Agricultural Resource Management Model For Sustainable Tourism By The Community

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Abstract

Agriculture is the main occupation of the people in Thailand. Exploitation and semi-monopoly in agriculture making Thai farmers at disadvantage. Agricultural resource optimization, especially agricultural resource management for tourism, therefore, it is alternatives to develop farmers. The purpose of this research were 1) to study the agricultural resource management for tourism, 2) to develop the agricultural resource management model for tourism, and 3) to assess the agricultural resource management model for sustainable community-based tourism by using focus group discussion and spiral model theory, content analysis, select sample groups with snowball sampling technique, focusing on operations in the project's area of "farming in 1 Rai, receive one hundred thousand", at Klong Din Dang Reservoir, Khao Phra Subdistrict, Phipun District, Nakhon Si Thammarat Province.

The results found that farmers manage agricultural resources according to the Sufficiency Economy Philosophy by using integrated farming that comprises rice farming, planting plants, vegetables, fruits on farm dike and raising fish. From welcoming tourists who want to study integrated farming has developed the agricultural resource management model as applied house model (agricultural way of following the king's footsteps) with 3 pillars (Sao): Sao Phosop, Sao Matcha, and Sao Warin. The agricultural resource management model as applied house model caused by applying wisdom to the agricultural and natural resources of the community with prolonging the principles of adaptation, flexibility, softening and diversification of agricultural resource management, accommodating tourists to visit and listen to lectures on agricultural resource management as applied houses, visit fish fitness innovations, rice farming by using fish to help, morning glory farming, baby fish farming and periwinkle farming by open to visit project of "farming in 1 Rai, receive one hundred thousand" located nearby Khlong Din Daeng Reservoir, Phipun District.

Keywords: agricultural resource management, sustainable agriculture, community-based tourism

Introduction

The agricultural resource management model will change according to situation on natural resource and environmental. The natural resource base was decreased and degraded as utilization exceeds the ecosystem's recovery potential, lack of participatory processes and analyzing and assessing of impact on environmental, social and economic prior to systematic implementation. Unfair access and allocation of natural resources causing inequality problems. Pollution affecting people's quality of life and economic costs causing unsustainable production and consumption patterns. The Twelfth National Economic and Social Development Plan: building natural resource base security and

enhancing the environmental quality by emphasizing on conservation and restoring natural resource bases, optimizing water resource management, promoting green growth and people's quality of life, promoting eco-friendly production and consumption, including management to reduce the risk of natural disasters (Summary of the Twelfth National Economic and Social Development Plan, B.E. 2560 – 2565 (2017 – 2022). While natural tourism encouraged people to learn and appreciate the importance of natural resources and agricultural resources.

Sustainable Community Agriculture: WHO places importance on resources by dividing the components of quality of life into 4 components, namely 1) Physical aspect is the perception of a person's physical condition that affects daily life 2) Psychological aspect is the perception of one's own mental state 3) Social relationship aspect is the perception of one's relationship with other people 4) Environment and natural resources aspect is awareness of the environment and natural resources that affects way of life (Kwanjai Thongsri, 2021). Resources are closely related to the community because resources are the things that benefit the community by being sources to provide food, medicine, habitat, clothing, occupation, especially the community economy system. Development of local resources to become a selling point for community agricultural tourism is to integrate the community's agricultural resources with the local economy while the resource condition is starting to be a problem due to the increase in population.

Community-based tourism is tourism on natural resources and agricultural resources. Promotion and policies from the government to support agrotourism is that the government has collaborated with large private entrepreneurs under the public–private partnership working group on tourism to prepare the project named "Amazing Thai Taste", which is a project to encourage foreign tourists to consume more Thai food and Thai fruits which could analyze the revenue from tourists that will increase in

2016 as follows: 1) foreign tourists; eating Thai food is the most popular activity of foreign tourists with food expenses 3,762 baht per person per time, agricultural tourism can help increase food expenses per person per time resulting in domestic income increase 12,000 million baht; 2) Thai tourists; from travel behavior survey of Thai tourists in 2015 found that about 2.5% of Thai tourists traveling domestically had activities during their agricultural excursions and had expenses on food and drink 494 baht per person per time. Therefore, if in 2016 there are 150.08 million then Thai tourists will participate in agricultural tourism activities as many as 3.77 million, which will increase domestic income on the agricultural sector by 1,860 million baht. Nakhon Si Thammarat Province is recognized as an area with good weather and Phipun District is also an area with abundant natural resources (KU-OAE Foresight Center: KOFC).

