

The Community Network Collaboration of Utilization Management on Non Hin Phueng Community Forest to Sustainability of Prachinburi, Thailand

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ABSTRACT

Management of forest conservation and utilization of forest in balanced manner using community based mechanism, how it influences the nature and the community coexistence in a supportive and sustainable manner. This research aims at studying of community network collaboration of utilization management on Non Hin Phueng Community Forest to sustainability. The studied sites were ten communities around the Non Hin Phueng Community Forest in Dong Bang sub-district, Prachantakham district, Prachinburi province, Thailand. This research was Participatory Action Research. The result found that Prachinburi Provincial Forest Office upgraded public areas to Non Hin Phueng Community Forest in 1982 and government agencies have encouraged cooperation to establish a community network for forest conservation in 2004. There are communities around the forest. It is a member of the network of 10 communities, has a network committee from every community including 15 people, taking care of the community forest area of 447.3 rai. Community network have conserved collaboration of the forest by surveying the area maintain and restore natural resources. Allow the community to make use of the forest by collecting the forest for use as the fourth factor of living and selling it as a self-sufficient supplementary income. The important rule is "Do not dig, do not cut, do not remove and use natural principles to take care of nature". The problem of forest Utilization too much use of forest products in the network community and outside communities. The community network therefore formulated a community forest protection development plan. By making a food production plan in the community network's garden area with bamboo pulp mushroom cultivation. The mushroom is highly valuable for price, health and used to process food and products. The network committee have planning to use the community forest effectively to be doing activities in forest by learning center, healthy fitness center, ecotourism and health tourism. People in the network community were allowing producing goods and services for tourists. The planning to use of community forests for community to be BCG model and sustainable development by growing plants diversity for reforestation and community development, then put the network's plan into the development plan of both local support agencies at provincial and national levels

Keywords: Community network, Collaborative, Utilization, Community Forest

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1. Introduction

The community is dependent on the forest as the source for their livelihood, four life factors and water shed. Forests are therefore important for the survival and security of communities. But urban growth and progressive economic systems have greatly increased the demand for forest products, resulting in a decrease in forest area and natural resources in the forest (Dusit Vejkit, 2019). The concept of community forest becomes an alternative that has been accepted for use in forest conservation in Thailand for the past 30 years. Community forest is a practice and adaptation to the communities surrounding the forest as a base for management, conservation, restoration of forests and maintaining the balance of ecosystems resulting in the communities surrounding the forest can take advantage of the forest to reduce poverty, well-being, and have a stable and happy life through learning about nature. There are more than 10,000 Thai community forests with an area of approximately 7,870,000 rai or about 7 percent of the forest areas in Thailand (Somying Sunthornwong, 2011). The community network is a mutually supportive relationship of many groups or communities that has an agreement, joint activities, and common goals. The community network is therefore a structure that is conducive to the development of a community resulting in a continuous and stable business system (Kanchana Kaewthep, 2014). Building of cooperation of the community network surrounding the forest using a new social relationship management process in participatory managing of the community resources with real community forest management planning aims to build the recognition and acceptance of the surrounding communities to reduce conflicts between communities and enhance the well-being and welfare of the community for networking as a mechanism for sustainable success (Somsak Sukwong, 2019).

