

# A Strategy of Environmental Education for Participatory Management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan Province

Thasanapat Panprom<sup>1,\*</sup>, Wee Rawang<sup>2</sup>, Rachanont Supapongpichate<sup>2</sup>  
and Pattaraboon Pichayapaiboon<sup>2</sup>

---

## ABSTRACT

The purpose of this research was to establish the Strategy of Environmental Education for Participatory Environmental Management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province with 3 specified objectives: 1) to study the current environment of the communities surrounding Tham Phet-Tham Thong Forest Park, 2) to assess the levels of learning capacity and participatory behavior on environmental management of the public in the communities, and 3) to synthesize the strategy of environmental education that leads to participatory environmental management in Tham Phet-Tham Thong Forest Park. The study collected data from 396 questionnaires and obtained data from 10 participants by structured interview as well as from 33 people who joined the Appreciation, Influence and Control (AIC) workshop. The results revealed a score of 86.41 percent that the environmental situation in the community was most likely to have problems. With regard to the cultural environment, most community members adapted themselves with the social context. The overall learning was graded at a high average level of 3.43 with 0.57 standard deviation. The level of participatory behavior of the community members was high (average 3.44 with 0.61 standard deviation). However, some aspects—participation in environmental management, finance and supplier or equipment donation, biodiversity assessment, development of the forest park area becoming a tourist attraction, and learning source together with occupational promotion supporting environmental quality—were related to environmental learning and behavior at a moderate level with an average of 3.22 and 0.58 standard deviation. Therefore; the strategy of environmental education for participatory environmental management in Tham Phet-Tham Thong Forest Park includes various factors: a philosophy which emphasizes the sustainable coexistence of the community and forest park and a vision that focuses on learning and managing the forest park with community participation, analysis of both the internal and external environment, environmental education, and occupational promotion and environmental quality projects which support learning, participation and management for sustainable living of the people in communities.

**Keywords:** strategy of environmental education, participatory management, Forest Park

---

<sup>1</sup> Environmental Education Doctoral Program, Department of Education, Faculty of Social Sciences and Humanities, Mahidol University, Nakhon Pathom 73130, Thailand.

<sup>2</sup> Environmental Education Department of Education, Faculty of Social Sciences and Humanities, Mahidol University, Nakhon Pathom 73130, Thailand.

\* Corresponding author, e-mail: thasanapat@hotmail.com

## บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์หลักเพื่อสร้างยุทธศาสตร์สิ่งแวดล้อมศึกษาที่นำไปสู่การจัดการสิ่งแวดล้อมอย่างมีส่วนร่วมในพื้นที่วนอุทยานถ้ำเพชร-ถ้ำทอง จังหวัดนครสวรรค์ โดยมีวัตถุประสงค์รอง 3 ประการได้แก่ 1) เพื่อศึกษาสถานการณ์สิ่งแวดล้อมของชุมชนในพื้นที่วนอุทยานถ้ำเพชร-ถ้ำทอง 2) เพื่อประเมินระดับการเรียนรู้และพฤติกรรม การมีส่วนร่วมของประชาชนในการจัดการสิ่งแวดล้อมในพื้นที่วนอุทยานถ้ำเพชร-ถ้ำทอง และ 3) เพื่อสังเคราะห์ยุทธศาสตร์สิ่งแวดล้อมศึกษาที่นำไปสู่การจัดการสิ่งแวดล้อมอย่างมีส่วนร่วมในพื้นที่วนอุทยานถ้ำเพชร-ถ้ำทอง โดยใช้การวิจัยผสานวิธี รวบรวมข้อมูลด้วยแบบสอบถามจากประชาชนในชุมชนจำนวน 396 คน การสัมภาษณ์แบบมีโครงสร้างจำนวน 10 คน และเทคนิคการประชุมปฏิบัติการอย่างมีส่วนร่วมและสร้างสรรค์ (AIC) จำนวน 33 คน ผลการวิจัยพบว่า สถานการณ์สิ่งแวดล้อมส่วนใหญ่ในชุมชนยังเป็นปัญหาหรือละ 86.41 ประชาชนส่วนใหญ่มีการปรับตัวทางวัฒนธรรมที่สอดคล้องกับบริบทของสังคม การเรียนรู้ในภาพรวมอยู่ในระดับดี มีค่าเฉลี่ย ( $\bar{X}$ ) = 3.43 ส่วนเบี่ยงเบนมาตรฐาน (SD) = 0.57 และพฤติกรรมการมีส่วนร่วมของประชาชนมีค่าเฉลี่ยในระดับดี ( $\bar{X}$ ) = 3.44 ส่วนเบี่ยงเบนมาตรฐาน (SD) = 0.61 แต่ยังมีบางประเด็น เช่น การมีส่วนร่วมในการจัดการสิ่งแวดล้อม การบริจาคเงิน สิ่งของหรือวัสดุอุปกรณ์ การประเมินความหลากหลายทางชีวภาพ การพัฒนาพื้นที่ในวนอุทยานให้เป็นแหล่งท่องเที่ยวและแหล่งศึกษาวิจัย รวมทั้งการประกอบอาชีพที่ส่งเสริมคุณภาพสิ่งแวดล้อม มีค่าเฉลี่ยอยู่ในระดับปานกลาง ( $\bar{X}$ ) = 3.22 ส่วนเบี่ยงเบนมาตรฐาน (SD) = 0.58 ด้วยเหตุนี้ ยุทธศาสตร์สิ่งแวดล้อมศึกษาเพื่อการจัดการอย่างมีส่วนร่วมในพื้นที่วนอุทยานถ้ำเพชร-ถ้ำทอง จึงประกอบด้วย ประเด็นที่เน้นเรื่องการอยู่ร่วมกันของชุมชนและวนอุทยาน วิสัยทัศน์

