Development Of A Prototype Area On Sufficiency Agricultural Land Management Using King's Philosophy Towards Learning Process Of Kok Nong Na R-Model: Multi-Case Study

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ARTICLE INFO	ABSTRACT
	The purpose of this research were to study the area of Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study with good practices to develop an experimental area for area management using the Sufficiency Agriculture method using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study of demonstration agricultural plots and to evaluate the experimental area of Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study of demonstration agricultural plots, designed using action research according to the PAOR process by dividing the research process into 4 steps, consisting of the planning stage (Plan: P), developing a land management experiment area with Royal Science integrated into Kok Nong Na R-Model in areas outside the irrigation area, practical steps (Act: A) in developing the experimental area according to the plan and learning lessons from land management with Royal Science integrated into the Kok Nong Na R-Model in community self-reliance according to the Sufficiency Agriculture method, Observe stage (Observe: O) by observing the results that arise from following up on practical work and the reflection stage (Reflect: R) from what happened after the creation of the community network, a case study of land management according to the royal initiative of the King, integrated towards Kok Nong Na R-Model in community self-reliance according to sufficiency agriculture method. The research results are summarized as follows:

1. Results of the study of the Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study with good practices. Using the multi-case study method, from all 3 case studies, there has been management of the Sufficiency Agriculture Way area with royal science integrated into the learning process of Kok Nong Na R-Model; case studies with good practices include case studies with good practices with integrated agricultural plots; a case study with good practices for developing community public areas into farmland and a case study with good practices in designing the Kok Nong Na model area. The first case study discusses inspiration, beginning with the study of Royal Science. His Majesty King Rama IX, who made us look like an example applied in life. The next case study involved the operation of a community learning center from |

being a deserted place to dumping garbage, the idea was to develop the area to benefit the community, learn at school to solve poverty, go learn the subject of the wise man according to various learning centers and used to develop the area. The third case study involved a research-based agricultural design with soil development, develop water sources, design planting areas including allocating space to be a religious place according to the way of the villagers starting with designing the area by digging a pond to make room for a water source, then take many plant species. Type of planting trial and develop the soil at the same time in order to produce sufficient yields enough to consume for the household.

2. The results of the development of an experimental area for the management of areas using the Sufficiency Agriculture method using royal science integrated into the Kok Nong Na R-Model learning process. A case study of a demonstration agricultural plot found that the area was managed according to the Kok Nong Na R-Model through an operational research process following the PAOR research cycle, a water management system was created by digging a pond with a reduced depth. An underground well is dug and water is drawn from underground using a solar cell system including digging to make a chicken filling canal, management of plant species in the area. Various plants are planted. There is a wide variety including fruit trees, perennials, support plants, rice, and fern; Azolla caroliniana. Management of cultural and religious areas is a design of the area in the Buddhist way by molding the Buddha to be the center of spirit of the people in the community including preparing an area to support the network's project, namely the Cow Bank of Dr. Luang Phor Daeng. This is a project that promotes soil development in the Kok Nong Na R-Model.

3. The results of the evaluation of the experimental area for the management of areas using the Sufficiency Agriculture method using royal science integrated into the learning process of Kok Nong Na R-Model, a case study of demonstration agricultural plots, found that the management of the area was feasible and appropriate with the area can be studied from 1) the development of the experimental area, 2) the management of the Sufficiency Agriculture area, 3) royal science integrated into the learning process, and 4) the learning process of Kok Nong Na R-Model, and 5) the results of learning through the Sufficiency Agriculture method with effective management and learning of the Sufficiency Agriculture method from the level of success of the experimental area Results of the management of learning about the Sufficiency Agriculture method learning results according to Royal Science and learning outcomes from Sufficiency Agriculture activities.