Khao Phra Subdistrict, Phipun District, Nakhon Si Thammarat Province is flat area at the foothills and slopes in the northern foothills. The east and west are the Nakhon Si Thammarat Mountain Range or Luang Mountain Range which it looks like a complex steep mountain, being source of river, brooks, canals that flow together at Khlong Din Daeng Reservoir before being drained into the Din Daeng canal and the Tapee river. The abundance of natural resources in the central and southern is important for people's habitation and cultivation as well as being a potential natural attraction and readiness to support community-based tourism. Learning aspect, should have guidelines for developing potential and readiness to support community-based tourism in order to promote the community to become a tourist attraction under cultural capital, natural capital and human capital to achieve full potential development (Jittima Damrongwattana et al., 2018). The strengths of tourism in Khao Phra Subdistrict, Phipun District, Nakhon Si Thammarat Province are a beautiful landscape and unique culture. The weaknesses are lack of attractive

tourist sites and diverse tourism activities of Khao Phra Subdistrict are unable to attract tourists, including lack of tourism staffs, lack of tourism-based management knowledge, in spite of granting opportunities from having tourist attraction network that can be linked together (Prussorn Rittimontri et al. 2017).

A study of agricultural resource management model of farmers, development of agricultural resource management model for tourism and assessment of agricultural resource management model for sustainable community-based tourism are therefore an important issue that all relevant sectors should focus on development.

The importance of potential on natural resources capital and agricultural resources at above lead to challenges to development of agricultural resource that affect community-based tourism. Encouraging people to learn and manage agricultural resources for causing local tourism, therefore, it is beneficial to develop occupation, income, environmental conservation that leading to sustainable social and economic development. From the current condition and problems mentioned above, therefore, the researcher is interested in doing research on agricultural resource management model for sustainable community-based tourism to study agricultural resource management, to develop agricultural resource management model for sustainable community-based tourism, and to assess agricultural resource management model for sustainable community-based tourism in further.

Research Methodology

This research is research and development (R&D), emphasizing participatory operational research. Researcher, informants and research driving team will jointly plan research strategies for action together, bring agricultural wisdom, sufficiency economy philosophy, direct experience of research driver to create timeline on a research action by taking the knowledge from operation to develop periodically with spiral model techniques and

focus group discussion with experts in agricultural tourism management in order to build innovation of agricultural resource management model and promote tourism.

1. People who provide information and help drive the research are a member from the project of farming in 1 Rai, receive one hundred thousand, amount of 12 households from Village No. 3, Khao Phra Sub-district, Phipun District, Nakhon Si Thammarat Province. Informants are people who practice sufficiency agriculture by continually trying to learn and develop natural resources with wisdom and small experiments in order to increase worthy and value of resources such as soil, water, wind, sun, fish, and plants. Lessons learned and developed every round of agricultural production. A main research driver is a family who bring innovations from main research driver to expand and jointly learn knowledge according to the production cycle.

2. Define sample groups by using individual and household selection techniques with snowball or chain sampling by the researcher select individuals whose agricultural resource management behaviors match the research objectives. Only 6 households are able to provide information that is appropriate for group discussions. (The Thailand Research Fund, 2006). Households participating in the research driving are the key group in research action and development, creating innovations by meeting, lessons learned and developing periodically with academics and experts joining together to brainstorm ideas and action plans including jointly assessing the phenomena from the research, triangulation until obtain knowledge to managing community-based management model.

3. Analyze data from operations, extract the management model by content analysis to be used as the basis for constructing an outline of the agricultural resource management model for tourism. This will be considered together with the data analysis

results according to problem conditions and solutions in agricultural resource management for community-based tourism. Model innovation will be assessed based on OKRs (Objectives and Key Results) and published along with the project of farming in 1 Rai, receive one hundred thousand then do focus group analysis and synthesis to summarize and process the research action.