Non Hin Phueng Community Forest had an area according to the aerial photograph in NS. 3 Kor, No. 5353, sheet no. 103-104-117-118. The document was issued in 1973 as a public benefit area with an area of 447.3 rai. The Prachinburi Provincial Forestry Office upgraded it to a community forest in 1982, (Thongyoi Chotok, 2018) with creeks and deep canals. The Department of Land Development has dug a 25-rai reservoir in the forest area. There are ten (10) villages surrounding the forest in Dong Bang Sub-District, three (3) villages were on the edge of the forest and seven (7) villages were slightly far from the forest edge. There are 1,108 households around the forest with the population of 4,068 people (Dong Bang Sub-District Administrative Organization, 2018). Non Hin Phueng Community Forest is a fertile forest with variety of beneficial plants, however, over the past 10 years, it was found that natural food from the forest has declined, at least 10 species of some plants and animals have been lost (Thongyoi Chotaka, 2018). Therefore, people in the community should find ways to conserve forests, create added value of the forest, promote careers and increase income for people in the community sustainably (Pakamas Moonwandee, 2016) and should manage community forests to take advantages of the environment, society and economy in all three aspects in a concrete way (Dusit Vejchakit, 2019) and community networks should find ways to adapt operations to suit the changing context and situation without the need to stick to the old model (Duannapha Phuthong, 2018). Therefore, the community network around the Non Hin Phueng Community Forest meets together to find ways to preserve and rehabilitate the value of community forest to be fertile, and gain benefits to communities both the community in the forest network and the community outside the network how to build operational plans for sustainability. This research aims to study the cooperation of community networks surrounding the forest in preservation, restoration and utilization of forests in the Non Hin Phueng Community in the past in order to analyze the problem of the utilization of the Non Hin Phueng Community and establish a cooperation development plan of the community networks in utilizing the Non Hin Phueng Community Forest sustainably.

2. Methodology

Non Hin Phueng Community Forest Area, Dong Bang Sub-district, Prachantakham District, Prachinburi Province, Thailand, located in the eastern part of Thailand, was studied in this research (Figure 1).

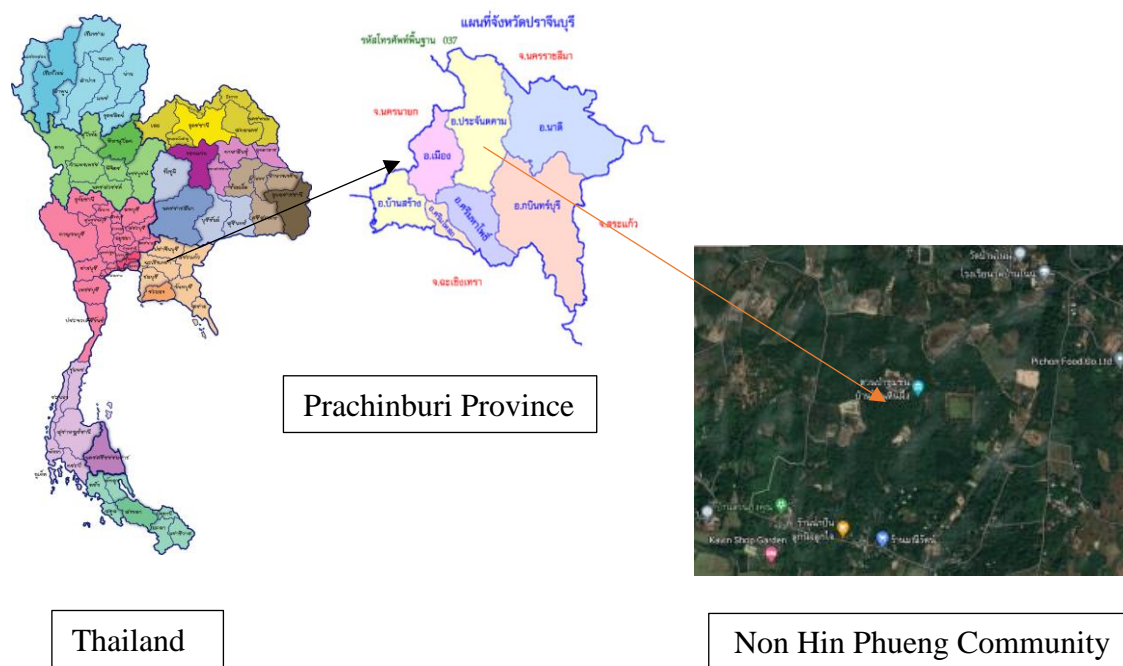


Figure1. Map showing the location of Non Hin Phueng Community Forest, Dong Bang Subdistrict, Prachantakham District, Prachinburi Province, Thailand.