Keywords: Buddhist Principles, King's Philosophy, Sufficiency Agricultural Learning, Community Self-Reliance

Introduction

In the era of development from the agricultural era to the industrial era, humans have changed their way of life from its original simplicity and relying on things obtained from nature as factors in life. It has changed to produce more for sale and exchange. Due to the reasons of industrialization that bring convenience to mankind starting with the invention of the steam engine, power from the combustion of petroleum, electrical energy, electronics until atomic energy, all of these things have made humans want to consume industrial products and services for greater convenience. Countries that produce industrial products must sell products, produced using technology to achieve the greatest amount and profit because it is considered that a lot of brain and labor has been invested. How much product is produced? The more natural resources are destroyed. Since fuel, natural resources that are raw materials that are used as factors in production. In addition to the natural resources that some people have taken advantage of and destroyed, agricultural production which is produced to feed the country's population only must change to producing more for export. This is in order to create sufficient income to meet the demand for industrial products that the country wants to exchange. The important thing is exchange trading between Industrial products and agricultural products Often there are many advantages and disadvantages. For example, 1 sedan costs around 600,000 baht. A farmer must grow rice that costs 3,000 baht per cart, up to 200 carts, in order to exchange 1 car, or 1 squadron of 20 fighter planes has a value of approximately 30,000 million baht will be worth more than the export of rubber from Thailand in 1 year, which

has a value of only 26,000 million baht. It is produced by 800,000 families, or approximately 4.8 million baht, using 10.86 million rai of rubber cultivation, producing 1.23 million rubber quantities, tons, etc. In addition, the price increase of industrial products will have a faster rate of change. Meanwhile, prices of agricultural products have remained constant or increased only slightly. For example, in the past 10 years, prices of industrial products that use high technology have more than doubled. For example, the price of a car was about 300,000 baht per car 10 years ago, increased to approximately 800,000 baht per vehicle. The current price or increase is approximately 100 percent, while the price of agricultural products in the past 10 years has not moved up. For example, rice and rubber, which are the main products of Thailand in production for export. It can be seen that 10 years ago, farmers sold rice at a price of 2,500 - 3,000 baht per wagon. Today it is still at that level. The difference in prices of industrial and agricultural products is this. It indicates the advantages and disadvantages between countries that produce industrial products and countries that produce agricultural products. Therefore, countries that produce agricultural products must try to increase the quantity and efficiency of production to keep up with the trade balance disadvantage. This action means the need to expand agricultural areas while increasing the yield per area is higher. And increasing production has an impact on encroachment on forests and natural resources. In addition, increasing production using factors such as chemicals will cause the environment to become polluted and has an unavoidable impact on living things in the ecosystem.

Agriculture that focuses on expanding areas by encroaching on forest areas and focusing on cultivating only single crops such as corn, cotton, cassava, flax, sugarcane, sorghum, beans, etc., which are economic crops that Thailand has set a target for producing for export. This has resulted in the following problems: 1) soil degradation, 2) the emergence of pest outbreaks, 3) an increase in the spread of pests, 4) the creation of resistance of pests to pesticides, plants, 5) Pesticide residues in the environment, 6) Pesticide residues in food chains, 7) Pesticide residues in agricultural products, 8) Impacts of agriculture on mangrove forests, and 9) Impacts of the agricultural industry on the environment, such as pollution, water and air spoilage caused by industrial plants. Therefore, the agricultural profession in Thailand is one of the careers that require the most attention from the government sector. Because overall there has been damage whether it be in daily life, agricultural products farmers' income at the national level also has a negative effect, making the country's economy not as good as it should be because it is affected by environmental conditions that occur each year.

From the example mentioned above. It can be seen that farmers have suffered damage in their daily lives, agricultural products farmers' income at the national level also has a negative effect, making the country's economy not as good as it should be because it is also affected by the environment that occurs here. [1]

For Thailand, it is committed to developing the country for farmers and community continuously as shown from 20-year national development strategy plan (2017 - 2036) under the vision "The country is stable, prosperous, sustainable, and a developed country by developing the philosophy of Sufficiency Economy", which determines the development of the country's agricultural potential in the second dimension of creating competitiveness to encourage farmers to have the potential to pursue sustainable and environmentally friendly agriculture. One of the important parts in increasing the potential of the agricultural sector is by using digital technology. It also creates opportunities and equality in access to digital technology. From the problems and goals of national development according to the country's strategy, Digital Economy Promotion Agency (depa), whose mission is to provide assistance or subsidies for the development of digital industries and digital innovation, develop to promote and use digital technology. In line with the objective of establishing the office according to Section 34 of the Digital Development for Economy and Society Act 2017, there is an important mechanism to drive farmers in rural communities to increase productivity, increase income, and reduce costs in a sustainable way.[2]

