to develop a network of community and district level AIDS research can be summarized as follows about the potential of that community. Community organizations have joined together in groups to solve community problems and potential of a community exist. When exposed to the AIDS community. This problem is solved using the potential of new communities that are available. However, communities need to learn about the disease properly. The community will work to resolve issues in a collaborative network. To develop a network of community potential in solving the problem, the fifth step is to analyze the problem. The priority of the problem. Analysis of the problem. Planning and implementation of the plan. Summarizing lessons learned and build a relationship. The experience of learning to solve problems in the sub-network is that participants have agreed to implement the solution to AIDS in sub-network. The leaders, community leaders, community groups in the community. As a coordinator. It was concluded that Action research process involved five steps to develop a network of community organizations working on AIDS to achieve it.

Channarin Sribonreung (2007) studied of network management of natural resources and environment in Matom River Searm Ngam District, Lampang Province, aims to study the condition and growth. Ideas about managing people and the environment and how to manage network resources and environment of forest communities and the environment Searm Ngam results were that the conditions and the expansion of the network. In the formation of conditions for integration into a network to maintain the forest. The growth condition is to fix the water problem and the problem of deforestation and encroachment. The capitalists repel the elephants away from the watershed and mixed together a dam and forest conservation, the continuation of the past. Develop a network to strengthen even more and want to expand the network to all villages in the watershed. Mechanism for the expansion of the network, in the formation mechanism uses Mechanism of the family and neighbor to be the same funeral members. Theb mechanism of growth and development network that increases the formation of a mechanism for members of local organization. In the formation of a knowledge sharing platform. The growth and development of the network to the increase of the formation is to set rules, operational and environmental conservation, publicity and the application of a religious tradition with the belief of local people in managing natural resources and environment is difficult. As a result of management of natural resource and environment of the network makes it possible to fix the water problem, the invasion and destruction of forests. The ability of capitalists repel the elephants out of the watershed has been achieved.

Chaleamkait Kunthongpetch.et al.,(2008) studied of research and development of forms and guidelines for implementation and the involvement of corporate networks to provide education, care and assistance to those disadvantaged by the area of the core. There are three main objectives: 1) to develop and expand the model / approach to networking, cooperation and participation of the corporate network to improve the care and assistance as well as providing services. The disadvantage, it is appropriate to the area of Phang Nga 2) To create awareness, participation and agencies and those involved in education, care and assistance including public services. The opportunity of the province of Phang Nga and 3) to get a policy proposal on the format approach to participation in the development of

education services. Assistance and care for the underprivileged of the network, Phangnga a study found that in small group meetings with stakeholders such as local government administrators, executive education, teachers and educational personnel of the office area of Phang Nga. Community leaders and parents have no idea of the issues that led to the conclusion as follows :

1. Model / approach to creating collaborative networks. And a network of organizations involved in education, care and assistance as well as providing services. The disadvantage, it is appropriate to the area of the Phang Nga. It should be coordinated and agreed with the enterprise network in the province. Principle of equality and close ties to the conclusion of the cooperation between them such methods can lead to cooperation to be sustainable.

2. Build participation and awareness of the agency. Including those involved in education, care and assistance as well as other public services to the underprivilege of Phang Nga Province should have the following steps.

2.1 Coordination Center has provided care for the disadvantaged. In the office area of Phang Nga. To act on the enterprise network, data link system.

2.2 To provide a necessary process, respectively, since the screening, the report sent to the track to help the underprivileged continues.

2.3 Staff responsible for coordinating assistance to the underprivilege of the Office of locations should be provided in a reasonable amount.

Research related to design and build process as mentioned above, concluded that the network must be truly a part of a corporate public agency stakeholders. (with equality in the horizontal direction is equal to the idea) The process of creating a network for the collaboration of local people. By the start of the study. Find solutions to the implementation and evaluation of the collaboration. There are stages to form a coordinated network expansion and the existence of the network.

2.8.3 Research on the development of school curriculum regarding local-related content

Boonriang Kajonsil (2003) The process of developing local programs for dairy applications in different contexts. The purpose was to study the course content

should be taken into local schools and communities that have been selected in Ratchaburi. Suggested for the community to participate in curriculum development of schools and local communities have been recruited in the province.

Suggested for the community to participate in the development of local curriculum and teaching. The comparative analysis of the potential and demand for content that should be taken to prepare local students and guidelines for the community to participate in the development of local programs and learning between schools and communities in the context of new schools and the community in the context of dairy farming. The comparison is between the 4 schools and communities in the new context. The result was that the schools and communities to be studied further in Phase 2 of the participatory action research study 1) the potential and needs of schools and communities in developing local programs. The state and problems of the community found that the strength of agriculture. The strength is a strong desire to preserve tradition in the community, the school's problems, some teachers through local training, students and families have a poverty problem. The relationship between the school and the community. Found to have good relations and cooperation in various activities as well as the needs of local school and community programs, school and community. Requirement of local curriculum related to agriculture and the arts, culture (2) the content should be taken to the local courses at different levels. The study material should be divided into two groups of local students as a group on agriculture and about cultural traditions (3) guidelines for the community to participate. The results show that The idea of people in the school and the community in a new context, and 4 of the way the community to participate in curriculum development, local and education are some guidelines that comply with the guidelines. school and community.

Parinya Thonson (2003) studied the development of local programs in environmental science courses and 411 students in grade 4: Case Study of Chonburi. The objective was to develop courses in environmental science curriculum for students in Grade 4 students in the province of Chonburi to meet local needs. The research concluded that curriculum development in environmental science courses in Thailand. The elements, of course, was the principle and reason. The structure of the course.

These include 1) description 2) course objectives 3) content of the course consists of five units on the ecology, population in the province of Chonburi, the analysis of local environmental issues, and science projects to solve environmental problems and the promotion of local environmental quality 4) teaching and learning activities. The following activities, collaborative learning, learning is a major problem, learning the science, technology and society (STS) and the preparation of science projects 5) The measurement and evaluation used to measure and assess the condition is true. The trial program was developed with the students at School 4. University research found that the two classes. Students studied environmental science courses with local students. Understanding of environmental science process skills and environmental awareness has increased significantly at 0.05 level

Kitichat Maliwong (2004) The study, development of local programs organized by the Community: A Case Study of Community School District, Luang Sena, Ayutthaya Province. The purpose is to study the development of programs organized by local community is working to develop a curriculum to local school administrators, community Local knowledge that serves teachers in the school community, the results showed that the preparation of a preliminary study. Community leaders and community work together to find solutions that are built in various communities in the areas of drug problems, unemployment, and to abandon their work in the community. Economic and environmental problems and the preparation of the course established a working group to develop local community programs. The purpose of the course content and programs meet the needs of learners and problem-solving, community-focused practice to develop a career and in everyday life. The preparation of documents for teaching and learning. Teaching is a practical and easy to do local. Evaluation criteria used to evaluate the performance of more than theoretical prepare individuals to deliver practical training. Teachers have a variety of measures.

Jiampadol Chaiyaluk (2005) The study participation of citizens in education and the preparation of the curriculum, Local curriculum and additional material, School District Agriculture Office, Office of Education District 2 with the aim of research to study the conditions of participation and the participation of people

in education from the preparation of the curriculum, local courses and additional content. The study sample was representative of the school board, basic education, religious leaders (priests), the Basic Education Commission. President or representative youth. Tools for data collection, survey results showed that the level of youth participation in education in the preparation of the curriculum, Local curriculum and additional material. In the medium. But the needs of the people to participate in the most need to participate in the preparation of local programs that meet the needs of the community. Barriers to entry and participation of the people found to have the most knowledge and understanding of public education. Recommendations for school. That public schools should be promoting community news. Documents should be continued or broadcasting, Suggestions for the community. People see that the community should recognize the importance of education. Aware of the duties. Care and dedication. To participate in education and more.

Research related to curriculum development in local learning. (Local programs) were found to be caused by local courses to participate in raising the opinions of local people and assistance in various fields and is of course the problem can be fixed or local development.

2.8.4 Research on Learning in Environmental Education in Basic Education

Udomsit Jitwichan (2002) studied the images of basic education for a sustainable environment in the next century (A.D. 2012) aims to study the images of basic education for environmental sustainability in the next decade (A.D. 2012), environmental factors and the educational process using EDFR (Ethnographic Delphi Futures Research) used in the study sample consisting of two groups: 1) a group of experts. including the management of higher education, academic study and environmental specialists of 19 people 2) a group of administrators and teachers in schools under the Ministry of Education, collected by in-depth interviews with experts and enter your feedback delphi technique and measure the cross section with a questionnaire about environmental factors and the education process with a group of administrators and teachers at the selected sample. The results showed that

1. Educational management for a sustainable environment in the next decade to develop the students' knowledge wise, knowledge, attitudes and skills to survive the natural world to their follow human beings in the society happy. Curriculum of local environmental learning should integrate local-related content with the curriculum of basic education and way of life. schools were a model of social and environment that was perfect. Management system aimed at the achievement of education and learning environment.

2. The future is built with the corresponding images, 4 images as follows : the first environmental curriculum as school curriculum. The second integration of learning environment with life. The third picture perfect schools. The fourth image-wise to know the students in the society happy.

Tiwawan Chaikwaow (2007) studied participatory action research in environmental education learning case study: Bannonggerd School in Thatoom Sub-district, Pasang District in Lamphoon Province aims to develop an environmental learning and test the effectiveness of the learning process by using a participatory action research. The study concluded that research participation. The research process to mobilize the participation of those involved in the development of a learning environment. The first step was the final step of the process model that was all parties to involve in the analysis of the problems causing the environmental problems within the school and the community raised the idea of bringing the problem to design courses and programs to learn in environmental education and environmental learning. The combination of measurement and evaluation of research and research process was effective in the environmental learning in the development of a participatory action research process. That all parties had the opportunity to participate in all stages of the learning process and the research problems associated with planning and evaluation. The participants exchange experience between them making all relevant parties to satisfy and the environmental learning in the form of the jointly development. Community to focus on preventing environmental problems within the school and community attitudes towards conservation of natural resources and environment. The responsible environmental behavior change within the community. Student achievement has improved after learning environment through the process and participatory action research. The environmental behavior change caused the

awareness of environmental protection and a positive attitude towards the environment within the school and community.

Nanpatanon Cheukwaew (2007) Research on the development of teaching and learning by integrating learning outside the classroom, and to clarify values, to enhance the knowledge and practices to the environment of elementary school students. The study aims to develop a model of learning by integrating learning outside the classroom, and to clarify values, to strengthen knowledge and practice to the environment and to assess the effectiveness of teaching and learning styles developed. The research concluded that Model of teaching developed principles are: 1) the learning takes place both in the classroom and outside the classroom, 2) focus on the activities of 3) and field experience to learn 4) the development of values. by continuing to do so can lead to behavior, 5) the curriculum should allow students to clarify values and desirable to conduct 6) curriculum integration of the students. The purpose of the study is to strengthen knowledge and practice of the learning environment.

Research related to the environmental learning. Showed that learning both inside and outside the classroom and must comply with local problems. And the lives of students, environmental learning to be environmentally responsible behavior change within the community.

A review of the research that will be seen that the creation of local knowledge in developing successful solutions to environmental problems. Parties need to build networks in local communities by raising the idea that the decision to cooperate share the responsibility for development and joint evaluation. This will lead to the management of natural resources and environment, with limited benefits to local people and protect the environmental impacts that may arise from the ignorance of people, both local and external investors. But the path to use natural resources and environment, lack of knowledge and lack of awareness on the environment that may be affected both directly and indirectly to the study of the concept and Theory and relevant research. Understanding will lead to a network and the factors that cause environmental education network including curriculum development in local learning. That requires the participation of the local people in shaping the framework for learning in local content.

CHAPTER III

RESEARCH METHODOLOGY

The research on "A model of environmental education network for the development of school curriculum regarding local-related content in Thailand" were intended for research purposes as follow to analyze the processes and factors in building a successful network of environmental education at the local level, to develop a model of environmental education Network for the development of school curriculum regarding local-related content and to self-assessment of schools in the environmental education network for the development of school curriculum regarding local – related content for student's learning management. In the study used both qualitative and quantitative research in the category of participatory action research to conduct this research.

3.1 Research methodology

This research was using descriptive research by collected information resources in both primary and secondary sources and information gathered from the fact analysis then further to a conclusion.

By conducting this research, the method is as follows.

1. Documentary study

The objective of this study is to create an environmental education of network for the development of school curriculum regarding local-related content in Thailand. Therefore, the objective was to study the document with a compilation of knowledge about the composition and form of networking. The knowledge gained from studies using the information in the frame and direction of the field research. It is mainly used in the analysis of data from field research. The study of documents was to obtain information on the secondary data of journal articles, theories, concepts, research and related documents including the Annual Report Agenda of the annual

work plans/projects/research activities of the network about the network, both domestically and internationally, Documentation Center of Environmental Education of the Ministry of Natural Resources and Environment and the website on an environmental network.

2. Fieldwork research study is the best practice of the environmental education network. In-depth interview for the non-participation and participation, workshop, the group interview and focus group and the discussion forum are the data in terms of quality.

The research was trying to make clear and easy to understand devices which are divided into three phases to be implemented.

Phase 1 Analysis of the processes and factors in a successful environmental education network in local level by using 2 places of the network of environmental education lesson learned and best practice has been chosen as the target audience.

1. Natural Conservation Club of Khok Kham. Samut Sakhon Province.
2. The Club of we love Tha Chin River. Nakhon Pathom Province.

Phase 2 The Development of the environmental education network using a participatory action research in the local municipality with the further synthesis of the research unit of local government entities, private organizations and group of environmental NGOs. People who interested in environmental issues such as local community leaders and schools under the municipality of Samut Sakhon.

Phase 3 Self-assessment of school in a model of environmental education network for the development of school curriculum regarding local-related content for student's learning management.

3.2 Methodology

3.2.1 Phase 1: Analysis of processes and factors in creating a successful environmental education network in the local level

The study area

The researchers selected the areas of study. The selected area of environmental network was using purposive sampling from the preliminary data from the environmental education network of the Department of Environmental Quality, Ministry of Natural Resources and Environment. In the area of environmental problems and physical problems and environmental problems caused by human activities. And communities work together to solve problems in the way of the formation of clubs, etc., to solve local problems. The criteria for selection of the best practices are excellent.

1. The establishment of the environmental network was not less than 5 years (to show the process network is established and the existence).
2. The purpose is to disseminate knowledge and to do activity of environmental education.
3. There is a cooperative network to support collaboration between government, private and public environmental organizations.
4. Having the result in the development and the environment, or the national academic research award.
5. Having deal with educational activities in support of the learning environment.
6. Environmental performance continued at the local level.

The selection criteria of the study area choses two subjects :

1. Khok Kham Conservation Club. Samut Sakhon Province.
2. The Club of we love Tha Chin River. Nakhon Pathom Province.

Analysis of the form and factors in creating a network of environmental education at the local level. Researchers conducted the study with respect to background information in the pattern of an environmental education network. The issues concerning the factors and steps to create a network of environmental education. And the role of personnel involved in 2 environmental education network best practice and then synthesize information to form the environmental education network . The process of analyzing consisted of three steps.

Step 1: Studied the basics of the documentary study from the relevant research and a network of domestic and international environment to study factors in

the network and form a network and synthetic materials to guide the development of the environmental network.

Step 2: Researcher conducted to study the basis of the best practices of the environmental education network with in-depth interviews who are corporate executives / coordinators / directors and interviews with a group of network members, environmental education. The issues concerning the factors and steps to create a network of environmental education and the role of personnel who are involved in a network environment with 2 best practices and the lesson learned of successful environmental education network to form a network of environmental education. The subjects of the lessons learned are as follows.

1. Establishment, implementation and the results of the network.
2. Guideline of the environmental education network has succeeded in fostering the participation in solving local environmental problems.
3. Participation of school in environment learning management for students.

Step 3 : Self assessment of schools in using a model of environmental education network for the development of school curriculum regarding local-related content for student's learning management, in-depth interviews with experts in the environmental education to determine the suitability of the network model developed in the environmental education. To get the opinions and viewpoints of the people involved in the environmental education network and to examine such issues as appropriate.

1. The self-assessment of schools in using the school curriculum regarding local-related content to manage learning for students
2. The self-assessment of learning unit "Local Environment" to provide learning activities for students

Population

The information in the research was divided into two groups.

The first group of corporate executives. The network coordinators and members of the environmental education network. Selected the key informant is the purposive sampling based on their participation in the work of the local environment

education network and can provide comprehensive and insightful information in the environment education network.

The second group of academics and developers specializing in the network to monitor the development of network forms of environmental education and curriculum development. The criteria for selection are as follows.

1. Persons with direct experience in the network of community development on environment for more than 5 years.

2. Persons who have an academic role on the network and the development of the local environment, including a research book to attend the meeting / seminar on how to build a network of more than 5 years.

The research instruments

Analysis of the processes and factors in creating environmental education network at the local level. The two issues are framed in the study.

1. Factors in creating the environmental education network
2. Process operations of environmental education network

There are three methods of data collection as described below.

1. Gathered documents publications and research study reports etc.
2. The interview, which gathers data from the field to get information.

Issues down to the construction of an environmental education network and the form of the environmental education network. The role of persons who are involved in the environmental education network. This is a learning process, social impact of the network. The researcher has defined the broad topic of the interview guideline by the issue of education is characterized by open-ended questions to use in-depth interviews, group interview were tried out and an interview with the environmental education network that is not the target audience. Then, to improve in order to collect the following information from the actual interview. The research questions and the questions were adapted to suit the situation.

3. The researcher has created a series of observations to study the issue and will forward the information described in the documentary study and interviews to make it more comprehensive.

3.2.2 Phase 2: The development of a model of environmental education network for the development of school curriculum regarding local-related content

The study area

The development of the environmental education network using a participatory action research in the local area. This research was using purposive sampling and that it is the Municipality of Samut Sakhon in Samut Sakhon Province in the synthesis of the research including local government organizations, state and private sector, group of environment (NGOs.), people who were interested in environmental issues such as local community leaders and schools under the municipality were 6 schools.

1. Ban Mahachai Municipality School
2. Wat Laem Suwannaram Municipality School
3. Wat Tuk Maha Chayaram Municipality School
4. Wat Krokkrak Municipality School
5. Wat Chetsadaram Municipality School
6. Wat Chong Lom Municipality School

Procedure

A model of environmental education network was created through the process of examination conducted by experts to research with target group in the local level such as local organizations, private sector organizations, group of environmental NGOs, people who were interested in the environment and local community leaders, the schools under the Municipality. The development of the model of environmental education network by using techniques of participatory action research has six steps.

Step 1: Preparation of the community

To study the context of the target areas both physical and cultural and educational role of public organizations working on environmental education in the area. To analyze techniques and the potential of the local environment by using SWOT Analysis.

Step 2: Creating a good relationship

Understanding with the government and the people who work on environment in the area studies. Researchers create familiarity. The purpose of the environmental education network for the development of school curriculum regarding local-related content on environment. A key informant in the environmental area was the interview method.

Step 3: Planning to create the environmental education network for the development of school curriculum regarding local-related content.

To bring the model of environmental education network that had synthesized and developed to create the environmental education network to define guideline the work for development of school curriculum regarding local-related content. In this process, researchers have divided the work into three periods as follows.

At the first period : an operation to create the environmental education network for the common goal, determining role in the environment education network, activity / exchange of learning. and the terms of the shared environmental education network include: 1) organizations, government agencies, private sector, local organizations. environmental NGOs, Board of Education 2) local residents and community leaders (village headman, headmen, monks, religious leaders), local wisdom, etc. 3) researchers.

At the second period : discussion brainstorming activities to development of school curriculum regarding local-related content of third parties include 1) private sector organizations, government agencies, local organizations, environmental NGOs.,Board of Education 2) local residents and community leaders (village headman, headmen, monks, religious leaders),local knowledge, etc. and 3) researches. There is sharing issues as follows.

1. How should school curriculum regarding local-related content ?

2. How should guideline of learning management in content, activities, learning process, and desirable characteristic in the conservation of local natural resources and environment determined in the school curriculum ?

3. How should environmental education network take part in the local learning environment for students ?

At the third period: operating to prepare the school curriculum regarding local-related content : 1) school teachers, academic administrators, teachers, local wisdom, 2) the school committee, and 3) researchers.

1. The issue of the local environment from seminar to set as the goal of the school curriculum regarding local-related content.

2. Clarification of creation of the school curriculum regarding related -content study.

3. Schools determine vision, mission and plans to develop the school curriculum that are consistent with the environmental education network.

At the fourth period : the workshops in creating the school curriculum regarding local-related content for school administrators, teachers and local wisdom, Board of Education. Details are as follows.

1. The analytical framework of local-related content of office of education or local education agencies set.

2. Analysis of the school curriculum to know the focus of the educational goal, and guidelines for the preparation of local-related content that should be in any learning area, class level, basic courses or additional courses and should have much content according to the curriculum requirements.

3. The study/information analysis of schools and community is information from the brainstorming of the environmental education network. to bring information to prepare for local-related content.

4. Preparation for development of local- related content by jointly determine the appropriate knowledge with local context and focus of schools and communities. And the local environmental problems and needs that are the brainstorming of the environmental education network prepared according to structure of school curriculum, which consists of core courses, additional courses and activities including the amount of time and course description. In addition, it has also the concerns for the preparation of the course design unit plan, learning plan, design and evaluation of learning.

Step 4 Self-assessment of the six schools under the Municipality of Samut Sakhon for the development of the school curriculum regarding local-related content on environment. Details are as follows.

1. Self-assessment to prepare of school curriculum regarding local- related content on environment.
2. Self-assessment to prepare of learning unit “ Local environment ”

Step 5: Monitoring the suitability of the school curriculum regarding local- related content on environment from the environmental education network will affect to develop the learning process in the environmental education of students by using interviews from those involved in local educational agencies. Educational supervisors were working on environmental education, educational supervisors of curriculum, environmental teachers, school administrators who have experience in developing environment and and expertise in environmental studies to comments and suggestions in preparing the school curriculum regarding local- related content to make students conscious awareness, knowledge and skills to solve problems together and modify the behavior of living with natural resources and environment friendly and sustainable.

Step 6: The research improves the model of environmental education network for the development of school curriculum regarding local-related content. Researchers Researchers take all of the comments from a person involved in developing model of environmental education network to develop the school curriculum regarding local- related content and monitoring the appropriateness of the school curriculum regarding local- related content in order to have the proper application to develop the environmental education network to develop of the school curriculum regarding local- related content with similar efficiency.

Population

The key informants in the research were divided into 2 groups.

Group 1 Persons of the environmental education network must be environmental agencies, the people who are interested in environment and schools at the local level.

Selection of study area such as state and private organizations, environmental government agencies, local organizations and schools to develop the school curriculum regarding local- related content.

Criteria for the selection of the study area

1. There were more than five teachers in school and at least three teachers in local area.
2. The actual administrator manage permanently in school and none of a substitute teacher.
3. The Schools had the Board of Education.
4. There were at least 3 environmental organization in area.
5. The willingness of organizations worked together as network.

Group 2 The expert educators in creating the school curriculum by the criteria for selection were as follows.

1. Educator or administrator of school was experts in creating who hold at least as qualified as an expert.
2. The academic roles of expert was in the environmental education issues such as research, textbooks and seminars on environmental education.
3. Local wisdoms participate in the creation of the school curriculum regarding local – related content.

Research instruments

A model of environmental education network for the development of school curriculum regarding local - related content have four methods of data collection as follows:

1. gathering of basic information in study area, both physical and culture based on information from the questionnaires and the role of public organizations working on environmental education in the area, local analysis of the potential by using SWOT Analyses.
2. Interviews with network administrators / leaders / members of the environmental education network.
3. The collection of data from participatory observation.

4. Interview with the participation of the environmental education network

3.2.3 Phase 3 Self-assessment of school in a model of environmental education network for the development of school curriculum regarding local – related content to manage learning for students

Research in this phase of the study self-assessment of schools in a model of environmental education network for the development of school curriculum regarding local-related content to learning management for students by group discussion, administrators and teachers in 6 schools , and academic seminars for exchange the knowledge of the schools to develop school curriculum regarding local-related content that developed from the environmental education network. The process works were as follows :

Step 1: The self-assessment of schools in using the school curriculum regarding local-related content to manage learning for students

Step 2: The self-assessment of learning unit “Local Environment” to provide learning activities for students

Population

The key informants of this research were personnels who worked in :
1) schools under the municipality of Samut Sakorn 2) government agencies and local environmental organizations, local educational agencies and 3) the public sector.

Research instruments

1. The monitoring component of school curriculum by researcher was applied from The office of Based Education Commissions , Ministry of Edcation (Bureau of Academic Affairs and Education Standards,2010:115)

2. The focus group for self-assessment of schools in the school curriculum regarding local-related content to student through the discussion by asking the opinion of the purposive sampling. There were issues in the study as follows.

2.1 The school curriculum regarding local-related content of the environmental education network was provided learning for students . There were

threats / problems or not (the learning content management activities, measurement and evaluation)

2.2 How much participation of the environmental education network has been involved in developing environmental education for development of the school curriculum regarding local – related content.

2.3 The environmental education Network is involved in environmental education into the curriculum or not. If there are other sides, so what do they look like? (Budget, people facilitate to provide the environment education, Learning support / learning resources.)

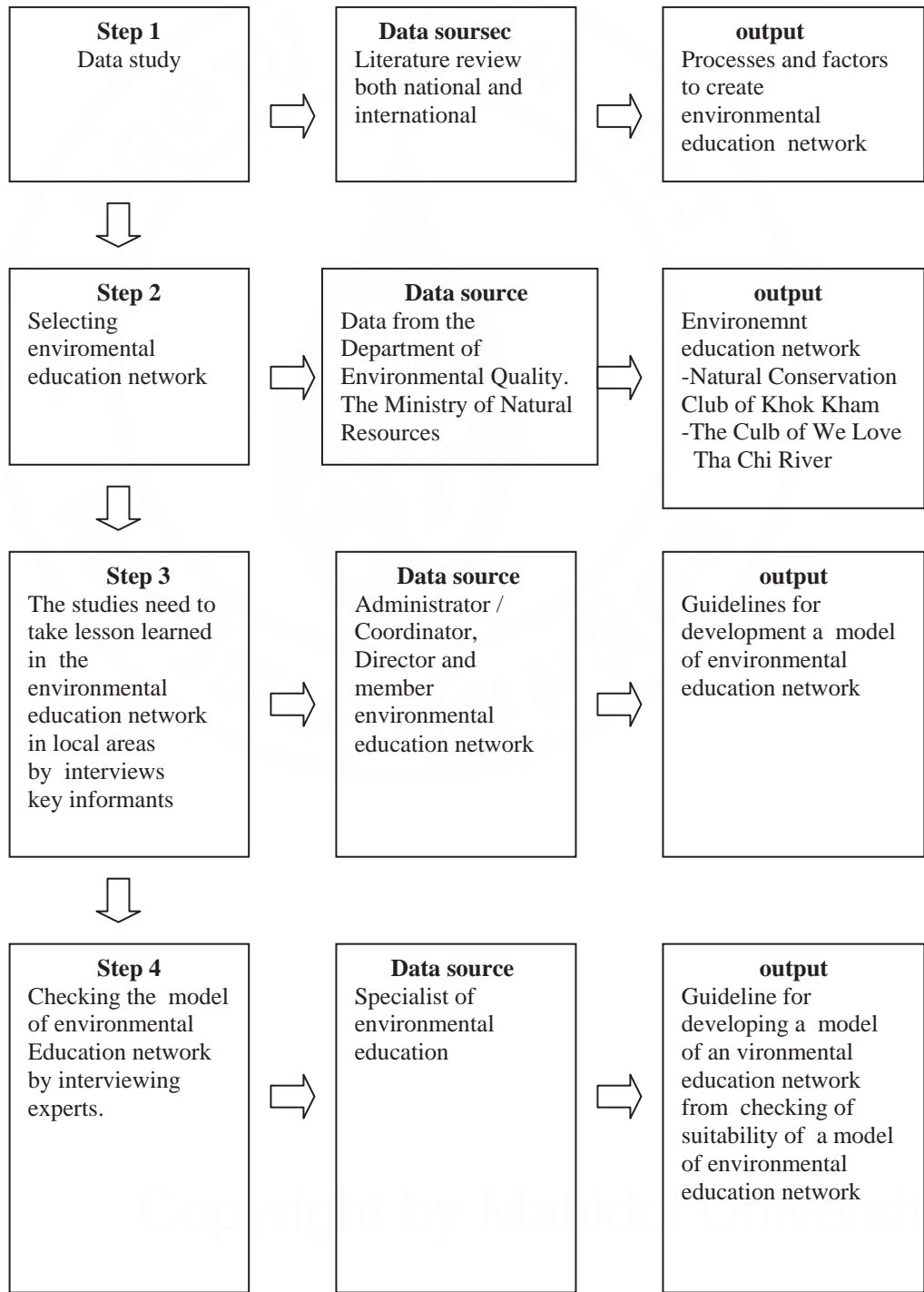
2.4 What is the effect of the model of the environmental education network to students, teachers, school administrator, and communities.

2.5 There are obstacles to the development of the environmental education network to develop school curriculum regarding local – related content to students or not.

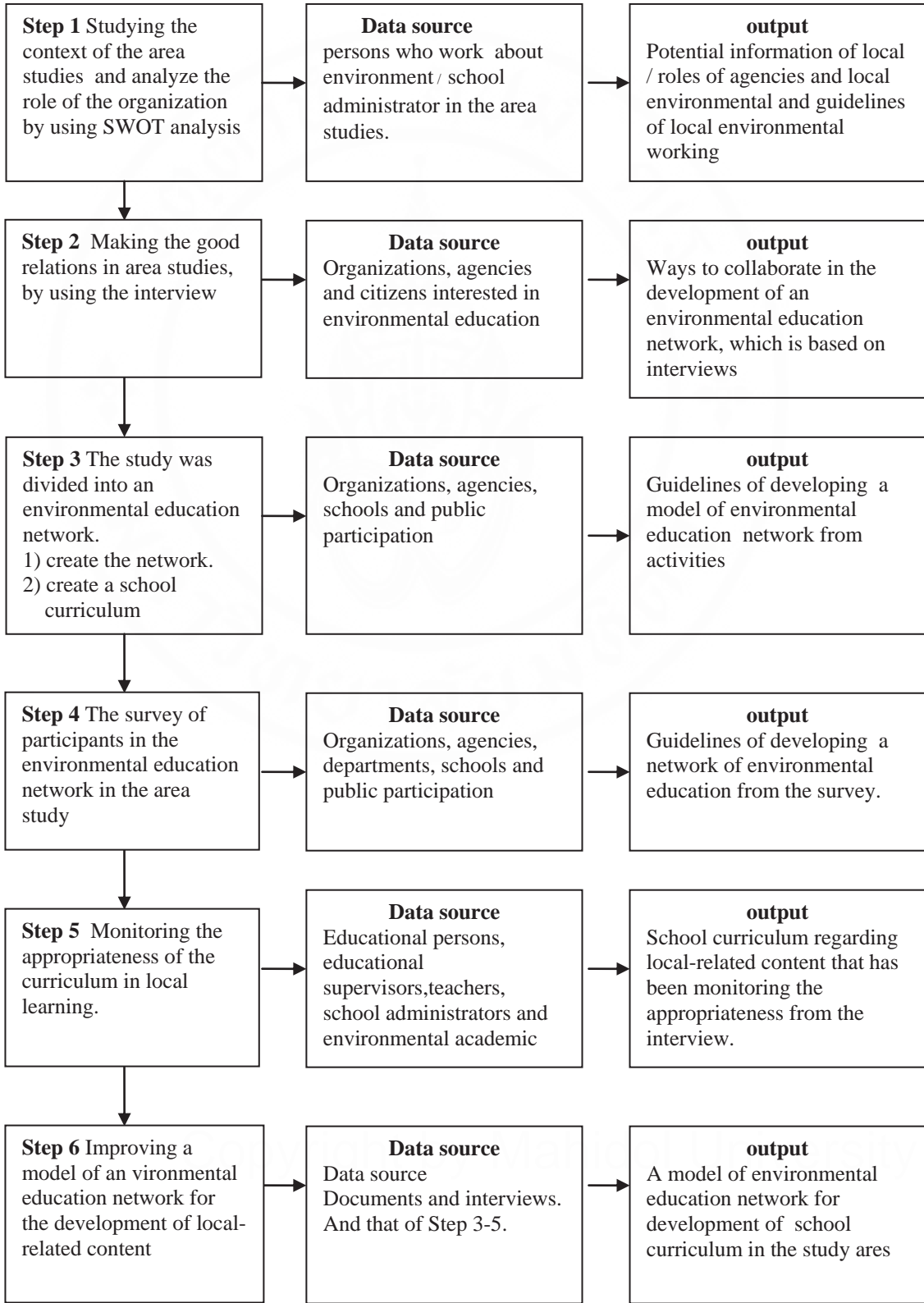
2.6 Propose the development of the environmental educator network to develop school curriculum regarding local – related content to student

Research Methodology

Phase 1 Analysis of the pattern and factors in creating a successful environmental education network in the local level



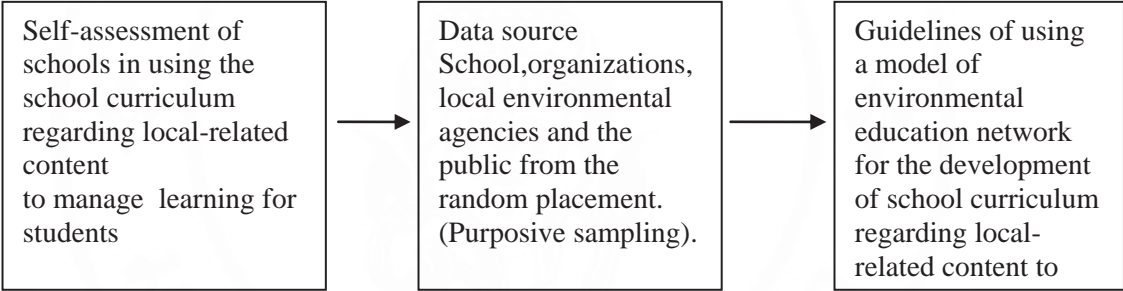
Phase 2 The development of a model of environmental education network for the development of school curriculum regarding local-related content



Phase 3 Self-assessment of school for the development of school curriculum regarding local-related content to manage learning for students

Issues in the self-assessment of school in using the school curriculum regarding local – related content to manage learning for students

- The Result of using a model of environmental education network for the development of school curriculum regarding local-related content to manage learning for students



3.3 Verify information

3.3.1 The Validity, the researcher has developed a conceptual framework of this research step and defines rule for the implementation of each step clearly from case studies and the choice of professionals to determine the next step.

