

# Local Wisdom in the Environmental Management of a Community: Analysis of Local Knowledge in Tha Pong Village, Thailand

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## Abstract

The objective of this research is to study knowledge management regarding sustainable environmental management and the protection of natural resources. In this study, the researchers used a qualitative method with fieldwork observation, in-depth interviews of twenty key informants, and a focus group comprised of thirty-three people to discuss and participate in sustainable environmental management and natural resource protection. The data were analyzed using content and descriptive analyses. We found that the knowledge management of the community was divided into two types: 1) knowledge management of an internal community, such as knowledge exchanged between a community's members; and 2) knowledge management of an external community, such as knowledge exchanged between communities. Likewise, in the development of a community practice, a community's members participated in creating groups for specific activities, such as a group for saving money and a group for handicraft production.

**Keywords:** knowledge management, environmental management, sustainability

## 1. Introduction

Over the past several decades, the problem of environmental sustainability has stemmed from humans destroying natural resources. Natural destruction includes soil erosion, wildfires, forest fires, and so forth (United Nations Division for the Advancement of Women, 2001). With the world population increasing, humans need more food, which affects land use and has an impact on forests and environmental sustainability (Gunda, 2008). Today, Thailand faces many problems regarding the environment and the destruction of natural resources; even the national park is disappearing, and the forest areas are decreasing (Promsaka Na Sakolnakorn & Naipinit, 2011). Natural resources are being depleted because people in communities destroy forests for agricultural products (Chaiphar, Kroeksakul, & Promsaka Na Sakolnakorn, 2012).

A local community is a kind of civil society that plays an important role in conserving, reviving, and managing the use of natural resources and the surrounding environment within the community. Recently, the state has recognized the importance of public participation-an essential mechanism for promoting cooperation in environmental and natural resources management. The environmental quality management plan for 2007-2011 stipulated a specific strategy: that social and community participation, as well as the creation of local wisdom by the civil society, should be encouraged to manage the natural resources and the environment. Everyone involved should be encouraged to take part in management and communicate extensively regarding environmental management to create the actual body of knowledge together. In addition, there is support in establishing the people's power foundation and the local vigilance network to monitor the environmental quality. With developments like the management process of enriching the community with knowledge and the exchange of knowledge based on actual practice, many communities have become learning communities and will eventually become communities of practice (CoPs). According to Lave and Wenger (1991), a CoP is a group of people who share and exchange common interests, have developed regarding a particular area of interest or common goals, and want to share and exchange knowledge and working experiences amongst themselves.

Meanwhile, Wenger, McDermott, and Snyder (2002) explain that a successful CoP should generally be based on the following practice guidelines.

- 1) The community design should be closely relevant to its original way of life.
- 2) There should be opportunities for exchanging points of view and experiences from people outside the community.
- 3) The members of the CoP should not only accept but also provide opportunities to those participants and communities that are different from them.
- 4) Areas for the CoP or a public forum should be developed.
- 5) The focus should be mainly on community benefits.
- 6) Learning opportunities should be stipulated as part of the community structure.

To develop a community in order to become a community of practice, the management of knowledge is important since a CoP is a part of knowledge management-discovering, exchanging, and transferring knowledge, including acquiring or exchanging personal knowledge, such as experiences (Wasko & Faraj, 2002). However, it is difficult to exchange, file, and collect evaluation results for such personal knowledge as experience (Kimble & Hildreth, 2005). Moreover, it is hard to manage the imbedded knowledge of a person, especially when he or she has to pass on such knowledge, which is based on personal experiences, to others (Thomas, Kellogg, & Ericson, 2001). Knowledge management is considered an essential strategy for organizational development in order to improve the level of organizational quality (Ipe, 2003; Lai, Huang, Lin, & Kao, 2011). Organizational development arises when there are behavioral changes within the people in the organization. The major factors that contribute to behavioral changes include: 1) people learning within the organization, and 2) knowledge management, which improves organizational efficiency and helps to achieve the highest benefits for further development of other aspects (Conner, 1991; Demsetz, 1998; Lengnick-Hall, Beck, & Lengnick-Hall, 2011).

