

Model of Utilization and Participative Management of Community Forests according to Geosocial Principles

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Abstract

The objectives of this research were 1) to study the utilization of the Huai Sai Khao Community Forest, Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, and Lamphun Province with community participation. 2) To study the mode of participative management of community forests according to the geosocial principles of Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, and Lamphun Province. The objectives were performed using questionnaires from a sample group of 66 household representatives and qualitative research using in-depth interviews and group discussions from village forums. Data were analyzed using descriptive statistics, including frequency, percentage, and mean. The results showed that the social structure of Ban Tha Pa Pao was self-sufficient agriculture. Most people in the community had modest incomes and were primarily men. Overall, it was an empowered community with indigenous knowledge from the local sage, who was a leader and had visions for solving problems and developing communities properly. In addition, the cooperation of people in the community is of great importance to the community forest area. Villagers utilized community forests by collecting non-timber forest products and hunting at all times, and they mainly utilized the forests during the dry season. In terms of community forest management, it was found that villagers participated in community forest management as a whole at a good level. Villagers participating in decision-making showed that they were aware of taking part in proposing alternatives and discussing guidelines to solve problems and set rules or regulations in the management of community forests. Research results suggest that the community forest management model should be adapted to suit modern times and be distinctive to create value for the community and be a source of learning for the community. It should increase the conservation of wildlife that is scarce and provide knowledge about wildlife conservation and the balance of the ecosystem, as well as continuously develop a source of learning and good publicity.

Keywords: Mode of Utilization, Management of Community Forest, Geosocial Principles.

Introduction

The forest area of Thailand had been decreasing continuously. In 1961, the forest area was about 171.02 million rai, representing 53.3343.21 percent of the country's area. In 1961, more than half of the area in Thailand was covered by forest spreading across all regions of the country. Later in 1973, Thailand had a total forest area of 138,566,875 rai or 43.21 % of the country's area until 2015 – 2016, Thailand had all forest areas left for 102,174,805.09 rai or 31.58 % of the area (Department of Forestry, 2017). Currently, the forest area across the country in 2018 - 2019 had 102,484,072.71 rai left or representing 31.68 % of the country, which decreased from the year 2017 - 2018 in the amount of 4,229.48 rai (Seub Nakhasathien Foundation, 2020). The northern region was a region with very fertile forests. The northern forest area had a total forest area of 95,074.74 square kilometers (56.04% of the northern area) and Chiang Mai Province was the province with the most forest area of 16,609.48 square kilometers (82.61% of total land area of the province). When it was compared to the area of the province, it was found that Mae Hong Son Province had the most forest area per total land area of the province, which was 88.85 % of the provincial area (Thawatchai and Chavalit, 2015). The main causes of origin of the current forest decline were numerous, such as increasing in the population, urban development, and major forms of deforestation 1. Shifting cultivation 2. Forest encroachment for cash cropping 3. Forest encroachment for new settlements 4. Forest fires 5. Over logging 6. Open-pit mining. From all of the mentioned causes, it could be seen that the problems usually caused by humans (Tanya, 2019).

The importance of forest resources has affected the ecosystem, economy, society, and so on. Thus, the more forest resources are destroyed; the impacts of decreasing forest areas are more noticeable. It has caused climate change and the phenomenon of global warming. There is high flooding in the rainy season and drought in the dry season. Deforestation has also affected the water cycle. When some forest areas are destroyed, so trees cannot transpire. It causes more dry weather which can harm both plants and some wildlife that can result in the extinction. Therefore, conservation of forest resources is an urgent need for both government sector, such as the Royal Forest Department and Department of National Parks, and private and public sectors and local government organizations must henceforward participate in conserving natural resources. However, community forest management was one of the current trends that communities gave an importance to because they loved and cherished forests like their second homes. There were many communities across the country living in the forests or living next

to the forests. Hence, those forests could be called "Community Forest". Communities had tried to carry out many activities to conserve and preserve the forest for a long period of time. Nevertheless, the management of the community forest would succeed and could continue the implementation efficiently; it needed participation from the public sector, the private sector and people.) However, each locality had a model and method for implementing community forests differently and was often not successful in implementation as they should because it was operated by people only without participation from government sector or private sector as it should be (Watcharapong, 2000: 2). Therefore, participation of the people is the most important to forest management and community development because it helps people of all groups to have a role in decision-making processes for managing forests and resources that benefit to all people who have been involved with government or non-government organizations which create a sustainable development network.