As the reality of the country agriculture according to the way that has been done in the past has water as a factor of production and uses the same land once a year as a factor of production, waiting for rain or natural water, including disasters that come from changes in climate and nature. One reflection is that such changes will affect the geographic system as a whole, including water, soil, air, and lack of rain, including in the agricultural sector, causing the yield to be produced only once per year. The result is that for more than half a year, farmers have to leave their land vacant, with no cultivation taking place in that area. It is an empty area that is not useful for cultivation. This may be called a problem of unprofitable land use or management. (Ratthapong Chantakhananurak et al., 2015) [3] Even though agriculture or farming is the main occupation of Thai people, over time the implementation of the old ways may not lead to a better living or self-reliance. Therefore, the application of various science approaches come integrate to develop the area for continuous development and create connections in matters of water management, soil management, cultivation management with the selection of plants that are appropriate to the area in order to achieve maximum benefit in area management

including making farmers' lives better than they used to be in the traditional way. The idea of developing areas from old production factors had taken place.

From the aforementioned problem integrating modern science with the science of sharing happiness according to the Royal Science of the philosophy of sufficiency economy is an approach that many people embrace came to experiment and practice, they were all successful and able to rely on themselves according to a sufficiency way of life, integrating the principles of Buddhism regarding the middle path and moderation in cultivating various plants to be able having enough food to eat throughout the year is a good thing in order to survive [4] by applying the principles of sustainable agriculture to reduce production costs for farmers, [5] [6](Uthit Khamhom et al., 2019) [7] the situation of Thailand that every farmer will be able to manage his or her land as he or she wants to with several conditions such as experience in budget management, financial resources, knowledge and most importantly, there is a lack of opportunity to learn how to change the area for maximum benefit. Whether it is the matter of area management in the form of Kok Nong Na, as many groups of farmers have already begun to do. Some groups are successful because network partners have provided assistance, have sufficient knowledge and some groups were not successful, probably due to lack of experience, lack of practical knowledge and understanding and lack of network to help drive continuously. [8]

The Royal Science that His Majesty King Bhumibol Adulyadej, King Rama IX, bestowed upon the people on various occasions is a body of knowledge both in terms of science and art. His Majesty's methods for solving problems and development processes are simple and take advantage of nature, so that people can be self-reliant and have a self-sufficient way of life. The philosophy of Sufficiency Economy is a way of life for people at all levels. To live in the middle way by adhering to the principles of morality and honesty as important bases for individuals at the family level up to the state level having a career in order to keep up with the Thailand 4.0 era requires moderation. It is moderation without harming oneself or others. Reasonableness must consider and make reasonable decisions regarding relevant factors as well as carefully considering the expected results of such actions, being immune and ready to accept various impacts and changes that will occur in the future. In this regard, knowledge about various academic subjects must be strengthened, knowledge about the economy driven by innovation and putting that knowledge into action planning and must strengthen the foundation of the mind to have a sense of morality, honesty, patience, diligence, and use of wisdom in living life. Therefore, this research aims to find ways to drive royal science according to the government policy to Kok Nong Na and learning about Sufficiency agriculture, an experiment in area management using the Sufficiency Agriculture method using Royal Science integrated into the learning process and development of learning networks expanding this network will lead to knowledge sharing and develop it into a network to forward knowledge for further development.

Research Objectives

1. To study the area of Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study with good practices.
2. To develop an experimental area of Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, case study of demonstration agricultural plots.
3. To evaluate the experimental area of Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, case study of demonstration agricultural plots.