3.3.1.1 An accuracy of the methodological triangulation was applied to this study used to collect information in several ways in order to documentation gathering, depth interviews, group interview, observation was not involved participatory and group discussions. Data triangulation examine information from a different time, place were restricted to be synchronized. Monitoring the research triangle, Investigator Triangulation, used to verify the information from the data in the field with researchers and assistant researchers after collecting the field data and further to record together and the corresponding

3.3.1.2 Accuracy of the interview was considering methods to correct, concise and reliable or not. The message is consistent or the purposes of

research or not. The broad scope of questions. Issues are researched and comprehensive information as well as questions in the interview, use clear, concise language that is easy to point or point to ask. The question that all authors have given each a specialist inspection and more of the deficiencies before an authentic sample.

3.3.2 The reliability to determine the confidence researchers have tested the reliability and accuracy of the information included in the interview.

3.3.2.1 Generate questions to guide the interview was by collection of documents and consult with experts.

3.3.2.2 Interview issues tests. The compiler used to bring improvement to the objective questions and the relationship to the questions of the information was already in the random sample.

3.3.2.3 Conduct interviews with real examples. The researchers used triangulation as well as to determine the exact.

3.4 Data analysis

Qualitative data analysis was using content analysis method with the thematic analysis and then analyzed along with data collection and perform an inductive analytic induction from the existing data to demonstrate the link line. Then, finding an explanation of the phenomenon. And quantitative data was analysis of opinions in the school curriculum regarding related-content of primary and secondary teachers by percentage, mathematical average, and standard deviation .

CHAPTER IV

RESULTS

This study aims to research and develop a model of environmental education network for the development of school curriculum regarding local-related content in Thailand. The study area is at the local level. The purposes of the study are as follows: 1) to analyze a successful processes and factors in creating environmental education network in the local area 2) to develop a model of environmental education network for the development of school curriculum regarding local-related content 3) to self-assess of schools in using environmental education network for the development of school curriculum regarding local-related content to manage learning for students. The researcher studied from local data resources which succeeded in environmental development using a network in driving working as well as linking knowledge and understanding for local youth through the development of school curriculum regarding local-related content. The presentation of research result has divided in three phases according to objectives of the research as follows:

4.1 Analysis of the processes and factors in creating a success of environmental education network in the local level

4.1.1 The fundamental data of “We Love Tha Chin River Club” in Nakhon Pathom Province.

4.1.1.1 Lesson interpretation of “We Love Tha Chin Club” in Nakhon Pathom Province.

4.1.1.2 Analysis of model and factors of “We Love Tha Chin River Club” in Nakhon Pathom Province.

4.1.2 The fundamental data of “Khok Kham Natural Resource Conservation Club” in Samut Sakhon Province.

4.1.1.3 Lesson in terpretation of “Khok kham Natural Resource Conservation Club” in Samut Sakhon Province.

4.1.2.2 Analysis of processes and factors of “Khok Kham Natural Resourec Club” in Samut Sakhon Province

4.1.3 Analysis of processes and factors of creating environmental education network

4.1.4 Development guidelines of a model of environmental education network for the development of school curriculum regarding local- related content

4.2 The development of a model of environmental education network for the development of school curriculum regarding local-related content

4.2.1 The fundamental data of the Municipality in Samut Sakhon Province

4.2.2 Creating model of environmental education network for the development of school curriculum regarding local-related on environment of the Municipality in Samut Sakhon Province

4.2.3 School curriculum development regarding local-related content on environment of the Municipality Samut Sakhon Province

4.2.4 Evaluation of learning unit “Local Environment” to provide learning activities for students

4.3 Self - assessment of schools in using a model of environmental education network for the development of curriculum school regarding local- related to manage for students

4.3.1 The self-assessment of schools in using the school curriculum regarding local-related content to manage learning for students

4.3.2 The self-assessment of learning unit “Local Environment” to provide learning activities for students

4.1 Analysis of processes and factors in creating a success of environmental education network in the local level

4.1.1 The fundamental data of “We Love Tha Chin River Club” in Nakhon Pathom Province

We Love Tha Chin River Club in Nakhon Pathom Province was established on September 7, 1998, due in the year of 1997, Ministry of Technology Science and Environment (Ministry of Natural Resources and Environment) had supported the training of volunteers in environmental conservation in Nakhon Pathom Province. The participants were composed of village headmen, community leaders and government officials who later became key roles in founding the club of “We Love Tha Chin River.” After the workshop was merging groups of local people both public and private, monks, teachers, (houses, temples and schools) and academicians for collaborations of restoring Tha Chin River. The key leader at that time was Mr. Prasop Chum-in-ngam, the Education officer of Nakhon Pathom Province. The participants persuaded groups of local people discussing on establishing Tha Chin River Club with the purpose of working on environment. For its context of environmental communities, the goal was focused on the guideline of maintaining Nakhon Chaisri River which comprised of rivers and canals in Nakhon Pathom Province, not to waste more, monks, government officials, factories, workers, merchants and people were collaborators creating activities in river maintenance including self-awareness of ones who lived on riverside and ones who used water for their professions to pay attention to and co-operated of Tha Chin River conservation and canals for future utilization.

The activities thoroughly provided were removal of aquatic weeds in the rivers and canals, a campaign against the waste and waste water in the community, promoting fish park along the riverside of the temples, effective surveillance with warning sign communication network all the time along the river, including promotion projects involving environmental conservation and restoring the quality of water such as the projects of feeding fish in front of the temples, Tha Chin River conservation, with the concept of fish in the river indicates quality of water. About thirty-one temples out of forty temples along the riverside shared these projects. As a result, the temples become tourist places causing the increasing of income from selling fruits and a better community economy as well. Furthermore, the temple area became well-known markets such as Wat Klang Khu Wiang market, Wat Don Wai market, Wat Lumpaya market and so on. It was also formed to be river tours of temples along the riverside. Where the collection of local professional equipments from the past, were

displayed as learning resource or village museum such as Wat Tha-pood, Wat Sukwatanaram, Wat Bangpla, Wat Bang Phra and so on, (Saowapha Pornsiripong, et al., 2008: 311).

4.1.1.1 Lesson interpretation of “We Love Tha Chin River Club” in Nakhon Pathom Province

4.1.1.1.1 The establishment, implementation process and a network outcome

The formation of “We Love Tha Chin River Club”

The emergence of “We Love Tha Chin River Club” was from the need of water pollution problem solution in Tha Chin River resulting from the use of chemicals for agriculture and industrial factories releasing the waste water into the river, which caused heavily water pollution of Tha Chin River. The villagers were in trouble with this problem. From the deterioration of water crisis, the local people got to be alert in collaborations of restoration of Tha Chin River and to prevent the spoilage of Tha Chin River continuously in terms of creating a collaborative network of villagers, local village headmen, community leaders and government officials. The concept of working together was resulted from the training of volunteers on environmental conservation in Nakhon Phahom Province by Ministry of Environmental Resources in the year of 1997. this made the local people get the concept of creating network for problem solutions by community participation in water guarding and river maintenance. There were many groups participating the activities especially monks and schools (school principals, teachers and students.) Since the year of 1997 to 2001, the Club of We Love Tha Chin River Club in Nakhon Pathom Province had a network covering three districts along River such as Nakhon Chaisri District, Banglen District and Sampran District with twenty-eight communities, forty temples along Thai Chin River and sixty schools along Thai Chin Rivers. (Data given on March 30,2010) ([www. thachin foundation.org](http://www.thachin foundation.org))

The implementation Process

From the support and promotion of creating environmental network by Ministry of Natural Resources and Environment, the leader group had the

lesson from the meeting of volunteers in environmental conservation in Nakhon Pathom Province in 1997. The result of heavy waste water crisis in the year of 2000, made “We Love Tha Chin River Club” play the greater role in persuading villagers for water problem solution contribution, by making them catching sight of disadvantages from the lack of co-operations as well on how the mutual benefits of environmental conservation affected the local area. By the way, club working in the initial stage, most of the leaders were local leaders and local village keymen from the village nearby along Tha Chin River or the villages in the connection of Tha Chin River which were affected from water pollution as well, by participating problem solutions. Although the problems were all over, the implementation process of community kept on going the Tha Chin River conservation activities. Due to the problems occurred, the villagers had self awareness and realized the importance of maintaining rivers and canals, causing the continuous activities linking to conservation such as conservation tourisms, a weekend floating market including agro-tourism and so on. Furthermore, to persuade various parties participating activities made the collaborations of working on conservation and broadly spread out the activities’ result to the publics such as feeding fish in front of the temples project, working with the monks, water detective project, working with schools, using micro-organism biological fertilizers, working with the community and so on. Moreover, to achieve the goal of working also caused by enhancing knowledge and working experiences on the environment of academicians both inside and outside the local area such as environmental agencies, university professors and so on. All of these caused the collaborative implementation process of local people working as a network including creating environmental body knowledge for the local area as well.

Outcome

Results of “We Love Tha Chin River Club” during the past time indicated that

1. Environmental pollution problem solutions with the participation of various local sectors including state and private agencies, local administration organizations, monks, schools and people has gained knowledge on

working as a network based by eliciting powers from every party concerned to work together achieving the success.

2. The group of working people is trusty to each other and make an agreement with peace, avoid the cause of conflicts between people and private industry effecting the water quality in Tha Chin River eco-system, including the working of local state organization and people on policies. People have to percept and take part in decision making on what effects to local environment and natural resources as well.

3. Causing the bargaining power of local people in setting directions of developing and solving local problems including the participation of local people with state and private organizations which take part in using local natural resources effecting local environment problems.

4. The lessons of group working bring about thinking process development and views the benefits of group merging that promotes professions resulting from environment conservation such as keeping good quality of rain water through the collaborations of temples along the riverside in the project of feeding fish in front of the temples. That increase a great number of fish, becoming tourist places and developed to be riverside markets where agricultural products are sold by the villagers. It also helps increasing local people's income.

4.1.1.1.2 Guideline making the Club of "We Love Tha Chin River" successful in participating local environment problem solutions

Working systematically requires well-planned and continuity of project using strategic creating activities to be seen in concrete and local people gain the benefits of working for the network such as the project of feeding fish in front of the temples, water-Tod Kathin Offerings, markets along the riverside for eco-tourism and so on. These activities have brought up local people's income on eco-tourism. Local people have learned the fertile environment and natural resources. Furthermore, The Club of "We Love Tha Chin River" with the participation of monks in creating awareness on water conservation though the preaching and keeping precepts, prohibition of killing any creatures and keep the water in front of the temples clean. Schools have also collaborated with the club by providing learning activities establishing students' awareness in keeping the rivers and canals clean. The Club of

“We Love Tha Chin River” provided the projects promoting the love of Tha Chin River for students, such as essay and drawing contest and water detectives activity of more than forty schools, the project of the youth love Tha Chin River and so on. The club of “We Love Tha Chin River” also persuaded and asked the people for the collaborations of stopping releasing waste water and throwing garbage into the river as well as using pesticides and so on. The project of clearance snails by ducks, the micro-organism in stead of chemicals help to solve the problem of using pesticides. Moreover, the beauty contest of house, temples and school, making the community realize the importance of Tha Chin River and to collaborate in maintaining the canals in the community.

4.1.1.1.3 Participating with schools in providing students’ learning activities on environment

Participation of the Club “We Love Tha Chin River” in Nakhon Pathom Province consists of sixty schools located along Tha Chin riverside covering three districts, Nakhon Chaisri District, Banglen District, and Sam Phran District. At initial stage, the first group leader of the club was the education officer of Nakhon Pathom Province as a chairman including people in different parties as well as schools located along Tha Chin Riverside which had severe experience on waste water in the year of 2000. This made schools realize the importance of environmental learning activities for problem solution and building self awareness on Tha Chin River conservation. In addition , the club of Tha Chin River was supported and promoted on budget and developing teachers to be able to create school curriculum focusing on building self awareness of students in Tha Chin River conservation. A lot of activities have provided for students’ awareness on the love of local area and environmental conservation such as Golden Garbage School Project (garbage applied to EM Water solution or effective microorganism). Water Detective School for checking quality of water in Tha Chin River and water resource keeps clean by the project of the Youth Love Chedi Pracha Canal which became a historical canal later and importance on environment on causing the participation of Tha Chin River conservation and so on.

From the lesson interpretation of “We Love Tha Chin River Club” in Nakhon Pathom Province, found that establishment of club was

from the knowledge gained from outside. The group leader used the concept of group merging for environmental problem solutions in the local area. At the beginning, the group leader was persuaded participating activities, working together between internal and external organization on environment, learning exchange, meeting for planning regularly including mobilization of the local area, state and private agencies. Finally it became a network that made the power of trust to each other, made an agreement with peace for reducing conflicts in the management of environmental issues, which made the bargaining power of people in setting development directions and local problem solution. Working together also cause thinking process development and realizing the benefits gained of group merging as well as promoting professions resulting from environmental conservation.

The guideline that made the club of “We Love Tha Chin River” successful in participating local environment problem solutions showed that has been working systematically with planning and the continuity of the project using strategic activity management to be seen in concrete. And the local community gained benefit of working in a network. Moreover, the elicit of local people’s potentials such as people, monks, youth (Houses, Temples and School) was used in participating in building awareness on environmental conservation for local area people though monks’ preaching’s and the prohibition of killing creatures, including learning in school system. The activities provided were creating local-related content, and local environment courses as the guideline for local youth, adults perceptions and encouraged of environmental conservation.

Furthermore, the club of “We Love Tha Chin River” could support and promote of budget and developing teachers to be able to create school curriculum focusing on building awareness in Tha Chin River conservation as well as promoting school activities serving self awareness for the love local area and environment.

4.1.1.2 Analysis of processes and factors of “We Love Tha Chin River Club” in Nakhon Pathom Province

Analysis of processes and factors of “We Love Tha Chin River Club” in Nakhon Pathom Province has developed consecutively from the

formation of network, co-ordination of network, network expansion including the existence of “ We Love Tha Chin River Club”, in Nakhon Pathom Province. The club was first formed from local environmental problems of waste water that caused great suffering to people. When the leader gained knowledge from outsiders about group merging in order to make problem solutions, the leader himself persuaded local people to co-operate. This is a co-ordinative procedure to local people in problem and participating the activities through the club leader’s co-operation. Receiving the collaborations from co-ordinating with organizations, external agencies for supporting knowledge, funding learning resources and other have contributed environmental problem solutions for a short time. It appeared the great success that local people paid their interests on and viewed the benefits of joining the club activities. Furthermore, the scope network was expanded not only working on waste water problem solution but garbage, water animals conservation in the canals and using herbs to clear out parasites in stead of pesticides and so on. More people came to join the club in area-based and problem-based as well. On the club existence, it was found that “ We Love Tha Chin River Club ” has been existed for more than ten years up to year of 2001.

In addition, the finding showed the factors of “ We Love Tha Chin River Club ” as follows :

1. Performing activities on continuous environmental conservation and the activities performed can exactly solve local environment problems.
2. Finding new leader of “We Love Tha Chin River Club” causes well-organized administration, transferring knowledge and experiences from generations to generations.
3. Collaboration are from different parties : organization, sectors involved. Covering state and private , community leader, school, academicians and wisdoms.
4. Bringing in problems for providing collaborative problem solutions by setting goals and member’s need ought to come from members’ participations.

5. Link of working with organizations, agencies outside the club is necessary for mobilization of experts, funding, learning resources and so on, in order to promote and support the club's mission.

6. Meeting is necessary for working conclusion report and problem discussion regularly in the club such as monthly meeting, member meeting and so on.

7. Learning exchange between members inside and outside the club, study tour and participating academic discussion on environmental conservation are also needed.

4.1.2 The fundamental data of Khok Kham Natural Resource Conservation Club in Samut Sakhon Province

The Khok Kham Natural Resource Conservation Club is located in Moo 3, tambon Khok Kham, Muang District, Samut Sakhon Province. It is local organization which participate the conservation of various kinds of wetland birds mainly live in winter, and in some of areas on the coastlines next to the inner gulf of Thailand, called the west Mahachai bay. The villagers are most of the salt and shrimp farmers. The area where the club is located, is on the area of salt farms and connected to Officers from the Mahachai and Coastal Conservation Station 5, under Department of Marine and Coastal Resources. It is on the area of the National Conservation Forest which is located on Mahachai mangrove estuary on the west coast. It is rather a fertile area with approximately 477 acres, considering to be apart of fertile inner area of shrimps, crabs and fish in the bay of Samut Sakhon Province. From landscape characteristics of being close to the sea and rivers flowing into the sea, there are muddy beach full of animals which is the food resource of wetland birds, both local birds and migratory birds. There has been a report that, the sea birds of broadbills with red chest, the spoonbill birds, the wetland birds with red head and others were found in this area. The Khok Kham Natural conservation Club has formed from local people group who want to conserve natural resources that has been attacked by shrimp farms. When pollution problems came, the shrimp farms were left deservedly because of the broad area of salt farms where birds lived, shooting birds for fun or for sale. This caused the reduction of great number of birds. So, a small group of local people was

formed natural conservation club with the aims of local natural conservation and restoration for its fertility again.

4.1.2.1 Lesson interpretation of Khok Kham Natural Resource Conservation in Samut Sakhon Province

4.1.2.1.1 The formation, implementation process and outcome from working in environmental education network

The formation of Khok Kham Natural Resource Conservation Club

The first start of Khok Kham Natural Resource Conservation Club was due to the pollution problem of shrimp farm area. Some of the villagers were at lose from doing shrimp farms so they left the shrimp farms deserted and earned their livings on another profession. Small group of villagers has formed Natural Conservation Club in the year of 1997 with the aims of Local natural conservation and restoration to become to its fertility again. Now Khok Kham Natural Resource Conservation Club or “Watching Birds Club” a well-known name of villagers is famous area to both Thais and foreigners. Every year people come to watch rare birds and it is also a local learning resource for students and others. Furthermore, the bird watching activity causes the local people who realize the importance and the pride of their local area, awakening of natural conservation as well. The formation of the club started with twenty registered members. At First, villagers were not much interested in, but the club has got an idea of transferring knowledge to local people on the conservation of nature, birds and wild animals. It was started from transferring knowledge to students as “ Birds Conservation Club ”. Later on, the rare sea birds with rolled beak were found, that great numbers of people both Thais and foreigners visited and made a study. The club became famous and well-known which caused the supporters from local agencies and state organizations in terms of budget. The club members provided “ Wetland Birds Conservation festival ” activity and later on a wetland spoonbill bird was found that attracted more Americans and Europeans interests coming to watch and study. The club has been supported bird watching cameras from Samut Sakhon Province, local administration organizations and Khok Kham sub -district administrative organization. Thus, many activities were provided such as Bird Watching Competition in Khok Kham sub -

district and so on. Because of the wetland area of Khok Kham District, lots of birds flew over and loved here every year, that became tourist attractions. As the club went on activities, local people perceived and also promoted the prohibition of shooting birds. Local people also increased their income from tourism that caused the love, reservation and realizing importance of natural conservation.

The implementation Process

The implementation process started with a small group of four or five people who are friends and relatives with the same goal of local natural conservation to its fertility in return. At first, started working without experience and money support but with the highest intention to work for restoration natural fertility. The club members of Khok Kham Natural Resource Conservation made the dissemination of knowledge and correct understanding about the value of eco-system along the coast including the benefits of mangrove forest as well as dissemination of migratory wetland birds and their importance to natural chain to local people and anyone interested.

Outcome

Khok Kham Natural Resource Conservation Club implementation caused the Khok Kham villagers realize the importance of their local area with the birds habitats. Due to a great number of bird watchers both Thais and foreigners came to the area for bird watching that made the villagers proud of their local area effecting realizing the importance of local environmental conservation, including earning their income from selling local products. Furthermore, the villagers paid their interests in acquiring knowledge about birds living in their own land and nearby. This caused the conservation of nature of birds, other wild animals and plants. The villagers stopped shooting birds or destroying birds habitats. At the same time the villagers also collaborated with academicians in surveying birds and their habitats for the use of area conservation and management sustainability. Apart from being traveling resource of bird watchers, it is also a learning resource for youth, students and other people as well.

4.1.2.1.2 A successful guideline of Khok Kham Natural Resource Conservation Club

A successful guideline of Khok Kham Natural Resource Conservation Club in fostering community participation on local environmental problem solutions is working with the participation of organization, state and private agencies and fostering local villagers that realize the importance of problems occurred without environmental conservation coordination are major factors of villagers to be proud of their local area. Khok Kham Natural Resource Conservation Club becomes an important bird watching resource along the coast, of the country and outside the country as well. When winter comes, a great number of birds migrates to live here and the first sight of rare birds in this area increases the number of bird watchers both Thai and foreigners becoming income resource of the local area and of Samut Sakhon Province. Trading on local products to tourists, extra job as bird watching guides resulting from villagers development in acquiring knowledge of rare birds make the capability of conferring knowledge to the tourists. When local villagers realize the mutual benefits, they agree to participate local environmental problem solution which is well-responded. These cause the reduction of rare animals and bird's habitats invasion, as well as hunting rare birds and shooting birds. It is because of good taking care of local villagers in the love and realizing the value of local environment and natural resource conservation. Moreover, linking the network to organizations, local agencies in the field of body knowledge, exchanging and transferring experience to each other and extra benefits for local area by adding various Interesting learning resources and local wisdoms such as salt farm learning center, watching dolphin resource and the Shrine of Pan-thai-nor-ra-sing in the bird watching area including learning slow wave bamboo which is local wisdom, cause the building up interests to local area. Due to the importance of cooperative working as a network, makes the Club of Khok Kham Natural Resource Conservation successful in working with local people. State and private organizations, local organizations share the benefits. It is a model of environmental and natural resource conservation which villagers gain the benefits in terms of professions and fertility of mangrove forests for the source of increasing income and the pride and the love of their own local area.

4.1.2.1.3 Participating with schools in providing learning activities on environment for students

Due to the first start of the club from local villagers with supporters of local schools working on environmental conservation is supporting and promoting to each other. Teachers have knowledge and understanding on conservation but the villagers as the committee and the club members make friends with community people. This is an absolute coordinative working. The club provides learning activities for students such as Natural Conservation Camp, Bird watching Camp, Mangrove Planting Camp from the budget of external supporters. On Wetland Conservation Day, the club also provides activity contest as well. Moreover, local schools also create environmental education curriculum for enhancing students on knowledge, understanding, the love and the pride in their local area on both environmental and natural conservation as well as cultural preservation which is also a local wisdom

Form the lesson interpreted of Khok Kham Natural Resource Conservation Club found that the club formation was from small groups of people who have gained knowledge from outsiders on environmental conservation. This made them looking back on environment in their own local area about destroying wild animal naturally such as rare seabirds nearly be in extinction. Villagers were persuaded to pay interests on conservation. Furthermore, knowledge from outsiders made them realize result of disregarding on conservation. Birds and water animals along the coast had no food resources and their habitats any more. The implementation process of the club started from small groups of people working patiently and intently based on conservation without knowledge and understanding. Finally, the primary success became true in just a small point that the local people realized and co-operated in working, causing the supports from many agencies. Working outcome of the club has made Khok Kham villagers and villagers nearby realizing the importance of their local area about the bird's habitats. The villagers felt so proud of their local area when visitors came to study and watch birds effecting natural conservation in their own local area as well as increasing income from selling local products.

A successful guideline of Khok Kham Natural Resource Conservation Club has made the co-operation of local environmental problem solutions, working with organizations, state and private agencies, and how to make local villagers realizing the coming problems without environmental conservation collaborations. The club also create traveling resources where it is a local income resource and of Samut Sakhon Province. When local villagers view on mutual benefits, the participation in local environment problem solutions is agreeable and well-responded, causing the reduction of rare animals hunting and the invasion of bird's habitats as well as the reduction of hunters hunting rare animals and shooting birds.

Moreover, the club has also participated in providing learning activities on environment for students due to the group leader as a club founder was a group of villagers who wanted expert's contributions in working with the club. This made schools in the area play the roles as creating body knowledge for the club. It's a cooperative working and exchanging experiences between a club leader and school personnel's. When the club grew bigger and be supported on budget from outsiders, so, schools became important as local learning resources. The club also supported school activities involving environmental conservation in return.

Therefore, it can be said that environmental education network with the Best Practice has formed from local people who view the problems need to be solved and developed on environment. Consequently, creating body knowledge in creting a network and environmental conservation field is necessary because it was found that environmental network has first formed by outsider encouragement but was driven by local people. Furthermore, leader's or local group leader's intentions push forward environmental education network to drive on with local people, state and private organizations' cooperation's. The outcome of environmental education network are not only cooperative environmental problem solutions but also building knowledge, understanding and awareness on local environment problem solution including the capability of local people in assessing local environmental problem situations, making decisions with consideration regarding environmental effect in their local area as well.

4.1.2.2 Analysis of model and factors of Khok Kham Natural Resource Conservation Club in Samut Sakhon Province

Analysis of model and factors of Khok Kham Natural Resource Conservation Club in Samut Sakhon Province has developed by procedures from the formation of a network, co-ordination of network, network expansion including the existence of Khok Kham Natural Conservation Club, beginning with group of people who want to solve environmental problems in the local area and participate environmental activities. Most of people could view the benefits gained from merging group with internal co-operations of people, organizations and local schools and so on, including external co-operations with Australia Southeast Asia Wetland Birds Conservation Network which is concept development process of migratory wetland birds conservation club in collaborations of country level, Birds and Natural Conservation Association of Thailand and the Research and Development of Mangrove Resource Solution (Samut Sakhon Province). Co-ordination causes the contributions of knowledge on environmental natural resource conservation, materials and equipments of bird watching and fund supporting Khok Kham Natural Conservation Club. The club expansion also increases members both local members who views the benefit gained from environmental natural resource conservation along the seashore and abundance of plants, water animals, birds along the seashore, and outsider members who acknowledge the club information on rare bird watching place. Therefore, foreigners take their interests coming to study in this area which also interests mass media on rare bird conservation. Moreover, the increasing members may due to the benefits gained from ecotourism of bird watchers which increase local people's income. The existence of Khok Kham Natural Resource Conservation Club runs continuous working of the club through promoting and supporting the driving network factors such as active leader administrating the club in terms of committee with thorough learning exchange in joining activities of Bird Watching Association of Thailand, Australia-Southeast Asia Wetland Bird Conservation Network, Birds and Natural Conservation Association of Thailand, the Marine and Coastal Conservation Station 5 (Samut Sakhon Province). There is a co-ordinative working both inside and outside the club, information relations of the club through various media such as brochures, local newspapers, websites and so on. Khok Kham Natural Resource

Conservation Club is successful due to the continuous activities all year long which are bird watching as a highlight of the club, Mangrove planting, water animals and wild animals conservations. Furthermore, the growth of Khok Kham Conservation Club has also related to context involved such as other learning resources in promoting area where the club grows bigger and can be in existence. The factors effecting the driving of the club comprises of :

1. Having intent and sacrificed working leader, love developing the community.
2. Member's goal and needs are from members' co – operations.
3. Persuading people to be club members willingly and the value of group to provide working power and bargaining to external agencies or organizations.
4. Co-operations of various parties, organizations, agencies involved, Private community leader, schools, academicians and local wisdoms.
5. Continuity of performing activities which is beneficial to the local area both directly and indirectly. Local people view the mutual benefits.
6. Group management should be done in terms of committee providing rules or regulations of group for well-organized and right. understanding on working. The rules and regulations should come from group discussion.
7. Being supported from agencies involved on knowledge, budget, technology media appropriate to the group work.

4.1.3 Analysis of processes and factors of creating environmental education network

The analysis of processes and factors effecting the operation of “We Love Tha Chin River Club” in Nakhon Pathom, Province and “The Khok Kham Natural Conservation Club” in Samut Sakhon, found that, they started from environmental problems of local people. The implementation procedure of environmental education network is divided into four phases as follows:

Phase 1 The formation of environmental education network was started by merging group of the same interests discussing on environmental problems issue,

for solutions. The group merging is voluntarily from the leader or leader group outsiders, they gained the club activity participation. This approach has led to local by state and private organizations with outside supporters of organizations in terms of merging groups and other aspects to find the environmental problem solution guidelines.

Phase 2 The co-ordination of network is to find the coalition of working in the local area, state and private organizations including local organizations. This is because, the leader or group leader realizes the driving of group work that requires the collaborations of many parties as supporters pushing forward to work for environmental problem solutions. The co-ordination of network has formed in both horizontal line (people and private organizations) and vertical line (state organizations). Therefore, it is necessary to find guidelines for environmental education network co-ordination as the way to decentralized information's to people's perception on problems and needs of those networks as well as the environmental network goal.

Phase 3 The expansion of the network is a duration of seeking members in terms of both formal and informal. In addition, the members will be attending sue to the mutual benefits. The network expansion with clear goal and implementation to become concrete can truly contribute problem solutions and develop on environment becoming people's acceptance and beliefs on network attainments. Moreover, the ability of information presentation to outsiders can be made broadly as well.

Phase 4 The existence of the network is a duration of sustainable network. The formation of network is not only for special problem solution so stop working when the problems are all over or lack of supporters but also continue working on promoting as a network's goal. Thus, environmental education network problems activities strengthen problem solutions and guidelines of local environmental development thoroughly. By the network and well-responded from members.

Moreover, six factors in driving the environmental education network were found as follows :

1. Having a strong and active leader with broad vision on environment, sacrifice and expertise's the work of environmental education network using co-operative approach in thinking, acting making decision and improvement.

2. Members participating successful network activities need to require members' qualifications of knowledge, understanding in participative working as a network. It is because members are driving force of the network through knowledge, ability and experience in sharing thinking, acting decision making and improvement of democratic way in accepting each other's opinion and view public benefits rather than personal benefits.

3. Setting objectives or goals together, the objectives or goals should come from members' needs which will make them feel a part of a network in collaborations of working to achieve the objectives or goals. Furthermore, the clear objectives or goals make a clear network itself in working on environment without political focus or for the coalition of any people group who expect others' benefits. Besides the objectives or goals prescribed of environmental education network focuses on building awareness of environmental protection to come up with the local people.

4. Co-ordination and implementation of environmental education network requires effective co-ordination and various approaches. It is because the decentralization of information and demonstration of objectives or goals of working for people's perceptions and participating a network need co-operation of access. The approach wished depends upon the network context, such as Khok Kham Natural Conservation Club in Samut Sakhon Province, a group used internet to publicize data and information including the network functioning at times, cause people interested in searching data and participating activities of Khok Khom Natural Conservation Club in Samut Sakhon Province. To the Club of "We Love Tha Chin River" in Nakhon Pathom Province has a variety of co-ordinations through many approaches such as using community leader, local headmen, village headmen, local administration organizations, schools and news online in the community as well as researching in the area of research institutions which leads to various and broad co-ordinations.

5. Regularly performing network activities or learning exchange makes a chance to members or people interested participating in expressing idea, performing activities that cause interactions within the group to exchange learning. This flows the network movement and obvious outcome to public, especially environmental and natural conservation which is the main objectives or goals of environmental education network focusing on building awareness to the local people on environmental

conservation. Moreover, the activities performed may include activities for exchanging idea such as meeting, study four and others, as well as activities for responding to problem solutions or environmental development such as Tha Chin River Conservation Club, making effective water fertilizer, Rare Sea Bird Conservation, Mangrove Forest and Water Animal Conservation and so on.

6. Mutual resource mobilization and network operation need conclude the use of resources such as knowledge, technology, fund and so on. Moreover, local context and different environmental problems also need different working approach as well. This, local wisdoms play the great rote in contributing local environmental problem solutions nicely. It's a personnel resource capital and social capital in supporting environmental education network.

4.1.4 Development guidelines of a model of environmental education network for the development of school curriculum regarding local-related content

Creating environmental education network for the development of school curriculum regarding local-related content, from studying documents and lessons interpreted of environmental network focusing building awareness, knowledge, understanding, skill, participating and making local people to be able to assess situations effecting environmental, the group, clubs, organizations or other working on environment are called environmental education network. From an overview on the synthesis in overall aspect of environmental education network the Best Practice showed the development guidelines to a model of environmental education network for the development of school curriculum regarding local-related content. Creating environmental education network is divided into two stages which are (1) the step of preparations of creating environmental education network. This study found that, before the implementation of creating environmental education network should study local context for planning the implementation of environmental education network and building relationship to local people for well-understood. Therefore, the stage of preparation of creating environmental education network is very important and necessary and (2) the step of creating environmental education network is a practical

practice causing environmental education network, be able to implement for problem solutions or developing the local area on environment with the following procedures:

4.1.4.1 The stage of preparations of creating environmental education network for the development school curriculum of regarding local-related content

The preparations of creating environmental education network for the development of school curriculum regarding local-related content is to study local context in planning for the network with the following implementation guidelines :

1. The analysis of local environmental conditions is to study local context for fundamental data in promoting environmental education network. It is a study of both natural environment and cultural environment for the recognition of supported factors in creating environmental education network.

2. Good relationships and familiarity, understanding on the concept of environmental education network for the development of school curriculum regarding local-related content to stakeholders and people interested in participating environmental education network is also included.