Participatory action research (PAR) was conducted in ten communities surrounding Non Hin Phueng Community Forest, Dong Bang Sub-district, Prachantakham District, Prachinburi Province, Thailand. 63 people are target group for this research consisted of 10 community leaders, 10 people from forest network communities, 3 community scholars, 20 representatives of households who use forests in 10 communities and 20 teachers /students in 2 schools in communities surrounding the forest. In-depth interviews were used to collect data. SWOT technique was conducted for problem analysis and establish the cooperative development plans by meeting. Then do pilot project and evaluate the satisfaction of participants by a survey. Interview form, questionnaire, record form, and satisfaction survey were implemented as tools. Data was analyzed with content analysis and use basic statistics as percentage, mean and standard deviation.

3. Results and Discussion

The results of the research revealed that the cooperation of community networks surrounding the Non Hin Phueng Community Forest, Prachinburi Province happened after Dong Bang Subdistrict Administrative Organization has applied for registration with the Prachinburi Provincial Forest Office together to upgrade from a public forest to a community forest in 1982 and then established a

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community forest committee to take care of Non Hin Phueng forest, an area of 447 Rai 3 Ngan. Later in 1999, the Department of Land Development supported by digging a reservoir in a community forest of 2.5 rai. After that, many universities and conservation organizations interested to do researches and use as learning centers on forest ecology. The community forest committee agreed to upgrade to a community network for conservation of community forests in the Non Hin Phueng community in 2004 and elected Mr. Thongyoi Chotok as the first chairman of the network and still holding the position until the present and has a network committee from 15 community representatives around the forest to work together with the people in the community to maintain the forest and natural resources in the forest for food sources, herbal medicine, wood for sufficiency use and sale. They also are used as learning centers for plants and herbs of schools and external institutions. The community network around Non Hin Phueng Community Forest consists of two (2) groups of communities in Dong Bang Sub-District, Prachantakham District, Prachinburi Province are 1) 3 villages located on the edge of the forest i.e., Ban-Non, Ban-Na and Ban-Suan-Phueng 2) 7 villages located within 8 kilometers from the community forest. The network committee shall organize the meeting once in a month without an agenda. The agenda depended upon the readiness of the committee and requests from community's people if changes are made. The administration of the network has agreed to allow people in all 10 communities to utilize an advantage from the forest by collecting forests for their livelihood, and let the three (3) communities located on the edge of the forest play the main role in reserving the forest area and protecting forest collection from people outside the network community by notifying the network committee and setting up guards. As for 7 communities away from the forest edge are encouraged to cooperate in activities such as building a fire barrier to prevent forest fires, planting trees to enhance the fertility of the forest. There are rules of the network are clearly stated: do not dig, do not cut, do not remove and use natural principles to take care of nature. Activities that are done together every year of the community network. is to survey the area and natural resources in the community forest, classify the preservation and utilization zones and review the regulations and the division of duties of the Community Forest Committee. However, this must be under the approval of the village committee. Subdistrict Administrative Organization and Prachinburi Provincial Forest Office.

The results of this study are consistent with the networking that Kanchana Kaewthep (2014) and Juechan Jongsatyo (2014) concluded that it was the coordination of individuals, groups or organizations with their own resources, goals, and methods of working together. Although not a common activity on a regular basis, it has laid the foundation together, and is a system where members are equal, independent of each other, respect each other, keep in touch, inherit and communicate in line with Suwaree Sripona (2020) who found that the emergence of community network should be grouped together, learn together and having an agreement to jointly manage a specific matter, such as the management of the environment in the community, and restoration management of forest resources and genetics. Similarly, Rattaya Chanthian (2019) concluded that community forest is a forest area that community helps to manage and rehabilitate and take care of both the problem of forest fires, invasion and destruction. Protecting wild loot beyond the forest's capacity by the community or village that takes care of the community forest will have rules for taking care of and sharing benefits, such as jointly building a fire barrier, arranging guard patrols, having rules for collecting mushrooms, collecting bamboo shoots. Conservation work has to continue, never ending. Therefore, cooperation in the form of a community network is important and necessary for the use of community power in terms of intellectual capital and social capital in cooperation among communities around the forest in order to work together in a systematic way to maintain, restore and use community forests in sustainable way. (Figure2)



Figure 2. Natural resources in community forests and community network cooperation activities.