Research Method

A case study of land management according to the Royal initiative of the King, integrated towards Kok Nong Na R-Model in community self-reliance according to Sufficiency Agriculture method. The action research cycle can be as follows.
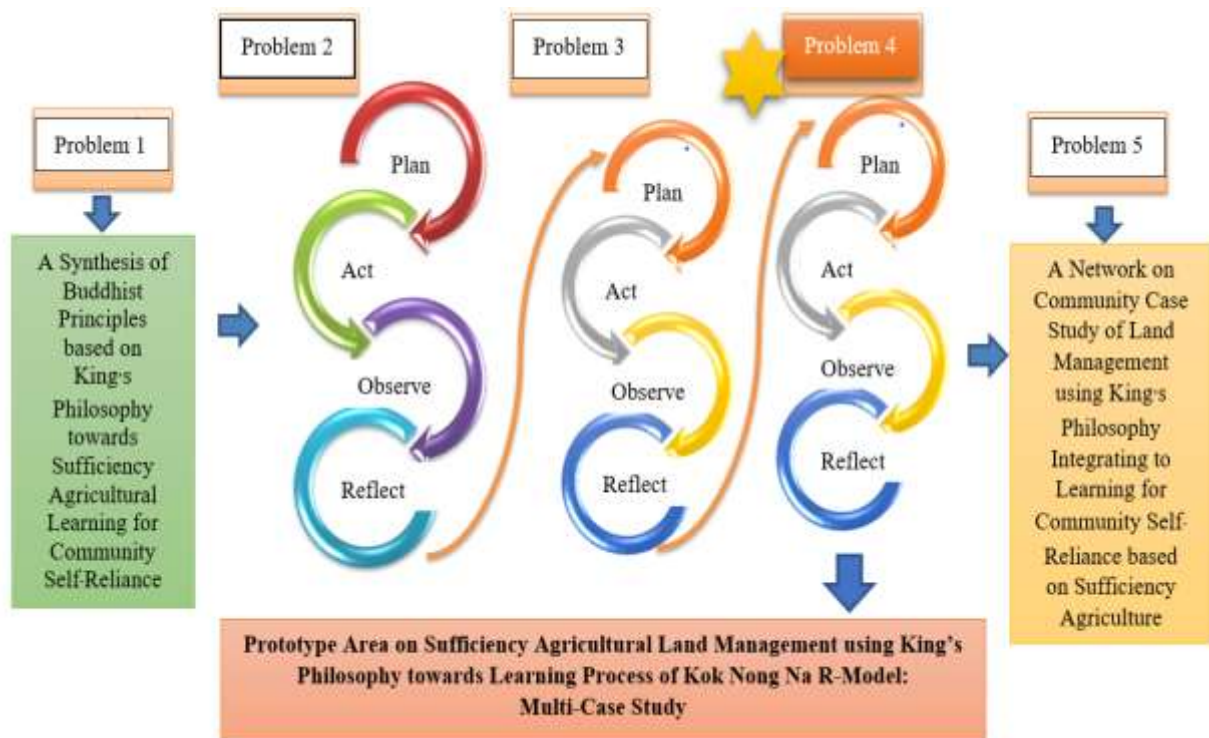
Figure 1 PAOR Action Research Cycle

From Figure 1, the research design steps according to the PAOR action research cycle can be summarized as follows.

Planning stage (Plan: P): Develop an experimental area for land management with Royal Science integrated into Kok Nong Na R-Model in areas outside the irrigation area.

Practical steps (Act: A): in developing the experimental area according to the plan and learning lessons from land management with royal science integrated into the Kok Nong Na R-Model in community self-reliance according to the Sufficiency Agriculture method.

Observe stage (Observe: O): by observing the results that arise from following up on practical work.