ด้านการเรียนรู้และจัดการวนอุทยานโดยการมีส่วนร่วมของชุมชน การวิเคราะห์สภาพแวดล้อมสิ่งแวดล้อมศึกษา และโครงการส่งเสริมอาชีพและคุณภาพสิ่งแวดล้อม

**คำสำคัญ:** ยุทธศาสตร์สิ่งแวดล้อมศึกษา การจัดการอย่างมีส่วนร่วม วนอุทยาน

## INTRODUCTION

In 1961, Thailand had forest areas of about 53.30 percent of the total country or about 171 million rai. In 1989, the country's forest area has declined to only 27.95 percent of the total area or about 90 million rai (Ruangpanich, 2005) By 2009, Thailand had only 33.56 percent forest area or 172,184 square kilometers (Office of Planning and Information System, Department of National Parks, Wildlife and Plant Conservation, 2010) Tham Phet-Tham Thong forest park is one of the protected areas under the wildlife and natural resources protection guidelines and it is an affiliated organization that is governed by the Office of Protected Area Management Region 12 (Nakhon Sawan) and the Department of National Parks, Wildlife and Plant Conservation. The territory of the forest park covers Shawn Dua Mountain and Kwang Mountain in Takhli district and Tak Fa district, Nakhon Sawan province. Geologically the areas is Permian (about 286 to 245 million years old) based on the category of the Khao Khad formation in the vicinity of Sara Buri. It is an important mountain ecosystem for living organisms. In particular, the limestone mountains have a fragile ecosystem with some deciduous tree species scattered throughout the area. Some major kinds of plants which grow on rock are found there and some species are almost endangered. We also found many useful herbs (Rattanamane, 2008). Currently, the Tham Phet-Tham Thong area has many issues arising from the announcement of it being a forest park—covering policy, personnel, budgeting, material shortages, management, participatory issues, theft of rare

plants and natural resources, and tourism unsuited to the geographical conditions. While there has been some efforts to solve these issues, on their own, they are not expected to succeed.

Environmental education is the educational process involving systematic knowledge transfer for the development of attitudes, consciousness, awareness, behavior, and skills that leads to the final concept for problem solving in terms of the relationship between human beings and the environment to maintain a good quality of life. For public education, it needs to be accurate so that participants through its insight both in content and ability can create their own ideas including self problem solving (Jankaew, 1993).

Thus, the researcher proposed that participatory management of the environment in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province is an important channel for the people living nearby the forest park. They can gain knowledge, understanding, attitudes and skills, and have the ability to evaluate and participate in the conservation and development of natural resources and the environment in Tham Phet-Tham Thong Forest Park. In particular, they can collaborate with the government agencies who are responsible for the forest park and scholars or people both inside and outside Tham Phet-Tham Thong Forest Park. Moreover, participatory management will reduce the gap between but maintain the link of the policy from the national level to the operational level within the area.