The problem of utilization of community forest in Non Hin Phueng found that community forests are exploited by over-collecting forest products such as mushrooms, sweet vegetables (phak wan), wild vegetables, herbs, red ants and red ant eggs. Due to the increasing population, expanding the city in an era where urban people focus on health care and need more plants and herbs from the forest. People both in the forest network community and the non-network community in Prachinburi and nearby provinces came to smuggle more forest collections for trade including environmental changes, high temperatures, decreased rainfall and uneven rainfall result in a decline in both animal and plant biodiversity and slow recovery. In addition, the utilization of forest areas for creative activities for social, economic and environmental development at the same time holistically does not fully utilize the potential of the forest and community. Forests are occasionally used as a study and research site to explore ecosystems and natural resources for students. In the community area around the forest network, bamboo is planted as an economic tree in the gardens around the house. More than 50 percent of households to cut bamboo for sale to a furniture group in Prachinburi province without focusing on using the area of the garden around the house for self-reliant food production and processing products to increase income to the fullest capacity of the community. Forest collection exceeds the carrying capacity of nature to accept, and there are no plans to develop the restoration and sustainably use community forests. Consistent with Somsak Sukwong (2019) who concluded that community forests in general are managed by government regulations called community forests, but if they want to have an effect on real communities, they must be managed in a way called community forestry, meaning forests managed by the community themselves and there is a controlled use of forest use to maintain sustainability. Similar to Patcharin Choksiri (2017) found that the problem of territorial community forests between the forest and the communities there may be conflicts; therefore, they should be linked with a network of partners. Likewise, Yadawan Thongphan et al. (2015) found that the community forest problem is a violation of the rules of people from outside the community who are illegally burning forests, logging, and hunting.

The development of community network cooperation in the management of forest utilization in the Non Hin Phueng Community from jointly searching for ways to create sustainability in both forest areas and the area of community networks around the forest Therefore, two development plans have been developed, namely 1) an urgent plan to reduce the collection of products from commercial forest, replanting traditional plant species to restore ecosystems in community forest and create a variety of food in the garden area around the houses for consumption and distribution together to watch out for people outside the community to collect the forest. 2) a long-term plan that aims to organize the utilization system of the community forest to its full potential by maintaining and restoring ecosystems and forest biodiversity along with the development of the forest as learning centers of the environment, ecosystems and the biodiversity, organizing health rehabilitation activities, ecotourism and health

tourism for people in the community network and the public. This is in line with Somsak Sukwong (2019) who uses the principle of community forestry which means that the forest is managed by the community itself with a holistic management approach and make use of forests to create wealth for communities and forests on the basis of capital utilization in 5 areas to support each other, namely natural capital, cultural capital that causes cooperation, physical capital which is a non-living thing that can be created such as processed products, financial capital such as village funds, and human capital which is knowledge and ability to manage the market of forest products.

Community networks have jointly formulated an action plan for sustainable utilization of community forests in Non Hin Phueng by categorizing their potential into 3 plans such as 1) a development plan that the community network can operate on its own with 3 projects, namely bamboo mushroom cultivation and processing project in order to increase food and income from the bamboo forest area around the house. This project will get products from the community to support ecotourism and health tourism, planting project of beautiful flowering perennials with in forest and communities, and the project of establishment of a Thai-traditional massage group. 2) Development plans that use a medium budget which the local administrative organization or provincial organization can support. There are 6 projects, for example, the project of building relief toilets in the community forest near the pool and at the boundary of the forest in the area of Moo 3 and Moo 5, the project of creating bicycle paths around the pool and around the forest and provides 20-25 bicycles per community, totaling 100 bicycles for servicing health and ecotourism in community forests, the project of road improvement around the 25 rai pond that the Land Development Department has already dug, the project of building roads around the forest covering 3 villages, the project of homestay preparation for tourists, and a project of creating recreation places at the edge of a forest pond to be a place to take pictures and check in. 3) Development plans that use a large budget which requires support from regional or government agencies. There are 2 projects, namely the project to fill the pond by laying pipes and pumping water from the deep canal, and the project to build an observation tower and project to build an observation tower and sky bridge to see nature from a high angle in the community forest. The community forest committee will bring all the plans of the network to be included in the regular plans of the locality and relevant agencies. The community network then has chosen a pilot action plan by choosing the project of bamboo pulp mushroom cultivation project in the network community with the reason of its high cost, healthy values, and can transform into household products such as soaps, shampoos and cosmeceuticals, and the area suitable for planting in the bamboo plantation. There are 3 pilot communities located adjacent to the forest with 5 household volunteers in each community, totaling 15 households and 2 schools conducted planting plots in bamboo plantations around the house and school area. This operation was conducted for 3 months in order to increase food production and reduce forest collection from community forest to restore the fertility of the forest. The researcher provided 100 lumps of bamboo pulp mushrooms to the project participants excepted lime, manure, dried bamboo leaves and dried bamboo sheaths which the project participants must provide themselves. The cultivation results of bamboo pulp mushroom were good for 5 households, the other 10 households and 2 schools were less productive because some mushrooms are incomplete growth, location of the mushroom cultivation plot is not proper to expose sunlight and humidity. Then, the products from bamboo pulp mushroom cultivation are processed into food and household necessities such as solid soap, liquid soaps, shampoos and hair conditioners by cooperation of community enterprises to make self-reliant products, Dong Bang District, the results are satisfactory to the project participants and are expected to expand further (Figure 3).