Conclusion

Agricultural resource management for sustainable community-based tourism; farmers in the area were allocated land from the Regional Irrigation Office, Operation and Maintenance Branch 3, Khlong Din Daeng Reservoir to be an area to honor King Rama IX as an example of reducing the rubber plantation area, enhancing household model with a sufficiency lifestyle according to the Sufficiency Economy Philosophy, this is to create food security and health. The project is named "following the King's footsteps", the areas were divided into sub-groups, namely vegetable planting group, animal husbandry group, rice farming group which used name as "the farming in 1 Rai, receive one hundred thousand project" by farmers will focus on applying the Sufficiency Economy Philosophy as principles of way of life, determine to learn and develop according to the King's footsteps, bring wisdom to continually develop. In addition, Khlong Din Daeng Reservoir is the target area for tourism by having many tourists coming to experience the beautiful nature and freshness of nature at the reservoir, therefore, provide opportunities "the farming in 1 Rai, receive one hundred thousand project" to be an important stop in tourism and Agricultural learning center for adding worthy and value to the community.

Agricultural resource management for community-based tourism; farmers in "the farming in 1 Rai, receive one hundred thousand project" allocated land for doing rice farming, vegetable gardening and being a habitat which it has been allocated water from the Regional Irrigation Office, Operation and Maintenance Branch 3, Khlong Din Daeng Reservoir. Water is the main agricultural resource for farmers in "the farming in 1 Rai, receive one hundred thousand project", enabling farmers to farm up to 3 cycles per year. Agricultural resource management model for sustainable community-based tourism; the community has joined to define agricultural resource management model for tourism as management model of soil, water. It is the house where 3 main pillars are located as follows:

Agricultural resource management model (agricultural way of following the King's footsteps) is using of wisdom to manage areas to be diverse in agriculture to depend on each other, manage area's environment to be able to organize a water resource management system that results in a variety of agricultural products throughout the year.
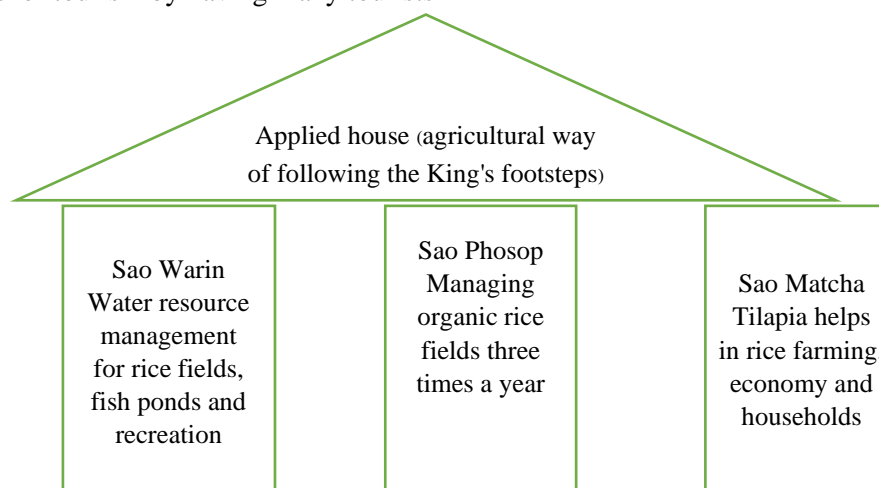
Applied house (agricultural way of following the King's footsteps)

| Sao Warin Water resource management for rice fields, fish ponds and recreation | Sao Phosop Managing organic rice fields three times a year | Sao Matcha Tilapia helps in rice farming, economy and households |

Figure 1 Applied house model (agricultural way of following the King's footsteps) with 3 pillars (Sao Phosop – Sao Matcha – Sao Warin)

Sao Phosop is to manage area and adjust rice farming model that allows rice farming all year round, especially white rice RD 43 and RD.79, which takes 3-4 months per cycle. Rice plot for 1 Rai will have farm dike 2 meters wide - the inner edge was dug as a slope from the lowest depth of 1 meter to the deepest 2 meters to be a habitat for fish during dewatering period when rice produce grains and harvesting. The wisdom of farming by controlling water level; when increasing water level to be higher than the rice field, the tilapia will eat the rice stubble and make the soil into mud pits for spawning and hatching (help plough the field) when fish baby starts to grow the water level will gradually reduce then fish and fish baby will go back to ditch around rice fields that ready for sowing. When the seedlings start to grow, increase the water level, fish will help to eat weeds around head rice and small insects on head rice until rice produce grains then decrease the water level, fish will go back to ditch around rice fields until harvest is complete. It is 3 months cycle of learning and applying the wisdom for rice farming by using fish to help farming, soil tillage, eliminate weeds and pests and increasing organic fertilizer.