4.1.4.2 The stage of creating environmental education network for the development of school curriculum regarding local-related content

Creating environmental education network for the development of school curriculum regarding local-related content, from the study found that process and factor in creating a network are as follows :

A model of creating environmental education for the development of school curriculum regarding local-related content

Creating environmental education for the development of school curriculum regarding local-related content has four phases implementation processes as follow :

Phase 1: The formation of environment education network

Finding a leader group of people interested in environment issue.

1.1 Making group from people interested to be environmental education network members.

1.2 Setting objectives or goals in working together

1.3 Committee selection for management of environmental education network, role allocation, setting rules or regulations and agenda of working committee

1.4 Activity participation / learning exchange, activity planning

Phase 2: The co-ordination of environmental education network

2.1 Performing activities for members in order to exchanging idea and performing activities together.

2.2 The co-ordination with internal and external network is to organize communications with members and people, agencies, external organization for acknowledgment in working and network activity movement.

2.3 Mutual mobilization is a capital raising terms of knowledge or local wisdom of members in collaborative working in the network, labor mobilization of members and fund raising together.

Phase 3: The expansion of environmental education network

3.1 Decentralizing network outcome, knowledge, concept, working experiences of inside and outside the network to public.

3.2 Enrolling people to participate in the network, extensively.

3.2.1 To be members formally

3.2.2 To participate activities as interested

3.3 Performing activities continuously

3.4 Following up and evaluating the network collaboratively.

Phase 4: The existence of environmental education network

4.1 Promoting and developing a new generation leaders.

4.2 Promoting continuous learning process to members.

4.3 Enhancing the members to perform activities and exchange learning continuously.

4.3.1 Activities available to members and local community

4.3.2 Activities for network member attachment

Factors in creating environmental education network for the development of school curriculum regarding local-related content

Driving the network from the formation of network, co-ordination of network, the network expansion and the existence of network is composed of six main factors for the network implementation, as follows :

1. Having an active leader

A leader should be knowledgeable, understanding on local environmental problem and intend to develop local environmental issue, play the great roles as persuaders of people involved such as organizations, state and private agencies, local school including people interested in environmental issues to participate local environmental education development.

2. Having collaborative members

Environmental education network members include school personnel, state and private organizations including people interested in environmental problems participating activities with the purpose of local environmental problem solution. A network should make a good selection of members to administrate driving environmental education network in accord with objectives and goals effectively, efficiently and transparently.

3. Setting a shared objectives and goals

Environmental education network objectives and goals depend upon members, needs in participating the setting directions of education development for youth on local development.

4. Co-ordination

The network co-ordination is to link member' working both inside and outside the network through communicative approach appropriate to local context.

5. Performing activities and learning exchange

Environmental education network activities require the illustration of network objectives and goals becoming concrete for environmental problem solutions focusing on local environmental learning management for local youth. Consequently, environmental education network is the collaborative working of many parties on local environment, therefore the working goals of organizations, state and private agencies might be similar ones. So, environmental education network is considered to be a

separated working approach on environment of many parties having chances in learning and working exchanges.

6. United resource mobilization

Resource mobilization is capital raising in terms of knowledge or members' wisdoms for participating network activities as well as labor mobilization, materials, media, technology and fund mobilization. Due to environmental education network is the collaborative working of many parties on local environment which helps saving resources and reduces duplication of working on environment.

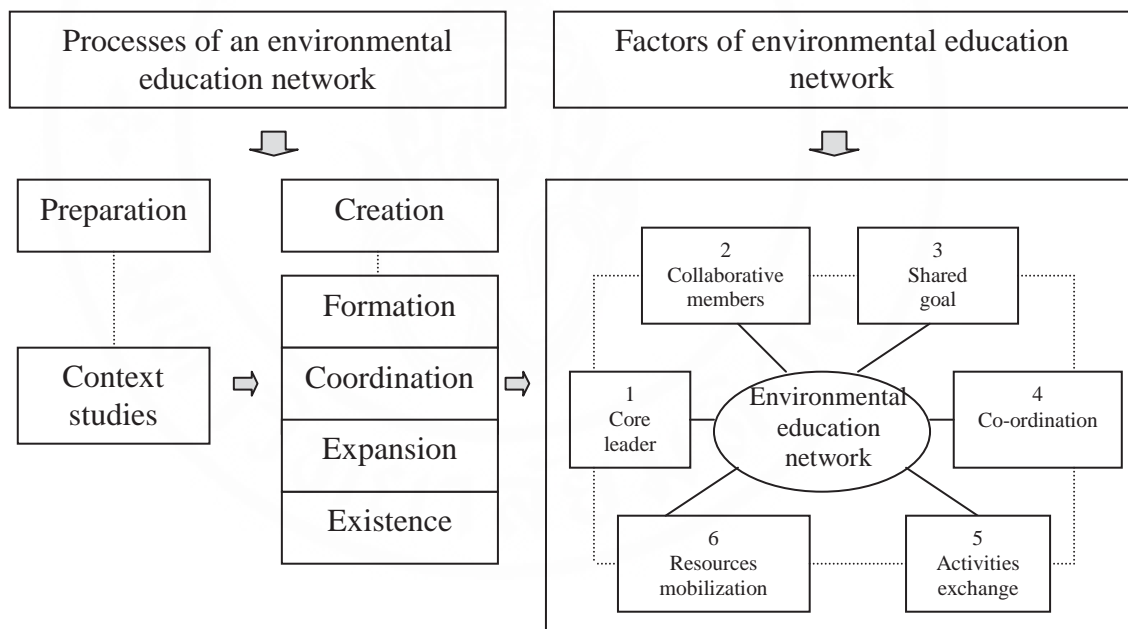


Figure 4.1 : A Model of environmental education network for school curriculum development regarding local-relating content

In conclusion, a model of environmental education network has driving procedures to be environmental education network, divided in preparations before creating environmental education network and creating environmental education network which is divided into four phases, as follow : (1) Formation (2) Co-ordination (3) Network expansion (4) Network existence. In each phase has its driving factors of

environmental education network which are (1) Having leaders as network coordination (2) Having collaborative member (3) Having a shared goals (4) Coordination between members inside and outside the network (5) Having activities and learning exchange to each other and (6) United resource mobilization.

4.2 The development of a model of environmental education network for the development of school curriculum regarding local-related content

The fundamental data of the Municipality in Samut Sakhon Province

This research has chosen the Municipality in Samut Sakhon Province as a specific study area using purposive sampling. Due to the area of environmental problems resulting from local people' actions that organization, state and private agencies, school as well as local people took their interests on environmental problem. In order to get fundamental data, the researcher made a study of context area both in physical and cultural fields, including the roles of organizations, state and private agencies, school and people who work on environment. Furthermore, the researcher has analysis the local's potential though SWOT Analysis technique.

Context data of the Municipality of Samut Sakhon

The Municipality of Samut Sakhon is the center of Samut Sakhon Province for its location of official organizations and a crowded area of province as well as a communication center because it is a large fishing boat pier transporting food products both fresh and food processing from factories. From the reasons mentioned, the Municipality of Samut Sakhon is mostly an environmental impacted area from the expansion of a hugh fisher industry and small industry of seafood processing effecting a great deal of environmental problems in the local community. Moreover, there is also a migration of population from rural area and migrant workers causing a part of coming environmental problems. From the document of Strategic Development of Samut Sakhon in the year between 2009 to 2010, has identified the main environmental and natural resource problems as follows : (Strategic Development of Samut Sakhon, 2009 : 12-13)

Garbage problem has more effected to environment and expected to be main problem in the future. The province has to accelerate the prevention and improvement. Because garbage from house and industries factories were as high as two hundred tons per year. Removing garbage in the provincial area is mostly in the responsibilities of local administration organizations and can't be done thoroughly. A great pile of garbage was left behind each day especially in a large local crowded area. Furthermore, garbage disposal at current time doesn't agree with a sanitary because putting garbage on the midfield and burning partially is still used.

The problem of waste water from the activities performed on agriculture, fishery including industrial activities along Tha Chin River bank such as crop farming, shrimp farms fish ponds, pig farms and industries which cause waste water and out of control. Waste water from communities, buildings, houses and restaurants was released into canals and rivers as well as waste water from Bangkok flowing though main such as Phasi Charoen Canal, Tawee Wathana Canal, to Tha Chin River and the Gulf of Thailand causing Biochemical Oxygen Demand (BOD) in Tha Chin River over standard. There were mixture of heavy metals such as lead at the average of 0.19 milligram per litre, three times over standard including over standard of bacteria causing the declination of water quality in Tha Chin River. It might became to water pollution crisis. At present, the Water quality on the surface of soil is in the fifth type of standard criteria. It is utilized only for transportation, not for consuming especially the water in lower part of Tha Chin River.

The problem of mangrove forests, as the initial stage, Samut Sakhon province had fertile area of mangrove forests along the coast with the length of 41.8 kilometer and was designated to be a National Forest the total area of 6,483.2 acres including the gulf of eastern Mahachai and the bay of western Mahachai. At the current time, most of forest area turn to the sea because of waves and current clashing strongly against the coast which destroys mangrove forest area. So, forest area remains only a few in terms of groups by groups on Tha Chin River sanctuary, National forest area, Western Mahachai Bay in Bang Ya Phraek with approximately 180 acres. Mangrove forest problems in the area of the Municipality of Samut Sakhon also effects environment and life quality of people in the area nearby of Municipality of Samut Sakhon as well.

From the data showed that environmental problems in the Municipality of Samut Sakhon seriously need to be improved with the collaborations of the public including group of people who are affected directly from local environment. It's not responsibility of any agency to another agency. Therefore, creating environmental education network is a collaborative guideline in local environmental problem solutions though people, groups of people, organization in viewing environmental problem as collaborative objective and goals in reserving natural and environment balances. In addition, the implementation of local environmental problem solutions need to be available to potentials and in implementing of people and organizations, schools where youth development in physical, intellectual, emotional, social aspects and desirable characteristics are implemented to youth in the area and in the country. Therefore the acknowledgement of implementation guideline for local environmental problem solutions from people and different parties concerned local environmental problems is really necessary for schools to provide learning framework, learning process and desirable characteristics to local youth on local environmental and natural resource conservation. Setting the directions of environmental problem solutions for youth of the Municipality of Samut Sakhon has led to practical practice relating to the success of problem solutions for local youth through school learning management.

4.2.2 Development of a model of environmental education network for the development of school curriculum regarding local-related content on environment of the Municipality of Samut Sakhon in Samut Sakhon Province

Development of a model of environment education network for the development of school curriculum regarding local related content started from creating environmental education network in the study area of the Municipality of Samut Sakhon. The researcher did research on participatory action research from the collaborations of many parties. In developing a model of environmental education network is divided in (1) Preparations before creating environmental education network comprising SWOT Analysis and building relationships, and (2) Creating environmental education network. This study is formation of environmental education network with details of implementation as follows:

4.2.2.1 Preparations of creating environmental education network

The preparations before creating environmental education network comprising SWOT Analysis and building relationships with details of implementation as follows:

4.2.2.1.1 SWOT Analysis

The researcher used SWOT Analysis of the Municipality of Samut Sakhon study area. According to overview the documents concerned, of Samut Sakhon Province for probability analysis and finding guideline of environmental education network available to area context, the analysis of internal factors and external factors were used. Internal factors are the strengths and the weaknesses, and external factors include opportunities and threats. For checking the implementation decision, Muhlemann, Lockyer and Oakland, mentioned on using SWOT for checking the implementation decision of organizations (Muhlemann, Lockyer and Oakland, 1992 : 5-13). For the successful view, the researcher used SWOT Analysis in checking the research plan decision in the stage of preparations before creating environmental education network. The researcher used the following items as internal factor analysis : (1) Human resource (2) The Municipality of Samut Sakhon Policy (3) Budget. To the external factor analysis, the researcher used the following items (1) Politics (2) Economics (3) Society (4) Environment.

Internal Factors Analysis

Analysis items	Strengths	Weaknesses
<p>1. Human resource</p> <p>-Personnel working on environment.</p>	<ul style="list-style-type: none"> - There are environmental sectors in the area both state and private sectors. - The Municipality of Samut Sakhon has internal sectors working directly on environment. They are Public Health and Environment Division and agency working on building environmental awareness for youth, it is Educational Division. - There are state and private personnel in the area with environmental experiences. 	<ul style="list-style-type: none"> - Working co-ordination on environment serves individually.

Internal Factors Analysis (Continued)

Analysis items	Strengths	Weaknesses
<p>2.The Municipality of Samut Sakhon Policy</p> <p>3. Budget</p>	<ul style="list-style-type: none"> - The policy of Samut Sakhon province defined in the third strategy of environmental development to be a livable city. - The policy of the Municipality of Samut Sakhon is listed in the fifth strategy with development guideline involving building environmental awareness such as promoting and supporting in building awareness and participating environmental maintenance including promoting sufficient economy living. -The plan and measures are defined to prevent and solve pollution problems including zoning area for residence. -The allocation of environmental budget is put in the budget plan both in provincial level of the Municipality of Samut Sakhon. 	<ul style="list-style-type: none"> - The state policy defined is mostly working in terms of up-down pattern. The plan or project is mainly defined by state agency. - Focus on environmental problem solutions rather than building environmental and natural resource conservation awareness. -The continuity of environmental problems in the community and industrial factories cause the deterioration to ecosystems and environment becoming hard to solve. - Most of the budgets are used for construction materials more than building environment awareness of local people.

External Factors Analysis

Analysis items	Opportunities	Threats
<p>1. Politics</p> <p>1.1 government</p> <p>1.2 Promoting and supporting from government</p>	<p>- Government policy with a campaign of environmental conservation.</p> <p>- Policies promoting by the Ministry of Natural Resource and Development of be district network with personal network working on environmental and natural resource conservation in district level.</p>	<p>- Environmental publicizing in the area still lacks of continuity.</p>
<p>2. Economics</p> <p>- Financial supporting from outsiders.</p>	<p>- Financial resources supporting environmental working are both from government and private companies. It needs co-operative working including presentation of the plan and project to local agencies viewing working process and its outcome as well.</p>	<p>- Most of provincial Income are from fishery Industry causing of all environmental problems</p>

External Factors Analysis(Continued)

Analysis items	Opportunities	Threats
<p>3. Social</p> <p>3.1 Co-operations in local environment activities</p> <p>3.2 Co-operations from several organizations</p>	<p>- There are many entities working on environment such as :</p> <p>1) Mangrove Forest Research and Development Station 5</p> <p>2) The Khok Kham Natural Conservation Club.</p> <p>3) Provincial office of Natural resource and Environment.</p> <p>4) Center of Marian and Coastal Conservation Station 2</p> <p>5) Samut Sakhon Fishery Association</p> <p>6) Local Administration Organizations.</p> <p>7) NGOs</p> <p>8) Public sectors and so on.</p>	<p>- Lack of environmental coordinators.</p> <p>- Individual working</p>
<p>4. Environment</p>	<p>- From environmental pollution and sewage, the smell of seafood processing, garbage problem and flood in</p>	<p>- Most of people earned their livings on trading and seafood processing. Some of them cause environmental problems</p>

External Factors Analysis(Continued)

Analysis items	Opportunities	Threats
	the Municipality of Samut Sakhon area causing people's awakening in environmental problems.	in the Municipality Samut Sakhon due to lacking of knowledge and understanding on environmental conservation for sustainability.

The result of environmental analysis of the Municipality of Samut Sakhon in both external factors and internal factors:

Internal factors analysis in the Strengths found that the Municipality of Samut Sakhon comprised of agencies working on environment and competent resource person working in environmental area as well as the policy promoting and supporting environmental implementation. In the provincial level has provided strategy of developing environment to be a livable city with the plan, city planning and zoning, setting environment protection and problem solutions measures, developing participative process of people and the private including building strength to people. (Strategy Development of Samut Sakhon Province, 2009: 46). The Municipality of Samut Sakhon including in the fifth strategy focusing on public services of municipality including adjusting landscape and environment with in municipal area, promoting sport field, tourism resources development, raising people's jobs and income, promoting sufficient economy living. The development guidelines of building environmental awareness was also included such as to promote and to support of building environmental awareness, development and participation of looking after environment as well as promoting sufficient economy living. Moreover, budget was also allocated or environmental problem solutions.

Internal factors analysis in the weaknesses found that state agencies commitment on environment focused on mainly environmental problem solutions such as garbage collection, seeking or garbage area of local administration organizations,

the waste water treatment project and flooding problem prevention (Strategy Development of Samut Sakhon Province, 2009: 18). Although the project of environmental problem solutions campaign is listed for local administration organizations playing a co-operative role with the province but still lacks of clarity in details and guideline of problem solutions with the public and private sectors' participations.

External factor analysis in the opportunities found that the situations of global environmental problems and of Thailand as a whole with publicizing through various media increased people's interests in environmental issues, including the campaign of state organizations and private sectors working on environment that made more environmental understanding to people. Furthermore, the policy of promoting and supporting the participation of environmental problem solutions between state organizations and private sectors effected the cooperative working on environment to the private such as making CSR (Co-operate Social Responsibility) is a socially responsible business, that is running business under the ethics and well-governed in parallel with intention and caring of social and environment maintenance leading to sustainable business development. On economic condition found that Samut Sakhon is the largest comprehensive fishery source in the country and a center of large industry and fishery business which is the strengths of the province relating to economical potential (Strategy Development of Samut Sakhon Province, 2009 : 20), On social condition found that private organizations and people interested in environmental issues were merged to be environmental network such as the upper bay of Thailand, the Khok Kham Natural Conservation Club, and others. Moreover, the main awakening of the public in coastal erosions caused the coastal villagers using their wisdoms in making slow-wave-bamboos becoming a model to other areas as well. Thus, it can be said that the public has learned on merging group working on environment. On environmental condition found that environmental factors of Samut Sakhon Province especially in the Municipality of Samut Sakhon, a center of the province faced environmental problems effecting the people awfully. The organization, state agencies and private agencies themselves had policy of problem solutions and local development on environment.

External factor analysis in threats, found that the working policy was in terms of focusing on problem solution of constructing rather than problem solutions on building people's awareness and people's participations in thinking, acting, approving of local environmental problems.

Therefore, environmental condition analysis of the Municipality of Samut Sakhon in both internal factors and external factors using the analysis result as mentioned to evaluate the probability and analyses the weakness and the strengths in creating environmental education network of the Municipality of Samut Sakhon found that the Municipality of Samut Sakhon has the strengths on environmental policy, with knowledgeable and understanding personnel in environmental problems, budget supporting and planning or project of environmental problem solution and environmental effect protection as well as the public experienced of merging group for problem solving. Thus, the strategy leading to successful creating environmental education network are as follows:

1. Using the experiences of personnel of state organizations and private organizations, people representative interested in environment
2. Co-ordination for the collaborations of state organizations and private organizations, agencies and people interested in environment to have opportunities to discuss and exchange idea including capable of coordinating co-operative working.
3. Exchanging local environmental problem with local community as well as discussing in seminar.
4. Setting environmental policy focusing problem solution participation and building environmental awareness.

4.2.2.1.2 Creating relationships

The study found that building relationships and understanding on creating environmental education network is the procedure of building understanding and seeking co-operative guideline in creating environmental education network. The result of SWOT Analysis of the Municipality of Samut Sakhon gained the preliminary data of study area by the key informant of the Municipality of Samut Sakhon such as vice president of the Municipality of Samut Sakhon, Director of Educational Division, Director of Social Welfare Division and Head of the Public Health and Environment section, for understanding and getting familiar as well as

conversing for the presentation of environmental education network concept for school curriculum development regarding local-related content, the announcement of environmental education network objectives and asking for suggestions involving organizations, agencies, state and private organizations including community leaders interested in environmental problems in the local area. Finally, the researcher gained the preliminary data of key informant the study area in creating environmental education network. After that, the researcher went into study area for familiarity and to converse with organizations, agencies, state organizations and private organizations including the community leaders interested in environmental problems in the local area. The personnel mentioned were also persuaded to attend the seminar for opinion brainstorming on environmental education network for school curriculum development regarding local-related content. The personnel attending the seminar for opinion brainstorming on environmental education network for school curriculum development regarding local-related content consist of :

1. Governmental organizations working on environment
 - 1.1 Officers from the Marine and Coastal Conservation Center station 5 (Samut Sakhon)
 - 1.2 Officers from the Mahachai Mangrove Forest and Development Center in Samut Sakhon Province
2. Local sectors in the Municipality of Samut Sakhon
 - 2.1 Officers from the Division of Social Welfare
 - 2.2 Officers from the Division of Public Health and Environment
 - 2.3 Officers from Educational Division
3. The private sector
 - Samut Sakhon Fishery Association
4. The people who work on environment
 - Community leaders in Muang District
5. Religious leaders
 - Representatives from Wat Suwannaram
6. Community leaders of Mahachai Sub - district, Khok krak Sub-district and Tha- Chalom Sub-district

7. The village Public Health Volunteers from Mahachai Sub-district, Krok krak Sub-district and Ta-Chalom Sub-district

8. Volunteers of Natural Resource and Environment Village Board

9. School youth leaders

10. Schools under the Municipality of Samut Sakhon

10.1 Administrator and teachers of Ban Mahachai Municipality School

10.2 Administrator and teachers of Wat Jesadaram Municipality School

10.3 Administrator and teachers of Wat Tuek Mahachayaram Municipality School

10.4 Administrator and teachers of Wat Krok krak Municipality School

10.5 Administrator and teachers of Wat Lam Suwannaram Municipality School

10.6 Administrator and teachers of Wat Chong Lom Municipality School

Therefore, it can be inferred that creating relationships is the initial procedure of formation of environmental education network for school curriculum development regarding local-related content of schools under the Municipality of Samut Sakhon, by making the people concerned and people interested in environmental problems and providing Basic Education coming up together to be environmental education network for school curriculum development regarding local-related content of schools under the Municipality of Samut Sakhon.

4.2.2.2 Creating environmental education network

Creating environmental education network for school curriculum development regarding local-related content in the duration of formation had factors in creating environmental education network as follows : (1) Seeking leaders (2) Making interested people merging groups of environmental education network (3) Setting objectives and goals for co-operative working (4) Selecting

members to administrate a network (5) Planning for working together or exchange learning. The researcher used the seminar to brainstorm ideas to create environmental education network for the development of school curriculum regarding local-related content.

4.2.2.2.1 Brainstorming seminar to create environmental education network for the development of school curriculum regarding local-related content

Brainstorming seminar to create environmental education network for the development of school curriculum regarding local-related content was composed of organizations, state and private organizations, local organizations and NGOs, local people as community leaders, local wisdoms, schools and students for ongoing seminar through research objectives of developing model of environmental education network for school curriculum development regarding local-related content. The researcher divided the seminar into three sections as follows:

Section1:Reflection of local environmental problem issues

Section2 :Exchanging ideas to create environmental education framework of schools.

Section3:Unifying power to continue working towards the common goal of environmental education network

The implementation of the seminar

Section 1 : Reflection of local environmental problem issues

Reflection of local environmental issues by dividing the group discussion into two groups. The first group comprised state organizations, local organizations, the private working on environment, religious leaders and provincial community leaders whereas the second group comprised school administrators, teachers, public health volunteers, district community leaders and environmental youth leaders with the following details :

Group1: State and private organizations, local organizations, the private working on environment, religious leaders and provincial community leader consist of :

1. Officers from the Marine and Coastal Conservation Station 5 (Samut Sakhon)
2. Officers from Mahachai Mangrove Forest and Development Station 2 (Samut Sakhon)
3. Officers from the Division of Social welfare, of the Municipality of Samut Sakhon
4. Officers from Educational Division of the Municipality of Samut Sakhon
5. Officers from Public Health Division of the Municipality of Samut Sakhon
6. Officers from Samut Sakhon Fishery Association
7. Community leaders working on environment in Samut Sakhon
8. Religious leaders (temples)

The discussion issues were as follows:

1. Reflection of ideas on environmental problems that school need to create learning activities for students in schools under the Municipality of Samut Sakhon.
2. How each party links co-operative working for supporting environmental learning activities for students.

The result of the study on reflection of ideas on environmental problems that schools need to create learning activities for students in schools under the Municipality of Samut Sakhon by state and private organizations, local organizations the private working on environment, religious leaders and provincial community leaders has reflected environmental condition problems of the Municipality of Samut Sakhon as well as effected life quality and environment as follows (1) Garbage problem (2) Mangrove forest invasion (The ecosystems were destroyed) (3) Waste water problem

Garbage is the main problem of the Municipality of Samut Sakhon that is not only a responsibility of state organizations in the local area but also the private and people should have knowledge, understanding and be aware of garbage treatment

correctly such as separating garbage, garbage treatment and reducing the use of materials effecting disadvantage to environment. Therefore, knowledge implementation should cover both in school and general public including migrant workers who work in Samut Sakhon Province.

The Mangrove Forests were destroyed effecting the mangrove ecosystems including aquatic lives, birds, other animals and mangrove forests, wetlands were the chuan of effect.

Thus, the provision of learning management for mangrove forests conservation will serve the benefits of ecosystems in this area. To build awareness should be in the responsibilities of all parties involving environment issues including the public's perception and collaborations sinuously

Waste water problem in Tha Chin River has its importance to Samut Sakhon Province not only be a sea route but also consuming resources for agriculture and fishery to riverside villagers. The rivers are polluted effecting life quality of people and the ecological system of mangrove forests as well. To the impact of these problems, schools should provide learning activities for students to percept and be aware of caring and vigilance of their own local environment.

In addition, it was also found that the representatives of the public, agencies, state and private organizations required the schools creating curriculum involving local-related content. It is because students lack of knowledge, understanding of the plants, local animals and lifestyle of local people and others. Local wisdoms and agencies get ready to support knowledge and education for schools.

Thus, from the brainstorming discussion of environmental education network, the study showed that environmental conditions required for schools to provide learning activities for students in the schools under the Municipality of Samut Sakhon are the problems of garbage, mangrove forest invasion (Coastal ecosystems were destroyed) and waste water problem. First of all, learning activities should include building environmental awareness for student's perceptions on local environmental problems and then they should have learned from the real situations in the local area. The schools with the collaborations of all sectors should provide curriculum involving local environment.

The result of linking co-operative working for supporting environmental learning activities in schools.

The result of linking co-operative working for supporting environmental learning of people, state and private organizations, religious leaders and provincial community leaders, all sectors shared collaborations in supporting learning activities of schools. However, it also depends upon roles and duties of organizations as well, such as Marine and Coastal conservation Station 5 (Samut Sakhon Province) and Mangrove Forest Development Stations 2 (Samut Sakhon Province) They are state agencies responsible for doing research and providing knowledge. Therefore, these agencies have readiness in providing knowledge and being trainers for school. In addition, eliciting local potential to provide learning activities for students such as using local wisdoms as trainers in the garbage treatment of a village in the Municipality of Samut Sakhon that can be a learning resource of schools in the community on separating garbage and making villagers have public-minded in transforming garbage into money and utilize it for electricity charge of temples. Furthermore, there are also more resources in the local area which can provide environmental activities for students but schools need to play great roles in association with the community for conversing about work planning among houses, temples, schools, state and private organizations in the local area.

The study found that environmental problems required for school to provide learning activities for students in schools under Municipality of Samut Sakhon are garbage, mangrove forest invasion (Coastal ecosystems were destroyed) and waste water problem. In linking co-operative working for supporting environmental learning of people, state and private organizations, religious leaders and provincial community leaders showed that all sectors paid their interests and viewed the importance of local environmental problems by integrating life-existence to local environment. The curriculum should focus on environmental problems and building self-awareness in the love of local area. However, the implementation of linking co-operative working, schools need to be in association with all sectors regarding potentials and rules of organizations as well, causing being supported and responded in the same direction.

Reflection of local environmental problem issues

Group 2 : Administrators, teachers, public health volunteers, district community leaders and environmental youth leaders consist of :

1. Community leaders from Mahachai Sub-district, Krokkrak Sub-district and Tha Chalom Sub-district
2. Village public health volunteers from Mahachai Sub-district, Krokkrak Sub-district and Tha Chalom Sub-district
3. School youth leaders from Mahachai Sub-district, Krokkrak Sub-district and Tha Chalom Sub-district
4. Administrators and teachers in six schools under the Municipality of Samut Sakhon

The Discussion issues were as follows:

1. Environmental problem issues required for student's learning of each sub-district
2. Brainstorming opinions on how the environmental learning provision guideline of Mahachai Sub-district, Krokkrak Sub-district and Tha Chalom Sub-district on content, activities, learning process and desirable characteristics in local environmental and natural resource conservation as prescribed in school curriculum should be like.

The result of reflection of local environmental problem issues revealed that environmental problems required for students' learning of each sub-district, school administrators, teachers, public health volunteers, sub-district community leaders and environmental youth leaders have reflected environmental problems of the Municipality of Samut Sakhon effecting life quality and environmental problems in two areas as follows: (1) Physical environmental problems such as physical feature of landscape, the earth and water resources (2) Environmental problems from human's actions such as smelly garbage and waste water problem.

Table 4.1 : The Environmental conditions required for students' learning in each sub-district

Sub-districts	Environmental conditions required for students' learning				
	Human actions			Natural environment	
Mahachai	-Household garbage -Fishing boats	-Smell from the factories	-Waste water	-Shallow water resource	-Flood
Krokkarak	-Garbage of the communities	-Smell from the factories	-Waste water	-Tide	-Flood
Tha Chalom	-Garbage on land and in water	-Smell from the factories	-Waste water	-Loss of mangrove areas	-Flood

In conclusion, it was found that environmental problems in the Municipality of Samut Sakhon which school administrators, teachers, public health volunteers, community leaders and environmental youth leaders required for students' learning in schools are divided in two types as follows:

1. Natural environment such as physical features of landscape, the earth and water resources
2. Environment causing by human's actions such as garbage, and waste water including mangrove forest area.

Environment resulting from human's actions in the three sub-districts are the same such as (1) Garbage problem from household, communities and fishing boats occurring from lacking of self awareness of local people as well as garbage treatment of the municipality (2) the smell of industrial fishery activities, mainly in small factories with fishery activities (3) The problems of natural water resources, the rivers and the canals polluted resulting from disposal of waste water from factories and household into the rivers and the canals including garbage from household and fishing boats.

The natural environment of the three districts are the same problems such as flooding. Mahachai Sub-district has a problem of shallow water resources whereas

Krokkarak Sub-district has a problem of tide causing holding water and Tha Chalom Sub-district has a loss of mangrove areas. (coastal ecosystem)

Table 4.2 : The opinions on guideline of environmental problems learning management in sub-district level

Environmental problems	Environmental problems learning management guideline in sub-district level		
	Mahachai	Krokkarak	Tha Chalom
Garbage	-Separating garbage -Proper garbage treatment	-Dispose of garbage in every way and orderly - Knowledge of clean communities needed	-Providing basic knowledge for students, parents and communities
Smell from the factories	-Providing knowledge on pollutions -Using local wisdoms -Creating awareness	- Providing knowledge on pollutions - Making the participation of problem solution - Creating awareness	-Providing knowledge on pollutions - Creating awareness
Waste water	-Building awareness of students, parents and communities -Cresting discipline through the law involved environmental violations	-Building awareness both in schools and at home	-Providing knowledge on disadvantage of sewage - Creating awareness on problems

Table 4.2 : The opinions on guideline of environmental problems learning management in sub-district level (Cont.)

Environmental problems	Environmental problems learning management guideline in sub-district level		
	Mahachai	Krokkarak	Tha Chalom
-Natural environment	-Providing local geographical knowledge, tide system and features of landscape effecting local ecosystems	-Providing local geographical, knowledge, tide system, features of landscape effecting local ecosystems	-Maintenance rehabilitation of mangrove forests -Coastal erosion

From Table 2 shows the opinions of administrator, teachers, community leaders, public health volunteers and youth leaders on guideline of environmental problems learning management as follows:

Garbage problem includes providing knowledge to students, parents and communities on separating garbage, proper garbage treatment and keeping the local communities clean.

Smell problem includes providing knowledge on pollutions, using local wisdoms in problem solutions, creating awareness and making the participation in problem solutions.

Waste water problem includes providing knowledge on disadvantages of waste water, creating awareness in problems, creating awareness to students, parents, communities and creating discipline through the law involved environmental violations.

The problems of natural environment destroying includes local geographical knowledge, tide system and the features of landscape effecting local ecosystems, maintenance and rehabilitation of mangrove forests (coastal ecosystem) and the problem of coastal erosion.

Therefore, it can be concluded that environmental problems that school administrators, teachers, public health volunteers, local leaders and environmental youth leaders required for schools to manage learning activities such as (1) Garbage problem from household, communities and (2) Smell problem from industrial factories doing continuous fishery activities (3) Natural and water resource problem such as polluted rivers and canals and (4) Natural environment destroying such as flooding, tide causing the holding water and a loss of mangrove areas through guideline of environmental education learning management as follows: Creating awareness and consciousness, providing knowledge and understanding of creating discipline, making the participation in problem solutions with the collaborations of all sectors including learning from real experiences and practical practice.