## LITERATURE REVIEW

Theoretical concepts applied in this research are as follows:

**1. Concept of Strategies:** strategic management is the process for environmental evaluation and the potential of the organization for targeting guidelines, procedures, and operations effectively and achieving the long-term objectives and desired strategic goals of the organization,

operations, and organizational control. The process of strategic management has the following important steps (Khajannan & Samerjai, 2005): 1) to define the vision and mission of the projects, 2) to analyze the external and internal factors of organization, 3) to determine the strategy, 4) to develop the strategy into action and urge all members to share a mutual vision and cooperation for achieving final goals, and 5) to evaluate the strategy as the final step that helps to check and assess the implementation for the organization and any change in strategy in line with the reality of the environment and the situation.

**2. Environmental Education Concept:** (Lucko, Disinger, & Roth, 1987; Labinowich, 1971; Jankaew, 1993; Weerawattananont, 2003) defined environmental education as the systematic process that provides environmental knowledge to individuals at all levels in order to create behaviors, attitudes, and values to maintain and solve environmental issues as well as develop the quality of life. This is consistent with the objective of environmental education from the environmental education workshop held in Belgrade, Yugoslavia. The objectives of environmental education are (UNESCO, 1976): 1) to build up awareness, 2) to transfer knowledge, 3) to build up positive attitudes, 4) to provide skills, 5) to provide ability for evaluation, and; 6) to be participatory. From the objective of environmental education, UNESCO has targeted the global citizen as performing a major role to protect, maintain, promote, and develop the substantial global environment.

**3. Concepts of Participatory Management in Protected Areas:** the management of protected areas in the community dimension is very important due to the fact that sustainable management should consider the needs and the availability of the community. We must understand that the community is related to the resource base in the area (Ratana, 2004). Therefore, the management of protected areas by the participation of nearby communities needs to be arranged in three dimensions consisting of: 1) the community 2)

knowledge and wisdom 3) natural resources surrounding the community. Management and issue solving in the protected area consist of three factors: 1) the solution policy by the government for the management of the protected area, 2) the needs of the local community for the management of protected area, and 3) the potential of the natural resource available in the area. The management of community participation has three principles (Wisitphanich, 2008): 1) public participation under the provision of the Constitution of the Kingdom of Thailand 2007 which states that the public has the right to participate in the management, maintenance, and exploitation of natural resources and the environment including biological diversity through balanced and sustainable processes and their variations, 2) the rules and procedures of good governance are the foundations of public participation, and 3) the way of thinking is by recognizing the protected area as a part of locals both in terms of spatial and social aspects.

**4. Learning Theory:** learning has been derived from the behavior of individuals and experience. It is varied by the conditions of family and the social environment. Learning can be divided in three levels (Srisopha, 1982): 1) subject knowledge, 2) knowledge about methods and operations related to a particular thing, and 3) knowledge about the concept and structure of a particular thing, such as the descriptive or predictive value, interpretation, and prediction. Moreover, Bloom (1975) divided knowledge into six levels: 1) recognition, 2) understanding, 3) application, 4) analysis, 5) synthesis, and 6) evaluation. From these levels, it can be summarized that the knowledge condition of an individual is differentiated by the experienced knowledge that an individual has acquired.

**5. System Theory:** system theory is the collection of the system that humans have designed and created to achieve goals (Banathy, 1968) Therefore, the system is the collection of various components that are interrelated and interact to

obtain a unity of collaboration. The important components are: 1) input factors including the public in terms of intelligence, attention to the environment, economic and social status, and transfer relating to the level of teaching experience as well as morals, 2) processes including planning, operation, management, and services that cause a subsequent behavior, and 3) output factors including the characteristics of the people from various aspects and the combination of the inputs and processes such as knowledge, attitude, intelligence, and ethics with regard to various aspects.

Using the theoretical framework as a guideline and framework to establish a strategy of environmental education for participatory management in Tham Phet-Tham Thong Forest Park, this research starts from the study of the environmental situation in the area, then synthesizes the concepts related to the environmental education strategy for participatory management through participation and systematic management (Rawang, 2009). This is used to determine the guidelines for building up the strategy.

## METHODOLOGY

### Scope of the study

The scope of this study was:

1. Study areas: consisted of three subdistricts—Takhli, Nong Pikul, and Kao Chai Thong in Takhli district and Tak Fa district, Nakhon Sawan province.

2. Contents: consisted of the strategy concept, environmental concept, educational concept, participatory management concept within the conservative area, learning theory, and systematic theory.