Reflect stage (Reflect: R): from what happened after the creation of the community network, a case study of land management according to the royal initiative of the King, integrated into the Kok Nong Na R-Model in community self-reliance according to the way of life. Sufficiency Agriculture divides the study steps as follows:

Phase 1: Synthesizing the principles of Buddhism according to the royal science approach to learning about sufficiency agriculture for community self-reliance. The research steps according to the PAOR Operations Research Cycle are as follows:

1.1 Planning stage (Plan: P); determine the target group that is interested in studying the target group for the study consists of leaders of the Sufficiency Agriculture Learning Center and members of learning centers from 3 learning centers, totaling 12 people, were obtained from purposive sampling. The target groups in the study will have the following qualifications: 1) continuously participate in learning center activities. 2) have experience in operating the Sufficiency Agriculture Learning Center 3) have experience in integration to develop learning with the practice of sufficiency agriculture.

The research tool is the question line used in the interview and field notes, field study planning is to coordinate cooperation to exchange knowledge about experiences in managing areas according to the Sufficiency Agriculture method.

1.2 Action step (Act: A); go to the field. It is a spatial study that focuses on empirical area management studies using case studies with good practices focusing on studying the model of area management according to the Sufficiency Agriculture method. That can be studied from 1) good practices in land management, 2) good practices in water management, 3) good practices in plant variety management, and 4) good practices in yield management.

Data collection field trips were designed to interview local leaders with good practices about the path of managing areas according to the Sufficiency Agriculture method until it was successful and became a learning model and studying agricultural activities that are carried out and seeing changes in the area in a concrete and empirical manner.

1.3 Observe step (Observe: O); the researcher took the data from the data collection process to reduce the data, check information and analyze data. These 3 processes were done in parallel with the data collection process, consisting of: 1) Data reduction It takes information from the interviews to analyze and organize them into topics, related to the studied issues. This is in order to select the interesting points of each variable studied to be consistent with the variables of interest to study and is information that comes from the actual experiences of the informants. Including the connection with the issue of the variables that the researcher is interested in studying. 2) Data verification is a process used to verify information by considering its accuracy and reliability considering the conversation with supporting evidence during the conversation, sufficiency of information. This can be determined by the questions the researcher has prepared before the interview. 3) Data analysis in the first phase of this research, it is qualitative research aimed at synthesizing the principles of Buddhism according to the Royal Science approach to learning about Sufficiency Agriculture for community self-reliance and analyze the data by creating inductive conclusions (Analytic induction). The results of the analysis will answer the research objective number 1. The results obtained from the research in Phase 1 are information about the principles of Buddhism according to the guidelines, Royal Science to learn about Sufficiency Agriculture for community self-reliance to be used in the design of Buddhist learning process activities according to the King's Science guide to learning about Sufficiency Agriculture for community self-reliance in sub-research project 2.

1.4 Reflect step (Reflect: R); the reflection on learning results is linked to the research design in sub-research project 2 in developing the Buddhist learning process according to the Royal Science approach to learning about Sufficiency Agriculture for community self-reliance.

Research Results

The results of the study of the Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study with good practices using the multiple case study method, from all 3 case studies, there has been management of the Sufficiency Agriculture way area with Royal Science integrated into the learning process of Kok Nong Na R-Model; case studies with good practices include case studies with good practices with integrated agricultural plots; a case study with good practices in developing community public areas into farmland and a case study with good practices in designing the Kok Nong Na model area. The first case study discusses inspiration, beginning with the study of royal science. His Majesty King Rama IX, who made us look like an example applied in life. The next case study involved the operation of a community learning center from being a deserted place to dumping garbage, the idea was to develop the area to benefit the community, learn at school to solve poverty, go learn the subject of the wise man according to various learning centers and used to develop the area. The third case study involved research-based agricultural design with soil development, develop water sources, design planting areas including allocating space to be a religious place according to the way of the villagers starting with designing the area by digging a pond to make room for storing water sources, then take many plant species, type of planting trial and develop the soil at the same time in order to have enough produce to have enough to eat and use in the household.