Section 2: Exchanging opinions on guideline of environmental learning management of schools under the Municipality of Samut Sakhon

Exchanging opinions together on guideline of environmental learning management of schools under the Municipality of Samut Sakhon of environmental education network after discussion of brainstorming on environmental problems required for schools to manage learning activities for students under the Municipality of Samut Sakhon and linking co-operative working supporting on environmental knowledge in schools, consist of : Group 1 : includes state and private organizations, the private working on environment, religious leaders and provincial community leaders and Group 2 : includes school administrators, teachers, public health volunteers, district community leaders and environmental youth leaders in order utilize the conclusion to create local learning content framework on environment and guideline of learning management in six schools under the Municipality of Samut Sakhon as follows:

1. Ban Mahachai Municipality School
2. Wat Jesddaram Municipality School
3. Wat Teuk Mahachayaram Municipality School
4. Wat Krokkrak Municipality School
5. Wat Lam Suwannaram Municipality School
6. Wat ChongLom Municipality School

Table 4.3 : The Framework of environmental learning of schools under the Municipality of Samut Sakhon

Framework of environmental learning of schools		Conclusion of framework of environmental education learning management in schools
Group 1 Agencies/Organizations	Group 2 Schools/Local people	
1.Environmental problems which should provide learning activities	1.Environmental problems that should provide learning activities	1.Local environmental problems -garbage
such as - Mangrove forests were destroyed and coastal erosion.	such as 1) Garbage 2) Smell 3) Waste water 4) natural environment -Shallow water resources -flooding	-Waste water -Smell coming from factories -Mangrove forests were destroyed -Coastal erosion -shallow water resources -Flooding
2.Having environmental curriculum directly both primary level and secondary level using local-based	2.Schools should include local-related content on environment in school curriculum.	2. School curriculum should include local-related content on environment both in primary level and secondary level in schools under the Municipality of Samut Sakhon
3.Community's contribution in	3.Providing knowledge for students by local	3.Linking of collaborations from environmental

Table 4.3 : The Framework of environmental learning of schools under the Municipality of Samut Sakhon (Cont.)

Framework of environmental learning of schools		Conclusion of framework of environmental education learning management in schools
Group 1 Agencies/Organizations	Group 2 Schools/Local people	
providing learning activities : temples, houses and schools 4.Schools should make study tours in the local learning resources.	wisdoms or experts 4.Providing knowledge for students through problem analytical thinking skills from things nearby of learners.	education to participate local environmental learning provision 4.Providing learning activities -in accord with local problems and needs -learning by doing -using analytical thinking skills on problems from the things nearby the learners -use local learning resources and local wisdoms -Providing environmental learning need to build up knowledge, skills, process and desirable characteristics
5.Creating guideline of providing learning activities on	5.All sectors need to collaborate in environmental problem	5.Learning activities on Environment

Table 4.3 : The Framework of environmental learning of schools under the Municipality of Samut Sakhon (Cont.)

Framework of environmental learning of schools		Conclusion of framework of environmental education learning management in schools
Group 1 Agencies/Organizations	Group 2 Schools/Local people	
<p>environment together between educational agencies and environmental organizations</p> <p>6.School should provide environmental learning activities for students both in theory and actual practice in the local community focusing on creating awareness</p> <p>7.Environmental knowledge required for parents and guardians also</p> <p>8.Providing the project of extra knowledge for students in</p>	<p>solutions and providing learning process.</p> <p>6.Creating awareness for communities on parallel with students.</p> <p>7.Learning by doing</p> <p>8.Creating various learning activities</p>	<p>-Community should participate activities in building awareness in both children and youth</p> <p>-The public relations campaign to disseminate knowledge to the communities</p> <p>- Creating awareness of environmental problems</p>

Table 4.3 : The Framework of environmental learning of schools under the Municipality of Samut Sakhon (Cont.)

Framework of environmental learning of schools		Conclusion of framework of environmental education learning management in schools
Group 1 Agencies/Organizations	Group 2 Schools/Local people	
<p>collaborations with environmental agencies in the local area.</p> <p>9.Students should realize local environment such as plants, local water animals and local bird etc.</p>	<p>9. Providing learn from real places</p> <p>10.Participate actively and continuously</p> <p>11.Creating the values both in schools and in the communities</p> <p>12.The campaign in the community</p> <p>13.Dissemination of knowledge to the community</p> <p>14.Collaborations of partnerships and networks</p> <p>15.Creating consciousness to become desirable characteristics</p>	

Table 4.3 : The Framework of environmental learning of schools under the Municipality of Samut Sakhon (Cont.)

Framework of environmental learning of schools		Conclusion of framework of environmental education learning management in schools
Group 1 Agencies/Organizations	Group 2 Schools/Local people	
	16. Providing environmental activities needed both knowledge, process, skills and desirable characteristics	

Table 3 represents the framework of environmental leaning management of schools under the Municipality of Samut Sakhon and found that the brainstorming discussion of both groups can be broadly concluded as a framework of environmental learning management of schools as follows: (1) Environmental problem in the local area such as garbage problem, waste water, smell coming from the factories, mangrove forest destroying, coastal erosion, holding water sources and flooding (2) School should include local-related content on environment both in primary level and secondary level in schools under the Municipality of Samut Sakhon (3) Linking of collaborations from environmental education network to participate local environmental learning management (4) Providing learning activities in accord with local problems and needs, as well as providing various learning activities, learning by doing using analytical thinking skills on problem solutions from the things nearby the learners, using local learning resources and local wisdoms including providing environmental learning which need to build up both knowledge, skills and process, desirable characteristics as well (5) Environmental learning activities should be participated by the community in building awareness to children and adults, the public

relation campaign to disseminate knowledge to the community and creating consciousness of environmental problems.

The study revealed on enhancing opinions guideline of environmental learning management of schools under the Municipality of Samut Sakhon that the participants' opinions in the seminar were consistent on environmental problem issues required for school's management on learning activities for students, for example, garbage problem, waste water, mangrove forest destroying, coastal erosion and flooding, except the problem of smell coming from the factories. The participants' discussion in group one were provincial community leaders, state and private and local agencies viewed that local area get familiar with the smell coming from the factories whereas the participants in group 2 were schools, teachers, public health volunteers, sub-district community leaders and environmental youth leader viewed that the smell problem causes environmental pollution effecting health. Furthermore, a guideline of environmental problem learning management found that local-related content on environment required both in primary level and secondary level, the formation of collaborative network and providing environmental learning activities to create awareness to students and people in the community were in consistency.

Section 3 Unifying power to continue working towards the common goal of environmental education network

The brainstorming discussion to create environmental education network for school curriculum development regarding local-related content from state and private organizations, agencies, local organizations, local people, community leaders, school personnel and students with the discussion issues on the collaborations of being environmental education network were as follows:

Merging groups to be environmental education network causes the brainstorming for setting environmental education network objectives as follows : 1) To create awareness and consciousness in environmental conservation for local people 2) To enhance and to support the local people on local environment and natural resource conservation for everlasting balance and sustainability and 3) To collaborate with schools in local environmental learning activity development.

On the benefits of environmental education network, the participants realized the importance of collaborations to be environmental network for local environmental activity performances for students and the public due to environmental agencies' responsibility in providing knowledge, understanding and research on environment. Moreover, village public health volunteers and community leaders also play the roles in contributing state agencies working on local environment and public health. Thus, the formation of network is to link a continuous working on local environment which is a good thing and beneficial to community in collaborative working. Having environmental education network, the schools have gained the most beneficial in terms of knowledge, personnel resources to educate teachers and students on environment. They themselves are ready for collaborations of environmental education network activities.

The implementation of environmental education network in the future, found that the participants were pleased to collaborate with environmental activities. The personnel from state agencies required the co-ordination through government agencies in case of asking for supporting on documents, personnel and budget. For their personal affairs are ready for collaborations in environmental education network activities.

In conclusion of unifying power to continue working towards the common goal of environmental education network found that the participants set the objectives of working together as a network by viewing the benefits of collaborations to be environmental education network and they are ready to collaborate with environmental activities if they are asked for co-ordination to participate in performing activities in environmental education network.

Results from the study, showed that environmental education network for the development of school curriculum regarding local-related content of school under the Municipality of Samut Sakhon has formed from the merging groups of state agencies, private organizations, agencies, environmental organizations, local organizations, local schools, the public which are community leaders, youth leaders, local religious leaders who want to participate in problem solutions and develop local environment through development of transferring features in procedures. This study found only the duration of formation to be a network and co-ordination. The

procedures of network expansion including the existence of environmental education network take a long time to study further

Result from the study on the implementation of driving to be environmental education network on the duration of forming environmental education network consists of following factors:

1. Group merging of interest people are members of environmental education network, twenty-three representatives from all sectors as follows : (1) State organizations working on environment such as Marine and Coastal Conservation Station 5 (Samut Sakhon Province) and Mahachai Mangrove Forest Development Center Station 2 (Samut Sakhon Province) (2) Local agencies in the Municipality of Samut Sakhon such as Division of Social Welfare, Division of Public Health and Development including Educational Division (3) The private such as Samut Sakhon Fishery Association (4) Representatives of the public working on environment such as community leader from Muang District (5) Religious leaders such as Wat Lam Suwannaram (6) Community leaders from Mahachai Sub-district, Krokkrak Sub-district and Tha-Chalom Sub-district (7) Village Public Health volunteers such as Mahachai Sub-district, Krokkrak Sub-district and Tha-Chalom Sub-district (8) Village Natural Resource and Environment volunteers (9) School Youth Leaders and (10) Six schools under the Municipality of Samut Sakhon such as Ban Mahachai Municipality School, Wat Jesadaram Municipality School, Wat Tuek Mahachayaram Municipality School, Wat Krokkrak Municipality School, Wat Lam Suwannaram Municipality School, and Wat Chonglom Municipality School.

2. Setting objectives and goals in collaborative working

The brainstorming of representatives from all sectors showed that the goal of participating activities was the participants of environmental education network desire for the participation of local environmental problem solutions such as garbage problem, smell coming from the factories, waste water problem and a loss of mangrove forest area. From the brainstorming found that the objectives of environmental education network are the followings :

- 2.1 Creating awareness and consciousness in environmental conservation to local people.

2.2 Enhancing and supporting local people to conserve local natural resources and environment for everlasting balance and sustainability.

2.3 Collaborations with schools in local environmental learning development

3. Co-operative performing activities learning exchange

The study found that the brainstorming was an activity that makes personnel who work on environment and local people who pay attention to local environment came together to exchange their ideas and working experiences on environment for example, Marine and Coastal Conservation Station 5 (Samut Sakhon) and Mahachai Mangrove Forest Development Center of Samut Sakhon Province which are agencies working for building up knowledge, understanding and research for creating body knowledge on Mangrove Forests ecosystems, which can be linked learning to schools through learning management between schools and agencies mentioned. Furthermore, the public by the community leaders have experiences on successful environmental problem solutions of the village such as garbage problems, becoming learning resources of garbage disposal by separating garbage, turning to income. In this seminar, schools have gained environmental issues serving local people's needs, to manage learning activities for students. This makes co-operative working on environment as well as opportunity to converse with each other and get more familiar causing the recognition of roles and duties of other agencies relating to co-operative working in the future as well.

The selection of committee for environmental education network management and finding group leaders interested in environment found that the brainstorming discussion was just to spark working on environment by finding environmental education network partnership to achieve the goal of each organization, agency or the public's interest only. To make sturdy feeling and closely united security need to take time and opportunities in meeting, conversing, performing activities or learning exchange more often for more understanding as well as trusting each other. Therefore, the selection of committee, duties arrangement and lay down the working agenda, find group leaders interested in local environmental problems in the next phase should be formed of readiness and intention of personnel merging as environmental education network.

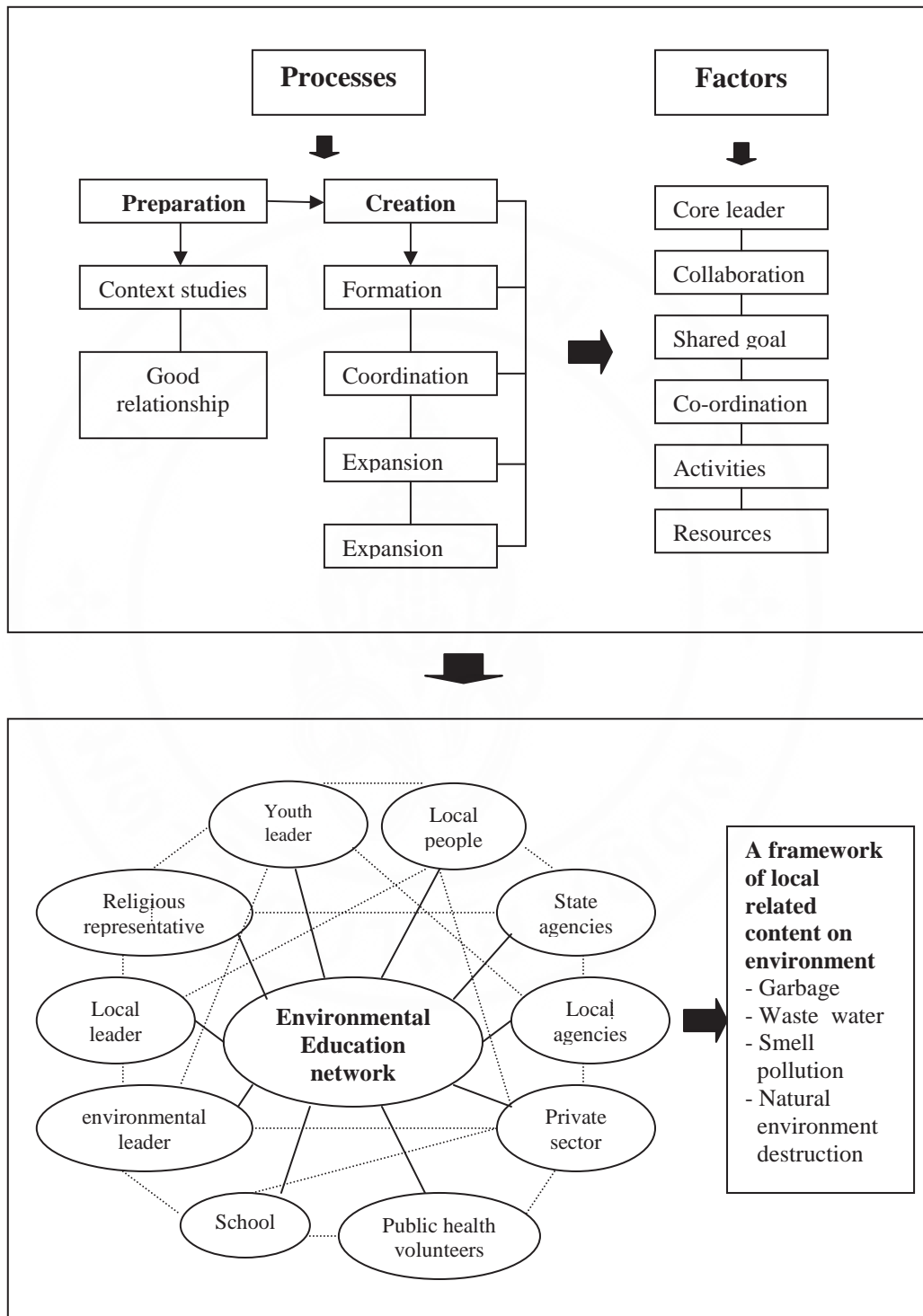


Figure 4.2 : A model of environmental education network for the development of school curriculum regarding local-related content on environment

The diagram showed that an environmental education network for the development school curriculum regarding local-related content consists of state and private organizations, environmental organizations, agencies, local agencies, local schools, the public such as community leader, youth leader, religious leaders with willingly participate the brainstorming discussion and work on education with local people and local youth for problem solution or developing local environment. The development factors of a model of environmental education network includes: having leaders co-ordinating a network, having united members, united goal, co-ordinating between members and outsiders, having unites activities, learning exchange mutually including mobilizing working resources.

4.2.3 The development of school curriculum regarding local-related content on environment of the Municipality of Samut Sakhon

The development of school curriculum regarding local related-content on environment of six schools under the Municipality of Samut Sakhon such as Ban Mahachai School, Wat Jesadaram Municipality School, Wat Tuek MahaChayaram Municipality School, Wat Krokkrak Municipality School, Wat Lam Suwannaram Municipality School and Wat Chonglom Municipality School. The working committee in developing school curriculum regarding local-related content on environment of schools under Samut Sakhon Municipality consists of 1) School administrators, academic teachers, teachers and local wisdoms 2) Supervisors from Educational Division of the Municipality of Samut Sakhon and 3) Researchers, by taking local environment issues from the brainstorming discussion to set the goals of creation school curriculum regarding local-relating content as the following implementation procedures :

1. Providing framework of local-related content on environment
2. Providing local environmental learning units

4.2.3.1 Providing framework of local-related content on environment

Developing framework of local-related content on environment in the collaborations of supervisors from Educational Division of the Municipality of

Samut Sakhon, six school administrators of academic affairs and researchers has the following implementations :

1. An analysis of the Basic Core Curriculum A.D. 2008 on standards, indicators relating to local environment from environmental education network such as environmental problems, garbage, waste water, smell coming from seafood processing, problems of environmental destroying, for example, Mangrove forest invasion and coastal erosion were developed through subject areas with standards and indicators involving environment as identified in the Basic Core Curriculum A.D. 2008 which consist of : (1) Science learning area (2) Social Studies, Religion and Culture learning area (3) Occupations and Technology learning area in grade one to grade six and lower secondary level for setting a framework of local-related content on environment in brief.

2. After that, the framework of local-related content on environment gained from the seminar was utilized in providing content, skills, process, desirable characteristics, learning capabilities and objectives of environmental education appropriate to students' ages in each level and consistent to learning standards and environmental indicators as follows:

- Grade 1: Classroom environment and school area
- Grade 2: Environment in school area and around the school
- Grade 3: Environment around the school area and the community nearby
- Grade 4: Environment in the community near the school and in the village community
- Grade 5: Environment in the village community and the district
- Grade 6: Environment in the district community and in provincial level
- Grade7 : Environment in the provincial level and country level
- Grade 8: Environment in the provincial level and country level
- Grade 9: Environment in the provincial level and country level

3. The framework of local-related content on environment of schools under the Municipality of Samut Sakhon was checked by education specialist

on environment and school curriculum, whereas the consistency of learning standards, indicators, content, skills and process, desirable characteristics, learning capabilities and objectives of environmental education were checked by the local educationists. The researcher made corrections for the final checking by specialists, before the workshop seminar of school curriculum development regarding local-related content on environment

The study result showed that the development of school curriculum regarding local-related content of school administrators, academic teachers, teachers, supervisors of Educational Division of the Municipality of Samut Sakhon and researchers by the analysis of learning standards and indicators according to the Basic Core Curriculum A.D. 2008 on constructing body knowledge, skills, process and promoting environmental desirable characteristics, consists of learning areas as follows : Science learning area, Social Studies, Religion and Culture learning areas including Occupations and Technology learning areas and local context used to set local content framework of the Municipality of Samut Sakhon by integration of local context to learning standards including indicators and content as follows:

Integration of local-related content on environment into indicators

Integration of local-related content in Social Studies, Religion and Culture learning area for primary education Grade 1-3

Grade 1	Grade 2	Grade 3
-Using united resources in classroom and in school properly and sparingly. -Landscape features and climate effecting local people's living -Observe the local Environment	-Local resources used for production -Unaware of using local resources effecting environment -Earning living in the local area involving physical environment.	-Fundamental economical problems in the local area. The problem of using resources wastefully and making pollutions. -Environmental dependence in coming living in the local area

Integration of local-related content in Social Studies, Religion and Culture learning Area for primary education Grade 1-3 (Continued)

Grade 1	Grade 2	Grade 3
-Self adaptation to school environment	-Natural resources in the local area such as mangrove forests, sea animals, plants, good use of local resources. -Seasons and local occupations -Local environmental changes. -Maintaining and restoring local environment such as mangrove forests, rivers and canals.	such as fishery, fishery industry and seafood processing -Pollutions from garbage, waste water and smell problem. -The characteristics of the community. -Water deterioration -Loss of mangrove forest area.

Integration of local-related content in Social Studies, Religion and Culture learning area for primary education Grade 4-6 level

Grade 4	Grade 5	Grade 6
-The application of Sufficient Economy Philosophy in the classroom. -Local physical environment effecting fishery and occupations involving fishery -Environment changes in	-The application of sufficient economy philosophy in school and in the community -Seafood processing production -Settlement of people in the local community resulting from local	-Make a good use of water and sewage problem solutions from washing seafood production. -Local wisdoms on fishery and coastal erosion prevention -Mangrove forests and coastal fishery

Integration of local-related content in Social Studies, Religion and Culture learning area for primary education Grade 4-6 level (Continued)

Grade 4	Grade 5	Grade 6
the local community and results of changes.	physical features of environment. -Ways of life and culture of people in the local community influencing from local physical features of environment -Using local wisdoms in environmental conservation -Results of Mangrove forest conservation and using local wisdoms on wave protection line along the coastal of Mahachai Bay	-Tide and flood in Samut Sakhon Province -Shrimp farms, salted farms, houses and shops invading water ways and the coastal -Plan of Green areas in school project -Project of Clean Canals and Clear Water.

Integration of local-related content in Social Studies, Religion and Culture learning Area for secondary education Grade 7-9 level

Grade 7	Grade 8	Grade 9
-Advantages and disadvantages of value and consuming behavior of students in schools and communities.	-Methods of seafood processing -Problems of seafood processing -Local wisdoms used in seafood processing	-Survey of garbage problems, sewage water, smell problems, forest invasion and public area invasion -Analyze the cause of

Integration of local-related content in Social Studies, Religion and Culture learning Area for secondary education Grade 7-9 level (Continued)

Grade 7	Grade 8	Grade 9
<p>-The effects of fishery expansion and industries involving fishery effecting forest invasion and illegal of fishing law including environmental problems.</p> <p>-Survey state agencies and private agencies, NGOs, working on environment in Samut Sakhon Province</p> <p>-Environmental collaborations of organizations, agencies in the province.</p> <p>-Survey and explain economical activity location in the Municipality of Samut Sakhon and Samut Sakhon Province</p> <p>-Analysis of physical and social factors effecting the growth of Samut Sakhon Province</p>	<p>seafood processing</p> <p>-Analysis the effect to economics society and environment</p> <p>-Survey and analyze problems of seafood processing</p> <p>-Application of sufficient economy philosophy for production</p> <p>-Analyze the cause of environmental problems in Samut Sakhon Municipality and Samut Sakhon Province</p> <p>-Guideline of natural resources and environment conservation in Samut Sakhon Municipality and Samut Sakhon Province</p> <p>-Environmental problems in the Municipality and Samut Sakhon Province</p> <p>-The effect of environmental changes in the Municipality and Samut Sakhon Province</p>	<p>-Analyze the cause of environmental problems in the province and other provinces with similar environment</p> <p>-Guideline of natural resources and environment conservation in the provinces with similar environment.</p> <p>-Environmental problems in the province and other provinces with similar environment</p> <p>-The effect from environmental changes in the province and other provinces with similar environment</p> <p>-Landscape features of the local area relating to the local environment.</p> <p>-Natural resources in the local area and in the province</p> <p>-The deterioration of mangrove forest resources</p>

Integration of local-related content in Science learning area for primary education Grade 1-3 level

Grade 1	Grade 2	Grade 3
-	-	-Coastal animal resource reduction -Conservation, restoration and awareness in sustainable use of mangrove resource of Mahachai Bay

Integration of local-related content in Science learning area for primary education Grade 4-6 level

Grade 4	Grade 5	Grade 6
-	-	-Mangrove forests on eastern Mahachai Bay are Plants and coastal animals' habitats -Food chain of mangrove ecosystem of Mahachai Bay. -Living things' habitats in Mangrove forests of Mahachai Bay -Local natural resources -Human resources of each Sub-district in the Municipality of Samut Sakhon

Integration of local-related content in Science learning area for primary education Grade 4-6 level (Continued)

Grade 4	Grade 5	Grade 6
-	-	<ul style="list-style-type: none"> -Natural disasters and human’s actions in the local area -The growing plants around the school area and empty area in the community -Providing a mangrove reforestation project for maintaining local environment -Mangrove ecosystems of Mahachai Bay and mangrove forests on Samut Sakhon Province. -Local environmental problems resulting from human’s actions such as garbage, waste water, smell problems, and mangrove forest destroying. -Environmental problems from natural actions, flooding problem and coastal erosion -The coastal and offshore fisheries

Integration of local-related content in Science learning area for primary education Grade 4-6 level (Continued)

Grade 4	Grade 5	Grade 6
		-Separating garbage -Learning resources or local wisdoms using natural resources according to sufficient economy philosophy -Pollutions

Integration of local-related content in Science learning area for primary education Grade 7-9 level

Grade 7	Grade 8	Grade 9
-	-	- Mangrove forest ecosystems in Mahachai bay and mangrove forest in Samut Sakhon Province

Integration of local-related content in Occupation and Technology learning area for primary education Grade 1-3 level

Grade 1	Grade 2	Grade 3
-	-Using water in cleaning seafood	-Using water in cleaning seafood and seafood processing

Integration of local-related content in Occupation and Technology learning area for primary education Grade 4-6 level

Grade 4	Grade 5	Grade 6
-Make good use of water in cleaning	-Make good use of water and know how to eradicate sewage water	-Make good use of water and sea animal resources

Integration of local-related content in Occupation and Technology learning area for secondary education Grade 7-9 level

Grade 7	Grade 8	Grade 9
-	-Make good use of water and sea animal resources.	-Make good use of energy and sea animal resources.

Furthermore, quality of learners on environment was also provided according to environmental education objectives of United Nations Organization consistently to learning standards of the Basic Core Curriculum A.D.2008, as follows :

- Be aware of environmental problems.
- Knowledge and understanding of environmental problems.
- Have skills and process in environmental problem solutions.
- The processes involved in environmental problem solutions.
- Have positive attitude to environmental conservation.
- Be able to assess the effects on environmental issues.

4.2.3.2 Creation learning units on local environment

Creation learning units on local environment was done by workshop seminar of whom involved in creating school curriculum regarding local-related content of six schools under the Municipality of Samut Sakhom. The workshop seminar participants in development of school curriculum regarding local-related content on environment consist of school administrators, academic teachers, teachers and supervisors from Educational Division of the Municipality of Samut Sakhom.

Due to school play the great role in collecting learning content from the Basic Core Curriculum A.D. 2008, local curriculum framework and school considering additional education in the uniqueness of the community and local

learners who need to be developed specially, are composed in providing the mass experiences for learners in terms of learning management in eight learning areas including learner development activity with learner quality identified in the Basic Core Curriculum A.D. 2008, goal and focus according to local curriculum framework and consistently to school needs. Therefore, development of school curriculum regarding local-related content has prescribed implementation guideline as follows:

1. Analysis of local curriculum framework from the local educational agencies prescribed.

2. Study and analysis of information technology in schools and communities, data from the brainstorming discussion on environmental education network for data used in providing local-related content of schools more completely.

3. Local-related content management of schools by co-operative consideration of prescribing local body knowledge appropriately and consistently to the context and school focus including community conditions as well as environmental problems and needs of local environment from environmental education network was prepared to be local-related content according to school curriculum structure which consists of core courses, additional courses, learner development activity and unit learning design.

4. Analysis of school curriculum for its focus or school important issues and guideline of providing local-related content should be in what learning area, what grade level, in core courses or additional courses and how much content it should contain according to school curriculum requirement.

5. Unit learning design on local environment of the six schools is to analyze local-related content framework and the Basic Education Core Curriculum A.D. 2008 according to learning standards, indicators constructing body knowledge, skills and process and environmental desirable characteristic promotion are comprised of learning areas as follows : Science learning area, Social Studies, Religion and Culture learning area and Occupations and Technology learning area with environmental focus from environmental education network in the Municipality Samut Sakhon which they are :

1. Garbage
2. Waste water

3. Small from seafood processing

4. Natural resources and environment were destroyed

Learning units on local environment have developed for learning management utilization to students in primary level and secondary level

The study found that, creating school curriculum regarding local-related content on environment of the six school under the Municipality of Samut Sakhon has developed local learning content framework and learning units on local environment from the brainstorming discussion school administrators, academic teachers, teachers, supervisors of Educational Division under the Municipality of Samut Sakhon and researchers. The focus and needs from the brainstorming discussion of environmental education network was brought up into the following local environmental problem issues, 1) Garbage 2) Waste water 3) Smell from seafood processing 4) Natural resources and environment were destroyed such as mangrove forest destroying and coastal erosion were developed into local learning content and learning units on local environment in order to utilize in learning management for students in Grade 1 to Grade 6 and Grade 7 to Grade 9 with learning units on environment as follows :

Grade 1 : Learning unit of “ conserve Environment Around Us ”, consists of three learning lesson plans as follows: 1) Our school looks likeable 2) Environmental changes 3) Garbage in our hands and 4) Where do the smell come from ?

Grade 2 : Learning unit of “ Love school, love to conserve environment ” consists of five learning lesson plans, as follows: 1) Natural and cultural environment 2) Sparingly use the local resources 3) Local seasons and living 4) Schools and community environment maintenance and restoration and 5) Environmental problems of community, garbage and smell.

Grade 3 : Learning unit of “Love Community and Conserve Environment ”, consists of five learning lesson plans, as follows: 1) Local community and transitions of past to present 2) Utilization of local natural resource 3) Mangrove forests and coastal erosion of Mahachai Bay 4) Trails of garbage in the community and 5) Undesirable water and smell.

Grade 4 : Learning unit of “ Love local-Love to conserve environment ”, consists of five learning lesson plans, as follows : 1) Physical environment and living as well as the results of environmental changes 2) Mangrove forest conservation 3) Trails of garbage in the community 4) Due to the smell and 5) Water detective.

Grade 5 : Learning unit of “ Life and Local environment ”, consists of five learning lesson plans, as follows : 1) Settlement and Migration 2) Environmental conservation according to sufficient economy philosophy 3) Trails of garbage in the community 4) Garbage increase money and 5) Environmental pollutions “ Due to the smell “ and ” water detective ”.

Grade 6 : Learning unit of “ Local environment ” consists of five learning lesson plans, as follows: 1) The mangrove ecosystems 2) Food chain-food web of mangrove ecosystems 3) Workshop study at Mangrove forests of Mahachai Bay, The Mangrove forest Learning Center of Mahachai Bay in Samut Sakhon Province 4) Local natural resources and 5) Project of growing mangrove forests for local environmental conservation.

-Learning unit of “ Disasters threatening Samut Sakhon”, consists of five learning lesson plans as follows : 1) Population increase to the use of local natural resources 2) Environmental changes 3) Environmental pollution problems in the community 4) A plan of using community resources and 5) garbage increase money.

Grade 7 : Learning unit of “ Sufficient economy ”consists of three learning lesson plans, as follows: 1) Meaning of economics 2) Values and consuming behavior of Thai people and 3) Sufficient economy and Thai society.

-Learning unit of “ Human and Environment ” consists of four learning lesson plans, as follows 1) Environmental changes 2) International co-operations and Natural environmental problem solutions 3) Economic center and 4) The in fluency of environment effecting human’s behavior.

Grade 8 :Learning unit of “ Natural resources and Local environment based on Sufficient Economy Philosophy ” consists of two learning lesson plans, as follows : 1) Factors affecting producing goods and services and 2) Guideline of production development in the local area based on Sufficient Economy Philosophy.

-Learning unit of “ Human and Environment ”, consists of four learning lesson plans, as follows :1) The Formation of New environment 2) Guideline of natural and environmental conservation 3) Environmental problems and 4) The result to the country of Thailand.

Grade 9 :Learning unit of “ Local environment ”, consists of four learning lesson plans, as follows: 1) Mangrove ecosystems of Mahachai Bay 2) Food chain and food web of mangrove ecosystems of Mahachai Bay 3) Water cycle and carbon cycle and 4) Population changes in mangrove forests of Mahachai Bay.

-Learning unit of “ Local environment problems ”, consists of four learning lesson plans, as follows : 1) Local Environmental Problems 2) Guideline of local environmental problem solutions 3) Participation in the maintenance and 4) Using sufficient economy concept in conservation.

-Learning unit of “ Local development based on Sufficient Economy Philosophy ” consists of three learning lesson plans, as follows : 1) The mechanism of economical system 2) Local development and 3) Sufficient economy concept and co-operative system.

-Learning unit of “Natural resources and environmental conservation for sustainable development ”, consists of four learning lesson plans, as follows:1) Environmental problem occurrence 2) Natural resources and environmental conservation 3) Environmental problem issues and 4) The effect of environmental problems.