3. Population: consisted of the people who live in and nearby Tham Phet-Tham Thong Forest Park.

4. Duration: June 1, 2011–December 31, 2013.

### Population and sampling

The main population of the research was the local people from 11,031 households in the three subdistricts mentioned and some government officers working in Tham Phet-Tham Thong Forest Park. However; the sample was categorized into three groups:

1. Data were collected from 396 participants by questionnaire in the three communities (Takhli sub-district, Nong Pikul sub-district and Kao Chai Tong sub-district) based on the formula of Taro Yamane.

2. There were 10 local experts composed of four community leaders, three to capture the local wisdom of villagers, two officials, and one key informant.

3. There were 33 volunteers participating in the Appreciation, Influence and Control (AIC) workshop. They all were from the community around Tham Phet-Tham Thong Forest Park.

### Data collection

The research was conducted and data were collected from the questionnaire, structured interview, and the Appreciation, Influence and Control (AIC) workshop as follows:

1. Information was obtained from the study of concepts, theories and research documents related to the Strategy of Environmental Education for the Participatory Management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province . The information was further analyzed and synthesized.

2. Data obtained from the questionnaire responses by the 396 local people who were representative of households in the research area. Statistics reported, included frequency, percentage, and standard deviation.

3. Data obtained from the 10 participants in the structured interview were analyzed. Descriptive statistics and content analysis were applied for the analysis.

4. The establishment of the strategy for participatory environmental management consists of

six steps: 1) verifying the validity of data obtained from the questionnaire and interview, 2) collecting all data for analysis and synthesis, 3) collecting data obtained from the brainstorming in the AIC workshop, 4) concluding and referencing all information to draft the strategy of environmental education, 5) circulating the draft of the strategy of environmental education to experts for quality assessment and consistency of the strategy, and 6) preparing the final draft of the strategy of environmental education for participatory management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province.

### Data analysis

The research employed both quantitative and qualitative methods for the analysis:

1. Quantitative data were analyzed using a computer program to find means, frequencies, percentages, and standard deviations .

2. Qualitative data were analyzed and synthesized using content analysis. (Chanthawanich, 2008).

## RESULTS

The research results can be summarized as follows:

1. The demographic data showed that questionnaire respondents consisted of 52.78 percent males and 47.22 percent females with the greatest number in the age range between 41 and 50 years old (25.51%). All respondents were Buddhists. Most were farmers (66.67%) and their education level on average was to junior high school (42.42%), while 69.70 percent were married. The average annual income was 200,001–250,000 baht (29.80%). Most members (97.22 %) had lived in the community for 41–50 years. The result showed that 37.37 percent of community members received information about natural resource conservation and development from the printed media. Many have been trained in environmental management (60.61%). However,

most had not gained any benefits from the development of Tham Phet-Tham Thong Forest park (69.44%).

2. The research findings related to the environmental situation in the communities revealed that many were most likely to have problems (86.41%) and with regard to the cultural environment, most community members adapted themselves along with the social context. Most people used their land for agriculture (60.61%). Soil was contaminated by chemical residues (81.82%). Most community members used water for agricultural activities (61.62%) and water pollution was caused by solid waste (8.54%). In terms of weather issues, most community members faced issues from dust (84.09%) and air pollution derived from agriculture (51.52%). Most community members paid high energy costs (94.19%) and most were affected by increasing energy costs and spending costs (65.91%). Most community members have grown crops for commercial purposes (63.89%) and faced drought problems with their crops (78.28%). Most community members did not have any animals for farming (75.76%) and most of them had problems in good care of animals (10.35%). The results showed that most community members agreed that human beings are a part of the local environment (76.52%). Community members lived and made decisions based on their self-benefits (42.93%). An influencing factor came from the

family (81.57%). In terms of organizational culture, the results showed that most community members got together for community activities (63.89%). They solved problem by discussion and brainstorming (83.08%). The most important traditions of the community have been influenced by Buddhism (78.54%). They gained benefits from participating in community traditions and felt proud of the good community tradition (64.90%). In terms of material culture, the results showed that most community members lived in a single house (98.23%) and appropriately dressed according to the occasion (79.04%).

3. The level of environmental education and participatory behavior in systematic management within Tham Phet-Tham Thong Forest Park is shown in Tables 1 and 2.