The environmental management of a community in Thailand will consider a forestry community. The purpose of the research is to find the practices and patterns of the villager's management. The area of study will specifically concentrate on Tha Pong Village in the Wang Takae sub-district, Nong Bua Ra Hew district of the Chaiphum province, and it is regarded as a community with considerable strength, particularly in natural resources and environmental management. The village has become widely known to many local organizations, and at the national level. Its strength derives from the participation of community members in supporting both natural resources and environmental management. Throughout time, most of the community's forests have been cared for and conserved by dedicated community members; therefore, certain sections of forest remain within the community. Additionally, the community understands the importance of conserving the environment so that natural resources will remain available for sustainable use by the next generation.

The above statements explain some of the processes used by community members to manage both natural resources and the environment within their community. However, there are no reports on the community practice of the Tha Pong Village in dealing with knowledge and ways the community members practice their assigned tasks until they turn into a CoP. Hence, this study presents a model of such a community, which reflects not only real practice, but also existing good management. Both can be further employed as guidelines for the development of other communities.

## 2. Reviews Literature

Taylor and de Loe (2012) explain that local knowledge is an important value in supporting technical investigations, developing policies, and effective use in the environmental decision making process. Ballard, Fernandez-Gimenez and Sturtevant (2008) qualify local knowledge based on the length of individuals' relationships with their local environments. Dawoe, Quashie-Sam, Isaac, and Oppong (2012) suggest that national development planning and policy supports local knowledge. They also indicate that the use of truly participatory, gender-sensitive, collaborative, and capacity-building approaches is required, particularly in order to make use of the rich established knowledge available. However, knowledge sharing in communities requires the participation of both experienced individuals and newcomers in the communities involved (Ruuska & Vartiainen, 2005). In addition, social capital is related to community knowledge. Coleman (1988) explains that social capital can be regarded as a resource that may be used to achieve a variety of ends; individuals or groups of individuals generate this resource through deliberate processes of accumulation involving interactions with other people.

Social capital refers to the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. It thus comprises both the network and the assets that may be mobilized through that network (Nahapiet & Ghoshal, 1998). In general, social capital describes the networks of social relations characterized by norms of trust and reciprocity that can improve the efficiency of society by facilitating coordinated actions (Lehtonen, 2004). This form of capital is very important for strengthening communities in Thailand; in fact, over the course of the past few decades, social capital in communities can be categorized into two groups: one established by the government and one arising from the people's participation (Amornsiriphong & Piemyat, 2012). However, problems associated with social capital include perceptions of socioeconomics and the lack of a neighbor network (Seong-Kyu, 2010). In addition, Bordin and Crona (2008) identified two factors that affect resource management. The first encompasses an individual's ability to perceive and synthesize new information and knowledge, potentially reducing the community's ability to adapt to new circumstances; while the second includes a single individual's connections to formal government officials, as well as the impact that the personal characteristics and interests of a single person have on prioritization and decision-making.

Woodhouse (2006) stated that higher levels of social capital within a small regional community have a positive impact on the level of economic development and social capital that is crucial in fostering positive economic outcomes for such communities. Meanwhile, Talbot and Walker (2007) suggested that national, state, and local policy changes directly affect the nature of relations between agencies and members of the community. In addition, they indicated that policy changes affecting all levels of government and various commercial agencies have undermined the people's capabilities for a range of actions that resulted in personal and community-wide social and economic returns. Policy changes indirectly affected them by influencing changes in the nature of welfare and commercial enterprises, as well as the manner in which they operate at the community level. In addition, the rationalization and regionalization of services and commercial agencies, including local government amalgamation and increased workloads, have undermined the people's capacities for community engagement.

In summary, social capital is related to knowledge-sharing networks. In this paper, we will analyze how people in communities generate local wisdom related to practical knowledge in the areas of environmental management and the conservation of natural resources at a sustainable level. In this paper, the term "local wisdom" refers to the knowledge that comes from the community's experiences and the accumulation of local knowledge and local wisdom found in societies, communities, and individuals (Phongphit & Nantasawan, 2002). We hope that this study will benefit other communities and encourage them to remain closely involved with national parks, forestlands, and natural resources. We wish our efforts to serve as a guideline for the practice of collecting local wisdom related to the environment and for natural resource protection that contributes to developing a world that is sustainable through the next generation.