Sao Matcha is to manage area and water system in rice fields. The ditch edge is 1 meter wide and depth along the slope from 1-2 meters. It is areas for fish farming in the rice fields that allows fish to be raised all year round. The water level controlling causing the Chitralada tilapia change spawning from every 6 months to every 4 months according to the water level controlled by the water system that produce fish baby and fish meat for sale and process to be dried products 3 times more than normal approximately. Besides, using wisdom to allow fish help farming also found that the nature of fish like to swim upstream, therefore, making a trough for fish to swim upstream (fish fitness) causing fish to be strong, healthy which fish become the main product that generate the most income, more than income from rice fields.

Sao Warin is water management as precursor factor of other agricultural resources managements because it is area under the reservoir that can turn on-off, control water amount flowing in and out as needed. Water for rice fields, fish pond and periwinkle, ditch, fruits and vegetables watering (garden on farm dike). In additional, water is also a biological management system for living things, agriculture related in the area, making the atmosphere in the area fresh as well as produce plants to feed fish and shellfish. Moreover, it is also sometimes used as part of boating activities for relaxation and recreation.
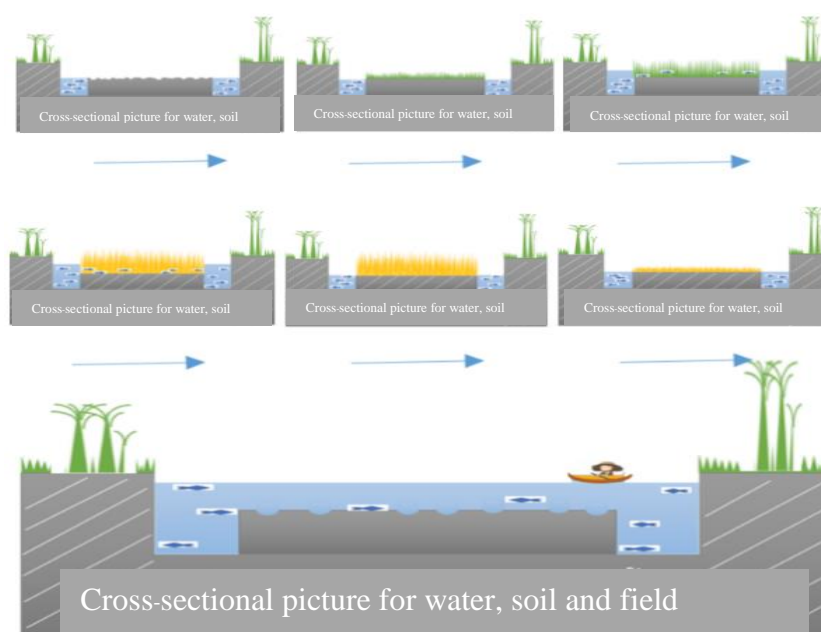

Cross-sectional picture for water, soil and field

Figure 2 Agricultural tourism model based on applied house model

(agricultural way of following the King's footsteps)