The results of the development of an experimental area for the management of areas using the Sufficiency Agriculture method with Royal Science integrated into the learning process of Kok Nong Na R-Model; a case study of a demonstration agricultural plot, found that there was area management according to the Kok Nong Na model through the process, action research following the PAOR research cycle, where a water management system was created by digging a pond with a reduced depth. An underground well is dug and water is drawn from underground using a solar cell system including digging to make a chicken filling canal, management of plant species in the area. Various plants are planted. There is a wide variety including fruit trees, perennials, nanny plants, rice, and Mosquito fern; Azolla caroliniana. Management of cultural and religious areas is a design of the area in the Buddhist way by molding the Buddha to be the center of spirit of the people in the community including preparing an area to support the network's project, namely the Cow Bank of Dr. Luang Phor Daeng. This is a project that promotes soil development in the Kok Nong Na area. R-Model.

The results of the evaluation of the experimental area for the management of areas using the Sufficiency Agriculture method using royal science integrated into the learning process of Kok Nong Na R-Model, a case study of demonstration agricultural plots, found that the area management was feasible and appropriate for the area. It can be studied from 1) the development of experimental areas, 2) the management of sufficiency agricultural areas, 3) royal science integrated into the learning process, and 4) the learning process of Kok Nong Na R-Model, and 5) learning outcomes through the Sufficiency Agriculture method by evaluating the effectiveness of learning management of the Sufficiency Agriculture method from the level of success of the experimental area. Results of the management of learning about the Sufficiency Agriculture method learning results according to Royal Science and learning outcomes from Sufficiency Agriculture activities.

Discussions

From the research findings, three interesting issues can be discussed as follows:

1. Results of the study of the Sufficiency Agriculture area management using Royal Science integrated into the learning process of Kok Nong Na R-Model, a case study with good practices using the multiple case study method, from all 3 case studies, there has been management of the Sufficiency Agriculture way area with Royal Science integrated into the learning process of Kok Nong Na R-Model; case studies with good practices include case studies with good practices with integrated agricultural plots; a case study with good practices for developing community public areas into farmland and a case study with good practices in designing the Kok Nong Na R-Model area. The first case study discusses inspiration, beginning with the study of royal science. His Majesty King Rama IX, who made us look like an example applied in life. The next case study involved the operation of a community learning center from being a deserted place to dumping garbage, the idea was to develop the area to benefit the community, learn at school to solve poverty, go to learn the subject of the wise man according to various learning centers and used to develop the area. The third case study involved a research-based agricultural design with soil development, develop water sources, design planting areas including allocating space to be a religious place according to the way of the villagers starting with designing the area by digging a pond to make room for a water source, then take many plant species, type of planting trial and develop the soil at the same time in order to produce enough produce to have enough to eat and use in the household. This creates income that promotes a good quality of life. This is consistent with the research of Busaba Aree (2012), studied on household accounts according to the Sufficiency Economy approach in the era of globalization. In the world of globalization, information has inevitably become a factor that influences the way of life of local communities. Direction of social change of globalization. It creates both an impending crisis and an opportunity. Today's production has changed from before. Investment and trading all over the world machines are used instead of labor, give importance to inventory management using the computer system, make communication and reporting systems fast and efficient. Both government and private agencies have adopted the concept of Sufficiency Economy in order to lead to sustainable development. It represents a guideline for foreign investment and citizens at all levels to follow the middle path.

2. From the results of the development of the experimental area for the management of areas using the Sufficiency Agriculture method using Royal Science integrated into the Kok Nong Na R-Model learning process; a case study of the agricultural demonstration plot found that the area was managed according to the Kok Nong Na R-Model through an action research process based on the PAOR research cycle that involves creating a water management system by digging a pond with a reduced depth; an underground well is dug and water is drawn from underground using a solar cell system including digging to make a chicken filling canal. Management of plant species in the area various plants are planted. There is a wide variety including fruit trees, perennials, nanny plants, rice, and water fern. Management of cultural and religious areas is a design of the area in the Buddhist way by molding the Buddha to be the center of spirit of the people in the community including preparing an area to support the network's project, namely the Cow Bank of Dr. Luang Phor Daeng. This is a project that promotes soil development in the Kok Nong Na R-Model which related to the research of Sirina Jittjarat (2019) [10], promoting activities to develop creative and participatory sufficiency economy learning resources of the Ban Yang community Nakhon Pathom Province. The research results found that Conditions for organizing learning activities are at a high level and the demand is at a high level. As for the learning activities, the principles of action learning are used. (learning.by.doing) that consists of royal science Creativity, which has 7 learning bases consisted of Rice Field, Thai Dessert, Handkerchief Design, The King's Philosophy Learning, Story line and Wisdom, Exercise Activity, and D.I.Y. As a result of participating in the learning activities, the sample group had a higher mean satisfaction than before participating in the activities, with an overall level of satisfaction with the learning activities at a high level.