The study has shown that development of school curriculum regarding local-related content on environment of the six schools under the Municipality of Samut Sakhon has risen from the co-operations of state organizations, private organizations, local agencies, the public and schools. The group merging to become environmental education network for school curriculum development regarding local-related content in the brainstorming discussion of environmental education network raised local environmental problem issues required for schools to manage learning activities for students on knowledge, skills and process including desirable characteristics on environment as the followings : 1) Garbage problems 2) Waste water 3) Smell problems and 4) Natural resources and Environment destroying such

as mangrove forests were destroyed in Mahachai Bay and coastal erosion. And then, schools in responsible of education provision brought up local environmental problem issues to provide local-related content on environment and learning units on local environment for Grade one to Grade six and Grade seven to Grade nine students

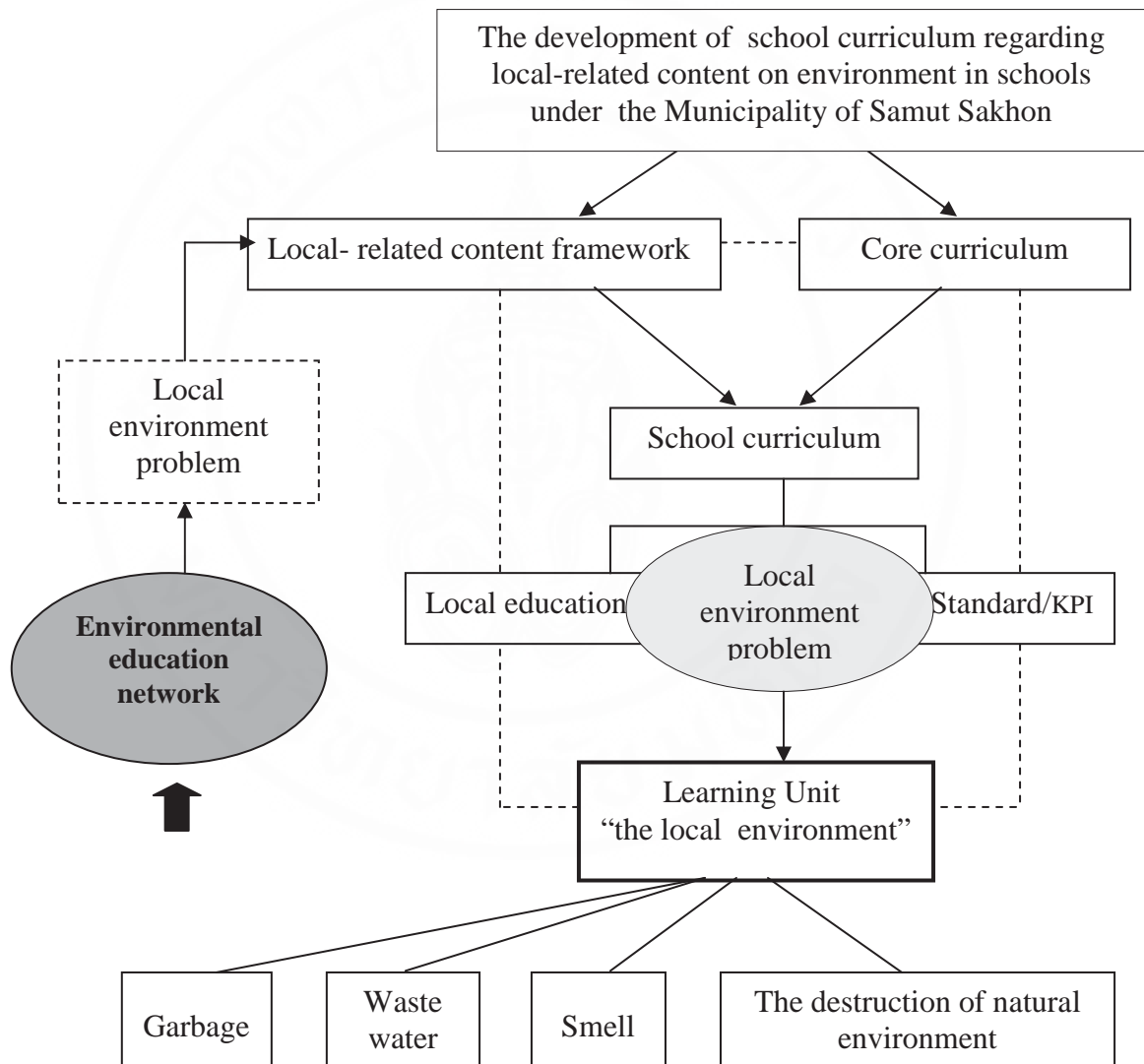


Figure 4.3 : The relationship of environmental education network for the development of school curriculum regarding local-related content

Form the diagram above, shows the relationship of environmental education network for the development of school curriculum regarding local-related content started from the brainstorming on environmental problems and guideline of learning management of schools from the individual, groups, organizations, agencies,

the state, the private and schools merging to be environmental education network, The environmental problem issues occurring in the local area has led to school curriculum development regarding local-related content by setting learning content framework and analyzing according to standards and indicators identified on environment in the Basic Education Core Curriculum A.D. 2008 and designing learning units on “ Local Environment ”

4.2.4 Evaluation of learning unit “Local Environment” to provide learning activities for students

From the collaborations of designing learning units on local environment of school administrators, academic teachers and Educational Supervisors of Division under the Municipality of Samut Sakhon and researchers have developed learning units on local environment in primary level (Grade 1 to Grade 6) and secondary level (Grade 7 to Grade 9) including rechecking and giving recommendations by the Basic Education Core Curriculum specialists and local environmentalists for appropriate learning management to students. Then, teachers in the six schools under the Municipality of Samut Sakhon evaluated the learning units for suitable utilization.

Evaluating suitability of learning units on local environment developed according to the Basic Education Core Curriculum framework to guide the development of leaning units on local environment in complete edition, consists of two parts : personnel information’s in schools under the Municipality of Samut Sakhon and opinions of teachers teaching environmental education involving designing learning units of “Local Environment”.

Part 1 : Informations of school under the Municipality of Samut Sakhon

Personnel and student information of the six schools under the Municipality of Samut Sakhon are as follows : (1) Ban Mahachai Municipality School provides education from kindergarten level to upper secondary level with two personnel administrators, 57 teachers and 1,350 students. (2) Wat Krokkrak Municipality School provides education from kindergarten level to lower secondary level with two personnel administrators, 16 teachers and 396 students. (3) Wat Jesadaram Municipality School provides education from kindergarten level to lower

secondary level with two personnel administrators, 38 teachers and 886 students (4) Wat Chonglom Municipality School provides education from kindergarten level to lower secondary level with two personnel administrators, 12 teachers and 297 students (5) Wat Laem Suwannaram Municipality School with two personnel administrators, 44 teachers and 1,035 students 6) Wat Tuek MahaChayaram Municipality School with two administrators, 56 teachers and 1,368 students.

Table 4.4 : The number of school personnel participating a workshop of development of school curriculum regarding local-related content

Municipality Schools	Numbers of teachers and school administrators in schools under the Municipality of Samut Sakhon											total
	Directors	G.1	G.2	G.3	G.4	G.5	G.6	G.7	G.8	G.9	others	
	Ban MahaChai	4	3	3	5	3	3	7	6	6	6	
Wat Krok Krak	2	2	2	2	2	2	2	2	2	3	2	23
Wat Jesadaram	2	4	2	2	2	2	2	4	3	2	8	33
Wat Chonglom	2	2	2	2	1	2	2	2	2	2	7	26
Wat Laem Suwannaram	-	-	-	-	-	-	-	-	-	-	8	8
Wat Tuek	4	5	5	6	5	5	5	5	5	5	8	58
Total	14	16	14	16	14	14	18	19	18	18	39	200

The table 4 shows the number of school personnel who answered the questionnaires on the suitability of learning unit of “ Local Environment ”, found that 200 participants attended the workshop on school curriculum development regarding local-related content on environment. They were 14 school directors from 5 schools and 186 teachers from six schools dividing into 16 of Grade one teachers, 14 of Grade two teachers, 16 of Grade three teachers, 14 of Grade four teachers, 14 of Grade five teachers, 18 of Grade six teachers and 19 of Grade seven teachers, 18 of Grade eight teachers, 18 of Grade nine teachers and other personnel such as kindergarten teachers, teachers in learning areas and 39 school committee.

Interviewing school administrators in selecting teachers to participate the workshop of school curriculum development regarding local-related content on

environment found that school administrators viewed the importance on teachers teaching in Social Studies, Religion and Culture learning area, Science learning area and Occupations and technology learning area, consecutively. For the workshop, all teachers in five schools were attended. Only one school used specific selection of teachers teaching in learning area involving environment attending the workshop

Part 2 : The opinions of environmental teachers involving learning unit design of “ Local Environment ”

The opinions of environmental teachers on the issue of suitability of learning unit developed from the co-ordination of the six school academic affairs, supervisors of Educational Division and researchers before learning management utilization with the issues evaluated the suitability of learning unit, were fifteen items as follows : (1) The name of learning unit is clear, comprehensive and interesting (2) Appropriate linking of learning standards and indicators (3) The suitability of content, learning standards and indicators (4) Coverage of concept, learning standards and all indicators of learning units (5) Appropriate time allotment (6) Completeness of content and indicators (7) The completeness of learning process and indicators (8) The completeness of characteristics and indicators (9) The appropriateness of learning outcome and learning units objectives (10) Learning activities can result students' knowledge, skills and process and desirable characteristics in accordance with indicators of learning units and focus on important competencies of the Basic Education Core Curriculum A.D. 2008 (11) The appropriateness of media, materials and learning resources (12) The appropriateness of learning evaluation method (13) The appropriateness of measurement and evaluation tools of learning outcomes (14) The appropriateness of measurement and evaluation criterion of learning outcomes (15) Learning units can be actually applied to learning management for students. Data was given by 128 teachers, they were 85 teachers from Grade one to Grade six and 43 teachers from Grade seven to Grade nine from six school under the Municipality of Samut Sakhon such as Ban Mahachai Municipality School, Wat Laem Suwannaram Municipality School, Wat Krokkrak Municipality School, Wat Jesadaram Municipality School and Wat Chonglom Municipality School.

Table 4.5 Results of evaluation of learning unit “Local environment” Grade 1 to 6 of teachers in schools under the Municipality of Samut Sakhon

Evaluation items of learning unit design	Level of education												Total	
	G.1		G.2		G.3		G.4		G.5		G.6		\bar{X}	S.D
	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D		
1.The name of learning unit is clear, comprehensive and interesting	3.54	0.52	3.67	0.49	3.41	0.51	3.55	0.52	3.41	0.51	3.63	0.50	3.53	0.50
2.Appropriate linking of learning standards and indicators.	3.54	0.52	3.67	0.49	3.41	0.51	3.82	0.40	3.41	0.51	3.43	0.81	3.54	0.54
3.The suitability of content, learning standards and indicators	3.45	0.52	3.67	0.49	3.52	0.51	3.72	0.47	3.47	0.51	3.50	0.52	3.55	0.50
4.The content, learning standards and indicators in learning units are comprehensive	3.55	0.52	3.58	0.51	3.52	0.51	3.72	0.47	3.71	0.47	3.44	0.51	3.58	0.49
5.Appropriate time allotment	3.45	0.52	3.33	0.49	3.29	0.59	3.64	0.67	3.29	0.59	3.06	0.68	3.33	0.59
6.Completeness of content and indicators.	3.55	0.52	3.33	0.49	3.29	0.47	3.72	0.47	3.65	0.49	3.56	0.51	3.50	0.52
7.Completeness of learning process and indicators.	3.73	0.47	3.58	0.51	3.41	0.51	3.82	0.60	3.59	0.62	3.44	0.63	3.59	0.55

Table 4.5 Results of evaluation of learning unit “ Local environment ” Grade 1 to 6 of teachers in schools under of the Municipality of Samut Sakhon (Cont.)

Evaluation Items of learning unit design	Level of education												Total	
	G.1		G.2		G.3		G.4		G.5		G.6		Total	S.D
	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D		
8. Completeness of characteristics and indicators	3.73	0.47	3.67	0.47	3.70	0.47	3.91	0.30	3.53	0.62	3.44	0.63	3.66	0.49
9. The appropriateness of learning outcome and learning unit objectives	3.55	0.52	3.42	0.51	3.41	0.51	3.82	0.40	3.59	0.51	3.50	0.52	3.56	0.49
10. Learning activities can result students' knowledge, skills, process and desirable characteristics in accordance with indicators of learning units and focus on important competencies of the Basic Education Core Curriculum 2008	3.64	0.50	3.50	0.52	3.59	0.51	3.36	0.50	3.65	0.49	3.63	0.81	3.56	0.55
11. The appropriateness of materials and learning resources	3.36	0.50	3.33	0.49	3.41	0.51	3.36	0.67	3.41	0.62	3.31	0.70	3.36	0.58
12. The appropriateness of learning evaluation method.	3.27	0.46	3.58	0.51	3.47	0.51	3.82	0.40	3.47	0.51	3.63	0.50	3.54	0.48

Table 4.5 Results of evaluation of learning unit “ Local environment ” Grade 1 to 6 of teachers in schools under of the Municipality of Samut Sakhon (Cont.)

Evaluation Items of learning unit design	Level of education												Total	
	G.1		G.2		G.3		G.4		G.5		G.6		S.D	S.D
	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D		
13.The appropriateness of measurement and evaluation tools of learning outcomes	3.55	0.52	3.50	0.52	3.41	0.51	3.73	0.47	3.47	0.51	3.63	0.50	3.54	0.51
14.The appropriateness of measurement and evaluation criterion of learning outcome	3.64	0.50	3.58	0.51	3.29	0.59	3.64	0.50	4.71	0.47	3.63	0.50	3.66	0.51
15.Learning units can be actually applied to learning management for students.	3.55	0.52	3.58	0.51	3.64	0.59	3.81	0.60	3.41	0.51	3.50	0.52	3.58	0.54
Total average	3.54	0.50	3.53	0.50	3.45	0.52	3.69	0.49	3.51	0.52	3.48	0.58	3.53	0.52

From table showed the evaluation of Learning unit of “ Local Environment ” from Grade one to Grade six, teachers in schools the Municipality of Samut Sakhon found that the overall evaluation of the learning unit appropriateness is at excellent level with the average of 3.53 when considering in each class found that the total average of Grade 1,2,4 and Grade 5 is at excellent level with the total average of each class at 3.54,3.53,3.69 and 3.51 consecutively. For each evaluation item found that the average of only two items is at good level the fifth item The appropriateness of time allotment with the average of 3.33 and the eleventh item “ The appropriateness of media, materials and learning resources ” with the average of 3.36 The total average of every evaluation item is at excellent level

The analysis of evaluation item with the minimum average is the appropriateness of time allotment in learning management for students. The teachers interviewed, indicated that there was little time in learning unit of “Local Environment” in which some of learning units need much time for field trips to learning resources. Learning management the serves the learning units might take more time for learner development activity or integrating to other subject areas which each grade level teachers have to plan together on learning lesson plans.

For the appropriateness of media, materials and learning resources found that, it was the item evaluated in the second level above the minimum From the teachers interviewed, revealed that in learning unit design on “ Local Environment ”, the utilization and the use of media, materials and learning resources were not in details due to the lack of environmental teaching experience as well as the enhancement of body knowledge, skills, process of environmental development.

Table 4.6 Results of evaluation of learning unit “ Local environment, ” Grade 7 to 9 of teachers in schools under the Municipality of Samut Sakhon

Evaluation Items of learning unit design	Level of education								Total	
	G.7		G.8		G.9		\bar{X}	S.D	\bar{X}	S.D
	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D				
1.The name of learning unit is clear, comprehensive and interesting	3.69	0.48	3.50	0.52	3.38	0.51	3.52	0.50	3.52	0.50
2.Appropriate linking of learning standards and indicators.	3.63	0.50	3.43	0.51	3.54	0.52	3.53	0.51	3.53	0.51
3.The suitability of content, learning standards and indicators	3.63	0.50	3.57	0.51	3.46	0.52	3.55	0.51	3.55	0.51
4.The content, learning standards and indicators in learning units are comprehensive	3.44	0.63	3.13	0.66	3.23	0.44	3.27	0.57	3.27	0.57
5.Appropriate time allotment.	3.25	0.45	3.21	0.43	3.38	0.51	3.28	0.46	3.28	0.46
6.Completeness of content and indicators.	3.31	0.48	3.42	0.65	3.54	0.52	3.42	0.55	3.42	0.55
7.The completeness of learning process and indicators.	3.38	0.50	3.50	0.52	3.54	0.52	3.47	0.51	3.47	0.51
8.The completeness of characteristics and indicators	3.56	0.51	3.57	0.51	3.31	0.48	3.48	0.50	3.48	0.50
9.The appropriateness of learning outcome and learning unit objectives	3.56	0.51	3.42	0.65	3.31	0.48	3.43	0.54	3.43	0.54
10.Learning activities can result students' knowledge, skills and process and desirable characteristics in accordance with indicators of learning units and focus on important competencies of the Basic Education Core Curriculum 2008	3.19	0.40	3.56	0.51	3.54	0.52	3.38	0.52	3.38	0.52

Table 4.6 Results of evaluation of learning unit “ Local environment, ” Grade 7 to 9 of teachers in schools under the Municipality of Samut Sakhon (Cont.)

Evaluation Items of learning unit design	Level of education						Total	
	G.7		G.8		G.9		\bar{X}	S.D
	\bar{X}	S.D	\bar{X}	S.D	\bar{X}	S.D		
11.The appropriateness of materials and learning resources	3.31	0.48	3.62	0.51	3.62	0.51	3.45	0.50
12.The appropriateness of learning evaluation method.	3.38	0.50	3.46	0.52	3.46	0.52	3.39	0.58
13.The appropriateness of measurement and evaluation tools of learning outcomes	3.38	0.50	3.46	0.52	3.46	0.52	3.37	0.54
14.The appropriateness of measurement and evaluation criterion of learning outcome	3.50	0.52	3.69	0.48	3.69	0.48	3.51	0.54
15.Learning units can be actually applied to learning management for students.	3.63	0.50	3.62	0.51	3.62	0.51	3.60	0.50
Total average	3.45	0.49	3.41	0.57	3.47	0.50	3.44	0.52

From table 6 represents learning unit evaluation on “ Local Environment ” in Grade 7 to Grade 9 of teachers in schools under the Municipality of Samut Sakhon, showed that the overall evaluation of the learning unit appropriateness is at good level with the total average of 3.44

When considering in each class revealed that the result of class evaluation is at good level with the average of 3.45, 3.41, and 3.47 consecutively For the item evaluation showed that the total average of six items is at very good level, in the first item of “ The name of the learning unit is clear, comprehensive and interesting with the average of 3.52, the second item of ” Appropriate linking of learning standards and indicators with the average of 3.53, the third item of “ The suitability of content, learning standard and indicators ” with the average of 3.55, the thirteenth item of “ The appropriateness of measurement and evaluation tools of learning outcomes ” with the average of 3.69 and the fourteenth item of “The appropriateness of measurement and evaluation criterion of learning outcome ” with the average of 3.44 . In addition, all the items were at good level.

The analysis of item evaluation at the lowest average is the fourth item of “ The content, learning standard and all indicators in Learning units are comprehensive ” and the fifth item of “ The appropriateness of time allotment ” Due to data interviewed of teachers found that there was also a time limit on the consistency of consistency of content and time allotment, because the indicators involving environment in each learning standard and indicator in three learning areas : Science learning area, Social Studies, Religion and Culture learning area and Occupations and Technology learning area have broad learning scope causing the limitations of relating knowledge to local area in terms of time and consistency of content.

In conclusion of the study, found that the analysis of opinions’ result in evaluation of learning unit design on “ Local Environment ” of Grade 1 to Grade 6 teachers in overall items are at very good level whereas Grade 7 to Grade 9 teachers are at good level. When analyzing each of fifteen items revealed that no item needs to be improved. Most of them are at very good level and good level consecutively.

4.3 Self-assessment of schools for the development of school curriculum regarding local-related content on environment

Self-assessment of schools in utilizing environmental education network for the development of school curriculum regarding local-related content in order to manage learning activities for students, the researcher needs to study result of self-assessment of schools in utilizing environmental education network for the development of school curriculum regarding local-related content in managing learning activities for students through checking of the components of school curriculum regarding local-related content on environment, group discussion of school administrators, academic teachers and teachers in the six schools under the Municipality of Samut Sakhon with the following analysis procedures:

1. Self-assessment of schools in creating school curriculum regarding local-related content on environment
2. Self-assessment of each school in utilizing school curriculum regarding local-related content on environment

4.3.1 The self-assessment of schools in using the school curriculum regarding local-related content to manage learning for students

From development of school curriculum regarding local-related content, the researcher has created the form of self-assessment for schools through the modification of the Basic Education Core Curriculum A.D. 2008 checking guideline of The Office of Basic Education Commission, Ministry of Education in order to be consistent with development of school regarding local-related content on environment, school administrators and academic teachers from the six schools under the Municipality of Samut Sakhon such as (1) Ban Mahachai Municipality School (2) Wat Krokkrak Municipality School (3) Wat Jesadaram Municipality School (4) Wat Chonglom Municipality School (5) Wat Laem Suwannaram Municipality School (6) Wat Teuk Municipality School, by the collaborations of each school personnel were evaluators of evaluating school curriculum regarding local-related content on environment according to the form of checking components of school curriculum regarding local-related content on environment with the following study issues (1)

Linking of introduction to the Basic Education Core Curriculum A.D. 2008 local curriculum framework focusing on environment and school needs. (2) School vision represents the desirable future image of learners in accordance with local curriculum framework on environment (3) Key learners' competencies are consistent with the Basic Education Core Curriculum A.D. 2008 (4) Desirable characteristics serve the goal or the focus of local environment framework (5) Identification of time allotment in school curriculum structure on integration of environmental education to the core courses or additional courses (6) Insertion of local-related content on environment in core course descriptions or additional courses description in Science Subject Area, Social Studies, Religion and Culture Subject Area, Occupations and technology Subject Area including other subject areas (7) Setting environmental issues in learning development activity at least one activity out of three as prescribed in the Basic Education Core Curriculum A.D. 2008

Table 4.7 Monitoring component for the development of school curriculum regarding local-related content on environment

Study issues	Schools under the Municipality of Samut Sakhon					
	School A.	School B.	School C.	School D.	School E.	School F.
1. Linking of introduction Core Curriculum A.D.2008, local curriculum framework focusing on environment and school needs	Linking to local-related content framework local focus and school focus	Linking to local-related content framework	Linking to local-related content framework	Linking to local-related content framework	Linking to local-related content framework and local focus.	Linking to local-related content framework and local focus.
2. School vision represents the desirable future image of learners in accordance with local curriculum framework on environment.	Environment prescribed in school vision.	Not prescribed a clear vision but only the policy of learning support	Not prescribed a clear vision but only learning support	Not prescribed a clear vision but only learning support	Not prescribed a clear vision but only the policy of learning support	Not prescribed a clear vision but only learning support
3. Key learners' competencies are consistent with the Basic Education Core Curriculum A.D. 2008	Use key competencies in environmental learning	Use key competencies in environmental learning	Not promote to use key competencies	Use key competencies in environmental learning but not all aspects.	Use key competencies in environmental learning	Use key competencies in environmental learning but not all aspects.

Table 4.7 Monitoring component for the development of school curriculum regarding local-related content on environment (Cont.)

Study issues	Schools under the Municipality of Samut Sakhon					
	School A.	School B.	School C.	School D.	School E.	School F.
4. Desirable characteristics serve the goal or the focus of local environmental framework.	Desirable characteristics focus on environment	Desirable characteristics focus on environment	Desirable characteristics focus on environment	Desirable characteristics focus on environment	Desirable characteristics focus on environment	Desirable characteristics focus on environment
5. Identification of time allotment in school curriculum structure on integration to the core courses or additional courses.	Identify time allotment on environment in core courses and learning units prescribed	Identify time allotment on environment in core courses and use inserted teaching method.	Identify time allotment on environment in core courses and use inserted teaching method.	Identify time allotment on environment in core courses and learning units prescribed	Identify time allotment on environment in core courses and use inserted teaching method	Identify time allotment in core courses and learning units prescribed
6. Insertion of local-related content on environment in core-course descriptions or addition course descriptions in learning area : Science, Social Studies, Religion and culture Occupations and Technology including other subject areas.	Environmental learning prescribed in course descriptions of three subject area.	Environmental learning prescribed in course descriptions of three subject area.	Environmental learning prescribed in course descriptions of three subject area.	Environmental learning prescribed in course descriptions of three subject area but not clear	Environmental learning prescribed in course descriptions of three subject area but not clear	Environmental learning prescribed in course descriptions of three subject area but not clear

Table 4.7 Monitoring component for the development of school curriculum regarding local-related content on environment (Cont.)

Study issues	Schools under the Municipality of Samut Sakhon					
	School A.	School B.	School C.	School D.	School E.	School F.
7. Setting environmental issues in learning development activity at least one activity out of three as prescribed in the Basic Education Core Curriculum A.D. 2008	Providing various environmental activities	Providing various environmental activities	Providing various environmental activities	Providing various environmental activities	Providing environmental activities by occasions.	Providing environmental activities only on important days.

From table 4.7 : Monitoring component of development of school curriculum regarding local-related content on environment.

On the issue of creating school curriculum showed that most of schools have created school curriculum by linking between the Basic Education Core Curriculum A.D. 2008 and local curriculum framework focusing on environment. Some schools have created school curriculum by linking between the Basic Education Core Curriculum A.D. 2008, local curriculum framework focusing on environment and school needs to form school curriculum content as well.

From interviews school administrators and academic teachers in the six schools under the Municipality of Samut Sakhon found that environmental education network for development of school curriculum regarding local-related content actually caused school realizing local needs on how outsiders viewed local education provision on environmental problems and on what they want schools to provide in the responsibility of constructing knowledge and building awareness of natural resources and environmental conservation for the local youth. Furthermore, environmental education network also viewed the guideline of environmental learning management

for schools as well as the coordinative collaborations from all sectors in the local area in terms of contributing, promoting and supporting environmental education for schools. From the data given, mentioned about contribution as follow, “A network is so beneficial for its contribution especially on local wisdoms, Uncle Narin (Local wisdom of Marine Fisheries), he came willingly to educate students, and also learning and Mangrove Resource Development Center Station 5 as learning resource for teachers and students. Schools have been contributed from a network mostly.”

On the issue of school vision represents desirable future image of learners in accordance with local curriculum framework on environment found that most of schools neglected to provide a clear environmental learning management in school vision but a policy of supporting environmental learning was prescribed according to the Basic Education Core Curriculum A.D. 2008 identified in Social Studies, Religion and Culture learning area, Science learning area, and Occupations and Technology learning area, whereas the only one school has prescribed a clear environmental issue in school vision in terms of mission, plan and project of environmental learning support in addition to environmental learning according to learning standards of the Basic Education Core Curriculum A.D. 2008

From interviewing groups of school administrators and academic teachers from the six schools under the Municipality of Samut Sakhon revealed that although the schools neglected to prescribe environmental issue in school vision but they have provided environmental learning in every grade level. It is because environmental issue was prescribed in the Basic Education Core Curriculum A.D. 2008 and local environmental problem issue which every school managed learning activities for students was garbage problem, an issue nearby the students. When environmental education network has formed causing local-related content development framework on environment of the Municipality of Samut Sakhon. It also caused local environmental problem issue form local problems and local needs in providing learning activities of schools can provide learning activities serving local environmental problem and needs such as garbage, waste water, smell and mangrove forest invasion. But due to the advantage of providing environmental learning activities of schools, the data given mentioned that “State policy must be clear with the

continuous implementation including enough budget allocation, the collaborations of villagers and school administrators ought to focus on environment as well”.

On the issue of “ Learners’ Key competencies are consistent with the Basic Education Core Curriculum A.D. 2008 ” found that most of schools encouraged students in five learners’ key competencies in environmental learning activities such as communication competency, thinking competency, problem solving competency, competency for applying life skill and competency for technological application. Only two schools have encouraged students in having learners’ key competencies supporting environmental learning activities, but didn’t cover all the aspects.

On the issue of “ Desirable characteristics serve the goal or focus of local environment framework ” found that all the six schools have provided environmental education focusing desirable characteristics for students such as self-discipline, sufficient economy living, activity for learning dedication and commitment to work and public mindedness.

On the issue of “Identification of time allotment on integration of environmental education to the core courses or additional courses in school curriculum structure ” revealed that the three schools have prescribed school curriculum structure in providing time allotment for local-related content on environment in core courses and developed local environmental learning units for learning activity management. Moreover, the rest of three schools utilized local environmental learning units in core courses with environmental standards and indicators identified only, mainly in terms of inserted integration due to time allotment has already prescribed in school curriculum structure. Local environmental learning units will be completely using in the next semester.

From interviewing groups of school administrators and academic teachers from the six schools under Samut Sakhon Municipality found that schools have already prescribed school curriculum structure especially the schools which have just improved their own curricula according to the structure of the Basic Education Core Curriculum A.D. 2008. The schools have already prescribed time allotment structure causing the utilization of local environmental learning units need to be reimproved on the time allotment in each course by teachers’ discussion in each school on environmental learning unit development and will be utilizing in the next semester for

the appropriateness of time allotment in each grade level in providing local environmental learning unit. The data given mentioned about time limit problem as the following “ The problem of time allotment structure has already prescribed since the beginning of creating the Basic Education Core Curriculum A.D. 2008 causing the deficiency of time to teach separately of local environmental learning unit. It needs to be integrated to Social Studies, Religion and Culture Subject Area, and Science Subject Area by selecting the appropriate course as well as consistent to teachers’ prescribed. In also used integrated teaching to other subject areas. Notwithstanding, environmental learning unit integrating to every subject area should be needed as well as the actual utilization of local environmental learning unit should probably build up better knowledge, understanding and consciousness in environment conservation of students. ”

On the issue of “ Insertion of local-related content on environment in core course descriptions or additional course descriptions in Science Subject Area, Social studies, Religion and Culture Subject Area and Occupations and Technology Subject Area including other subject areas ” found that three schools’ course descriptions have included local environmental problems in three main core courses as mentioned whereas three more schools’ descriptions have also included environmental problems but they were not much clear.

On the issue of “ Setting environmental issues of all schools in learner development activity at least one activity out of three as prescribed in the Basic Education Core Curriculum A.D. 2008 ”, they are 1) Scouts, girl guides, Red-Cross 2) Guidance and 3) Public service activity such as public mindedness. Only one school performed environmental activities only on important days.

From interviewing groups of school administrators and academic teachers from the six schools under the Municipality of Samut Sakhon revealed that the schools have provided learner development activity for students in order to build environmental awareness such as public service activity which raises public mindedness in performing activities mainly viewed on students’ maturity and started from kindergarten students or grade 1. Students. Performing activities were mostly in school area or area around the schools due to the problem of taking students outside the schools. The data given, mentioned that “ To take students outside the schools

costs much expenses. Schools needs to take them outside to learn from real situations causing raising environmental problem awareness and having fun. But the problem is the lack of budget for taking students learn outside the schools ”

From the study of monitoring of creating school curriculum regarding local-related content on environment, found that every school has implemented on creation school curriculum integrating local environmental problems to three main core courses : Social Studies, Religion and Culture learning area, Science learning area, Occupations and Technology learning area, Some schools have also integrated local environment to other subject areas appropriately focusing inserted integration with the missing focus on environmental measurement and evaluation directly, but using local environment as the content or learning issue. In addition, all schools have linked between the Basic Education Core Curriculum A.D. 2008 according to local curriculum framework with environmental focus including some schools focusing on environment as well. It is because schools have prescribed environmental issue in school vision. For key competencies which encourage and support acquiring knowledge of students, found that most schools have encouraged and supported five learners’ key competencies as follows, communication competency, thinking competency, problem solving competency, competency for applying life skill and competency for technological application in local environmental management including desirable characteristics in terms of learners’ rating scale raising in every student. In evaluation of every educational level of the basic education found that every school has provided environmental education focusing desirable characteristics raised in students as follows : self-discipline, sufficient economy living, avidity for learning, dedication and commitment to work and public-mindedness. For setting course structure found that local environmental learning has integrated to three main core courses as mentioned, schools have prescribed content, skills and process and desirable characteristics of local environment in the three core course descriptions as mentioned in different obviousness. In addition, every school has provided learner development activity promoting local environmental learning

4.3.2 Self-assessment of each school in utilizing school curriculum regarding local-related content on environment

4.3.2.1 Utilization of school curriculum regarding local-related content on environment.

Development of school curriculum regarding local-related content on environment causes local environmental learning units from co-operative development of schools, local educational agencies and researchers through the improvement procedures according to specialists' recommendations on different aspects including the evaluation from school administrators and teachers in the six schools under the Municipality of Samut Sakhon for the correct principle of learning unit design, environmental learning activities management and appropriateness of local context as well as school context, the researcher interviewed, group of school administrators, academic teachers and teachers in Social Studies, Religion and Culture learning area, Science learning area and Occupations and Technology learning area focusing the school's utilization of learning unit appropriate to school context and its further development to their teachers.

Utilization of local environmental learning unit of the six schools under the Municipality of Samut Sakhon found that school administrators and school academic heads satisfied and agreed to the development and the utilization of local environmental learning unit for students since it reduced much of learning unit management and learning lesson plans of teachers including reinforcing teachers entusing environmental learning management for students. The data interviewed of groups of school administrators and school academic heads reflected the interests of teachers in utilizing local environment as follows " The unit developed is very good but we may choose some issues appropriate to time prescribed in course structure because of time limit " and from the data conversed of groups of teachers revealed that local environmental learning unit is beneficial to teachers although they have trouble with time limit. It is because schools have already prescribed time allotment structure in each course. The teachers mentioned that " We have been teaching local environment but teachers have viewed more management guideline from the learning units developed The teachers have on troubles in creating learning unit and learning lesson plans. Some activities in learning units can be applied appropriately to students.

Unit developed have troubles on time allotment, materials and teaching media so we need to apply appropriately to school conditions.”

The results to students of local environmental learning unit utilization revealed that students raised their awareness with adaptation of behavior on environmental conservation, dared to act out, have public-mindedness in helping and collaborating with school friends in doing something beneficial to public such as collecting garbage in school area, and separating garbage. Form conversing with group of teachers has mentioned on students' behaviors as follows, “ Primary students will change more behavior than secondary students, dare to act out and more public-minded than secondary students. Teachers have to use teaching techniques in teaching secondary students, than primary students. However, if the students listen to and agree to those activities, they will intend to join. Primary students intend to obey senior students in performing environmental activities. Primary students like to perform activities outside the classroom or learn by doing whereas secondary students like competitive activities.”

The study result revealed that every school utilized environmental education learning units different ways as follows (1) Utilization of local environmental learning thoroughly (2) Selection of some learning lesson plans in local environmental learning units (3) Application of learning units by developing or improving appropriate to curriculum structure and time allotment structure of learning courses of each school. The result of evaluating learning unit on time issue in learning management of each unit and learning media and materials needed to be improved more consistent with the conversation of groups of school administrators, academic teachers and teachers as well. For the guideline of school curriculum development regarding local-related content found that the agencies involved local education should prescribe a policy on local environmental learning management. Schools should have administrative management, supporting budget, personnel development on learning management, creating integrated learning unit, supporting on local environmental learning from local agencies as well as information relations for community collaborations in local educational development.

In conclusion of study result on a model of environmental education network for school curriculum development regarding local-related content

found that a model of environmental education network comes from collaborative environmental working of many parties realizing the environmental problems and co-operating in thinking and making decisions of the local people. Therefore, utilizing a model of environmental education network for school curriculum development regarding local-related content is the collaboration for local environmental education the youth, of organizations, agencies, the state, the private, schools, including local people interested in environmental problems to co-operate in setting a direction of local environmental learning management. Furthermore, environmental education network also causes local environmental learning framework and learning units on local environment from the brainstorming of environmental education network members which is a group of experienced working personnel on environment. They are problem affected people suitable for providing content and guideline of local environmental learning management and needed goal for students. This is a learning management consistent with problems and needs in local environmental development. Moreover, environmental education network also causes the learning and working experience exchanges of agencies, organizations and other parties interested in environment as well as providing a fusion of ideas and working guideline on local environment to drive on to the same directions.