Agricultural resource management for tourism is agricultural tourism, containing learning and development of tourism support system, lesson learned and developing the spiral model. Exposure to tourists from the phenomenon of visiting area, it can be extracted into a sustainable community-based tourism management model as
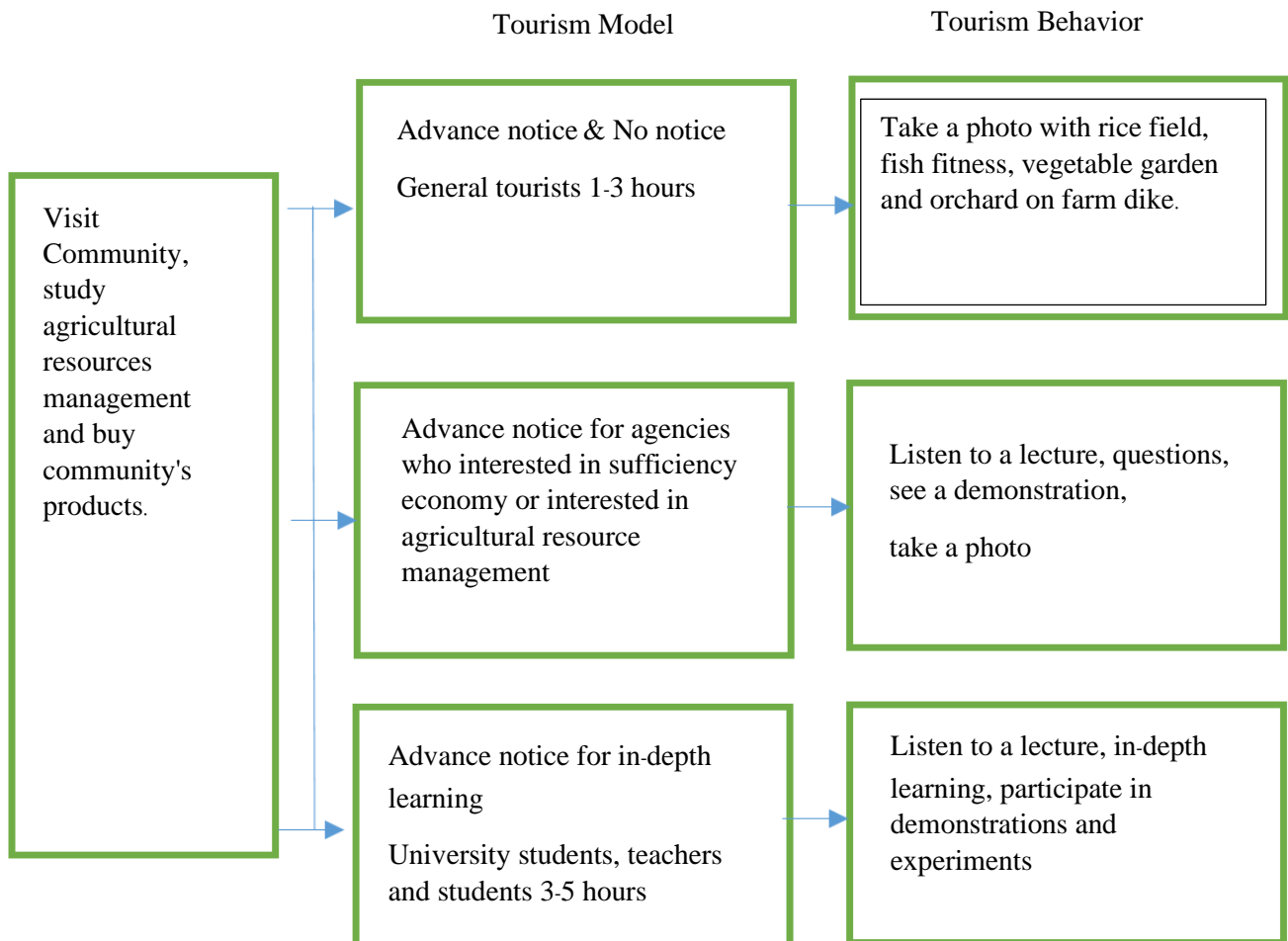
Tourism Model   Tourism Behavior

Visit Community, study agricultural resources management and buy community's products.	Advance notice & No notice — General tourists 1-3 hours	Take a photo with rice field, fish fitness, vegetable garden and orchard on farm dike.
	Advance notice for agencies who interested in sufficiency economy or interested in agricultural resource management	Listen to a lecture, questions, see a demonstration, take a photo
	Advance notice for in-depth learning — University students, teachers and students 3-5 hours	Listen to a lecture, in-depth learning, participate in demonstrations and experiments

Figure 3 Agricultural tourism model based on applied house model

(agricultural way of following the King's footsteps)

When tourists who prefer agricultural tourism came to visit the community, it is considered to stimulate local farmers to be aware and alert in carrying out activities according to the Sufficiency Economy Philosophy and found that tourists came to the community for observations, studying and learning, causing knowledge exchange, bring wisdom to build on, create new ideas that can be used to create and develop the community to drive agricultural activities to be progressive and sustainable.