3. From the results of the evaluation of the experimental area for the management of areas with the Sufficiency Agriculture method using royal science integrated into the learning process of Kok Nong Na R-Model, a case study of demonstration agricultural plots, it was found that the area management is feasible and appropriate. Areas can be studied from 1) development of experimental areas, 2) management of areas with sufficiency agriculture methods, 3) royal science integrated into the learning process, and 4) learning process of Kok Nong Na R-Model, and 5) academic results, know through the Sufficiency Agriculture method by evaluating the effectiveness of the management of learning about the Sufficiency Agriculture method from the level of success of the experimental area, results of the management of learning about the Sufficiency Agriculture method learning results according to Royal Science and learning outcomes from Sufficiency Agriculture activities. The results of this evaluation are consistent with the research results of Patthama Komentjamrat (2016) [11] who

studied the relationship between the level of knowledge about the Sufficiency Economy concept and the level of practice regarding living according to the Sufficiency Economy concept of the Song Khlong Subdistrict Community, Bang Pakong District, Chachoengsao Province. The research results found that have a level of knowledge about the concept of Sufficiency Economy Overall, at a high level, and there is a high level of practice in living according to the concept of Sufficiency Economy, physically and mentally, economically, socially, and environmentally.

Knowledge from Research
Knowledge from research on "Development of a Prototype Area on Sufficiency Agricultural Land Management using King's Philosophy towards Learning Process of Kok Nong Na R-Model: Multi-Case Study" showed the connection between learning process of Kok Nong Na R-Model in a case study of farming demonstration using learning outcome base on the King's Philosophy and sufficiency agricultural activities. Then, it will be measured by following key success of experiment area and sufficiency agricultural management which can be shown as below figure.
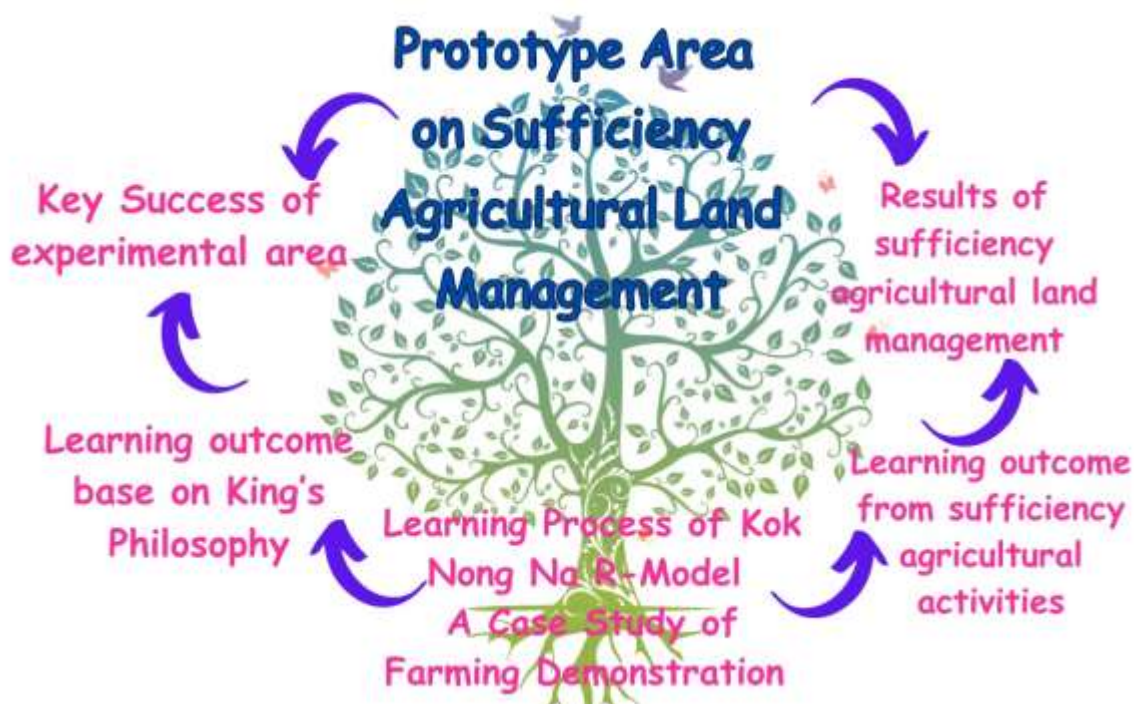