Therefore, it can be said that, a model of environmental education network for the development of school curriculum regarding local-related content is a working model causing the co-operations of many parties and local people in local education provision thorough linking local environmental problems into school curriculum absolutely. In addition, to make local organizations, agencies, the state, the private and others interesting in environmental problems and local schools having opportunity to exchange working experiences on problem issues and needs in local environmental education development together, are concluded as well.

CHAPTER V

DISCUSSION

The study was conducted to develop a model of environment education network for the development of school curriculum regarding local-related content. The study area was at the local level. Discussing the findings of research are as follows :

5.1 The analysis of the processes and factors in creating a success of environmental education network in the local level.

5.2 The development of a model of environmental education network for school curriculum development regarding local – related content.

5.3 The self – assessment of schools in using a model of environmental education network for the development of school curriculum regarding local – related content to manage learning for students.

5.4 The findings and evidence that found from the research:

5.1 The analysis of the processes and factors in creating a success of environmental education network in the local level

The lesson-learned of environmental education network showed that the process of creating environmental education network was divided into four - step procedures as follows : (1) The formation of environmental education network (2) The co-ordination of environmental education network (3) The expansion of environmental education network and (4) The existence of environmental education network. The driving factors of environmental education network consists of leaders, united members, united objective or goals, united co-ordination, united activity performance or learning exchange including united mobilizing resources. The details are as follows :

5.1.1 A model of environmental education network

The study found that the procedures of developing an environmental education network were :

Phase 1 : The formation of environmental education network

The study showed that the formation of network education network was from local environmental problem discussion for united solutions. Thus, the united group was voluntarily by the persuasiveness of leader or leader groups, who were experienced as information network from the outside. They also had a chances to participate the club activities. Both state and private organizations, working on environment utilized the guidelines to the local level, supported by outer organizations on body knowledge of the group formation including other supports, consistently with Parichart Walaisatian et al.,(2003 : 456) and Phar Maha Sutit Apakaro (Ob-un), (1995: 55) as said, The creating of network comes from the unity of individuals or schools as a group of the same interests in the same subject. The group is the basis of integration into the network. If each group is scattered without integration or unity, it will cause the lack of creative strengthening and eventually collapses. If the group has a good unity, it will cause power of working together and having more power in bargaining. However, the network brings the loose unity group of individuals, organization and institutions. The members of the network do participate activates according to their interests, but still remain identity and working philosophy”, in accord with Parichart Sathapitanon and Chaiyawat Thiraphun (2003: 10) and Pusatee Monson and et al., (2003: 2) described that, network consist of people with similar or difference ideas and beliefs everybody focuses on the management to achieve the major goal while the minor goal members may be varied.

The environmental education network for the development school curriculum regarding local related content is formed from individuals, organizations, section interested and working in the organizations involving environment and merging to be environmental network, which still remains the major goal of organizations. Working together on environmental education network has provided united objectives or goal in local environmental problems which may be the same or different from the major goal of organizations.

Phase 2: The co-ordination of environmental education network

The co-ordination of environmental education network is the co-ordination procedure of ideas, understanding and collaborations among members internal and external network, and between network. The study showed that the coordination within environmental education network was in two characteristic as follows : the co-ordination in horizontal network is to co-ordinate with network members who are people or group of people, organizations with similar characteristics of united community leader. The co-ordination external network or with different characteristic of other sections is vertical network. It is a formal co-ordinate procedure, consistently with Kriangsak Chareonwongsak (2000: 45) mentioned that the characteristics of parties in collaborative network has originated for two major reasons. A vertical network is to create network of similar social characteristics group, facing the similar problems whereas a horizontal network is to create network of different parties.

Therefore, it can be said that the network growth need to have internal and external co-ordinations network of members for communication and co-ordination of ideas and collaborations to promote ideas, objectives and broad management guidelines to the people outside the network and organizations. Moreover, co-ordination network is also a key of mobilizing resources, budget and supporters for the network Therefore, the co-ordination of environmental education network is the major procedure of transferring ideas, ideal working with the network, data information for organization collaborations. It can be applied in different ways depending upon the context of each network including member relationships internal and external network, the convenience and the flowing of communication. Finding co-ordinate guidelines to environmental education network is an important way to the spread of data and in formations to people percept problems. Needs and objectives or goal of those environmental network, consistently with Schuler (1996) that mentioned the role of computer technology and communicative system, is to create a variety of network with united network members; Parichart Sathapitanon and Chaiwat Thirapan (2003:13) has mentioned that, co-ordination of working in the network needs suitable co-ordination strategy. It may be linked up through activities by having co-ordination center and technologic linking.

Phase 3 : The expansion of environmental education network

This study found that the expansion of environmental education network is the procedure of network growth through the duration of group merging. The group of strength can be able to expand the network both in quantity of members increased and quality of body knowledge advanced of members on environmental conservation. Form participating activities with environmental education network, in which the duration of environmental education network growth needs the planning management to achieve the objectives and goal as prescribed. The provision of local environment conservation activities that agree with members' needs and continuously increases move network memberships causing the expanding of environmental education network. Furthermore, the work of environmental education network helped the rival of local environment surroundings, environmental and natural resource conservation, which is a tangible task of the network. It makes the members realize the work of environmental education network that truly achieves the objectives or goal of solutions and local environment development. The network members get familiar with the network and the work was acceptable and believable. Thus, due to the discussion of network members on local environment problems. The members shared ideas and problem solutions. The network management depends on members' potential of that network as well as outer supporters. Besides this, it also has a mental effect to the network members, on the pride of participating local environment development and problem solutions. This causes the love of local environment and natural resources; including realizing the benefits of working together. The advancement of body knowledge on environmental and natural resource conservation, and working concepts of the members come from the experience of working together on performing activities and knowledge exchange.

Therefore, it can be said that the result of problem solutions or environmental development of the network effects the growth and expansion of the network from accepting the network achievement as well as realizing the benefits of being network members. Furthermore, the external organizations play a great role in the expansion of the network by promoting, supporting and spreading the network achievement on problem solutions or local development on environment to the public.

Phase 4 : The existence of environmental education network

This study found that the existence of a network of environmental education is the duration of maintenance of the network to be a sustainable management. The vital factors leading to the sustainable network depend upon the following factors, first, leader's ability of well-management would reduce the chaos of management; put the personnel to work with clearly defined roles for effective work. Second, to make objectives and goal clear and can be put in concrete beneficial to the members. Third, the effective network co-ordination both in horizontal network, co-ordination between leader and network members, and in vertical network, co-ordination between network and public organizations or external organizations with effective communication for perception of organization movement. It is a co-ordination of collaborations, supports, telling information and data as well as broadcasting works of members inside and outside the network. All these factors are the keys to receive collaborations and supports in terms of mobilizing resources, funds, personnel, building and technology used for working together. Because of obvious and acceptable work to society, the network is being interested from many parties, state and private organizations and people who are interested in environment. So, it is a good chance of the network to be promoted, supported from different sections including government's policy on community participation in local development. The network is seen in developing for strength and can also be a representative of local people.

Thus, it can be inferred that the existence of the network takes time and working experience of the network through development procedures, which are durations of formation, co-ordination, the expansion and the existence of the network. The duration of network formation has its importance on understanding concepts of working together to become environmental education network. The formation of environmental education network is not problem solutions on special case and stop working when problems disappear or lack of money support but promoting knowledge, understanding and collaborative guidelines of knowledge, understanding and collaborative guidelines of problem solutions. So, environmental education network keeps working for strengthening in problem solutions and thoroughly finding guidelines of local environmental development . By the way, the network stability

depends upon network driving factors causing the strength of network and well-responded from members' needs; consistently with Theeradet Chairoon (2008: 17) interpreted the lesson of area management in case of concrete driving action area of social network for promoting and protecting human rights, showed that the important condition of driving the network to the existence is continuity of action area management with thorough activities, volunteers working as planned in the area, conclusion the lessons and planning for the next job. The continuity of the management goes on smoothly driving in the action area. The long or short term of network existence is up to the achievement of problems responded, or members satisfaction. The existence of network may take a short term. But if the problems still remain and members wants to continue for achieving the goal, the network existence will continue on and on (Werasak Khruetep, 2007)

5.1.2 Factors in driving environmental education network

The study was found that six factors were used in driving environmental education network : having leader, members, co-operative objectives and goal, co-ordination, performing activities or learning exchange as well as co-operative resource mobilization, consistently with Parichart Sathapitanon and Chaiwat Thirapan (2003: 10) and Phar Maha Sutit Apagaro (2005: 36) mentioned on working of network making commitment of members or parties for strengthening the power in problem solutions and changes of things. The lesson interpreted of environmental education network for studying factors in creating environmental education network as follows :

1. Co-ordinate leader

The study showed that co-ordinate leader means a leader or group leader in network co-ordination who plays a great role in driving the network effectively. Consequently, the leader should be acceptable and trusty from network members as well as knowledgeable and understandable in practice, work for more common good than personal gain, understand the objectives of the organizations, co-ordinate continuously in every level, have effective communication system and possess leadership, consistently with Parichart Walaisathien and et al., (2000: 341) mentioned that leadership in leader is very important; leadership also means to create strategic vision and to lead others realized the importance of things done together;

provide resources necessary to work for promoting relationship between network and its achievement. Moreover, leader need to be honest, industrious, devoted for common good, strict to rules and regulations of members' decisions.

Thus, it can be said that, leader plays a great role in working of environmental education network. It is consistent to Suppawan Phlainoi (2009), that synthesized the lesson of the development of leaders' potentials in physical condition area network, by focusing on the leader who co-operate collaborations, and has ability to get everything change for sustainable collaborations without destroying security of authorities or strength of each party. From synthesizing environmental education network with excellent action of two places : The club of We Love Tha Chin River, Nakhon Pathom province and the club of Natural Conservation of Khok Kham, Samut Sakhon Province. It was found the leader's characteristics as follows :

1. Believable, trusty and acceptable society
2. Understand and accept concepts of the network
3. Ability to manage organizations
4. Leadership
5. Ability to work with people at all levels
6. Realize the objectives of organizations
7. Human relationship and accept idea of others
8. Intention working for common good

2. Member collaboration

The study showed that member collaborations in each network went on voluntarily because member realized the benefits of merging groups in performing activities and learning exchange for local environment solutions. However, there was a difference in merging groups of each network, because of different problem characteristics and social culture which effects the network collaboration. The network in which the leader accepted by the community in playing a great role such as local leader, teachers, government officials and so on, would be acceptable and confident in working for the network. Furthermore, the network from interested group would take more duration in setting group than the network from establishment. It is necessary for the members of interested group to view the benefits

of being network members before deciding to merge in group network whereas the network from establishment took a short duration in merging group, because of supporters from external organizations. The leader as a representative was encouraged to tell information to local people, organizations, public and private organizations to view the benefits of merging group. Therefore, encouraging for merging group which co-ordination of collaborations and sharing activities; consistently to which mentioned that only merging group can't be a network. The origin of network should have people discuss together, collaborate in communication, willing co-ordination especially members should be acceptable in performing activities together, not only exchanging idea. For the area with interested group merging to work on environment should be encouraged by the organizations concerned in supporting and monitoring the leader or working committee in order to be an organization or activity group entirely. Consequently, it is for the group capability to manage problem solutions and local environment development systematically, obviously shown according to the objectives of organization, continuously on performing activities, learning exchange and more understanding or problem solutions for members. The important thing which makes the members merge in group of environmental education network should be in voluntarily. These members have to view the personal benefit in taking part as members. Therefore, the network should have obvious objectives and goal to practice for member development according to group's needs.

3. Co-operative Objectives

From the study showed that to have co-operative objectives of environmental education network for network management according to member's needs, need to provide apparent objectives and goal of the group. To make people come together as a group do such things, they themselves should know the goals. Thus, providing goal or objectives essential to the group effects interested people in being group members. By the way, network merging stand on the fundamental of collaborative benefits with the participation of members in providing goal. That is the benefit of collaborating local environment solutions, consistently to Parichart Sathapitanon and Chaiwat Thirapan (2003: 4-11) mentioned that the network manager should follow up and check the network members' understanding co-operative goal.

Working in the network will be high effectiveness if every party shares the provision of co-operative goal especially the goal seen with the same understanding of every party. Moreover, to make the objectives and goal clear by providing group mission is necessary. The result of the study showed that environmental education network has a principal mission on local environment problem solutions, knowledge advancement, understanding, environmental problems awareness effecting local community that is a goal of network members. Later, the goal is developed as the most members' needs, and for the effective management without conflicts in working together. Therefore, environmental education network should have flexible rules or regulations that members can follow.

4. Members' co-ordination

The finding of this study was that co-ordination is the way to create understanding among network members using a variety of communications. Therefore, communication is like a mechanism linking network members to be together and still be the way of learning exchange and spreading idea, effecting the growth and the existence of the network. The guidelines for communication with network members could be done in both formal communications such as meeting, seminar, documents, inviting letters and so on, and informal communication such as meeting among people or group of people in different occasions, chain information telling and so on. These communication guidelines cause the meeting of network members and people the external network to exchange experience, consistently to Parichart Sathapitanon and Chaiwat Thirapan (2003:4-1) mentioned that, communication is an important factor for socio-network in different aspects such as:

1. Communication makes good chance of network members in perception data and information comprehensively.
2. Communication is a major part in inspiration of people to pride a shared goal which the network members want to reach.
3. Communication is a guideline for a good chance of network members in learning, thinking, feeling, beliefs and behavior of each other, exchange data and ideas, being open mind in accepting ideas and behavior of each other as well as relationship development and working together to achieve the goal

Thus, it be said that, co-ordination makes co-operations of network members and people the external network. Moreover, co-ordination also causes good relationships of the network, its management continues smoothly through various communications covering all target groups.

5. Shared activities and learning exchange

It was found that, activity is a mechanism attracting the members to be together and strengthening the network need to share activities or work together continuously, consistently to Kriangsak Charoenwongsak (2000: 82) mentioned that strengthening the network needs a continuous development of the network members through shared learning system in terms of training, field study, seminar and interactive action learning bring about body knowledge in development and problem solutions on authentic experience based. Therefore, it can be said that, activity is a mechanism attracting the members to be together, and the network stability depends upon continuity of performing activities. By the way, the activity management should be interesting enough for attracting members to join. Special need of each member and sub group should be in consideration as well. All these activities still support achievement of the network in overall goal with formal or informal activates.

Learning exchange is an interaction among network members for collaborations. Therefore, network members need to join activities for interaction among network members such as meeting, exchange idea from each other, joining the seminar and so on. The result of interaction causes good relationships of network members also. Kriangsak Charoenwongsak (2000: 43) mentioned that, this type of interaction is reciprocal exchange relationship, not unilateral exchange. The more interaction of members, the more interrelation, causes more highly integrated co-ordination and interaction helps increasing learning between others, causing more strength of the network, consistently to the study result, that learning exchange is an activity creating interaction among network members and relationship with people outside the network by learning and transferring exchange. Broadcasting knowledge and information shows the movement of each other in working development by exchanging learning with activities provided by group for activity participation of all

member, and the activities provided from sub-group of members are for meeting of exchanging experience within the sub-group with the needs of exchanging learning in the same problem or needs in personal development.

6. Mobilizing resources

The study revealed that, mobilizing resources is to mobilize funds, materials, buildings, learning resources including personnel wisdom for utilization and exchanging resources between them, as follows:

1. Funding is extremely important and also a problem of the network, because the fund in the initial stage was unknown. Most funds were mainly from the mobilization of the network members. Therefore, the problem of fund shortage for managing causes the obstacle of network management, but if any network has enough fund resources and continuous fund, the activities can easily move on.

2. Mobilizing materials and buildings: the network co-operated from government, community and local organizations in supporting the network but it needs to co-ordinate formally with organizations. The leader's competency in co-ordinating makes mobilizing resources in the most successful.

3. Mobilizing knowledge: has both knowledge the internal and external network but the knowledge given and learning resources must be in member's needs.

From the study, it was showed that, environmental education network was supported on knowledge from environmental agency, the experts who did research and learning exchange. On budget supporters found that environmental education network was interested and supported by the privates and local organizations, but it wasn't enough. Organization concerned should support on funds, and materials because it will make the network easy managing and solving problems on the shortage of fund and resources used in doing network activities.

Thus, creating environmental education network in any area should focus on its context, local community collaborations and awareness on problems and needs of environmental development of people in that community. Furthermore, the network to be effective mechanism, begins from (1) Finding the leader or group leader (2) Making interested people to be network members (3)

Members sharing the network objectives and goal provision (4) Co-ordination both the internal and external network (5) Joining activities and learning exchange continuously and (6) Sharing resource mobilization Consequently, the study of context of network's local community will be a determiner for founder to know the weakness and strength in driving the environmental education network and factors that need to be supported for effective network. Moreover, supporting leader and group leaders to understand the network concept will make them realize the benefits from working of the network and utilize working experience and body knowledge in driving the network for problem solutions and local development on environment.

5.2 The development of a model of environmental education network for the development of school curriculum regarding local-related content

This research is an action research collaboratively which researcher focuses on the development of a model of environmental education network for the development of school curriculum regarding local-related content. Researcher brought a developed model of environment education network for researching in the Municipality of Samut Sakhon . The developed model of environmental education network is formation network with the collaborations of Educational Department under the Municipality of Samut Sakhon in pushing up the environment education network in the study area, for the purpose of collaborating from state and private organizations, schools and local people in the development of school curriculum regarding local-related content.

5.2.1 Creating environmental education network for the development of school curriculum local-related content

Creating environmental education network for the development of school curriculum regarding local-related content begins with studying data in the area as a study of context using local environment conditions analysis (SWOT Analysis) called "Preparation before creating environmental education network, and creating

environmental education network after”. The study of network originating process of Praphapan Un-ob (2006: 22) found that the network may be originated naturally such as people who have the same interests or organizations that have worked together before agreed to create a new network for actual practice. In addition, the network may be originated from “designing method” from external supporters. This type of network may be originated to be a network in a sudden or gradually originated according to the problems and needs shared by the members.

Step of the preparation for creating an environmental education network for the development of school curriculum regarding to local –related content

It was found that creating an environmental education network for the development of school curriculum regarding to local-related content is a network originated by the pushing up of externals. Therefore, it is necessary to study the local context and personnel working data on environment without the benefits of local politics and political level. There may be conflicts within the local level. Thus, to coordinate for collaborations of organizations, state and private organizations creating an environmental education network, need the familiarity and trust of every party as well as the existence of objectives or goal of the groups or organization. But working as a network to achieve the objectives or goal of network consistently to the group’s. Every party gets benefits or satisfies all parties. Therefore, one who gives the fundamental data is meaningful in telling to others or suggesting co-ordination with people within the area very well. The process of creating network is divided in procedures consistently to Phra Maha Sutit Apagaro (Ob-un), (2004: 124-144) and Narumon Niraton, (2000: 39-41). From designing an environmental education network for the development of school curriculum regarding local-related content, the procedures are as follows:

1. Studying local context is environmental conditions analysis for the fundamental data in promoting the establishment of environmental education network. It is a study of both natural environment and socio-cultural environment for the supported factors and limitations in creating an environmental education network.

Consequently, it was found that “the more working supporter as a network, the more chance of network expansion and continue to be worldwide network.

2. Creating a good relationship and building up knowledge and understanding on concepts of environmental education network and personnel involved as well as person interested to join the environmental education network, cause understanding and realizing the benefits of working as a network and the spreading of network’s goal to the local level, network established. To realize local identity which is special characteristic by using a good point for supporting, promoting working of environmental network. Furthermore, it can be viewed personnel group who are interested in environment and want to join working.

Step of creating environmental education network for school curriculum development regarding local-related content

Due to the study of creating environmental education network found that environmental education network with the best practice has formed from local people viewing problems and want to make solutions as well as local environment development. But enhancing body knowledge on creating environmental education network and environmental conservation is necessary. The study mentioned that environmental network originated by external encouragement has the most important things: intention and determination of the leader or local leader group. Without working of these people, even if there are external supporters and lack of co-ordination in the area, can’t make truly collaborations. So, it can be said that leader is one who pushes the driving of environmental education network. A model of environmental education network is divided in four main procedures such as (1) the formation (2) the co-ordination (3)the expansion of the network (4) the existence of the network.

From the study found that creating environmental education network for the development of school curriculum regarding local-related content of schools under the Municipality of Samut Sakhon in the phase of formation in environmental education network has three driving factors as follows:

1. Finding the leader or group leader in driving environmental education network for school curriculum development regarding local-related content, found that educational organization in the local level such as Educational Department of the

Municipality of Samut Sakhon played a great role as a leader driving environmental education network for school curriculum development regarding local-related content; because due to the roles of managing, supervising and provision education in the local area including The National Education Act 1999 and Amendment made in 2002 (Second National Education Act) requires the local area in collaborations of education provision. That makes Educational Division of the Municipality of Samut Sakhon interested in supporting and promoting schools in the division joining the environmental education network Furthermore, environmental problems in the local area causes schools, state and private organizations, departments working on environment and local people who are interested in joining environmental education network.

2. Sharing to set up objectives or goals of environmental education network for school curriculum development regarding local-related content is to share setting up the goal for environmental problem solutions by providing local environment education. The shared goal of environmental education network aims to support and promote education in environmental problem solutions in the local area. By the way, the group, organizations or people collaborate with the network may have special objectives or goal of their own group. But to join the network of environmental education of each group, organizations and people, had a goal of collaborations of environmental network members. That is environmental education development for local youth which the group, organizations and people in the network have co-ordination working on environment. Thus, environmental education network then is a way to support and promote working on environment to each other.

3. Sharing activities and learning exchange are significant factors causing environmental education network management achieving the objectives or goals. Thus, activities cause interested people to exchange ideas. Moreover, activities also make the network driving on continuously. From the study; it was found that creating environmental education network for the development of school curricular regarding local-related content by doing activities and learning exchange together such as brainstorming ideas on learning management on local environment and workshop seminar on designing learning units of local environment, can achieve the objectives/goals of network on environmental education in which local area want to be

developed. Furthermore local organizations, department of environment affairs, schools and local people realize the importance of working coordination on environment by learning exchange.

Consequently, it can be said that environmental education network for the development of school curriculum regarding local-related content has its original network characteristics as designing for the collaborations of state and private organizations, agencies, schools and local people to join for the development of school curriculum focusing on learning management about environment for local youth. Thus, creating environmental education network for school curriculum development regarding local-related content effectively and thoroughly exists, ought to manage the network driving on their own and continuity for existence of environmental education network. So, in order to drive the environmental education network effectively, the guidelines of development of environmental network as following procedures:

Phase 1: The formation of environmental education network has driving factors on finding the group leader, attraction people to join the network and collaborations of members in setting up the objectives or goals of the network. When the network is gradually formed until the increasing of members, it should possibly make a selection of administrative network committee, duties allotment, poles and regulations and setting up working of the committee as well as planning activities or learning exchange.

Phase 2: Co-ordination has driving in factors for the members to share ideas and performing local environment activities including co-ordination both the internal and external network. By the way, the co-ordination linking of effectively communicating system with members and external network makes members, personals and external organizations' perceptions on objectives, goals, activities, movements of problem solutions and local environment development spreading to the publics, effecting creating awareness to general to percept and realize the importance of environmental conservation.

Phase 3: The expansion of environmental education network, to work in the network with obviously outcome takes interests from the publics. Factors making the network expansion is co-ordination, working public relations, spreading

knowledge, idea and working experience of the network as well as open wide of new members, performing activities, learning exchange continuously and collaboratively checking and evaluating the network outcome.

Phase 4: The existence of environmental education network. The network will last long or not, depends upon not only achievement of objectives, goals or succeed in environmental problem solutions but also important factors for stability of environmental education network which are enhancing and developing new leaders to be able to administrate the network effectively and transparently, promoting learning process for members continuously, enhancing members joining activities essential to members and local community as well as activities related to the group of environmental education network relationship. Promoting continual learning exchange is included as well.

5.2.2 The development of school curriculum regarding local related content on environment

From the study, it was found that environmental education network of the development of school curriculum regarding local-related content has effected schools under the Municipality of Samut Sakhon realizing the importance of environmental problems by linking the environmental problems to the Basic Educational Core Curriculum A.D. 2008. Because of the details distinctly prescribed of learning standards, indicators and content matching with indicators on environment in the core curriculum, has guided direction to schools in learning management for students. In International Education Act A.D.1999 (Revised edition) Second Edition 2002, has prescribed schools creating their own curriculum which compress of 1) Part of the Basic Education Core Curriculum and 2) Part of local-related content. It was shown that the framework of local-related content of schools under the Municipality Samut Sakhon wasn't clear enough and lacked of details on local-related content on environment and collaborative supporters involved local education. Consequently, environmental education network is a driving mechanism causing apparently direction in managing environmental education and the content truly related local problems and needs as well. So, creating environmental education network for the development of school curriculum regarding local-related content has its consistent with The National

Education Act, identified in Section 29, “The school in co-operate with personals, communities, community organizations, local organizations, privates, private organizations, professional organizations, religious institutions, working places and other social institutions to promote the strength of community by providing learning process within the community for education management, seminar, acquiring knowledge, in formations as well as local wisdoms and intellectuals, in order to develop community consistently with problems conditions and local needs including finding the way of supporting of experience exchanging development among communities”. Thus, school curriculum on environment from environmental education network for the development of school curriculum regarding local-related content is thoroughly a school curriculum by the local people collaborations focusing learning management of local environment for problem solutions, local environment and natural resources development for balance and everlastingly stability. Jirayu Pangput and Thawan Matjarus (2007:27), mentioned that the prior National Educational Curriculum is outdated with the same method, process, and actions opposing to human learning process that should have different lifestyles according to landscape, traditions and culture. Therefore, school curriculum need to be developed by the co-operations of local people and school itself, holding on The Basic Educational Core Curriculum A.D.2008 as learning standard for learners to qualify as prescribed. It is internationalized curriculum of Thai Education Provision; consistently with the study research. It was found that the core curriculum couldn't reflect truly on schools and local needs.

Therefore, it can be said that, a model of environmental education network for the development of school curriculum regarding local-related content is one of the guidelines in problem solutions and the development of local environment development through local school's education provision, as follows:

1. Environmental education network causes the group merging of organizations, state and private organizations and people who are interested in local environment to participate in setting directions of learning management on local environment for the youth. Consequently, environmental education network is a driving process to school curriculum development regarding local related-content on

environment, using local environmental problem issues as a guide in setting school local-related content learning framework.

2. Environmental education network created school curriculum regarding local-related content from the collaborations of several parties and follows local needs as well. Thus, the collaborations of environmental education network may affect the participation in education provision in other aspect such as being trainers, budget support from local organizations, learning resources for students and so on. Jintana Sujanan (2006: 58) with the opinion of successful development depends upon the collaborations of local people in order to solve problems directly and share responsibility in what they have is agreed. Therefore, it can be said that, even if this environmental education network creates local-related content of schools under the Municipality of Samut Sakhon, it also builds the collaborations of ideas, actions and responsibilities in learning management for students as well.

3. Environmental education network is also a center of intellectuals with understanding on local environmental problems. These personnel groups have broad vision in providing local education for problem solutions and natural resource development according to their point of views or organizations. If these personals have chances to exchange ideas, it will have a united problem solution on development, consistently with the concept in creating a multilateral network of Wicha Niyom and Kitichai Rattana (2004: 5) mentioned that the new environmental and natural resources management should allow the business organization privates, local organizations, independent environmental organizations playing more poles in management as united parties.

4. Environmental education network caused the collaborations of local parties in contributing, promoting and supporting environmental learning management for schools.

5. Environmental education network could transfer the local environment to the education provision of schools in the local area by integrating local-related content to core courses in the content in which learning standards of environment included The basic Education Core curriculum A.D.2008 has held on the basic education Curriculum A.D.2001 in providing environmental education, contents, and learning standards in Science, Social Studies, Religion and Culture Health and

Physical Education, but it was found in the analysis that, only three learning areas apparently appeared the standards and indicators on environment: Science, Social Studies, Religion and Culture, Occupation and Technology in other learning areas appeared the environment study only in terms of natural learning or surroundings, practical practice in achieving the environment education objectives, content, learning standards and environmental indicators were indirectly focused. (Ministry of Education, 2009). From the reasons mentioned, creating local-related content on environment of schools under the Municipality of Samut Sakhon has selected integration of local-related content to three core courses as mentioned because of the convenience for teachers to be able to apply the content of environment according to each learning standard as well as adding local-related content on environment through indicators. This made students learn about local environment and global environment, consistently with Jirayu Pangput and Tawan Matjarus (2007: 75) gave the reason that, this method is easy for school because it is already a part of creating school curriculum only adding local-related content truly in line with local needs.

6. Environmental education network produced the consistency of environmental learning management in the local area of schools under the Municipality of Samut Sakhon and the Basic Education core Curriculum A.D.2008. The prior discussion result of environmental learning management group revealed that environment was taught but local -related content of schools wasn't created. When environmental education network for school curriculum development regarding local related content has arisen, it was found that, schools under the Municipality of Samut Sakhon were interested in and eager to participate in creating local-related content by committing school personnel such as administrators, academics and teachers to participate activates of environmental education network such as workshop seminar, for determining local-related content framework on environment and learning units on local environment. When evaluating learning on "Local environment" by the teachers of primary level (grade one to six) and teachers of secondary (grade seven to nine), showed that the learning unit evaluation of teachers was the level of "very good" and "good" consecutively. Consequently, this learning unit is a great deal beneficial to teachers. Due to the Basic Education Core Curriculum A.D.2008 is a standard-based curriculum which has its important goal of learning management according to the

curriculum, learning standards and indicators are focused. Therefore, learning design in line with this curriculum has to be backward design which is new issue for most teachers. When the learning unit of “ Local environment” was designed in terms of backward design in workshop seminar, that made teachers plan learning and teaching activates according to the development of the Basic Education Core Curriculum A.D.2008. Moreover, integration of local-related content to learning standards and indicators in learning area related to environment made learning management and evaluating non-complicated. To follow up and evaluate the Basic Education Curriculum A.D.2001. (Ministry of education 2009: Introduction) showed that one of the problems was most of schools defined a great number of content and learning outcomes, the assessment and evaluation didn't reflect to standards causing lots of problems, to teachers, for example, the preparations educational documents and learning transfer. Therefore, designing integrated learning between The Basic Education Core Curriculum A.D.2008 and local-related content reduced the problem of defining a great deal of content the assessment and evaluation were as indicators prescribed in the curriculum.

5.3 Self-assessment of schools in using a model of environmental education network for the development of school curriculum regarding local-related content

From the study, it was found that self-assessment of schools in using a model of environmental education network for the development of school curriculum regarding local-related content, has effected the driving of local school education management on environment as follows:

1. Schools absolutely realized the problems and needs of the local area; and they knew the outsiders' views on how the education provision for local environment problems was; as well as need on what to do of schools as a role of providing knowledge and nourishing awareness in environment and natural resources conservation to local youth.

2. Self-assessment also showed the strength and weakness of school and accepted the need of development, including finding problem solution methods. Therefore, self-assessment can help developing local environment learning management.

3. Self-assessment caused the recognition of school in evaluation result and self awareness on what made school unsuccessful as the aims prescribed, Udom Jumrudpan and et al., (2001: 21). mentioned that concept of self-assessment has three main factors as follow the evaluators must : (1) Be nourished awareness in the study, satisfaction and needs in self-development (2) Have good, correct and true objective aim. (3) Appreciate the value of expenses as the study, disregarding of finding fault in the evaluation, realizing the evaluation in terms of getting knowledge, the strengths and the weakness of their own selves for improvement.

4. Participatory Action Research is a research for development. Thus, self-assessment for result of management is indispensable for the failure of research outcome. Participatory Action Research has management cycle in terms of continuous spirals. (Zuber-Skerrit,1995: 13 and Supavan Plainoi, 2004: 17-19). Each spiral has four action research procedures: Plan, Act, Observe and Reflect. Spiral research is a continuous research from spiral one if it is not successful, it will continue to spiral two or three, consecutively, for the research truly reflecting to development. Therefore, self-assessment of schools for developing school curriculum regarding local-related content on environment will conduct schools to realize success and problems or obscures arising for the research affecting school curriculum development on environment. This makes local educational agency and schools in the co-operation of researcher have guidelines in working development for the united goals, which is a development from self-assessment during doing research. The problems or obscures are improved to the success of learning management on local environment.

5.4 The findings and evidence that found from the research

5.4.1 Processes and factors in creating environmental education network

This study, researcher used the best practice of environmental education network to study processes and factors in creating environmental education network for school curriculum development regarding local-related content. The findings revealed as follows:

1. Environmental education network was formed from united views of environmental problem issues in the local area. The local leader or group leader were pushers forming the network whereas driving to be the network was the lessons gained from outsiders which promoted and supported the leader of body knowledge transferred to local people. When the groups grew bigger from outsiders' supports continuously, became strength, and network of supporters. The supporters themselves did not establish the network directly but the leaders were encouraged and persuaded as a driver of their own groups. Both strengths of environmental education network had the same procedures of network growth such as (1) Formation (2) Co-ordination (3) expansion and (4) the existence of network with continuous working of environmental education network for over ten years.

2. It was found that, the initial factors of creating environmental education network were (1) The powerful leader, with self-development, intent to work, devoted and administrate using democratic principle. It is because the leader will cause driving factors for other networks, such as (2) Organizations agencies and people to join network members (3) Apparent objective or goals leading to practical practice (4) Performing activates or learning exchange, environmental education network will achieve the goal and objectives if the working committee plans ahead to achieve the goal (5) Co-ordinations was a communication between network members and state/private organizations. Good co-ordination with effectiveness makes the members receive the information and realize the network movement continuously. Moreover co-ordination also creates the linking of working with network parties in terms of supported working (6) Resource mobilizing of all members or local people are mobilizing collaboration for environmental problem solutions, mobilizing resources from network parties such as state and private agencies as well as local organizations often be mostly mobilizing of intellectual resources, funds and equipments.