### **3. Objective**

The goal of this study is to investigate how the community of practice manages knowledge in environmental management and conservation of the natural resources at a sustainable level.

### **4. Study Site**

The criteria for the study area included the following: the community is located around the Chi River, the community has a forest conservation group or committee, and the community is connected with both government organizations and nongovernment organizations for support.

Tha Pong Village is in the Wang Takae sub-district, Nong Bua Ra Hew district, Chaiyaphum province, in northeast Thailand in limited Universal Transverse Mercator (UTM) zone 48 E768 679.11 N1751 664.49 (see Figure 1); it is located in the basin of the Chi River. The conservation of natural resources and the environment by the community directly affects the ecosystem of other areas that also use water from the basin of the Chi River. Moreover, the community members of Tha Pong Village, which has a long history, also participate continuously in managing the environment for the conservation of natural resources.

The researchers focused on this village because it is in a national park and at the basin of the Chi River. The Chi River is 765 km long. It runs east through the central northeast region of the Chaiyaphum, Khon Kaen, and Maha Sarakham provinces, then turns south in the Roi Et province, running through Yasothon, and finally joins the Mun River in the Sisaket province.

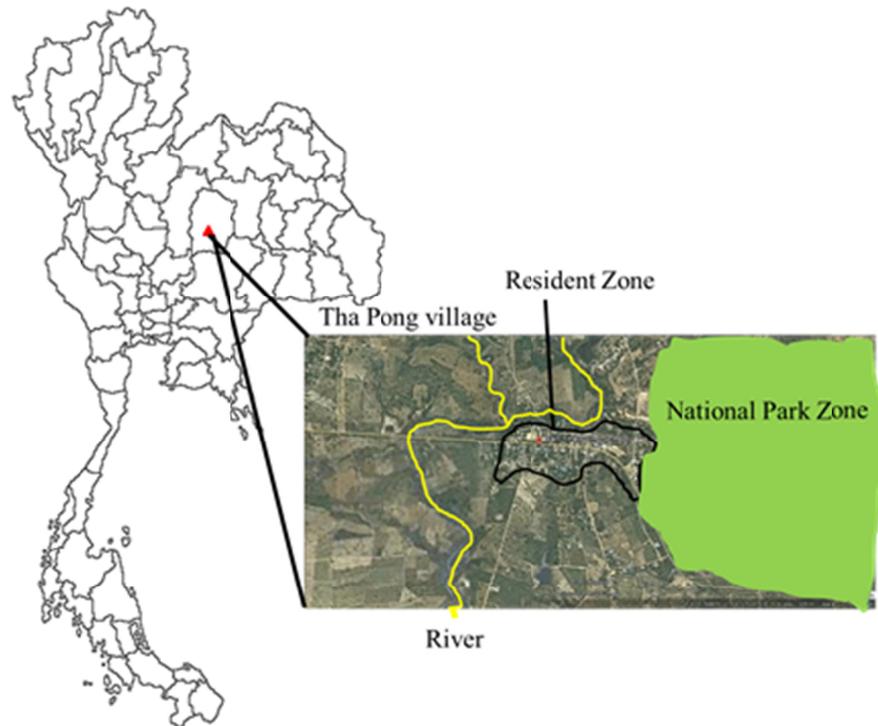


Figure 1. Study site

## 5. Methods

A qualitative method was used to collect data because most of the data needed had to be recalled by the general villagers and protectors, as it was focused on the knowledge of environmental management conservation. Data collection was conducted from April 2011 to July 2011.

### 5.1 Techniques and Sources of Data Collection

#### 5.1.1 Target Group for Data Collection

Table 1. In-depth interviews were conducted with 20 key informants

| Number | Position of Interviewee                                    |
|--------|--|
| 3      | Executives of the Sub-District Administrative Organization |
| 3      | Members of the Sub-District Administrative Organization    |
| 1      | Chief village headman                                      |
| 1      | Village leader   |
| 1      | Assistant village headman                                  |
| 11     | Villagers  |

After the interviews, the researcher kept the information and topics for the focus group for the management of knowledge and local environmental conservation. The members of the focus group are presented in Table 2.