From Table 1, most informants had a high level of knowledge related to environmental learning. However, the research findings on each aspect showed that awareness was rated at a high level ( $\bar{X} = 3.62$ ); knowledge at a moderate level ( $\bar{X} = 3.27$ ); and attitude and skills at high and moderate levels ( $\bar{X} = 3.47$  and  $3.45$ ) respectively. Evaluation ability and participation were at a moderate level ( $\bar{X} = 3.37$  and  $3.39$ , respectively).

From Table 2, the research findings showed that most informants had a high level of participatory behavior in environmental education. The details in each category were: input

**Table 1** Level of environmental education and participatory behavior in systematic management within Tham Phet-Tham Thong Forest Park (n = 396)

Environmental Education	Mean	SD	Level
Awareness	3.62	0.62	High
Knowledge	3.27	0.55	Moderate
Attitude	3.47	0.50	High
Skill	3.45	0.61	High
Evaluation Ability	3.37	0.58	Moderate
Participation	3.39	0.60	Moderate
Total mean	3.43	0.57	High



**Table 2** Participatory behavior in systematic management within Tham Phet-Tham Thong Forest Park  
(n = 396)

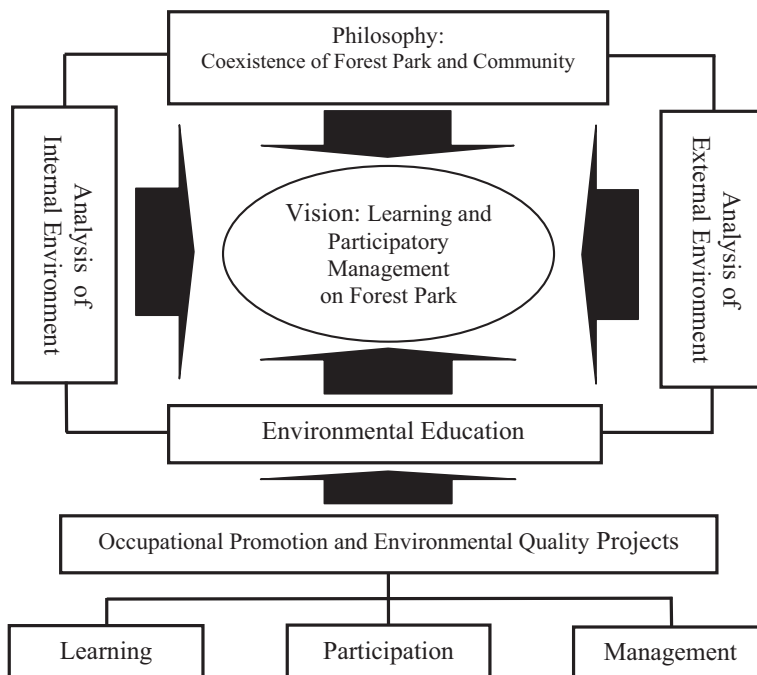
Participatory Behavior	Mean	SD	Level
Input; management, meeting and donation	3.38	0.60	Moderate
Process; performance, monitoring and evaluation	3.57	0.65	High
Output; environmental quality, biodiversity and ecological system	3.45	0.65	High
Outcome; sources for recreation, tourist attractions and natural learning and research	3.31	0.59	Moderate
Impact; quality of life, appreciation and occupation	3.48	0.60	High
Total mean	3.44	0.61	High

(management, meeting, and donation) was rated at a moderate level ( $\bar{X} = 3.38$ ); process (performance, monitoring, and evaluation) was rated at a high level ( $\bar{X} = 3.57$ ); output (environmental quality, biodiversity, and ecological system) was rated at a high level ( $\bar{X} = 3.45$ ); outcome (sources for recreation, tourist attractions, and natural learning and research) was rated at a moderate level ( $\bar{X} = 3.31$ ) and impact (quality of life, appreciation, and occupation) was rated at a high level ( $\bar{X} = 3.48$ ).

4. The strategy of environmental education leading to participatory environmental management for reaching the objective of environmental education can be synthesized as presented in Figure 1.