Lamphun was one of the provinces in the northern region where the forest area was quite plentiful. In the case of Ban Tha Pa Pao, Tha Pla Duk Subdistrict which consisted of 14 villages. They are located in the north of Mae Tha District. Most of the settlements are located on either side of the Tha River (Mae Nam Tha) plains and its tributaries. The total area of the sub-district is 143.74 square kilometers or about 89,840 rai, of which over 70% is forest area, covering Doi Khun Tan National Park, national reserved forests, and Mae Tha forests. Tha Pa Pao Village has a total of 13,000 rai of community forests, of which 8,000 rai are conserved areas, 2,000 rai of which are deep and difficult to reach, and 3,000 rai of usable forests. There are various types of trees, such as *Xylia xylocarpa* (Roxb), Shorea Wood, and Teak. People have faith in Buddhism that combines with traditional beliefs. As a result, the ceremony of worshipping the Khun Nam spirit has been organized and continuing the ritual to the present day. Most Tha Pa Pao villagers are engaged in agriculture, such as rice farming, longan plantation, etc. They emphasize a simple lifestyle by adhering to the principles of sufficiency economy according to His Majesty's initiatives. In the past, this forest used to be a degraded forest due to the concession of logging for firewood and railway sleepers, including cutting wood to make furniture, resulting in a lack of water sources in the dry season. Wild animals did not have enough water for consumption. The villagers therefore gathered together to form a village committee to protect and conserve forest areas to being fertile as before. Nowadays, the villages are more fertile due to the Huai Sai Khao River that flows through the fertile forest. Villagers can find non-timber forest products to consume every season and can collect some plants to sell at the market, especially, the management of Huai Sai Khao community forest of Ban Tha Pa Pao which villagers preserve to utilize and collect non-timber forest products from the forests. It can be considered that the community has played a

role in managing natural forest resources which are degraded forests and various rules and regulations have been created in utilization of community forests as well.

The researcher is interested to study the context of community and livelihood that depend on coexistence with forests, basic of thinking, beliefs, values, traditions and cultures that are consistent with existing resource bases. There is a concept “ Without humans, forests still remain; Without forests, humans would not be able to survive”, because people depend on trees for survival and for four necessities of life which are food, shelter, medicine and clothing, which have been important to life for a long time. In addition, the community relies on water from the forest for agriculture and on the non-timber forest products from the forest as an additional income apart from agriculture. Furthermore, the forest is the source of beliefs, traditions which are the foundation of community relations. The role of the forest toward the survival of the community has been established for a long time and cannot be separated from each other. Indigenous community or ethnic group, and almost every local community have a culture and practice in managing and protecting the forest. If looking inside the community, the villagers would want to manage the community forest but they do not know how. The researcher, therefore, formulates a research problem concerning model of utilization and the model of community forest management according to geosocial principles which are based on knowledge and wisdom along with morality and ethics that aim to empower the community. Moreover, it can be a model of participatory natural resources utilization to other communities that would be henceforward applied in the management of other community forests by studying, learning and understanding the local environment and topography, including livelihood, culture, and local traditions. That is the development which is based on the "geosocial" principles as a guideline.

Objectives

1. To study the context of utilization of Huai Sai Khao Community Forest, Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, Lamphun Province and community forest management from the past to the present by participative community organizations.
2. To present the model of participative community forest management according to geosocial principles, Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, Lamphun Province.