Table 2. Focus group was conducted with 13 key informants

| Number | Position of interviewee   |
|--------|---|
| 4      | Local Administrative Organization   |
| 1      | Community leader  |
| 5      | Community members   |
| 2      | Knowledgeable local people  |
| 1      | Official of the Ministry of Natural Resources and Environment who was working in the area |

The information from the focus group was collected so the research team could analyze the data.

### 5.2 Data Analysis

After the data was collected from the field, it was analyzed and reviewed. Incomplete or conflicting data were filled in and were clarified, respectively, during subsequent interviews. Therefore, this research used the content analysis technique and descriptive analysis to analyze the data. In addition, we also used the triangulation technique to crosscheck the data under the framework of natural resources, insider factors, and outsider factors (see Figure 2).

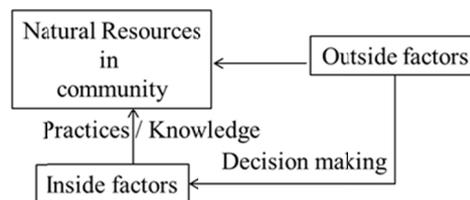


Figure 2. Framework for analysis

## 6. Results

To investigate the method of managing knowledge used by the community of practice, which results in sustainable environmental management, the practice methods were divided into two categories: the process of managing knowledge within the community and the process of managing knowledge obtained from outside the community. Based on these two processes, the community has developed itself into becoming a CoP; a detailed explanation follows.

### 6.1 The Process of Managing the Knowledge Within the Community

This process involves community participation through exchanging and learning within the community by doing activities or joining various conservation projects. The participants include community leaders, local learned men, and community members. Many people participate in activities, such as group consultations conducted by local learned men. In addition, people in the community, including the youth, participate in learning about and conserving local wisdom pertaining to herbal medicines, forest conservation, and food obtained from the forest. This cooperation is explained below.

The local learned man is the leader in the learning process and not only motivates but also activates people's participation in many activities. Generally, villagers will follow instructions or teachings that were passed down to them by their ancestors. The local learned man passes on knowledge through various approaches: teaching, instructing, suggesting, or practicing. For instance, the local learned man who specializes in herbal medicines will lead his children or grandchildren, or any interested persons, to survey various kinds of herbs in a certain area of the community forest. While trekking through the forest to look for such herbs, the local learned man always shares his wisdom about the herbs, including the types of herbs, their properties, and their usage. The local learned man and the novices participate in the learning process together. Once the novices are equipped with a better knowledge of herbs, the local learned man will teach them how to transform the herbs into herbal remedies. This enables the novices to develop a group of medicinal remedies or enter the profession of selling medicinal herbs. In addition, local learned men will teach their children how to conserve various types of plants

that can be used in the practice of herbal medicine, thus making them available to the community forever. Hence, the process of community learning usually leads to the sustainable management of natural resources.

Most importantly, the villagers' participation in conserving natural resources results from the fact that community members from each village always share a common awareness that there should be no excessive damage done to the forests. For example, excessive collection of certain forest products for the purposes of cooking or trading may cause an unbalanced ecosystem. Consequently, if an individual is observed encroaching upon the forest, a villager is required to notify the relevant committee in each village who will then give a warning or notify a state official for possible arrest.

The concrete benefits the community obtains from managing natural resources include the ability to use some wild plants and animals as food; they can also sell various items-including the eggs of red ants, bamboo shoots, and mushrooms-to increase their income. Otherwise, community members can be hired to prevent forest fires, which will encourage them to live with the family instead of working outside the community. Additionally, when a visiting study group comes to survey the community's forests, a group of housewives in the community will be hired to cook food. These groups of visitors will bring considerable income to a number of local shops.

Another benefit derived from the conservation of resources and the environment is that certain products from the forests with special characteristics become unique and well known to the public. For example, certain goods, products, and plant and animal species are unique to the Khow Wong community forest in the Tha Pong Village. This eventually leads to the formation of local wisdom groups for production, such as the creation of various artificial wildflowers. Moreover, various species of wild plants have increased in number due to being planted in plots of land outside the forest to be sold. Another concrete advantage is that there is pure air from the environment. Furthermore, good relationships are established among the communities that participate in the process of managing natural resources.