3. The existence of environmental education network is form outcome of making community love and cherish local natural resources and environment, creating

awareness the community loving, increasing income in parallel conservation, promoting the good use of resources to the local people, promoting local professions. All of these effects local people lifestyles. Moreover the network management has the same direction of co-ordination on community environment working with state organizations causing the network existence because of continuous support and activities.

5.4.2 Development of a model of environmental education network for the development of school curriculum regarding local-related content

The findings of a study and develop a model of environmental education network for the development of school curriculum regarding local-related content were as follows:

1. Building up knowledge, understanding on network concept for leader groups has its importance and necessity. Consequently, people in this group are pushers of merging group to become environmental education network. Without a unity of working to achieve the goal, the network can't be formed to work for achieving the objectives or goals; or it is formed in terms of ordering without understanding the nature of the network. That network will lacking in strength and finally be ended.

2. Development of environmental education network for school curriculum development regarding local-related content in the Municipality of Samut Sakhon found that not only forming a discussion for exchanging local environmental problem issues that causes the collaborations and viewing development guidelines but also the linking up between local schools and organization, environmental sections in terms of learning management plan for students continuing working in environmental education network.

3. The existence of environmental education network for school curriculum development regarding local-related content would be driven to the existence of the network or not depending upon the school needs whose roles as co-ordinates to co-ordinate parties continuously support for working together. From the experience of creating school curriculum on environment of environmental education network, the members have experienced and viewed the success of working as a network. From the

success of creating school curriculum regarding local-related content caused the views beneficial to co-ordinate with other network members of personnel from other organizations. It's because, each organization has its own goal. Therefore, working together can make the work connection achieving their goals. The networks will be in existence if they are beneficial to personnel involved in terms of "win-win"

5.4.3 School curriculum development regarding local-related content on environment

School curriculum development regarding local-related content has arisen from environmental education network operation which the findings were as follows:

1. Local environmental learning management should be in variety of learning models and suitable to school context, Curriculum structure, school's focus, local needs and teachers' capabilities in providing environmental education of teachers need to be considered. Furthermore it was found that government policies has effected environmental education learning management of schools. Using environmental education network for school curriculum development regarding local-related content is to mobilize various parties including personnel party participating education provision. Educational agencies made perception and expressed response to local need therefore, environmental education network is a co-ordinator of connecting understanding between schools and educational agencies.

2. Management of local environmental learning form environmental education network is suitable learning management guideline for integration of local-related content to core courses as well as to be easy for learning management in students' qualifications of all indicators in each learning standard. Integration of local-related contents appeared in three subject groups: Science, Social Studies, Religion and Culture, and Occupation and Technology which environmental indicators were identified in learning standards. This leads to learning management on local environment achieve the objective of environmental education and national education goals.

5.4.4 Self-assessment of schools in using a model of environment education for school curriculum development regarding local-related content for students

When using a model of environmental education network in driving learning management of local environment and self-assessment of school administrators and teachers, the findings were as follows:

1. Self-assessment has viewed the school administrators on the strengths and weaknesses in the management of school curriculum. Consequently, teachers realized the problems and weaknesses of their own in learning management for students. The data obtained from self-assessment of both school administrators and teachers were analyzed for problem solutions, bringing the great success of managing education on local environment.

2. Self-assessment has made the policy administrators realize the problems and needs of schools. Consequently, the result of school self-assessment should be used in planning of education provision on local environment including in personnel development in all aspect with apparent directions and actually agreed to problems and needs of those educational concerned.

Therefore, a model of environmental education network for the development of school curriculum regarding local-related content makes the development of local environment education management for agencies collaborations having more chances to participate in setting directions of local environment education. It is also a working model with willingness, sacrifice and viewing the benefits of problem solution collaboratively as well as local environment development for everlasting stability of local natural resources and environment. The working guideline achieving the goals of each personnel or organization can be different. Moreover, environmental education network also affect local development on other as follows:

1. Environmental education network is a lesson of people in collaborative working for local development.

2. Environmental education network makes harmonious living under democratic society in accepting opinions' of those parties involved

3. Environmental education network has made organizations involved environment, education and people who are interested in environmental problems to have chances of exchanging idea and guidelines of performing activities for environmental problem solutions and development environment. That can reduce the complication of performing activities in the area and make a good use of budget.

4. Environmental education network caused the collaborative contributions between agencies, individuals and agencies on personals, budget, materials, places and so on.



CHAPTER VI

CONCLUSION

6.1 Conclusion

The study of “A model of environmental education network for the development of school curriculum regarding local-related content in Thailand has its objectives as follows (1) To analyze a successful processes and factors in creating environmental education network in the local level (2) To develop a model of environmental education network for the development of school curriculum regarding local-related content and (3) To study self-assessment of schools in using a model of environmental education network for the development of school curriculum regarding local-related content to manage learning for students. The qualitative research and the quantitative research were two methods used in research implementation for the appropriate and correct data including data analysis of the research. This research is divided in three phases as follows :

1. The analysis implementation in phase one is the analysis of a successful processes and factors of creating a model of environmental education network in the local level.
2. The analysis implementation in phase two is developing a model of environmental education network for school curriculum development regarding local-related content.
3. The analysis implementation in phase three is self-assessment of schools.

6.1.1 The analysis of successful processes and factors of creating environmental education network in the local level

The study area was a purposive sample by selecting the case study from criterion prescribed as follows :

1. Khok Kham Natural Conservation Club in Samut Sakhon Province
2. We Love Tha Chin River Club in Nakhon Pathom Province

The researcher use the qualitative research in collecting data through in depth-interview, group discussion, participative and non-participative observations by studying concepts, theories framework including research documents involved, checking the forms of deepest interview and group discussion by the specialists. For the interview, the researcher went to interview, recorded the data, observed the activity performing as well as made a record in a tape recorder. The field study collection took three months, then reported the result of the case study including presenting a model of developing environmental education network for the development of school curriculum regarding local-related content. The specialists checked by interviews for its probability in utilizing of creating environmental education for the development of school curriculum regarding local-related content as well as key factors regarded in creating environmental education and a model of environmental education network process. The analysis result can be concluded as follows :

The result concluded that the formation of environmental education network was from a group of people with the same interests on local environmental problem issues with four procedures of creating a model of environmental education process as follows: The formation of the network, the co-ordination of the network, the network expansion and the existence of the network, in addition, the key factor of the formation of a network is leader because leader or group leader made it forward for various factors such as merging people in groups, having united goal, members and outsider co-ordinations, having united activities and learning exchange as well as resource mobilization. These factors are mechanisms flowing implementation of creating environmental education and succeeding environmental education network.

The presentation of a model of environmental education network for local curriculum development regarding local related content.

Creating environmental education network for school curriculum development regarding local-related content, from studying documents and lesson interpretation of environmental network focusing constructing knowledge, understanding, awareness, skills and making people be able to evaluate environmental result conditions. The groups, clubs, organizations or others working on environmental are called “ Environmental education network ” The synthesis in a whole of environmental education with the Best Practice was presented as a model of environmental education network as follows:

The preparations of creating environmental education network

The study revealed that environmental education network was a network from establishment with advanced working design of a network. Therefore, before creating environmental education, it should be prepared by studying local context and making relationship to local community for the data of working design of a network as well as local people and involvers in co-operative working for a network. Thus, in order to from the network from the co-operations of local people truly, the probable implementation should concluded the followings:

1. Local context study was done by SWOT analysis for fundamental data in promoting the formation of environmental education network both natural environment and social environment education. This conducted to supported and creating environmental education network limitations.

2. Creating a good relationship is to construct knowledge, understanding the concept of environmental education network for involvers and people interested in participating environmental education network including making familiarity to the area.

Creating environmental education network

From the study of creating environmental education network revealed that a model of creating environmental network was divided in 4 phases as follows:

Phase 1 : The formation of environmental education network

1.1 Seeking group leader interested in environmental problem issues.

1.2 Making people interested in group merging as the members of environmental education network.

1.3 Setting objectives or goal for co-operative working

1.4 Selecting committee to administrate environmental education network, duty allotment, rules and regulations and working agenda for the committee.

1.5 Co-operative performing activities/learning exchange, performing activity plan.

Phase 2 : Co-ordinations

2.1 The co-ordinations within and outside the network is to systematize the communications of members, personnel, agencies and external organizations for the working perceptions and the movements of network activities of outsiders.

2.2 Performing activities for the opportunity of members exchanging opinions and joining activities together.

2.3 United resource mobilization is to mobilize knowledge or wisdoms of members in co-operative working of a network. Furthermore, it also has labor mobilization of members, materials, learning, resources and fund mobilization as well.

Phase 3 : The expansion of environmental education network

3.1 Work publicizing/decentralizing knowledge, concepts, and working experience within and outside the network.

3.2 Enrollment of people broadly to participate the network

3.2.1 To be members formally

3.2.2 Participate the activities as interested

3.3 Performing activities continuously

3.4 Follow up and evaluate co-operative working of a network

Phase 4 : The existence of environmental education network

4.1 Fostering and developing new generation leaders

4.2 Enhancing members' learning process continuously.

4.3 Fostering members performing activities and learning exchange continuously.

4.3.1 The activities beneficial to members and local community

4.3.2 The activities making relationship of network group members.

The synthesis result of a processes and factors in creating environmental education network can be concluded that a model of environmental education has a driving procedure to be environmental education network in terms of preparations before creating environmental education network and the procedure of creating environmental education network with four phases as follows: 1) The formation 2) The co-ordinations 3) Network expansion 4) The existence of the network. Each phase indicates factors of the network components in six items 1) United members 2) United goal 3) Co-ordinations between members and outside the network 4) United activities and learning exchange to each other 5) United resource mobilization and 6) Having leader as network coordinator.

6.1.2 Developing a model of environmental education network for the development of school curriculum regarding local-related content.

Developing a model of environmental education network for the development of school curriculum regarding local - related content, the study area was in the Municipality of Samut Sakhon by purposive sample from criterion prescribed:

Selecting a target group is the next implementation for developing environmental education network for school curriculum development regarding local-related content. The SWOT analysis was used for the fundamental data of study area,

organization groups, agencies involved and supporters working on environment. It was also a finding of key informant and selecting a target group from snowball method, acquiring a willing target group to participate environmental education network for the development of school curriculum regarding local-related content who are 23 people such as individual, representatives form organization groups, agencies, the state and private, including community leaders, religious leaders, educational personnel and student representatives.

The researcher used the qualitative research in collecting data through a deep interview, group discussion, document checking, co-operative observation and the qualitative research in learning unit evaluation of “ Local Environment ”, using the evaluation form of the office Academic Standard and Curriculum Development of the office of Basic Education Commission, Ministry of Education (2010) provided for schools and involvers to evaluate learning unit using backward design. For the interview, document checking and observations, the researcher went to interview, took notes, observed performing activities including making a recorded data in a tape-recorder. The researcher spent five months collecting field study data and made a report including presenting the development of model of developing environmental education network for school curriculum development regarding local-related content. The next implementation was to develop local environmental learning framework and local environmental learning unit for Grade 1 to Grade 9 created by the co-operation of schools under the Municipality of Samut Sakhon. Then the intellectuals re-checked by interviewing and checking the consistency and the correctness according to the items of designing backward design learning unit for the study of its probability in utilizing as school curriculum regarding local-related content on environment.

The result can be concluded as follows:

1. Developing a model of environmental education network for the development of school curriculum regarding local-related content.

Environmental education network for the development of school curriculum regarding local-related content is a network form establishment by fostering a group merging of agencies, state and private organizations, schools and

community leaders working on environment in the local area driving to form environmental education network. The implementation procedures are as follows:

Step 1 : The preparations of creation environmental education network for the development of school curriculum regarding local-related content was implemented by studying local context and making a good relationship to target group for familiarity and understanding of a network concept and explained the objectives and goal of creating environmental education network for the development school curriculum of regarding local-related content to the target group such as agencies, state organizations, the private working on environment, schools and community leaders interested in local environment of the Municipality of Samut Sakhon.

Step 2 : Creating environmental education network for the development of school curriculum regarding local-related content, this step is the formation of a network, beginning with finding leaders or group leader. The goal of a network is developing school curriculum regarding local-related content. Thus, the researcher must be co-ordinated with educational agencies of the Municipality of Samut Sakhon and co-operated with Educational Division in driving the formation of environmental education network for school curriculum development regarding local-related content. The first start was performing activities together in terms of brainstorming discussion by dividing activities in three parts as follows 1) Reflection of local environmental problem issues 2) Exchanging opinions on guideline of environmental education management in schools under the Municipality of Samut Sakhon 3) Unity of further development to the same working goal on environmental education network.

The result of brainstorming discussion has made the formation of environmental education network by performing activities together, that is workshop seminar for the development of school curriculum regarding local-related content on environment.

2. Developing the school curriculum regarding local-related content on environmental is one of activities of environmental education network which the six schools and Educational Division of the Municipality of Samut Sakhon participated in developing local learning framework and learning units in the local area form

brainstorming of school administrators, academic teachers, teachers and supervisors from Educational Division of the Municipality of Samut Sakhon and researchers. The focus and needs in brainstorming discussion of environmental education network on local environmental problem issues of garbage, waste water, smell from seafood processing and natural resources, environment destroying such as Mangrove forest destroying and coastal erosion were developed to be local learning framework and learning units of local environment for learning management of primary students (Grade 1 to Grade 6) and secondary students (Grade 7 to Grade 9), based on integrated learning units of “ Local Environment ” in every grade level which are thorough learning units and consistent with the Basic Education Core Curriculum A.D. 2008. The result of workshop seminar activity of environmental education regarding local-related content has brought about learning units of “ Local Environment ” as follows :

Grade 1 : Learning unit of “ Conserve Environment Around Us ” consists of four learning lesson plans as follows (1) Our school looks live able in (2) Environmental Changes (3) Garbage in Our hands and (4) where does the smell come form ?

Grade 2 : Learning unit of “ Love Schools Love to Conserve Environment ” consists of five learning lesson plan as follows (1) Natural and Cultural Environment (2) Sparingly use of local resources (3) Local seasons and living (4) School and community environment maintenance and restoration and (5) Environmental problems of community, garbage and smell.

Grade 3 : Learning unit of “ Love Community Love to Conserve Environment ” consists of five learning lesson plans as follows (1) Local community and transitions from past to present (2) Utilization of local natural resource (3) Mangrove Forests and coastal erosion of Mahachai Bay (4) Trails of garbage in the community (5) Undesirable water and smell.

Grade 4 : Learning unit of “ Love Local Love to Conserve Environment ” consists of five learning lesson plans as follows (1) Physical environment and living as well as the results of environment changes (2) Mangrove forest conservation (3) Trails of garbage in the community (4) Due to the smell (5) Water detective.

Grade 5 : Learning unit of “ Life and Local Environment ”. consists of five learning lesson plans as follows : (1) Settlement and migration (2) Environmental conservation according to sufficient economy philosophy (3) Trails of garbage in the community (4) Garbage increases money and (5) Environmental pollutions “ Due to the smell ” and water detective.

Grade 6 : Learning unit of “ Local Environment ” consists of five learning lesson plans as follows (1) The Mangrove ecosystems (2) Food chain of mangrove ecosystems (3) Workshop study at Mangrove Forest of Mahachai Bay, The Mangrove forest Learning Center of Mahachai Bay in Samut Sakhon Province (4) Local natural resources (5) Project of growing mangrove forest for local environmental conservation.

Learning unit of “ Disasters Threatening Samut Sakhon ” consists of five learning lesson plans as follows (1) Population increase to the use of local natural resource (2) Environmental changes (3) Environmental pollution problems in the community (4) A plan of using community resources and (5) Garbage increase money.

Grade 7 : Learning unit of “ Sufficient Economy ” consists of three learning lesson plans as follows (1) Meaning of economics (2) Values and consuming behavior of Thai people and (3) Sufficient economy and Thai society.

Learning unit of “ Human and Environment ” consists of four learning lesson plans as follows : (1) Environmental changes (2) International co-operations and natural environmental problem solutions (3) Economy center and (4) The influence of environment effecting human’s behavior.

Grade 8 : Learning unit of “ Natural Resources and Local Environment Based on Sufficient Economy Philosophy ” consists of two learning lesson plans as follows (1) Factors affecting producing goods and services and (2) Guideline of production development in the Local Area Based on sufficient economy philosophy.

Learning unit of “ Human of Environment ” consists of four learning lesson plans as follows (1) The formation of new social environment (2)

Guideline of natural and environmental conservation (3) Environmental problems and (4) The result to the country (Thailand)

Grade 9 : Learning unit of “ Local Environment ” consists of four learning lesson plans as follows (1) Mangrove ecosystems of Mahachai Bay (2) Food chain and food web of mangrove ecosystems of Mahachai Bay (3) Water and carbon cycles and (4) Population changes in mangrove forest of Mahachai Bay.

Learning unit of “ Local Environment Problems ” consists of four learning lesson plans as follows (1) Local environmental problems (2) Guideline of local environmental problem solutions (3) Participation in the maintenance and (4) using efficient economy concept in conservation.

Learning unit of “ Local Development Based on Sufficient Economy Philosophy ” consists of three learning lesson plans as follows (1) The mechanism of economical system (2) Local development and (3) Sufficient economy concept and co-operative system.

Learning unit of “Natural Resources and Environmental Conservation for Sustainable Development ” consists of four learning lesson plans as follows (1) Environmental problem occurrence (2) Natural resources and environmental conservation (3) Environmental problem issues and (4) The effect of environmental problems.

3. Evaluation of learning unit on “ Local Environment ”

The analysis result in a whole of evaluating learning unit design of “ Local Environment ” of teachers in Grade 1 to Grade 6 and Grade 7 to Grade 9 were at very good level and at good level consecutively. When analyzing each item out fifteen items revealed that the evaluation item at the lowest level were the appropriateness of time allotment and the appropriateness of media, materials and learning resources. From interviewing teachers indicated that there was little time in learning unit of “ Local Environment ” in which some of learning units need much time for field trips to learning resources. Learning management serving the learning units might take more time for learner development activity or integrating to other subject areas which

each grade level teachers have to plan together on learning lesson plans. For the appropriateness of media, materials and learning resources found that it was the item evaluated in the second level above the minimum. From teachers interviewed, revealed that in learning unit design on “ Local Environment ”, the utilization and the use of media, materials and learning resources were not in details.

6.1.3 Self - assessment of schools in utilization of a model of environmental education for school curriculum development regarding local-related content for students

The result revealed that the six schools under the Municipality of Samut Sakhon utilized environmental education learning units in different ways as follows (1) Utilization of local environment learning unit thoroughly (2) Selection of some learning lesson plans in local environmental learning units (3) Application of learning unit by developing or improving appropriate to curriculum structure and time allotment structure of each school. The result of evaluating learning unit on time issue in learning management of each unit and materials, media used in learning management was the issue needed to be improved more, consistent with the discussion of groups of school administrators, academic teachers and teachers as well. For the guideline of school curriculum development regarding local-related content indicated that the agencies involved local education should prescribe a local policy on local environment learning management as well as administrative management supporting budget, personnel development on learning management, creating integrated learning units, supporting local environmental learning from local agencies as well as information relation for community collaborations in local educational development.

Thus, it can be concluded that a model of environmental education network for school curriculum development regarding local-related content has effected the development of environment education as follows:

1. Environmental education network is a driving process of co-operative working causing the formation of school curriculum development regarding local-related content on environment from the collaborations of many parties and in line

with local needs as well, by setting local learning framework of schools form local environmental problem issues.

2.Environmental education network is also a center of intellectual personnel who realize local environmental problems. These personnel have opportunity to exchange idea causing a co-operative problem solutions and development.

3. Environmental education network causes the collaborations of all sectors in the local area for contributing, promoting and supporting environmental learning management for local schools.

4. Environmental education network has brought up environmental problems to education provision of local schools through integrating local-related content to the Basic Education Core Curriculum A.D. 2008 for its convenience to teachers in learning management serving indicators in each environmental learning standard and add local-related content on environment in the indicators. This conducts learning of global environment and local environment to students.

5. Environmental education network for the development of school curriculum regarding local-related content causes local environmental learning units with the integration between the Basin Education Core Curriculum A.D. 2008 and local-related content, reducing the problems of too much content. The measurement and the evaluation follow the indicators as prescribed in the curriculum as well.

6. Environmental education network also effects the local area in other aspects as follows:

6.1 Environmental education network causes the lessons to local people in united working for local development.

6.2 Environmental education network causes the learning of living together in democratic society with opinions' acceptance of all parties involves.

6.3 Environmental education network causes the opportunity of agencies, organizations involving environment and people interested in

environmental problem solutions to exchange idea and a guideline of co-operative working on environmental problem solutions and development. It helps reducing the complexity of performing activities in the area as well as the use of budget sparingly and appropriately.

6.4 Environmental education network also causes coordinative contributions between agencies and agencies, the individual and agencies on various aspects such as personnel, budget, materials, places and so on.

6.2 Suggestions

6.2.1 At school level

6.2.1.1 Schools should follow up the utilization of learning unit of “Local Environment” developed from environmental education network for school curriculum development regarding local-related content by measuring and evaluating students according to the Basic Education Core Curriculum and authentic assessment of what occurs in the local community including setting a school policy on local environmental learning management continuously. The improvement of learning and teaching development in line with the qualitative assessment result and students’ desirable characteristics on environmental conservation should be required.

6.2.1.2 Utilization of a model of environmental education network for school development regarding local-related content, schools should study concept of working as a network and analyze the Basic Education Core Curriculum A.D. 2008, policy, school focus and environmental needs of local people for setting schools’ goals. When working together as environmental education network, the objectives and goal of a network ought to be set co-operatively. Each school still maintain its goal by promoted and supported in terms of local environmental learning management through working of a network.

6.2.1.3 Schools should promote and support environmental education network on continuous implementation, as well as utilize body knowledge from environmental education network in developing environmental teachers due to a

network component of environmental personnel, local wisdoms and so on. Supporting on fund, materials and local learning resources from a network are also included as well.

6.2.1.4 Schools should promote and support the environmental education network to participate learning management for students, because a network consists of knowledge and competent personnel on environmental working experiences. Thus, these personnel can transfer body knowledge and experience to students in terms of local environmental learning from direct experienced personnel.

6.2.2 Local education provision level

6.2.2.1 Local educational agencies should provide a policy for school to manage local educational learning through environmental education network in developing local environmental learning as well as developing environmental teachers, co-operative utilization on learning resources in environmental education network and so on.

6.2.2.2 Local educational agencies should support on budget, co-operative working of schools with environmental education network including information relations of schools in working on environmental education.

6.2.2.3 Local education agencies should evaluate school curriculum regarding local-related content intermittently from state organizations and internal evaluation of schools including students' learning evaluation through co-operative evaluation of stakeholders for roundly data analysis and authentically to the utilization of improving and developing local environmental learning management.

6.2.3 Policy level

6.2.3.1 From the study showed that environmental education network supported and promoted in terms of establishment need to study the cycle or the procedure of merging group as a network, both factors inside the group, members, leaders' competencies in administrating (structure, rules and regulations, activities) and factors outside the group such as supporting from state organizations, promoting learning process including social context, economics and state policy. The one who

supports the formation of a network should analyze factors involving the group thoroughly for setting guideline in promoting group development in line with context condition of the group. The main thing for driving the formation of environmental education network, the supporters should promote and support continuously including viewing the importance of supporting body knowledge, concept, network administration for the group more than budget support but lack of knowledge and understanding support effecting the strength and the existence of environmental education network.

6.2.3.2 From the study revealed that any area with completed implementation the state of external agencies should promote further implementation without doing by themselves whereas any area without implementation need to be stimulated the formation of network by agencies as distant contributors until the network itself can implement.

6.2.3.3 The network should be supported and promoted leader personnel development by educating and learning exchange in various fields necessary to network administration such as administrating organizations, conference, seminar, financial administration, accounting, following up and evaluating activities, building encouragement, mobilizing collaborations and so on, for promoting knowledge and understanding of network administration which increase competency level in working of a network.

6.2.3.4 Educational provision responsibility of the national level, local level and school level should promote and support the creating of environmental education network for school curriculum development regarding local-related content on environment effecting learners development achievement according to learning standard on environment as prescribed in the national level and respond to problem solutions and needs of local environmental development.

6.2.3.5 It should prescribe a long-term measure of education agencies in promoting and supporting learning unit design of “ Local Environment ” for truly practical practice by setting the policy, plan or continuous project in developing school curriculum regarding local-related content. Furthermore, it needs to

follow up and evaluate local environmental learning management of schools from learners' outcome and the effects to local community involving local environmental learning management.

6.3.3 Recommendations for further research

6.3.3.1 Because of this research is a specific study of environmental education for school curriculum development regarding local related content in the Municipality of Samut Sakhon with different surroundings and social context from other areas. Thus, further research should study the same title of environmental education network in other areas including analysis of environmental education for development or local problem solutions in other aspects in addition to school curriculum development.

6.3.3.2 The study appeared that organizations, state agencies in local level and ministry level, department, division and so on, with the responsibilities of promotion, supporting, supporting and fostering the strength of the community by collaborating to be a network. Therefore, the analysis of the roles and duties in promoting and supporting creating the network of organizations, local environment agencies should be done in order to set the guideline of promoting development of environmental education network in line with condition events of the area and collaborations of problem solutions or local environmental development.

6.3.3.3 The study found that the study of outcome from working of environmental education network will reflect the society at any much or less, thus, it should possibly study a model or working method evaluation of environmental education network resulting the achievement of environmental education goal such as knowledge and understanding on environmental education problems, positive aptitude to environmental conservation, participating the problem solution and so on.

6.3.3.4 Environmental education network for school curriculum development regarding local-related content uses development guideline causing local-related content on environment by standard analysis and environmental indicators as prescribed in the Basic Education Core Curriculum A.D. 2008 which

more guidelines can be used in local environmental learning management. Therefore, it should provide the study of any other guidelines needed in learning utilization in environmental education network as follows (1) Providing learner development activity, scout and red cross activities, environmental club and promoting the rise of public-mindedness on environment in their own local areas. (2) Providing additional courses with can be applied from local-related content for a variety of models of managing environmental learning in the local area. In addition, the selection of any model depends upon a school context.

6.3.3.5 Environmental education network for the development of school curriculum regarding local-related content is only the formation of environmental education. Therefore, the analysis of the co-ordination of the network, the network expansion and the existence of the network should be continued for environmental education development for the data promoted and supported the working guideline in problem solutions and environmental development.

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APPENDICES

APPENDIX A
SPECIALISTS FOR MONITORING A MODEL OF
ENVIRONMENTAL EDUCATION

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Assoc. Prof. Prapapan Un-ob Faculty of Social Sciences and Humanities
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Prof. Dr. Supaporn Songpracha Faculty of Education and Development
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Mr. Thongthan Lertlataporn Deputy mayor of the Municipality of
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Mr. Narin Boonruam Secretary to the Provincial Fisheries
Association

Mr. Nantawat Chan-in-ngam President of We love Tha-Chin Club
Nakhon Prathom province

Mr. Sakchai Natlomwong President of Natural Conservation
of Khok Kham Club
Samut Sakhon Province

APPENDIX B
SPECIALISTS FOR MONITORING A MODEL OF THE
DEVELOPMENT OF SCHOOL CURRICULUM REGARDING
LOCAL-RELATED CONTENT IN THAILAND

Asst. Prof. Temduang Rattanatassanee	Faculty of Social Sciences and Humanities, Mahidol University
Mrs. Supanee Metas	Expert educational supervisor
Mr. Samart Sawatpipat	Director of Department of Education under the Municipality of Samut Sakhon
Dr. Sangduan Kongnawang	Expert educational supervisor of Nonthaburi Primary Educational Service Area Office 1
Miss Rattanatip Eauchaiyasit	Expert educational supervisor of Nonthaburi Primary Educational Service Area Office 1
Miss Supranee Sa-nguon-ngam	Special educational supervisor of Chachoengsao Secondary Educational Service Office 6
Miss Pattraporn Jamdon	Educational supervisor of Department of Education under the Municipality of Samut Sakhon

APPENDIX C

SCHOOL CURRICULUM REGARDING LOCAL - RELATED CONTENT IN ENVIRONMENT OF SCHOOLS UNDER THE MUNICIPALITY OF SAMUT SAKHON

Linking between the Basic Education Core Curriculum and local-related content in environment of schools under the Municipality of Samut Sakhon

The core content as a framework for the content or scope of knowledge of learning areas related to the content and learning process in environment that specified in the standards of learning and indicators of core content are as follows.

1. Science
2. Social Studies, Religion and Culture
3. Occupations and Technology

However, the learning environment of schools under the Municipality of Samut Sakhon arises from issues and the need for collaborative learning environment of environmental education network in the Municipality of Samut Sakhon, Which include government agencies, private organizations, community leaders, local school, teachers, students, people interested in environmental issues participate determining the direction of the local environment and learn together by adopting a framework approach to local-related content in the frame as follows;

Learning Area of Science

Strand 2: Life and the Environment

Learning Area of Social Studies, Religion and Culture

Strand 3: Economics

Strand 5: Geography

Learning Area of Occupations and Technology

Strand 1: Living and Family

Strand 2: Design and Technology

Learning Area of Science

Strand 2: Life and the Environment

Standard Sc2.1: Understanding of local environment; relationship between the environment and living things; relationship between living things in the eco-system; having investigative process for seeking knowledge and scientific reasoning; and communicating acquired knowledge that could be applied for useful purposes

**Indicators of the core content and local-related content
learning area of Science**

Grade	Grade level indicators	Core content	Local-related content
1	-	-	-
2	-	-	-
3	1. Explore the environment in the local area and explain the relationship between living things and the environment.	<ul style="list-style-type: none"> Environment refers to our surrounding environment both living and non living. Living have relationship the environment both living and non living. 	<ul style="list-style-type: none"> River, sea, air and local topography of a relationship with the local living.
4	-	-	-
5	-	-	-
6	<p>1. Explore and discuss relationship of groups of living things in various habitats.</p> <p>2. Explore relationship of living things in terms of food chain and food web.</p> <p>3. Search for data and explain relationships between the lives of living things and the environment.</p>	<ul style="list-style-type: none"> Groups living in different habitats are closely related and is associated with the source habitat, source of reproduction and small living. Relationships of living with the Living in the food chain and Cause the transfer of power from manufactures to cinsumers. Living that live in each habitat would have a sructure suitable for living in that habitat and ability to adapt to the environment to find food and servive. 	<ul style="list-style-type: none"> The mangrove forest of east Mahachai bay is the habitats of animals that live by the coast. Food chain of the ecosystem of the mangrove forest in Mahachai bay. Living that live in mangrove forest of Mahachai bay.

**Indicators of the core curriculum and local-related content
learning area of Science (Continued)**

Grade	Grade level indicators	Core content	Local-related content
7	-	-	-
8	-	-	-
9	<p>1. Explore various eco-systems in the local area and explain relationships of the components within the eco-systems.</p> <p>2. Analyse and explain relationship of energy transmission in living things in term of food chain and food web.</p> <p>3. Explain water and carbon cycles and their importance to the eco-system.</p> <p>4. Explain the factors affecting change in size of population in the eco-system.</p>	<ul style="list-style-type: none"> • Each local ecosystem includes the physical and biological endemic elements with their relationships. • Living related with the transfer of energy in the form of the food chain and food web. • Water is the element carbon in living or organisms and inanimation • Incidence of mortality rates,migration rates and migration out of the living affect the size of the population in the ecosystem. 	<ul style="list-style-type: none"> • Mangrove forest Ecosystems in Mahachai bay. • Mangrove forest Ecosystems in Mahachai bay. <li align="center">- • Mangrove forest Ecosystems in Mahachai bay and mangrove forest in Samut Sakhon Province.

Learning Area of Science

Strand 2: Life and the Environment

Standard Sc2.2: Appreciating the importance of natural resources; utilisation natural resources at local, national and global levels; and application of knowledge for management natural resources and local environment on a sustainable basis

**Indicators of the core curriculum and local-related content
learning area of Science**

Grade	Grade level indicators	Core content	Local-related content
1	-	-	-
2	-	-	-
3	<p>1. Explore natural resources and discuss utilization of local natural resources.</p> <p>2. Specify utilization of natural resources conducive to creating local environmental problems.</p> <p>3. Discuss and present ideas for economical and cost-effective utilization of natural resources and participate in the practice.</p>	<ul style="list-style-type: none"> • Soil, rock, air, forest, wildlife and a mineral resource is important. • Humans use the local natural resources to benefit of life. • Humans use the vast resources that affect the local environment. • Humans need to know to care for and use of natural resources and cost savings to make a long lasting. 	<ul style="list-style-type: none"> • Natural resources are in the locality and province. • Local natural resources such as mangroves, coastal animals, birds and sea salt. • Degradation of forest resources • Conservation, rehabilitation and watching of forest resources from sustainable using in Mahachai bay.
4	-	-	-
5	-	-	-
6	1. Search for data and discuss sources of natural resources in each local area beneficial to living.	<ul style="list-style-type: none"> • Natural resources in each area are beneficial to the survival of the life. 	<ul style="list-style-type: none"> • Local natural resources such as mangroves, coastal animals, birds and sea salt.