The scope of the study

Content - 1) Geosocial aspect of Ban Tha Pa Pao consists of geographical features, topography, and geosocial features, such as the history of the

community, socioeconomic conditions, mental state of the people in the community, and other values. 2) Direct and indirect utilization of community forests during different seasons as well as assessing the economic results from year-round utilization as a whole picture of the Ban Tha Pa Pao community. 3) Management of community forests: Management of community forests in the past, problems and obstacles, advantages and disadvantages, and participation in management. Information from utilization leads to community forest management according to geosocial principles, such as rules and regulations, penalties, committee appointments, training from other academics, and community forest management, such as reforestation, maintenance, protection, and construction of upstream weirs. Population: The population of Ban Tha Pa Pao, the study area, consists of 209 households, with a total population of 871 people (429 males and 442 females). Therefore, the target group for this study is the head of the household or the representative of the household living in the area who have lived in the area of Ban Tha Pa Pao for at least 1 year because they have the potential to provide information about community forest management. Area: Community Forest of Huai Sai Khao, Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, Lamphun Province.

Expected Benefits

1. To perceive the model of utilization of Huai Sai Khao Community Forest, Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, Lamphun Province and community forest management from past to present by participative community organizations.
2. To comprehend and understand the model of utilization and participative management of community forest according to geosocial principles of Ban Tha Pa Pao, Tha Pla Duk Subdistrict, Mae Tha District, Lamphun Province.

Research methodology

It is applied research from the wishes or opinions of the community towards the utilization of community forests based on the potential possibility of community forest resources by using quantitative data collection methods from surveys that include questionnaires. The researchers interviewed various target groups. This study is also considered qualitative research using in-depth interviews and focus group discussions. The researcher used quality control interview questions to discuss various target groups, which were case studies as well as participatory observation. Sample group – the population of Ban Tha Pa Pao, the study area, had a total of 209 households and a total population of 871 people. However, due to the limitation of the period

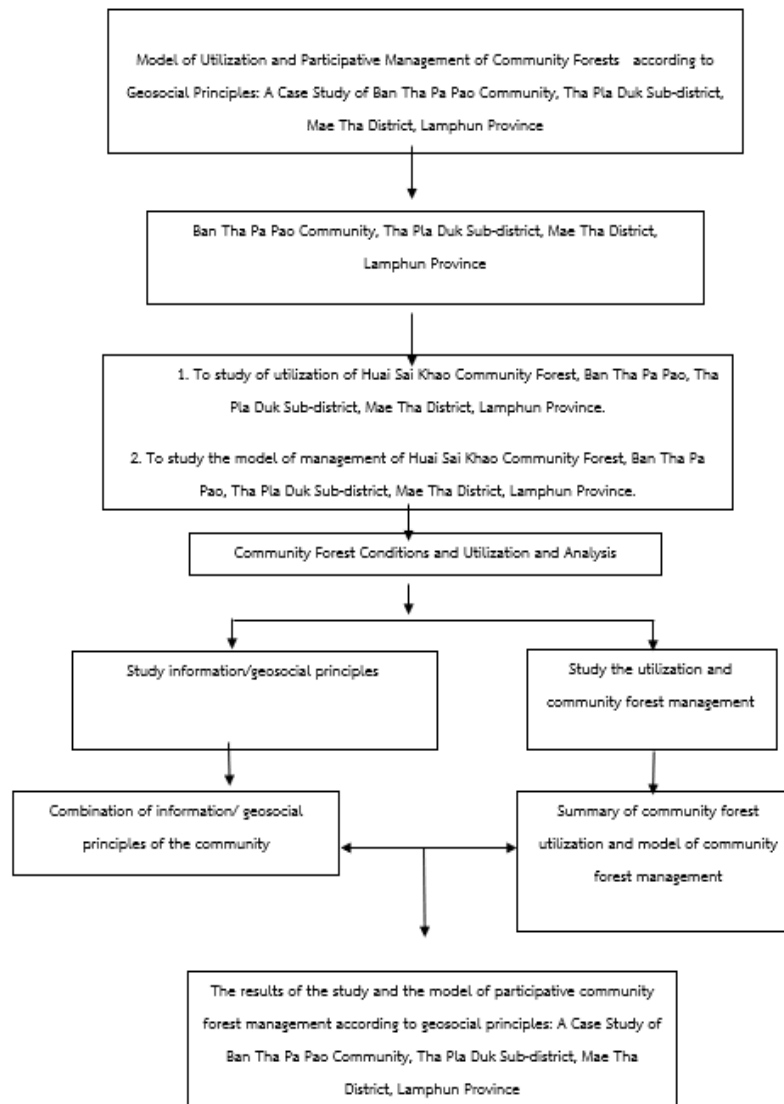
of data collection, the researcher selected a target group of the study that was the head of the household or the representative of the household living in the area of Ban Tha Pa Pao for at least one year because they had the potential to answer questions. The researcher studied the entire study population using structured interviews. Tools for data collection: 1) In-depth interviews in terms of community forest utilization and community forest management in the community and questions about basic information, model of utilization, and management from Huai Sai Khao Community Forest, Ban Tha Pa Pao. 2) Questionnaires in terms of general information and community forest utilization and management, including the value of forest utilization. Data collection methodology: 1) A qualitative data collection method was conducted by researching and collecting data from documents, books, research papers, articles, related journals, and field studies using participatory observation, semi-formal and informal interviews, interview forms, and video recording. 2) Quantitative data collection method was used to collect data from a large number of people using questionnaires. Data processing and analysis: 1) Methods for analyzing qualitative data: Information obtained from documents was analyzed and then presented using descriptive methods. The data obtained from the interviews were used to analyze issues related to the use of community forests in various dimensions, including community forest management, with existing resources sustainably by presenting information using descriptive methods. Information obtained from the interviews were analyzed using inductive analysis. The data were organized and classified systematically. The data were interpreted to correlate relationships and draw conclusions from the various data collected at the same time as collecting the data. 2) Quantitative data analysis using descriptive statistics, such as frequency, percentage, and mean, was used to analyze the forest value. In this study, only monetary returns were measured and calculated by multiplying the selling price of NTF products at the community level by the amount of NTF products collected from each forest type.