The evaluation of community forests results from monitoring the current condition of the local forests by community members. Each village holds a committee meeting to discuss the problems concerning the forests and other conservation activities. Through such discussions, the success of their work and activities can be assessed. To conserve, monitor, evaluate, and maintain the community forests and the environment, certain principal community wisdom will be employed in various processes.

### *6.2 The Process of Managing Outside Knowledge*

This process emphasizes community participation through learning and exchanging knowledge from outside the community. This involves learning and exchanging information about natural resources and environmental management with outside communities or with private and state organizations. As an example, a community member might be invited to give a lecture and participate in a seminar to learn from and exchange knowledge with other networks nationwide. Being invited as a lecturer gives the person an opportunity to speak about his or her community, forests, or occupational groups with other community networks. When outsiders come to study a community-to not only improve their own economy but also to disperse income among many groups in the community-the visits usually lead to increased income for the host community. Moreover, this kind of seminar, which includes learning and exchanging knowledge, usually brings about better operational development within the community and in outside communities as well.

A number of community members have been encouraged to join training programs for acquiring new knowledge and skills. Joining such training programs is essential to the knowledge development process since it enables trainees to apply the knowledge and skills acquired during the training to improve and develop their activities and projects within the community.

### *6.3 Community of Practice*

Because of the community's participation in acquiring and exchanging knowledge from inside and outside of the community, many cooperation activities start to thrive in the community. The CoP in Tha Pong Village usually operates in the following ways:

- 1) Establishment of various committee groups to operate community tasks (e.g., the committee of the community forest); all community members take turns joining work groups on various projects
- 2) Establishment of the tap water committee, a project supported by the Health Department, Ministry of Public Health, with 5,000,000 baht (approximately 170,000 USD) in funding; community tap water has been improved so it is drinkable, and some proceeds are used to develop other features of the community

- 3) Establishment of a savings group for production consisting of 115 members who vow to deposit their money monthly; there is now a revolving capital of 130,000 baht (approximately 4,500 USD)
- 4) Establishment of Village Funds, a kind of community welfare fund from which any interested member can borrow to invest in his or her business at low interest; there is currently a revolving fund of about 80,000 baht (approximately 2,700 USD)
- 5) Establishment of the Paddy Saving Cooperation to help needy members; at present there are 3,000 kg of brown rice and a deposit of 2,000 baht (approximately 70 USD)
- 6) Establishment of a group of breeding silkworms from Tha Pong Village consisting of the members of 12 families with an approximate monthly income of 10,000-20,000 baht (approximately 350–700 USD) per family; this group has been developed to become the center of knowledge that transfers all information about silkworm breeding to outside visitors
- 7) Establishment of a sanitation group mainly comprised of housewives, with 40,000 baht (approximately 1,300 USD) in revolving capital, whose members can take low-interest loans to run their businesses
- 8) Establishment of community shops with 32 members where various types of local vegetables from the wild-such as mushrooms, bamboo shoots, and other herbs-are sold
- 9) Establishment of a community vigilance group to patrol the forests and the set-up of a volunteer group to prevent forest fires; there is also an exhibition publicizing the activities of the Khow Wong community that explains forest conservation to visitors who want to learn about community forest work
- 10) Participation in forestry and the construction of dikes and firebreaks, including notifying state officials of encroachment and deforestation; also, there is cooperation in a project to relocate people from the forests

From the study, we can draw a framework on the success of community practices as shown in Figure 3.