**Indicators of the core curriculum and local-related content
learning area of Science (Continued)**

Grade	Grade level indicators	Core content	Local-related content
6	<p>2. Analyse effects of population increase on utilization of natural resources.</p> <p>3. Discuss effects on living things from environmental change both due to nature and due to human beings.</p> <p>4. Discuss guidelines for taking care of and preserving natural resources and the environment.</p> <p>5. Participate in providing care and preservation of natural resources in the local area.</p>	<ul style="list-style-type: none"> • The increase in human population cause from the using of natural resources more and more. As a result, natural resources reduced and environmental change. • Natural disasters and Human activities cause the environmental change. As a result, plants have been destroyed and animals are extinct. • Awareness on the conservation of natural resources as well as the planting of trees as a way to maintain the natural resources and environment. • Participate in providing project to care and preserve the quality of local environmental sustainability. 	<ul style="list-style-type: none"> • Human population of each district in the Municipality of Samut Sakhon • Natural disasters and human activities occur locally. <ul style="list-style-type: none"> - Erosion of the coast and rivers. - Flooding caused by tidal system. - Fisheries - The destruction of mangrove forests. • The tree planting around the school and the blank in the community. <ul style="list-style-type: none"> - Participatory mangrove planting for conservation areas. • Mongrove refoestation project to protect the local environment.

**Indicators of the core curriculum and local-related content
learning area of Science (Continued)**

Grade	Grade level indicators	Core content	Local-related content
7	-	-	-
8	-	-	-
9	<p>1. Analyse the state of problems concerning the environment and natural resources in the local area, and propose guidelines for problem-solving.</p> <p>2. Explain guidelines for preserving the equilibrium of the eco-system.</p> <p>3. Discuss sustainable utilization of natural resources.</p>	<ul style="list-style-type: none"> • The problem of environment and natural resources in the local environment caused by acts of nature and man. • Ecological balance should control a number of manufacterers, consumers and the decomposition of organic matter to the amount and distribution of appropriate proportions. • Sustainsble use of natural resources and environment to maintain the balance of the ecosystem. • The natural resources used efficiency by reuse, recycle, reduce and repair that arethe ways of use to sustainable natural resources. 	<ul style="list-style-type: none"> • Local environmental problems caused by the actions of humans such as the garbage sewege and smells. - The destruction of mangrove forests occur by nature. • Mangrove ecosystem • Coastal and offshore fisheries • Seperations of waste

**Indicators of the core curriculum and local-related content
learning area of Science (Continued)**

Grade	Grade level indicators	Core content	Local-related content
9	<p>4. Analyse and explain utilization of natural resources in terms of the Sufficiency Economy Philosophy.</p> <p>5. Discuss environmental problems and propose relevant guidelines for problem-solving.</p> <p>6. Discuss and participate in providing care and preserving the local environment on a sustainable basis.</p>	<ul style="list-style-type: none"> • The use of natural resources should take into account the philosophy of sufficiency economy, based on moderation and as a precaution, taking into account the modesty and reasonableness and ready to accept the consequences and changes that occur. • Environmental problems may be caused by water pollution, noise pollution, air pollution and soil pollution. • There are many ways of the problem solving by starting from studying the sources of problem, the problem solving process and participation of people in practice to solve the problem. • Care and local environmental Sustainability should be cooperation from all parties and shall be the responsibility of everyone. 	<ul style="list-style-type: none"> • Learning resources or the wisdom of the sufficiency economy philosophy. • The local pollution <ul style="list-style-type: none"> - Water pollution - Smell pollution - Pollution from toxic waste • Resources of problems <ul style="list-style-type: none"> - Water pollution - Smell pollution - Pollution from toxic waste • Working project or participation to conserve the local environment.

Learning Area of Social Studies, Religion and Culture

Strand 3: Economics : production, distribution and consumption of goods and services; management of limited resources available; lifestyle of equilibrium and application of the principles of Sufficiency Economy in daily life

Standard So3.1: Understanding and capability of managing resources for production and consumption; efficiency and cost-effective utilisation of limited resources available; and understanding principles of Sufficiency Economy for leading a life of equilibrium

Indicators of the core curriculum and local-related content Learning Area of Social Studies, Religion and Culture

Grade	Grade level indicators	Core content	Local-related content
1	3. Cite examples of economical use of resources in daily life.	<ul style="list-style-type: none"> • Economical use of resources in daily life such as pencil, paper, clothes food, electric and water • Sharing use of resources such as tables, chairs, utilities etc. • How to use correctly and savings worth about private and cooperative resources 	<ul style="list-style-type: none"> • The use of local resources-saving and cost-sharing
2	1. Specify the resources utilised for producing goods and services used in daily life.	<ul style="list-style-type: none"> • Resources used to producing goods and services for used in families and schools such as pencils and paper that made from wood as well as machinery and productive labor. • The effects of resource and benefits of the product and services, including the Environment. 	<ul style="list-style-type: none"> • Resources used in the production of localresources such as aquatic resources into food processing. • The unknown use of local resources affect to environment.

**Indicators of the core content and local-related content
Learning Area of Social Studies, Religion and Culture (Continued)**

Grade	Grade level indicators	Core content	Local-related content
3	3. Can explain that the limited resources available affect production of goods and services.	<ul style="list-style-type: none"> • The meaning of manufacturers and consumers • The meaning of goods and services • Basic economic problems arising from human needs are unlimited. 	<ul style="list-style-type: none"> • Basic economic problems in locality • Local economy <ul style="list-style-type: none"> - The problem of wasteful use of resources and pollution. - The problem of migrant workers.
4	3. Explain the principles of Sufficiency Economy and apply them in their own daily lives.	<ul style="list-style-type: none"> • Principles of Sufficiency Economy • The application of Sufficiency Economy in the lifestyle such as dressing, eating and spending. 	<ul style="list-style-type: none"> • The application of Sufficiency Economy in the classroom <ul style="list-style-type: none"> - Saving water, electricity and paper.
5	2. Apply the concepts of the Sufficiency Economy Philosophy in organising various activities in family, school and community.	<ul style="list-style-type: none"> • Principles of Sufficiency Economy. • The application of Sufficiency Economy in many activities of family, school and community such as saving energy, service to reduce the losses of all kinds and the use of local wisdom. • For example, the production of goods and services in the community such as the One Tambon One Product or OTOP 	<ul style="list-style-type: none"> • The application of Sufficiency Economy in saving energy of school and community. • Production and seafood processing.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture (Continued)

Grade	Grade level indicators	Core content	Local-related content
6	3. Tell the methods and benefits of sustainable utilisation of resources.	<ul style="list-style-type: none"> ● The meaning and need of resources. ● Principles and methods to make the best use of resources (reduce the loss of everthing) ● How to create a national consiousness to know the value of the resources are limited. ● The planning of resource use by applying the techinques and new ways to benefit society and nation and consistent with economic and social conditions. 	<ul style="list-style-type: none"> ● The local resources ● Efficient use of water and waste water solving from the cleaning of seafood product. ●The local resources ● Local wisdom about fishing and the protection of coastal erosion.
7	1. Explain the meaning and importance of economics. 2. Analyze the values and consuming behaviour of people in society affecting the economies of communities and the country.	<ul style="list-style-type: none"> ● The meaning and importance of basic economics. ● The meaning of the word' resources are limited and demand is not limited, shortages ,choice and opportunity cost. ● The meaning and importance of the efficiency consumption. ● The principles of good consumption. ● Factors are influent to consumer behavior. ● Values and consumption habits of people in society include the advantages and disadvantages of such behavior. 	<ul style="list-style-type: none"> ● Limited resources are in the locality. ● advantages and disadvantages of value and behavior consumer of students in the school / community.

**Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)**

Grade	Grade level indicators	Core content	Local-related content
7	3. Explain the historical development, principles and importance of the sufficiency economy philosophy for Thai society.	<ul style="list-style-type: none"> ● Values and consumption habits of people in society include the advantages and disadvantages of such behavior. ● The meaning and origin of the philosophy of sufficiency economy. ● The philosophy of sufficiency economy and principles of the King including the project under initiative of the King. ● Principles of sufficiency economy ● The application of the philosophy of sufficiency economy to life. ● The importance of sufficiency economic value and benefits to society. 	<ul style="list-style-type: none"> ● Values and consumption habits of local people ● The project under initiative of the King in Samut Sakhon province. ● Local wisdom of sufficiency economy.
8	2. Explain the factor of products and services, And factors has an influence on the production of goods and sevice.	<ul style="list-style-type: none"> ● The meaning and importance of efficiency products and services ● Survey of local production, what is production, how to use the meaning of production and what is problems in production. ● What technology is used and has an influence on the production of goods and sevice. 	<ul style="list-style-type: none"> ● Production method and processing of seafood and the problems caused by manufactring ● Local wisdom used in seafood processing.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture (Continued)

Grade	Grade level indicators	Core content	Local-related content
8	3. Propose guidelines for development of local production along the lines of the Sufficiency Economy.	<ul style="list-style-type: none"> • Adopted to analyze the production of goods and services in the local economy, society and the environment. • Principles and goals of the philosophy of sufficiency economy. • Survey and analysis of local products and services problems. • The application of the philosophy of sufficiency economy. 	<ul style="list-style-type: none"> • Analyzing the social –economic and the environmental impact. • Survey and analysis of seafood processing. • The application of the philosophy of sufficiency economy in locality.
9	<p>2. Participate in problem-solving and in local development along the lines of Sufficiency Economy.</p> <p>3. Analyse the relationship between the concepts of Sufficiency Economy and those of the cooperative system.</p>	<ul style="list-style-type: none"> • Explore the current Conditions and local economic and social problems and environment. • Analyzing the local Problems by using the philosophy of sufficiency economy. • Guidelines of local solutions and development under the philosophy of sufficiency economy. • The concept of sufficiency to the development in different levels. • The main principles of co-operation. • The relationship between the concept of sufficiency economy principle and co –operative system for application in the economic development community. 	<ul style="list-style-type: none"> • Survey the problems <ul style="list-style-type: none"> - waste - waste water - smell - migrant workers - invasion of mangroves and public areas

Learning Area of Social Studies, Religion and Culture

Strand 5: Geography : physical characteristics of the Earth; physical characteristics, resources and climate of Thailand and various other regions of the world; utilisation of maps and geographical instruments; inter-relationship of various things in the natural system; relationship between man and natural environment and man-made objects; presentation of geo-data and information; preservation of the environment for sustainable development

Standard So 5.2: Understanding of interrelationship between man and physical environment leading to cultural creativity; awareness of and participation in conservation of resources and the environment for sustainable development

Indicators of the core curriculum and local-related content

Learning Area of Social Studies, Religion and Culture

Grade	Grade level indicators	Core content	Local-related content
1	1. Tell various things of natural origin affecting the lives of human beings.	<ul style="list-style-type: none"> • Topography, climate affects the well –being of mankind such as housing, clothing, and food. 	<ul style="list-style-type: none"> • Topography, climate affects the well –being of local people.
	2. Observe and compare environmental changes in the surroundings.	<ul style="list-style-type: none"> • Changes in the surroundings. 	<ul style="list-style-type: none"> • Observe the surroundings.
	3. Participate in organising environmental order at home and in the classroom.	<ul style="list-style-type: none"> • Knowing the tricks of the environment and adapt to the environment. 	<ul style="list-style-type: none"> • Adapt to the environment at school.
2	1. Explain the importance and value of natural and social environments.	<ul style="list-style-type: none"> • The value of the social environment such as building. 	<ul style="list-style-type: none"> • Occupations involved in the local physical environment.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)

Grade	Grade level indicators	Core content	Local-related content
2	2. Distinguish and cost-effectively use depleting and non-depleting natural resources.	<ul style="list-style-type: none"> ● The meaning of natural resources. ● Types of natural resources. -Used natural resources exhausted such mineral. -Used natural resources do not run out of such as water, and atmosphere. -Used natural resources for the replacement or preserved as forest land and wild animals. -How to use resources cost-effectively. 	<ul style="list-style-type: none"> ● local resources -Mangroves. -Sea creatures. -The local vegetation -Indigenous animals. -The use of local resources to cost-effectively
	3. Explain relationship of seasons and human lives.	<ul style="list-style-type: none"> ● The relationship of the season with the lifestyles of human. 	<ul style="list-style-type: none"> ● Season with local professionals. - Fishing and seafood processing.
	4. Participate in rehabilitating and improving the environment in school and in the community	<ul style="list-style-type: none"> ● A change of environment. ● maintaining and restoring the environment. 	<ul style="list-style-type: none"> ● Problems of waste water, waste, bad smell in the school ● Maintaining and restoring the local environment such as <ul style="list-style-type: none"> - Mangroves. - river and canal

**Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)**

Grade	Grade level indicators	Core content	Local-related content
3	1. Compare environmental changes in the community from the past to the present.	<ul style="list-style-type: none"> the environment in the community in the past and present. 	-
	2. Explain dependence on the environment and natural resources in meeting basic needs and livelihood of human beings.	<ul style="list-style-type: none"> The environmental dependency of human life such as housing, transportation and occupation in the community. The occupation is the result of the natural environment in the community. 	<ul style="list-style-type: none"> The dependence of the occupation in the local environment. <ul style="list-style-type: none"> - Fishing. - occupation-related fisheries.
	3. Explain about pollution and origin of pollution caused by man.	<ul style="list-style-type: none"> Pollution caused by human activities 	<ul style="list-style-type: none"> Pollution from waste. Polluted from sewage. and pollution from bad smell.
	4. Explain differences between urban and rural areas.	<ul style="list-style-type: none"> The city and the countryside. 	<ul style="list-style-type: none"> The characteristic communities
	5. Be aware of the environmental changes in the community.	<ul style="list-style-type: none"> Addition and loss of environment cause community change. 	<ul style="list-style-type: none"> Sewage cause the loss of mangrove areas.
4	1. Explain the physical environment of the community affecting the lives of people in the province.	<ul style="list-style-type: none"> The physical environment of communities that affect their lives in the province, such as home and food. 	<ul style="list-style-type: none"> The local physical environment affect the profession of marine fisheries.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)

Grade	Grade level indicators	Core content	Local-related content
4	2. Explain environmental changes in the province and results of such changes. 3. Participate in conservation of the environment in the province.	<ul style="list-style-type: none"> ● Changing environment in the province and the effects of changes such as settlement and migration. ● Conservation of environment and natural resources in the province. 	<ul style="list-style-type: none"> ● Changing environment in communities arise from changes. ● Conservation of mangrove, plants, animals and flora.
5	1. Analyse physical environment influencing characteristics of the settling and migration of people in the region. 2. Explain the influence of natural environment leading to lifestyles and cultural creativity in the region. 3. Present examples reflecting the results of conservation and destruction of the environment, and propose concepts for environment conservation in the region.	<ul style="list-style-type: none"> ● Analyse physical environment influencing characteristics of the settling and migration of people in the region. ● Influence of natural environment leading to lifestyles and cultural creativity in the region. ● The results of treatment and the destruction of the environment. ● Guidelines of conservation and maintenance of the environment in the region. 	<ul style="list-style-type: none"> ● Settlement of people in communities is influential from local physical environment. ● Local wisdom <ul style="list-style-type: none"> - Arts and culture - The occupation. - The lifestyle. - The dress. ● The results of mangrove conservation and surf protection along the coast in Mahachai bay. ● The results of the destruction of the environment such as waste, sewage and bad smell.

**Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)**

Grade	Grade level indicators	Core content	Local-related content
6	<p>1. Analyse relationship between natural and social environments in the country.</p> <p>2. Explain natural transformations in Thailand from the past to the present and the results of such changes.</p> <p>3. Prepare a plan for utilising natural resources in the community.</p>	<ul style="list-style-type: none"> ● Natural and social environment in the country. ● The relationship and impact. ● The results of the change or modification of natural conditions from the past to the present and the results of such changes are as follow : demographic, economic, social and professional culture. ●The using guidelines of resources in the community longer by raising the awareness about the value of the resource. Conservation plans of resources in the community. 	<ul style="list-style-type: none"> ● Mangrove forest with coastal fisheries. ● The tidings with flood problem in the Munutipality of Samut Sakhon. ● Shrimp farming, salt, building homes and shop invade into the coastal sea. ● The projects of water conservation. Plan/campaign to increase green space in the school/ community.
7	<p>1. Explain the effects of natural changes in Asia, Australia and Oceania.</p>	<ul style="list-style-type: none"> ● Changes of pulation, economy, society and culture of Asia, Australia and Oceania. ● To create a new social environment. ● guidelines on the use of available resources in the community longer. The awareness about the value of the resou rce. ● Conservation of resources plans in Asia. 	<ul style="list-style-type: none"> ● migrant workers. ● fishing and conservation. ● plans for mangrove conservation and coastal erosion.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)

Grade	Grade level indicators	Core content	Local-related content
7	2. Analyse cooperation between various countries affecting natural resources in Asia, Australia and Oceania.	<ul style="list-style-type: none"> International cooperation in Asia, Australia, and Oceania affects to the natural environment. 	<ul style="list-style-type: none"> Explore public and private agencies, NGOs, etc. who work about environment in the province.
	3. Explore and explain locations of economic and social activities in Asia, Australia and Oceania by using a variety of data sources.	<ul style="list-style-type: none"> Explore and explain the location, economic and social activities in Asia, Australia, Oceania, such as the transportation hub. 	<ul style="list-style-type: none"> Explore and explain the location of economic activity in the province and the Municipality of Samut Sakhon.
	4. Analyse physical and social factors affecting the flow of thoughts, technologies, goods and populations in Asia, Australia and Oceania.	<ul style="list-style-type: none"> Physical and social factors that affect the flow of ideas, technology, goods and population in Asia, Australia and Oceania. 	<ul style="list-style-type: none"> Analysis of physical and social factors that affect the growth of Samut Sakhon province.
8	1. Analyse formation of the new social environment resulting from natural and social changes of Europe and Africa	<ul style="list-style-type: none"> Changes in population, economy, society and culture of Europe and Africa. 	<ul style="list-style-type: none"> Analysis of the environmental problems in the province and the Municipality Samut Sakhon.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)

Grade	Grade level indicators	Core content	Local-related content
8	<p>2. Specify guidelines for conservation of natural resources and environment in Europe and Africa.</p> <p>3. Explore and discuss environmental issues and problems in North and South America.</p> <p>4. Analyse causes and effects on Thailand from environmental changes in Europe and Africa.</p>	<ul style="list-style-type: none"> • Conservation of natural resources and Environment in Europe and Africa. • Environmental issues that occurred in Europe and Africa. • The impact of environmental changes in Europe and Africa to Thailand. 	<ul style="list-style-type: none"> • The guidelines of conservation of natural resources and environment in the province and the Municipality Samut Sakhon. • Environmental problems that arise in the province and the Municipality Samut Sakhon. • The impact of environmental changes in the province and the Municipality Samut Sakhon.
9	<p>1. Analyse the formation of the new social environment resulting from natural and social changes of North and South America.</p>	<ul style="list-style-type: none"> • Changes in population, economy, society and culture of North America and South America. 	<ul style="list-style-type: none"> • Analysis of the environmental problems in the province and the similar environmental provinces.
	<p>2. Specify guidelines for conservation of natural resources and environment in North and South America.</p>	<ul style="list-style-type: none"> • Natural Resources and Environment in North America and South America. 	<ul style="list-style-type: none"> • The guidelines of conservation of natural resources and environment in the province and the similar environmental provinces.

Indicators of the core curriculum and local-related content
Learning Area of Social Studies, Religion and Culture(Continued)

Grade	Grade level indicators	Core content	Local-related content
9	3. Explore and discuss environmental issues and problems in North and South America.	<ul style="list-style-type: none"> Environmental issues that occur in North America and South America. 	<ul style="list-style-type: none"> environmental problems occurring in the province and the similar environmental provinces.
	4. Analyse causes and continuing effects of environmental changes in North and South America on Thailand.	<ul style="list-style-type: none"> Continuing effect of the environment in North America and South America to Thailand. 	<ul style="list-style-type: none"> The effect of environmental changes in the province and the similar environmental provinces.

Learning area of Occupations and Technology

Strand 1: Living and Family

Standard O1.1: Understanding of the concept of work; possessing creativity and skills in various respects--work processes, management, problem-solving, teamwork and investigation for seeking knowledge; morality, diligence, and awareness of the need to economise on the use of energy, resources and the environment for one's living and for family

Indicators of the core curriculum and local-related content

Learning area of Occupations and Technology

Grade	Grade level indicators	Core content	Local-related content
1	-	-	-
2	2. Economically use materials, instruments and equipment suitable to the type of work.	<ul style="list-style-type: none"> Economically use materials, instruments and equipment suitable to the type of work. 	<ul style="list-style-type: none"> Economical Use of water clean up the seafood.

Indicators of the core curriculum and local-related content
Learning area of Occupations and Technology (Continued)

Grade	Grade level indicators	Core content	Local-related content
3	3. Work in stages as required by the work process, paying attention to cleanliness, carefulness and conservation of the environment.	<ul style="list-style-type: none"> • Work in stages as required by the work process, paying attention to cleanliness, carefulness and conservation of the environment is moral in working. 	<ul style="list-style-type: none"> • Economical Use of water clean up the seafood and fishing and seafood processing.
4	4. Economically and cost-effectively use and energy and resources in working.	<ul style="list-style-type: none"> • Economically and cost-effectively use and energy and resources is moral in working. 	<ul style="list-style-type: none"> • Economical use of water for cleaning.
5	4. Have an awareness of the economical and cost-effective use of energy and resources.	<ul style="list-style-type: none"> • Have an awareness of the economical and cost-effective use of energy and resources is moral in working. 	<ul style="list-style-type: none"> • Economical use of water and know how to get rid of waste water from clean food and seafood processing.
6	-	-	-
7	-	-	-
8	3. Have awareness and economically and cost- effectively use resources when working.	<ul style="list-style-type: none"> • Have awareness and economically and cost-effectively use resources is moral in working. 	<ul style="list-style-type: none"> • The economical and cost-effective use of water and marine resources.
9	3 Discuss work by applying management skills for economising on energy, resources and the environment.	<ul style="list-style-type: none"> • The valuable and sustainable use of energy is moral in working. 	<ul style="list-style-type: none"> • The economical and cost-effective use of energy and marine resources.

Strand 2: Design and Technology

Standard O2.1 Understanding of technology and technological processes; designing and creating objects, utensils or methodologies through creative technological processes; selective utilisation of technologies beneficial to one's life, society and the environment; participation in sustainable technological management

Indicators of the core curriculum and local-related content**Learning area of Occupations and Technology (Continued)**

Grade	Grade level indicators	Core content	Local-related content
3	3. Apply knowledge about appropriate utilisation of utensils and equipment to make simple toys and utensils.	<ul style="list-style-type: none"> ● Selection about appropriate utilisation of utensils and equipment is relationship with life, social and environment. ● Utilisation of utensils and equipment reuse as part of clean technology. 	<ul style="list-style-type: none"> ● Separating waste in class – room and house.
4		●	●
5	5. Select creative use of technologies in daily life for benefit of life and society, and manage objects and utensils through transformation and reuse.	<ul style="list-style-type: none"> ● Select creative use of technologies by returning to new energy also called renewable energy. ● Manage objects and utensils through transformation and reuse is part of clean technologies. 	<ul style="list-style-type: none"> ● Project of separating waste in school.
6		●	●
7		●	●
8	4. Choose to creatively apply technologies to life, society and the environment, and manage technologies through reducing use of resources or choosing to use technologies without negative effects on the environment.	<ul style="list-style-type: none"> ● Choose to renewable energy is part of reducing use of resources. ● Reducing use of resources or choosing to use technologies without negative effects on the environment. 	<ul style="list-style-type: none"> ● Plan/Project of reducing use of resources in school.

The relationship in the Development of learner’s Quality according to the Basic Education Core Curriculum and learning environment

Quality of students in learning areas science related to environment

Quality of students in learning areas science of the Basic Education Core Curriculum 2008	Learner’s Quality according to environmental objective of UN
<p>End the study : Grade 3</p> <ul style="list-style-type: none"> ● Understand the general characteristics of living things and existence of life in a local environment. ● Show enthusiasm, interested to learn and appreciate the environment around them to have mercy, caution to other creatures. 	<p>End the study : Grade 3</p> <ul style="list-style-type: none"> ● An awareness of environmental issues. ● Knowledge and understanding of environmental problems. ● Attitude to the environment.
<p>End the study : Grade 6</p> <ul style="list-style-type: none"> ● Understand the structure and functioning of various systems of life and the relationship of the various living thing of different environments. ● Demonstrate an appreciation for using and caring behavior about maintenance of natural resources and environmental appreciation. 	<p>End the study : Grade 6</p> <ul style="list-style-type: none"> ● An awareness of environmental issues. ● Knowledge and understanding of environmental problems. ● Have the skills to solve environmental problems. ● Attitude to the environment.
<p>End the study : Grade 9</p> <ul style="list-style-type: none"> ● Demonstrate an appreciation for the care and treatment of behavior regarding the use of natural resources and environmental appreciation. involved in the care of natural resources and protecting the local environment. 	<p>End the study : Grade 9</p> <ul style="list-style-type: none"> ● An awareness of environmental issues. ● Knowledge and understanding of environmental problems. ● Attitude to the environment. ● Have the skills to solve environmental problems. ● Use the processes involved in solving the problem environment ● Have the ability to assess environmental impact.

Quality of students in learning areas social studies, religion and culture related to environment

Quality of students in learning areas science of the Basic Education Core Curriculum 2008	Learner's Quality according to environmental objective of UN
<p>End the study : Grade 3</p> <ul style="list-style-type: none"> • Knowledge about themselves and those around you as well as the local environment and connected to the world-wide experience. <p>End the study : Grade 6</p> <ul style="list-style-type: none"> • Learners can compare the different provinces and regions of Thailand and neighboring countries have been developed the social concept about economics and science to expand the experience to understand the region, East and Western religious about moral beliefs, values, traditions, culture and lifestyle, and social organization. <p>End the study : Grade 9</p> <ul style="list-style-type: none"> • Knowledge about the life of the world by comparisons with other countries in the world to develop the concept of living together in peace. • Know and understand the concept and analysis of future events can be useful in their lives and plan their operations appropriate. 	<p>End the study : Grade 3</p> <ul style="list-style-type: none"> • An awareness of environmental issues. • Knowledge and understanding of environmental problems. • Have the skills to solve environmental problems. • attitude to the environment. • Use the processes involved in solving the problem. <p>End the study : Grade 6</p> <ul style="list-style-type: none"> • An awareness of environmental issues. • Knowledge and understanding of environmental problems. • Have the skills to solve environmental problems. • Have a good attitude to the environment. • Have the ability to assess environmental impact. <p>End the study : Grade 9</p> <ul style="list-style-type: none"> • An awareness of environmental issues. • Knowledge and understanding of environmental problems. • Have a good attitude to the environment. • Have the skills to solve environmental problems. • Use the processes involved in solving the environmental problem . • Have the ability to assess the environmental impact.

Quality of students in learning areas Occupation and Technology related to environment

<p align="center">Quality of students in learning areas science of the Basic Education Core Curriculum 2008</p>	<p align="center">Learner's Quality according to environmental objective of UN</p>
<p>End the study : Grade 3</p> <ul style="list-style-type: none"> ● Understand how to help themselves, family and social use of materials and equipment, tools to match job skills, the work process, the work habits, enthusiastic, punctual, safe, clean carefully and with awareness of conservative environment. 	<p>End the study : Grade 3</p> <ul style="list-style-type: none"> ● An awareness of environmental issues. ● Knowledge and understanding of environmental problems. ● Have the skills to solve environmental problems.
<p>End the study : Grade 6</p> <ul style="list-style-type: none"> ● Understand the working and working development in each process, management skills , work together as system of ideas, creation of the diligent work habits of the patient, accountability, integrity and sense of well-behaved and the use of electric water-saving and cost effective. 	<p>End the study : Grade 6</p> <ul style="list-style-type: none"> ● An awareness of environmental issues. ● Knowledge and understanding of environmental problems. ● Have the skills to solve environmental problems.
<p>End the study : Grade 9</p> <ul style="list-style-type: none"> ● Understand the efficient process work that use the group process work, skills and knowledge, problem solving process, and management skills, the selfless work habits, Ethical decisions are reasonable and accurate and awareness of energy use, Resources and the environment and cost savings 	<p>End the study : Grade 9</p> <ul style="list-style-type: none"> ● An awareness of environmental issues. ● Knowledge and understanding of environmental problems. ● Have the skills to solve environmental problems.

Example

Structure of learning unit “Local environment” Primary education Grade 6

Learning Area of Science

learning unit	Learning plan	Standard/ Indecator/ Main Idea	Period (hrs.)
“Local environment”	1. Mangrove ecosystem	Standard Sc 2.1 Grade level indicator 6/1 Learning activities 9.1 – 9.2	2
	2. Food chain, food web of mangrove ecosystem	Standard Sc 2.1 Grade level indicator 6/2 Learning activities 9.3	2
	3. Educational Workshop at mangrove forest in Mahachai bay	Standard Sc 2.1 Grade level indicators 6/1, 6/2 and 6/3 Learning activities 9.4,9.5	3
	4. Local natural resources	Standard Sc 2.1 Grade level indicators 6/1, 6/2, 6/3 and 6/4 Learning activities 9.6 - 9.8	5
	5. Mangrove reforestation project to reserve lacial environment	Standard Sc 2.1 Grade level indicators 6/4 Learning activities 9.9	3
			15

Making learning unit “Local environment” Primary education Grade 6

Learning Area of Science

15 hours

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1. Standard / Indicator

Standard Sc2.1: Understanding of local environment; relationship between the environment and living things; relationship between living things in the eco-system; having investigative process for seeking knowledge and scientific reasoning; and communicating acquired knowledge that could be applied for useful purposes

Indicator 6/1 Explore and discuss relationship of groups of living things in various habitats.

Indicator 6/2 Explore relationship of living things in terms of food chain and food web.

Indicator 6/3 Search for data and explain relationships between the lives of living things and the environment.

Standard Sc2.2: Appreciating the importance of natural resources; utilisation natural resources at local, national and global levels; and application of knowledge for management of natural resources and local environment on a sustainable basis

Indicator 6/1 Search for data and discuss sources of natural resources in each local area beneficial to living

Indicator 6/2 Analyse effects of population increase on utilization of natural resources.

Indicator 6/3. Discuss effects on living things from environmental change both due to nature and due to human beings.

Indicator 6/4 Discuss guidelines for taking care of and preserving natural resources and the environment.

Indicator 6/5 Participate in providing care and preservation of natural resources in the local area.

2. Concept

The relationship between the existence of living creatures in the food chain and food web has relationships with the local environment and an increase in human population have an impact on the environment. In addition, environmental

changes caused by both natural and human activities to natural resources and environment that is conducive to living creatures exist. Everyone should work together to maintain the local environment.

3. Content

3.1 Core content

3.1.1 Groups living indifferent habitats are closely related and is associated with the source of habitat and source of reproduction and small life.

3.1.2 The relationship of living in the food chain and food web caused a transfer of power from producers to consumers.

3.1.3 Living that live in each habitat will have the right to live in that habitat and can adjust to the environment to find food and survive.

3.2 Local – related content

3.2.1 River, sea, air and local topography are related to local being.

3.2.2 Mahachai Mangrove Forest Bay East is the housing of the coastal animals.

3.2.3 Food chain of mangrove ecosystem of Mahachai Bay.

3.2.4 Living lives in mangrove forest of Mahachai Bay.

4. Learners' Key Competencies

1. Communication Capacity
2. Thinking Capacity
3. Problem–Solving Capacity
4. Capacity for Applying Life Skills
5. Capacity for Technological Application

5. Desirable Characteristics

1. Self-discipline
2. Avidity for learning
3. Observance of principles of Sufficiency Economy Philosophy in one's way of life
4. Dedication and commitment to work
5. Public-mindedness

6. Aims of environmental education

- 6.1 There is awareness in environmental issues.
- 6.2 There is knowlwdge in understanding environmental problems.
- 6.3 There is skill in solving environmental problems.
- 6.4 There is a good attitude towards the environment.
- 6.5 There is participate in solving environmental problems.
- 6.6 There is the ability to assess the impact on the environment.

7. Work / Task

7.1 Work

Natural resource conservation and environmental projects in the Bay of Mahachai.

7.2 Task

7.2.1 Explore the environment that are associated with living in mangrove ecosystems

7.2.2 Explore the living that live in mangrove forest in the Bay of Mahachai.

7.2.3 Presence of natural resources and environmental conservation (by using a variety in method of each student groups)

8. Measurement and evaluation

8.1 Evaluations between organized learning activities

8.1.1 Observers participate in activities to conserve natural resources and environment.

8.1.2 A survey of the landscape in relation to living of mangrove forest in the Bay of Mahachai.

8.1.3 Evaluation of natural resource conservation and environmental projects.

8.1.4 Evaluation of presence of natural resources and environmental conservation (by using a variety in method of each student groups)

8.2 Evaluations after organized learning activities

- Test

9. Learning activities

9.1 Ask students about the topography and the environment of the local community of students

9.2 Students study about the mangrove ecosystem, living in different habitats are closely related and is associated with a source address in the source habitat, source of reproduction, and small life.

9.3 Students study the knowledge sheet. "The food chain and food web" and describe the relationship of the food chain and food web.

9.4 Students explore the environment that are associated with living in the mangrove ecosystem from learning resources by coordinating speakers from East Mahachai Mangrove Bay Learning Center.

9.5 Students explore the living that live in mangrove forest in Mahachai Bay.

9.6 Students divide into groups to search information on internet about the local natural resources that are beneficial to life.

9.7 Teachers educated about human population increases and resources diminish, after that students analyze of the increase in the human population to affect of natural resources.

9.8 Teachers describe students to search the information of the natural and human environmental changes from the internet, library and so on. After that the students discuss an impact on life from the natural and human environmental changes.

9.9 Students do a local natural resource conservation and environmental projects.

10 Media and resources

Media

- Photos in the local environment
- ect.

Resources

1. Environment in the community around the school.
2. Mangrove forest in Mahachai Bay.
3. Bamboo fence to protect erosion along the coast.

Learning network

1. Office of Management Conservation Area.
2. Center for Coastal Fisheries and Samut Sakhon No.2
3. Center for Career Development and Fisher
4. Research and Mangrove Forest Development No.5
5. Office of Samut Sakhon Provincial Office of Natural Resources and Provinces.

BIOGRAPHY

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