Conceptual framework

In this research study, the researcher studied the context of the community and livelihood that depended on forests, the basis of thinking, beliefs, values, traditions, and existing culture consistent with existing resource bases. The community of Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, Lamphun Province, wanted to manage the community forest of the village in order to be consistent with the process of participating in community forest management and to lead to sustainable community forest development. Therefore, a study and a research problem were assigned concerning the model of utilization and the model of community forest management according to the geosocial

principle by relying on knowledge and wisdom along with morality and ethics that aimed to empower the community as well as being a model for utilizing natural resources by using a participatory approach to other communities that would be applied in the other community forest management as well.

Figure 1: Conceptual Framework



Research results

The results of this study could be divided into important aspects, namely basic information of Ban Tha Pa Pao Community and model of utilization

and model of Huai Sai Khao community forest management, Ban Tha Pa Pao according to geosocial principles

1. Fundamental information of Ban Tha Pa Pao

The study found that most of the sample group was male or 70 %. In rural society, men were more likely to lead activities than women, including activities related to Huai Sai Khao community forest, Ban Tha Pa Pao. The average age was about 47 years, so the Ban Tha Pa Pao community had community structure which was considered as aging society and had a family. It was also a group that had quite a lot of experience in participating in various community activities, such as community forest management activities. Most of them obtained primary school education or 64 %, followed by uneducated, and the rest completed secondary education. In the past, people still lacked educational opportunities, lost their assets, and had to help their family to make a living, so they did not pay much attention to education. The average number of household members was about 4 people because the sample group still lived in the system of an extended family that lived together as a large family. They adhered to the traditional traditions of rural society.

The primary occupation: The major occupation of most of villagers was agriculture and followed by working for wages, or as vendors, and working in the government service. The villagers had been engaged in agriculture for a long time, which was considered a traditional occupation from generation to generation. As a result of the lack of educational opportunities, the opportunities to choose careers therefore were less as well. But there were still some villagers who did not work in agriculture and also saw the importance of the forests. For example, taking advantage of forests, collecting non-timber forest products, herbs, and wild animals. As for the secondary occupation, most of villagers had no secondary occupation. Villagers worked on farming and its allied activities, rice farming, crop farming, raising cows for milk, and raising pigs. The rest worked for wages. In addition, the villagers had a burden of sending their children to study at a higher level. Therefore, they had to gain additional income, such as the forest utilization. Due to the current forest utilization was limited by community forest regulations to manage community forests; villagers utilized forests less than in the past. The annual income: It was found that most of the sample group had an annual income of more than 20,000 baht, with an average annual income of about 50,000 baht. However, the villagers in the community had relatively high incomes. The primary occupation and secondary occupations were collecting non-timber forest products, working for wages, and gaining income from community forest tours as tour guides.