Assessment of agricultural resource management model for sustainable community-Based tourism; the researcher collected phenomenal data in the implementation based on OKRs (Objective and Key Results)

approach. The researcher, informants and research driving team were jointly determined the objectives or goals of the implementation according to the research plan by focus on key results. Defined both theoretical and phenomenal indicators. Defined applied house model with 3 pillars both before implementation (upstream) and during implementation, including participatory planning and community operations. Defined indicators of Sao Phosop, Sao Matcha and Sao Warin, disseminated model and evaluated farmers in Phipun Subdistrict and Yang Khom Subdistrict of Phipun District, where an area with good water management, being an area for assessing the agricultural resource management model and tourism model from service users, by collecting the assessment data after 5-20 days of using the service, the data was collected according to triangulation. Therefore, applied house model and agritourism model were a model that have been assessed both theoretically and phenomenologically.

Discussion

From the natural resource community context, Khao Phra Subdistrict, Phipun District, Nakhon Si Thammarat Province is flat area at the foothills, territory of Luang Mountain Range where is a watershed and catchment area at Khlong Din Daeng Reservoir before flow to the Tapee River where is important river of Nakhon Si Thammarat and Surat Thani Province. The Khlong Din Daeng Reservoir is a resource that provide opportunities for farmers to use in their agricultural occupation completely. As for agricultural resource management for tourism, found that farmers were able to adjust agricultural resource management by arranging agricultural resource management for tourism, learning how to live in a sufficiency economy, learning how to use the area for maximum benefits. By the same area can be adjusted the management model into many activities such as rice farming, fish farming, fish breeding, recreational activities (boating), shellfish

raising, baby fish raising and morning glory farming.

Due to farmers experienced in learning of livelihood in a variety of ways. Both learning from one's own life, family and learning from other people's lives through various conditions such as economic downturn, epidemic causing farmers to see insecurity, therefore, began with the creation of 4 basic needs that the important thing is rice farming. In addition, farmers want to carry on, extend the royal initiative on the sufficiency economy, expecting the highest returns in 5 aspects, consisting of physical happiness, mental happiness, social happiness, health happiness and intellectual happiness, making farmers aware and understand the words sufficiency, rationality, immunity, seeing the stability of life on the basis of agricultural resources of the community by applying knowledge, wisdom, combined with opportunities received from natural resources and agricultural resources.

Farmers learned and adjusted the agricultural resources management model for tourism, learned how to live in a sufficiency economy, learned how to make the most of land use, by the same area, but was able to adjust the management model into many activities such as rice farming, fish farming, fish breeding, recreational activities (boating), shellfish farming, Siamese fighting fish farming, morning glory farming, which is consistent with the idea (Charan Chantalakhana, 2012) that Humans know how to deal with the science of agriculture combined with the agricultural resources management from the problem of resource degradation in order to achieve sustainability, efficiency and benefits for farmers. The consideration of agricultural resource management is agriculture must rely on natural and man-made resources, cost-effective use of natural and man-made resources which in line with the objectives, potential, taking into account the impact on the environment, community and society. Importantly, human beings play a role in

planning, determining model for natural resources and man-made resource use at maximum efficiency and benefit.

Agricultural resource management for tourism, agricultural resource management model based on applied house (agricultural way of following the King's footsteps) with 3 pillars (Sao), Sao Phosop, Matcha and Sao Warin, they are soil and water resource management model that enables integration of other agricultural resources, being use of wisdom to manage the area to have a variety of plants. Sao Phosop is to manage the area of rice farming to benefit more than just rice farming. Sao Matcha is to manage the area and adjust the fish farming model for maximum benefit. Sao Warin is to adjust the model of water resource management to be able to use together with the perfect area management, in line with (Teppakorn Na Songkhla, 2013) the agricultural resource management model farmers depending on the local context whether it be topography, climate, and other institutional context aspect.