From Figure 1, the Strategy of Environmental Education for Participatory Management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province is based on the philosophy of coexistence between forest park and community. The vision is for learning and participatory management in the forest park. From the analysis of the internal environment combined with strengths and weaknesses, most community members agreed that the forest park had weaknesses in terms of public

participation (61.62%) with a lack of adequate budgets (33.59%) and human resources (4.80%), while the strengths of the forest park were the richness of natural resources (83.59%) and the participation of community members (12.63%). Furthermore, people in the community had a strong commitment to their duties (3.79%). From the analysis of the external environment combined with opportunities and limitations, most of the public agreed that the forest park was likely to have value for environmental conservation (68.69%), Tourists would value the forest park as an attraction (15.91%) and the government focused on protected areas (15.40%). However, the limitation was that tourism harmed the environment (49.49%), there was limited financial support from government agencies (42.93%), and local agencies lacked an understanding of the environment (7.32%). To respond to the strategy, the project should promote occupations and environmental quality. The project is composed of learning elements, participation, and management using the process of environmental education for participation management.



**Figure 1** Strategy of environmental education for participatory management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan Province

## DISCUSSION

1. Benefits from the development of Tham Phet-Tham Thong Forest Park: 69.44 percent of the community members responded that they did not receive any benefits from the development of Tham Phet-Tham Thong Forest Park. The change in the current situation of the economic, social, and environmental surroundings of the forest park has affected the community that has lived sustainably using the resources of the forest and mountain. When the forest park was declared on 10 January 1997, access to the forest area for self-benefit by the local community was restricted. In addition, the community now spends more time undertaking commercial activities and this has limited the time available for tending the forest. Therefore, the community feels that they do not gain any benefits from the development of the forest park. This is consistent with Khamket (2008) who suggested that the right and decision making of the community

were equal and free in terms of habitation and benefit, respectively, with regard to taking from the natural forest before the announcement of the forest park. When the government controls and manages the natural resources, the way of use and of solving problems associated with natural resources changes. In addition to the announcement, there are continuing issues associated with the political, social, and economic conditions as well as the ability to access the soil and water resources being limited by the law and regulations of the forest park. This is consistent with Rossi (2007) who suggested that with regard to natural resource management, the locals have the same interests and can participate in the management so that the authorities should work with the community to restore the forest steppe effectively; the objective is to increase income and allocate benefits to the community participants. In addition, it provides the community with authority in terms of managing the forest.



2. The means of people learning through environmental education about awareness, attitude, and skills were 3.62, 3.47, and 3.45, respectively, which are all at a good level, resulting from Tham Phet-Tham Thong Forest Park belonging to the community which has fought for and protected the area from the concessionaires seeking access to the limestone rock and through such activism, the community has assisted the establishment of this area as a forest park. The community has affection for and is mindful of the area. Participatory behavior in the system management in the forest park shows that the process and impact aspects are at high levels with means of 3.57 and 3.49, respectively. This has resulted from good cooperation between the forest park and the community. The community is proud of and happy to be involved with the Tham Phet-Tham Thong forest park. This is consistent with Julapan (2004) suggesting that acknowledgement of the impact, social status, news, living time in the community, knowledge, and value of natural resources and environment are factors that are statistically significant in influencing participatory ecological tourism management.

3. To encourage participatory management of the community in Tham Phet-Tham Thong forest park, it is important that the community living near the forest park has a direct relationship to the forest park. It is necessary for the community to join in the thinking, planning, action, decision-making and receiving benefits from the forest park through the process of environmental education. This is consistent with the findings of Namkhan (2008) that the use of participatory action research helps the farmers to be an effective group. It is based on the ability of farmers to share their ideas to analyze problems and appropriately develop as well as manage their own issues, at the community, social, and environmental level. This is consistent with the Thai Constitution of 2007, with Section 67 stating that community participation is a right to be involved in cooperation with the government to preserve natural resources and the environment. The

forest park is a community area, although it is under the supervision of the government. However, the important mechanism is the role of the community living around the forest park to manage the sustainability of the natural resources and the environment in Tham Phet-Tham Thong forest park.

4. Awareness development and environmental reservation: the natural resource and environment of Tham Phet-Tham Thong Forest Park are valuable in many aspects. There is old geology and beautiful surroundings. Its habitats include plants, herbs, and endangered animals that are useful for the next generation. To preserve the environment sustainably, requires starting from the inner self, considering the awareness development, belief, and attitude of the community. Initially, these can be encouraged by providing education and mindset development of the causes of issues, so that these can be addressed without environmental deterioration. This is consistent with the findings of Chaivisetvitaya (2008) that the process of participatory learning makes the farmer acknowledge the value of and know how to use natural resources for the highest benefits. Cornell (2007) found that the training of leadership on ecological community service significantly affects the environmental education, attitudes, and behavior of adults and participants.