At present, in terms of land ownership, it was found that most of villagers had title deeds. There were only a few villagers who did not

have title deeds. On average, the villagers had more than 5 rai of land. Those, who did not have title deeds, used public space for agricultural occupation. In the past, the lands were reserved for benefits for many generations to the present. For residency, it was found that most of villagers had lived in this community since their birth and only a small number of them moved from other areas, i.e. moving from Ayutthaya, Saraburi and moving from neighboring communities. However, those who moved from other areas got married to people in the community and had been living for many decades. Also, some got married to people from nearby communities as well.

2. Model of Utilization of Huay Sai Khao community forest, Ban Tha Pa Pao

From the study, it was found that the villagers in every household took advantage of the community forest. Most of them were being a food source, collecting mushrooms, bamboo shoots, fruits and herbs. The mountain water was an important source of water to be used during the dry season, which was clean and pure water. Moreover, there was a support from the public and private sectors involved in nature conservation and promoting learning about sufficiency economy in livelihood and established a community learning center in order to help the community to generate more income from tourism, study trips, and homestay groups and to promote tourism in the community. The average income from tourism was about 300,000 baht per year. There were periods in which the community was open to study trips within the community. What was valuable in the community forest was Hed Poh (Hygroscopic earthstar) which costed 300 baht per liter. The peak production period was from March to April. The average income of the community in the past year was approximately 700,000-800,000 baht. Each person had different limitations on collecting mushrooms and each person's income was very different. It was followed by Koi (*Dioscorea hispida*) also known as the Indian three-leaved yam, which costed 6 baht per kilogram. In the past, Koi was considered the main income of the community. In terms of herbs, for example, Rue Si Ling Dum which had properties to maintain body balance and nourish the body, but nowadays it was more difficult to find. The price was 300 baht per pack. Currently, wild animals were limited in hunting because some animals were protected. Valuable wild animals were such as boars were 250 baht per kilogram, rat snakes were 200 baht per kilogram (depending on size), cobras were 250 baht per kilogram, deers were or barking deers (*Muntiacus vaginalis*) were 400 baht per kilogram, etc. For timber, the community issued regulations prohibiting cutting and destroying trees. Therefore, there was no selling value of the products from community forests. Most of the trees were redwood, teak, dry deciduous trees, and bamboo. The period, which the community forest was utilized the most, was during the dry season onwards when villagers were able to collect NTF products and to hunt for wild animals all the time. The most

outstanding and impactful change from the past to the present of community forest utilization in terms of setting up rules and regulations on community forest utilization which was different from the past that the community forest could be utilized freely by villagers, including cutting of the trees.

3. Model of management of Huai Sai Khao Ban Tha Pa Pao community forest based on geosocial principles.

3.1 History of Huai Sai Khao Community Forest, Ban Tha Pa Pao

In the past, people in the community had rice farming as their main occupation. After the farming season, they grew vegetables for consumption within the household and collected NTF products as their foods. Therefore, no chemicals were used in the management of crop cultivation. Most villagers used manure which was available in the community and they had a simple lifestyle. The villagers united and helped each other. The livelihood of the people in the community in the past was filled with happiness and warmth, and the community was empowered. Later, civilization came to change the livelihood of villagers and made them adjust to civilization and technology played a greater role than existing wisdom of the community. It made people become more "materialism" or "consumerism" and over-estimated. As a result, they were in debts and also farming did not yield as expected. This was because farmers mainly used chemical fertilizers, accelerators, and pesticides in order to increase more productivity. Therefore, the soil quality deteriorated and the yield was low as well as the price. It was dangerous for consumers and farmers themselves. Even drinking water, villagers still had to buy from the shops outside the community. Additionally, it lacked of government attention. When people had impacts on their occupations, the forest areas were encroached and they cut the trees illegally to sell in order to gain income to raise their family. Also, outsiders cut the trees illegally and collected NTF products regularly. In the Huay Sai Khao community forest area of Ban Tha Pa Pao, most of the trees were economical woods that had good prices, such as teak, Pradu (*Pterocarpus macrocarpus*), Dang (*Xylia xylocarpa*), Teng Lung (*Shorea siamensis*) and other hardwoods which could be processed into timber to build houses and make furniture.