Figure 3. Picture of the meeting to create a plan to develop sustainable community forest use and pilot development projects Bamboo Mushroom Cultivation and Product Processing.

The results of this research are in line with the conclusion of Sompong Senchai (2008) that the use of resources is the most beneficial and sustainable is to manage to minimize the waste of resources. Therefore, it is necessary to plan and manage it wisely without separating humans from the environment and linking the relationship with those involved and social, economic development, quality of life, along with maintaining ecological balance. Tamsiri Wisutphaet (2007) concluded the research that community forest management methods that have good results must be cultivated and pass on knowledge to children and be a source of natural learning for doing activities to enhance community forest values together. Leaders and community forest committees must be strong and allocate benefits to the community, using woods, collecting forests and herbs sufficiently according to the agreement and Suwaree Sripoona (2020) said in agreement that the best way to preserve it is to prevent problems rather than cure them. But if there is more destruction than protection then need an accelerating the recovery of resources by both direct and indirect methods such as management planning, human behavior control, and the implementation of the plan to achieve the goal in line with Passara Sathien watchai (2007) found that the research sustainable community forest management is an organization with a committee to operate according to the approval of the community. Communities must pass on forest management knowledge to youth by sharing experiences and doing activities.

4. Conclusion

Developing cooperation of community networks around community forests with the goal of forest conservation together with planning for sustainable utilization can be accomplished by planning to restore natural resources in both the forest area and the garden area around the house or family forest in the network community resulted in productivity of the four factors for sufficiency and income enhancement to reduce excessive consumption of community forest product and less disruption to forest productivity. Bringing plant species in the community forest to expand to increase the biodiversity of plants, animals, and mushrooms in the community areas around the forest or adopting exogenous species that have health and economic value without affecting the existence of native plant species. For the community forest area, the community network should have a plan to develop the use of community forest area for sustainable benefits by using activities as a learning center and eco-tourism and health tourism by liking career building and creative activities from community networks around the forest, such as learning activities for community wisdom and culture. Processing product and breeding plants for sale to tourists results in upgrading the economy and good relationships between people in the

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community and those outside the community according to the holistic economic development model or BCG model that aims to develop the bio-economy, circular economy and green economy in tandem with the sustainable development goals (SDGs). The success factor is the strength of the community network and cooperation with external agencies and communities to restore community forests and share the fair and widespread benefits of forests with a clear plan which implemented in a concrete manner by mutual consent to prevent conflicts of all parties involved. The use of academic, research, assessment and monitoring of the abundance of the ecosystem in the community forest and in the community surrounding the forest of the network continuously every 3-5 years has resulted in new knowledge and creative activities to enhance the capacity of the community network to continue to be strong. Finally, this study has revealed that, the stakeholders need to take some immense endeavors to strengthen the community network practices at study area, to understand the surrounding community's needs for their livelihood and to inculcate possible measures to build up the positive attitudes towards sustainability of BCG model and bio-economy.

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Conflict of interest

No Conflict of interest

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