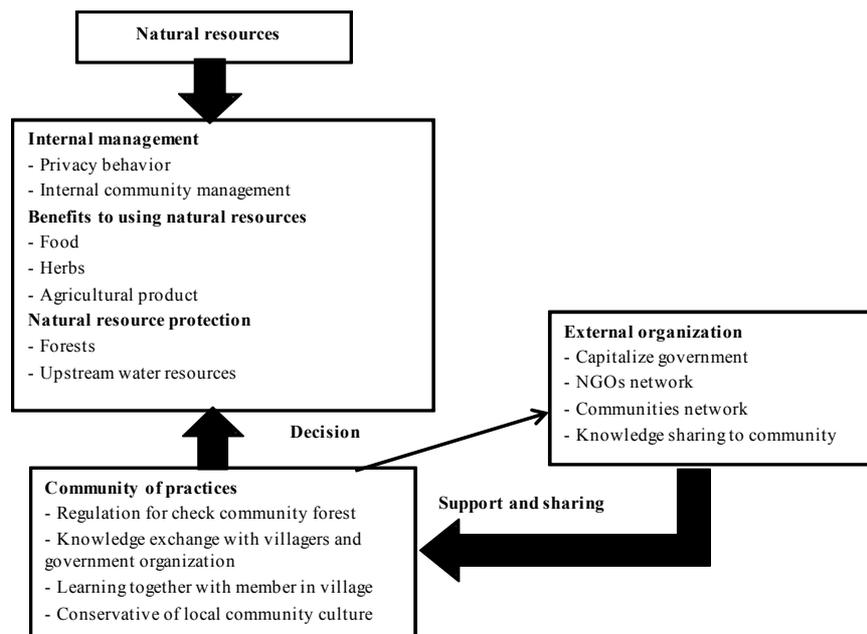


Figure 3. Framework on the success of community practices for natural resource protection

In this study, we explain how communities generate their local wisdom and share their practical knowledge in the areas of environmental management and the conservation of natural resources. We also discuss the obstacles that we found to act as barriers to community practices for the protection of the environment. Many villagers, for instance, are still involved in illegal activities in order to receive a greater income; thus, they may deforest areas and sell the wood to produce furniture, particularly the Pa-Yoong tree (Siamese Rosewood), which is an illegal product that is illegally exported to China. Another barrier is the Thai government's populist policies, which have ensured that everyone is supported in a number of ways, including financially. This financial support from the government means that many villagers in rural areas are unwilling to work for themselves or their village and

generally refrain from participating in the community. These individuals do not wish to develop themselves, do not regard public service as their duty or job, and do not care about what will happen to the next generation if the environment and natural resources are destroyed.

## 7. Conclusion

Communities of practice are groups of people who share a concern or a passion for something they do, and they learn how to do it better as they interact regularly (Wenger, 2006). In addition, the CoP is related to knowledge transfer between people. Lee and Hsin (2004) suggest that human development will raise the skill and knowledge of humans. Tha Pong Village is a village in Thailand that has been operating its affairs based on the concept of knowledge management from inside and outside the community. This has enabled the village to become a CoP. Apart from conducting many activities in the community, there is an attempt to not only learn but also to transfer knowledge to outside communities. Most importantly, the activities arranged by community members are usually related to sustainable conservation of the environment and natural resources. Everyone in the community understands that their way of life and existence are dependent on natural resources. They realize that if the environment is damaged, all community members will suffer various economic and social effects.

Another phenomenon is the “tree ordination” ceremony that was organized by the Tha Pong Village to protect their community forest from exploitation. The community gained this knowledge from an outside community that had successfully used it in the past. The villagers applied strategies to conserve the forest. For example, they used the symbolic relationship between the ancestor’s spirit (*puta*) and his power, along with the Buddhist image of the trees bound in yellow robes, as a social and cultural mechanism to regulate and protect their forest. This ritual was also a tool for raising the villagers’ awareness of the natural environment and the issue of deforestation. The core beliefs and values of Buddhism and animism not only give moral guidance for the everyday lives of the villagers, but also shape the norms of morality and reciprocity.

Certain outside forces, however, such as globalization and capitalism, have influenced some community members’ ways of thinking, contradicting the principles of the community under the concept of sustainable management of the environment and natural resources. Therefore, knowledge management and the sharing of knowledge for effective practices are essential. In the future, if the community members are not able to maintain a certain thinking process and conserve traditions and culture as they currently do, it is certain that the environment and natural resources will be completely used up. Thus, to support the sustainability of natural resources and environmental protections, the Sub-District Administration Organization, the principal host should provide certain development training programs to state officers so they will become skillful and efficient consultants to the community.

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