During 1978 - 1994, the deforestation was widespread, even small trees were cut, and another important thing was shifting cultivation. Some families encroached on forests for more shifting cultivation which was greatly widespread. In the past, villagers would hear the sound of axes and the chainsaw roared in the forest every day, while the forest officers investigated and arrested the encroachers. However, it was not over. When important resources were destroyed, there were following consequences. In 1994, it was a very drought year, so it caused trouble in occupation. Some villagers had to migrate to find new places to live and most of them migrated to make a living and settled in Chiang Rai

province. In the rainy season, there was a flood and logs floated away. Houses were damaged every year. It demonstrated the troubles were multiplied. After that, there were discussions and consultations. Therefore, the villagers looked back at themselves by starting from the village leaders, village committees, temples and schools. They saw possible consequences which could happen. If deforestation was continued, drought and poverty would happen again. All parties must work together to conserve the watershed forest sustainably. There was a forum for the villagers to analyze problems and solutions and finally guidelines to solve the problem for communities by starting to solve the problem of forest encroachment.

The village headman, Phaibul Chamhong, was a leader with vision. In the development process, the village committee and scholars visited successful community forest conservation in other districts to adjust the guidelines of community forest conservation to apply in accordance with the method of Tha Pa Pao villagers to conserve more than 15,000 rai of forests. After that, the rules and regulations were set up and a committee were assigned to be in charge of the forest. There had been many activities in conservation until it reached its full potential and received many community forest awards, such as the Green Globe Award from PTT, the first prize "National Model of Community Forest" from the 2009 Model Community Forest Contest under the Man Loves Forest and Forest Loves Community Project which was organized by the Royal Forest Department, Ministry of Natural Resources and Environment. It was also a prominent tourist village in Lamphun Province.

4. Community forest management based on geosocial principles

From the intention of the village headman, Mr. Phaiboon Jumhong, the leader of the village who was established as a local philosopher to solve the problem of deforestation and affected to the well-being of the people in the village. According to the story telling of Mr. Surachai Sritang, the chairman of the community forest committee (present), the Huay Sai Khao Community Forest, Ban Tha Pa Pao originally had a number of conservation areas of 13,000 rai. Most of the woods were economical woods that had good prices, such as teak, Pradu (*Pterocarpus macrocarpus*), Dang (*Xylia xylocarpa*), Teng Lung (*Shorea siamensis*) and other hardwoods. The forest was generally abundant. There were vegetables, herbs, wildlife, and other types of non-timber forest products and also many streams that nourished lives in the forest and people in the community. During 1962-1994, there was illegal logging and villagers encroached on the forest to grow cash crops such as longan, including the construction of a steam locomotive railway through Mae Tha District, Lamphun Province. It caused a high demand for firewood for the steam powered locomotive engine as fuel energy, and, therefore, there was a forest concession. When the concession was

expired, some of the villagers encroached on the forest to do sugarcane plantations, which used very high amounts of chemical fertilizers and insecticides and as a result, soil and water were deteriorated. When the forest was destroyed greatly and the weather was unstable. There were no rains in rainy season which caused a reduction of productivity. Villagers lacked of water for consumption. But when it rained heavily, there was a flood which destroyed many homes, pets, and agricultural equipment of the villagers. Natural disasters, droughts, poverty and debt made local young people go out to work in cities. Village was left behind with only elderly and children. Thus, the villagers began to realize the situation and turned to review the problem. The community forum was opened to brainstorm opinions from community leaders, housewives, and monks who participated in the summary review. Everyone agreed that those disasters occurred because the watershed forest was destroyed. A part of this destruction partly came from the hands of the people in the community itself. The community's realization of this drastic lesson led to the need to deal with these problems urgently. And the villagers decided to use local knowledge and their livelihood to solve the problem by the village committee. The scholars saw the successful operation of community forest conservation in the area of Silalang Sub-district, Pua District, Nan Province. After that, the forest conservation guidelines were adopted and applied in the process of the Tha Pa Pao community in order to conserve forests and set rules and regulations, and assign a board of committee. There were activities which were followed by management processes of Ban Tha Pa Pao Community Forest. The steps of processes were as followings:

- 1) Establishment of board of village committees and community forest committees: They were responsible for community forests and determined community forest areas by dividing the duties of working into groups, such as the inspectors, border patrol, non-timber forest products' inspector, elderly group, and additional fundraising group.
- 2) Establishment of rules and regulations for the community forest utilization. The concept of forest conservation was introduced to define the rules and regulations of community forest utilization.
- 3) Determination of penalties for those who violated the rules and regulations of the community forest committee. The community forest committee had the following guidelines: Community Forest Regulations of Silalang Sub-district, Pua District, Nan Province as a model. Also, the rules and regulations were discussed among the community forest committees and those who involved in community forest management as well as the opinions of all people in the village.
- 4) Planting additional trees in community forest areas by asking for support from the plant breeding center in Lamphun Province. It was also responsible for managing all operations and coordinating with the people in the village, such as setting up the date and place of the activity

as well as considering the number seedlings and determining the type of plants for planting. Trees were planted once a year on the occasion of important days.

5) Weed clearing for forest maintenance by the cooperation of Ban Tha Pa Pao villagers. It was operated by the Community Forest Committee in coordination with the villagers in the community. There were various activities such as Khun Nam spirit ceremony, forest ordination ceremony, and on various important days, and before reforestation.

6) Arrangement of guard duty to protect and maintain the forest in order to prevent other people from illegally cutting of the trees. The community forest committee had a community forest committee to inspect and arrange 10 guards to patrol once a month.

7) Preparation of control line to prevent forest fire with a cooperation of Ban Tha Pa Pao villagers and the community forest committee operated this activity in the summer, which was around February and March every year.

Discussion

Forests can be managed for sustainable utilization by either one or a combination of three approaches: 1) increasing the number, 2) decreasing or removing so that the remaining trees can grow at the maximum rate, and 3) maintaining to suit the situation (Krasuska et al. 2018). The objectives for forest management were set by considering the feasibility of the operations. Then, a management plan was created for the purpose of utilization together with conservation for maximum and sustainable benefits. Additionally, a review is required to improve the efficiency of the operation (Somchai Benchachai et al., 2010). This was consistent with the results of a study on the community forest management model of Huai Sai Khao, Ban Tha Pa Pao, according to geosocial principles. From the research, it can be concluded that the factors that made the participative model in community forest management in Ban Tha Pa Pao, Tha Pla Duk Sub-district, Mae Tha District, Lamphun Province achieved sustainable results as follows. 1) A leader who was strong, had a visionary, and sacrificed to his works as well as an empower community to mobilize participation, especially in terms of restoration and conservation of natural resources and environment; 2) being an indigenous people in the area that brought familiarity, love, and unity among the villagers and could work together very well; and 3) training on natural resources and environmental conservation led to a common conservation concept. 4) Consistently receiving information on natural resources and environmental conservation. 5) The proper division of duties and roles of villagers in community forest management and activities in the community. 6) The perfect combination of society, culture, traditions, and beliefs in

community support cooperation in community forest management and participation in community activities (Gunaratne & Seneviratne, 2016). 7) Systematic operations cause fewer problems. 8) Support from government organizations and the private sector forms a cohesive development network. 9) Villagers were conscious of the development of collaboration, so various developments were very successful. The last aspect was community forest management from the original geo-society of villagers from generation to generation (Sardar & Pal, 2018). These issues were consistent with relevant research which was the study of forest management of community organizations within Mae Ping National Park, Li District, Lamphun Province of Sureerat Kritsanarangsarn (1997).

The study found that participation in forest management depended on the strength of the community by allowing villagers to participate in forest management and raising the issue of the land ownership system, which was at the heart of forest resource management. In practice, it was necessary to reconsider the roles and responsibilities of the government, from being a forest ranger only to a promoter who encouraged the decentralization of control over forest resources to the local areas (Mehmood et al. 2019).