5. Public relations on information and knowledge related to Tham Phet-Tham Thong forest park undertaken by the government officers found that most informants (30.30%) received mentioned information from local publications, government officers (24.24%), and newspapers (21.21%), while the remainder (24.25%) were from the radio, brochures, and their neighbors, respectively, because the research findings revealed that the leaders who invited the local people to participate in conservation in the forest park resided in the community. Together they fought the government officers who tried to sign financial concessions with some businessmen. In addition, the people themselves also need to have a more effective

community. Thus, receiving information and knowledge about the forest park is essential to assist the community to understand the significance of the concept of the community and the forest park living together. As the constitution of Thailand mentions in Section 56 *“a person shall have the right to know and have access to public data or information in possession of a Government agency, a State agency, a State enterprise or a local government organization, unless the disclosure of such data or information shall affect the security of the State, public safety or interests of other persons which shall be protected or purport to be personal data, as provided by law”* This provides the community with education, awareness, natural resource affection, and access to the environment of the forest park, leading to greater participation from the community.

6. Occupational and environmental promotion were found to be the main guidelines for an effective economy and environment in the communities surrounding Tham Phet-Tham Thong forest park because the research findings revealed that the major aspect of the forest park vision should be focusing on environmental conservation (66.16%), then people participation (23.23%) and developing the area to be a tourist attraction (6.821%), respectively. This is in accordance with the present view that people in society consider caring for both personal and public benefits. Therefore, it is necessary to promote a career which primarily provides an income and also supports the environment and the community as well as the development of the forest park from the aspect of housing, natural education, tourism, food and souvenir shops etc. When the community gains benefits from the forest park, the community will be more secure in terms of individual's careers and they will feel that the forest park is useful and important to the community. They will have a good attitude to the forest park. This is consistent with Mathuramon (2002) who found that the strategy of environmental education is based on the principles of environmental education, community

development, environment quality management, and military strategic action plans. The new theory of an environmental education strategy includes offensive strategy, defensive strategy, development strategy, and withdrawal strategy. However, each strategy is applied to different activities depending on the objectives for development in each community. According to Phakkrasa (2009), each category of people who travel to visit a tourist attraction, has different definitions of tourism designed by the tourists. Sometimes, the local people in communities don't need or accept those forms of traveling mentioned, but they must remain silent because they need some income from tourism or from distributing their local products to those tourists.

## **CONCLUSION AND RECOMMENDATIONS**

### **Conclusion**

The purpose of this study was to establish the Strategy of Environmental Education for Participatory Management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province covering the three subdistricts of Takhli, Nong Pikul and Kao Chai Thong. These areas are protected areas for forest and natural resource conservation. It can be concluded that the environmental situation in the community has problems in all aspects. With regard to the cultural environment, most people have adapted themselves with the current context of the society based on values, beliefs, and traditional culture. Their educational background and participatory behavior are good. The results of the study of the environmental situation in the community, shows that the mean of each aspect was: awareness, 3.62; attitudes, 3.47; and skills, 3.45. The results of educational learning were at a good level in all aspects due to the fact that the community members within Tham Phet-Tham Tong forest park had protected the mountain from being taking over by

others, resulting in that the area being categorized as a forest park. With regard to participatory behavior in the systematic management within Tham Phet-Tham Tong forest park, the results produced means of process and impact of 3.57 and 3.49, respectively, because the community members have paid attention to and had a good appreciation of change or development in the forest park. People have recognized the coexistence of the forest park and its residents. There are some aspects which were rated at the moderate level: the local people in communities need to be educated more on the correct principles of environmental management. Therefore; the philosophy of the Strategy of Environmental Education for Participatory Management in Tham Phet-Tham Thong Forest Park, Nakhon Sawan province emphasizes sustainable coexistence between the forest park and the communities. The vision focuses on learning and participatory management of forest resources. Environmental analysis and environmental education are also required. Some projects needed to support the strategy mentioned including occupational promotion projects and environmental quality promotion projects.

### Recommendations

1. There should be more study on the strategy for developing Tham Phet-Tham Thong Forest Park to be a significant tourism attraction in the community.
2. There should be continuous promotion and the provision of necessary knowledge to support the coexistence of the forest park and the people in the community.
3. The related agencies should increase cooperation among governmental agencies and the private sector to fund and operate activities and projects within the community.
4. Further research should focus on the people who live outside the forest park area to compare similarities and differences with those living within the area.