Farmers have learned livelihood in a variety of ways both learning by itself, family and from other people's lives through various such as the economic downturn, epidemic causing farmers to see insecurity therefore, began with the creation of 4 basic needs that the important thing is rice farming. The continuation and build the royal initiative Sufficiency Economy for the happiness of physical, mental, social, health, and intellectual by focusing on sufficiency, rationality, immunity, seeing the stability of life on the basis of agricultural resources of the community by applying knowledge, wisdom, combined with opportunities received from natural resources and agricultural resources which consistent with (Panya Lertkrai 2017) development based on knowledge, wisdom, taking into account the context of the community through lessons learned, academics innovation techniques, resulting in spiral model which is a process that creates a new or innovative management model, benefit to the community, society on the basis of natural resources and the original agricultural resources of the community and farmers more.
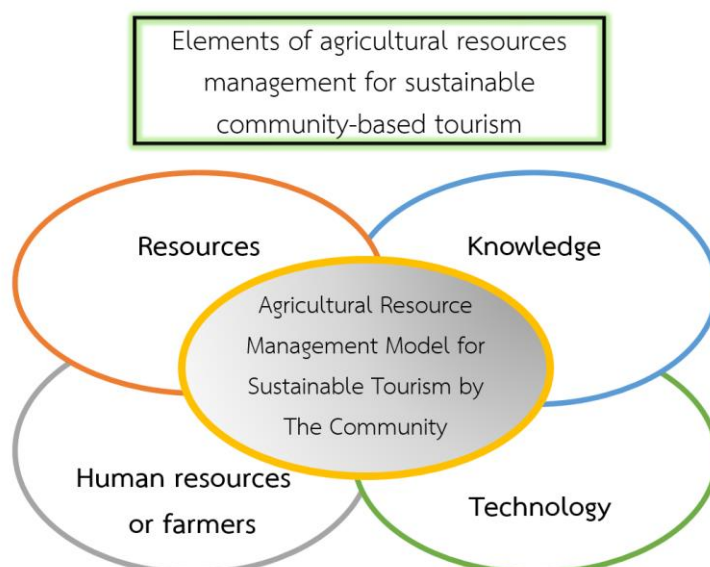
Figure 4 Elements of agricultural resources management for sustainable community-based tourism

Agricultural resource management model for sustainable community-based tourism is a model that the community can integrate community's potential benefit both security aspect on 4 basic needs and economic aspect both at level of household, community and if supported. Good management can affect overall of the country with important elements of agricultural resources management for sustainable community-based tourism as follows:

1. Resources: Community can integrate resources that are community opportunities with other potential aspects; management, allocation, planning of resource use to benefit the community. Especially, in tourism both ecotourism, leisure tourism in places with beautiful resources, agricultural tourism that has an appropriate management model for education and leisure in agricultural plots, agricultural farms that affect economy, health, social cause feelings of love, cherish, preserve and improve to be exist sustainably.

2. Knowledge: The community can integrate wisdom with other potential aspects by applying knowledge, wisdom, experience that accumulated from knowledge, skills of its farmers, communities, local and international, to use with resources, agricultural resources affect agricultural tourism that is unique to each locality and learning about agricultural resource management for tourism.

3. Technology: Community can integrate the use of technology with other potential aspects by using knowledge of farmers, communities and network from knowledge exchange to adapt to the potential of agricultural resources for tourism.

4. Human resources or farmers: It is a person who manages, plans, allocates the use of resources, including the integration of resources with other potential aspects to be able to deliver the desired results as well as agricultural

tourism to have a sustainable effect on the community.

The results of tourism management by integrating community's potential causing the community to know agricultural resources management model for sustainable community-based tourism, seeing the importance of resources, agricultural resources management to be tourism and tourism for studying agricultural resource management. Good management affects the community, making community happy mentally, physically, sociality, health and intellectual.

Conclusion/Suggestion

Implementation Suggestion

1. Administrators or community leaders should apply water management approach to benefit rice fields, fish, shellfish, vegetables and fruit trees based on the sufficiency economy concept.

2. Members of farmers who work on the project "the farming in 1 Rai, receive one hundred thousand" should integrate water, rice fields, fish, vegetables plots and fruit plots to apply in an environmentally friendly manner.

Policy Suggestion

1. Local organizations, government and private agencies should formulate policy to support activities for personnel and related sectors, encourage to have environmentally-friendly agricultural project and bring the applied house model (agricultural way of following the King's footsteps) to disseminate and support local farmers.

2. School leaders should provide policy to encourage students learning more worthy, value-added and environmentally friendly agriculture.

Academic and Research Suggestion

Academics and researchers should learn and further development the applied house model to be more useful to farmers and communities

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