A case study of Ban Toey Ngam, Nam Suay Sub-district, Khueang Nai District, Ubon Ratchathani Province of Kanchana Thongthua (2002) found that forests and community forests differed in the sense that community forests required regulations for forest utilization and the community must participate in the management of soil, water, and forest resources. The forest resource management process of villagers had social and cultural dimensions that led to acceptance rather than the use of government regulations in line with sustainable development, which required mobilizing community power and local wisdom as the basis for developing forest conservation activities (Gadenne & Sharma, 2012). Most villagers had participated and cooperated in these activities, such as making fire control lines or patrolling forest areas. They also needed to create second-generation leaders to transfer operations, including projects that paid wages. Some villagers agree that forest conservation should involve more volunteer work (. Sometimes, money causes problems. The villagers gave suggestions and trends in forest management in the future that there should be a forest ordination ceremony to raise awareness of the community to cherish the forest. Forest conservation should coexist and include more community forests than conservation forests (Paudel et al. 2016). Therefore, villagers can generate income and raise their awareness of forest conservation. In the future, the Ban Toey Ngam community forest could develop into a large natural university for the community and outsiders to have the opportunity to learn together (Watcharapong, 2000).

A case study of Ban Pa Sak Ngam, Luang Nuea Sub-district, Doi Saket District, Chiang Mai Province of Chakrapong Puangngamchuen (2009) found that the community forest resource management process had dimensions of culture, traditions, rituals, and beliefs that caused acceptance and practice, along with community rules and regulations. This was in line with sustainable development, in which the villagers must take part by applying local wisdom. This is the foundation for learning and development. People's participation in mutual benefit was at the highest level, and operational at a high level (Yadav et al. 2019). The planning, monitoring, and evaluation were performed at a medium level. The problems and obstacles in community forest management were as follows: regulations were too strict, insufficient budget, lack of transparency, and lack of training for the new generation of youth to take over (Harshawardhana & Senanayake. 2017). For solutions, regulations should be considered and regularly coordinated with public and private sectors to support the budget, create a transparent income and expenditure account, and select young people to practice various activities to take over what was urgently needed to take action (Chakrapong Puang-ngamchuen, 2009). Thus, "Production of bio-fertilizers using household waste materials" was organized for the villagers. The results of the assessment after the training revealed that 50% of the participants were able to use it in practice, to reduce the use of chemical fertilizers, and pass on knowledge to their children.

In conclusion, the research studied on various issues which were consistent with the research on community forest management in various ways and affected to participatory utilization in the community forest of Ban Tha Pa Pao community forest which was studied dynamically. However, from the study of the Ban Tha Pa Pao community, there should be preparation for transferring wisdom and development guidelines by using relevant research or other learning sources to adapt to use with the new generation of youth, which is considered an important force and support for future development operations. Furthermore, they can continue to manage community forests according to existing geosocial principles and adapt to the present to help conserve existing natural resources.

Recommendations from research results:

The model of community forest management should be applied to suit the present time and be outstanding in order to create value for the community in terms of the fertility of existing resources, including being a source of learning for the community. There should be modifications or reductions in the rules or regulations for community forest utilization because some plants that grow in large numbers can affect the forest ecosystem. In addition, there should be an increase in the conservation of wild animals, such as wild boars and wildfowl, which have a small

number, and education about the conservation of wild animals in the Ban Tha Pa Pao community forest regarding the balance of the ecosystem. Community learning centers should be continuously developed and thoroughly publicized. In addition, suggestions for further research: The research area should be studied before going to the actual area to cope with various situations. The questions should be concise, and appropriate situations should be selected. Furthermore, coordination with community leaders or village philosophers should be coordinated at least one week in advance. This includes the importance of community knowledge sources, which are currently vital.

Conclusion

The findings of this study prove and illustrate the changes in the related complex factors. There has been a movement toward transition, which has affected the utilization and management of community forests. This shows the efforts to fight the struggles of villagers who focus on economic conditions. This phenomenon shows the importance of the economic conditions of the community forest management process, which moved by itself out of the issues that used to be limited to only the subject of community culture and wisdom to issues with much more complex links. Consequently, the community relationship system has changed, including ways of thinking and beliefs; community leaders are discordant and lack unity in community forest management.

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