### REFERENCES

- Banathy, B. H. (1968). *Instructional systems*. Palo Alto, CA: Fearon Publishers.
- Bloom, B. S. (1975). *Taxonomy of education objective, handbook: Cognitive domain*. New York, NY: David McKay Company Inc.
- Chaivisetvitaya, C. (2008). *The participatory learning process of the production and use of organic fertilizer: A case study of farming family in Bankrakum sub-district, Bang len district, Nakhon Pathom province* (Unpublished master's thesis). Mahidol University, Nakhon Pathom, Thailand. [in Thai].
- Chanthawanich, S. (2008). *Methods of qualitative research* (16th Edition). Bangkok, Thailand: Chulalongkorn University Printer. [in Thai].
- Cornell, J. A. (2007). Creating environmental stewardship: Evidence from a community-based adult education program, *Dissertation Abstracts International*, 68(3), Unpagued.
- Jankaew, K. (1993). *Environmental education*. Bangkok, Thailand: Aksorn Siam printing. [in Thai].
- Julapan, R. (2004). *The participatory ecology tourism management of the community: A case of Kho Lan, Chon Buri province* (Unpublished master's thesis). Mahidol University, Nakhon Pathom, Thailand. [in Thai].
- Khamket, T. (2008). *The access of natural resources and the strategy of community living in the Khao Yai forest park: A case of Chaom sub-district, Kaeng khoi district, Saraburi province* (Unpublished master's thesis). Chiang Mai University, Chiang Mai, Thailand. [in Thai].
- Khajannan, N., & Samerjai, C. (2005). *Management*. Bangkok, Thailand: SE-ED ucation. [in Thai].
- Labinowich, E. (1971). A closer look at environmental education. *Science and Children*, 8(6), 31–35.
- Lucko, B., Disinger, J., & Roth, E. (1987). Evaluation of environment education programs at the elementary and secondary school levels. *The Journal of Environmental Education*. 13(4), 7–12.

- Mathuramon, P. (2002). *Participatory processes to the environmental education strategy for community development of border defense in self protected and village. Ban Tung Maseryer. Bong Thee sub-district, Sai Yok district, Kanchanaburi province* (Unpublished doctoral dissertation). Mahidol University, Nakhon Pathom, Thailand. [in Thai].
- Namkhan, S. (2008). *The participatory action research of the farmer about the organic fertilizer: A case of Thaweewattana sub-district, Sai Noi district, Nonthaburi province* (Unpublished master's thesis). Mahidol University, Nakhon Pathom, Thailand. [in Thai].
- Office of Planning and Information System, Department of National Park, Wildlife and Plant Conservation. (2010). *Statistics from Department of National Parks, Wildlife and Plant Conservation*. Bangkok, Thailand: Department of National Park, Wildlife and Plant Conservation Printer. [in Thai].
- Phakkrasa, S. (2009). Strategic adaptation of the villagers for their presence in tourist areas: *A case of Mae Yen Village Mae Hee Sub-District, Pai District, Mae Hong Son province* (Unpublished master's thesis). Chiang Mai University, Chiang Mai, Thailand. [in Thai].
- Ratana, K. (2004). *Environment 47 the seminar series – Conservation of natural resources and environment in Thailand, No. 8*. Bangkok, Thailand: Ministry of Natural Resources and Environment. [in Thai].
- Rattanamanee, S. (2008). *Tham Phet–Tham Thong forest park*: Bangkok, Thailand: Wisut Kanpim Printer. [in Thai].
- Rawang, W. (2009). *Research reports titled: Systematic environmental education science*. Department of Education: Mahidol University. Nakhon Pathom, Thailand. [in Thai].
- Rossi, F. (2007). *Socio-economic impact of community forest management in rural India*. Gainesville, FL: University of Florida.
- Ruangpanich, N. (2005). *Forest and forestry in Thailand*. Bangkok, Thailand: Academic Support Center. [in Thai].
- Srisopha, A. (1982). *Test development*. Bangkok, Thailand: Jutharat. [in Thai].
- UNESCO. (1976). The Belgrade Charter. *Connect UNESCO-UNEP Environmental Education Newsletter, 1*(1), 2–6.
- Weerawattananont, W. (2003). *Environmental education* (3rd edition). Bangkok, Thailand: Odeon Store. [in Thai].
- Wisitphanich, J. (2008). *National forest park management manual*. Bangkok, Thailand: Department of National Parks, Wildlife and Plant Conservation. [in Thai].