Figure 2 Knowledge from Research

Recommendations
1. Recommendation for Practice
1.1. Should set guidelines for living according to Royal Science by embracing the philosophy of Sufficiency Economy and integrating it with the design of an experimental area for managing the area of Sufficiency Agriculture with the King's Science, integrating it into the learning process of Kok Nong Na R-Model and the learning of the building community, community participation of the entire home, temple, school (Bowon in Thai), Cow Bank project driven by Kok Nong Na R-Model, planting forests and fruit orchards in the Kok Nong Na R-Model area, non-toxic vegetables project creates awareness of growing chemicals-free vegetables, chemical and fish ponds in the area of Kok Nong Na R-Model.

1.2 Should design and create learning activities. There are activities to learn about Sufficiency Agriculture for students and youth in the area and organize student volunteer activities, giving students the opportunity to learn and do spatial activities to be a process of creating a learning prototype with integrating the Sufficiency Agriculture method with the King's Science

1.3 A model for community self-reliance should be created by taking the initiative and being a model for area management according to the pattern of humps, swamps, and rice fields in the land previously used for rice farming and outside the irrigation area, make it an area that is fertile through water management processes, land management and managing trees in the area over time under operations that must use principles of ethics to govern every process.

2. Recommendation for Further Research

2.1 This research is an action research and spatial study by extracting lessons from spatial activities and learning processes according to the Royal Science approach to learning sufficiency agriculture for community self-reliance, for next research, action research should be designed to obtain empirical findings and activities to be designed sequentially.

2.2 From the findings of this research, it can be used to design research and development research by developing the results of spatial studies into innovations from this experimental area to get the results from both in-depth study and extensive findings covering the development of a prototype area for area management with Royal Science integrated into the Kok Nong Na R-Model learning in community self-reliance according to the way of life in sufficiency agriculture.

Conclusion

Research entitled on "Knowledge from research on "Development of a Prototype Area on Sufficiency Agricultural Land Management using King's Philosophy towards Learning Process of Kok Nong Na R-Model: Multi-Case Study", results showed that a case study with good practices using the multiple case study method, from all 3 case studies, there has been management of the Sufficiency Agriculture area with royal science integrated into the learning process of Kok Nong Na R-Model; case studies with good practices include case studies with good practices with integrated agricultural plots; a case study with good practices for developing community public areas into farmland and a case study with good practices in designing the Kok Nong Na model area. Results of the development of an experimental area for the management of areas using the sufficiency agriculture method using royal science integrated into the Kok Nong Na R-Model learning process. A case study of a demonstration agricultural plot found that the area was managed according to the Kok Nong Na R-Model through an operational research process following the PAOR research cycle, a water management system was created by digging a pond with a reduced depth. An underground well is dug and water is drawn from underground using a solar cell system including digging to make a chicken filling canal, management of plant species in the area. Management of cultural and religious areas is a design of the area in the Buddhist way by molding the Buddha to be the center of spirit of the people in the community including preparing an area to support the network's project, namely the Cow Bank of Dr. Luang Phor Daeng. This is a project that promotes soil development in the Kok Nong Na R-Model. The evaluation of the experimental area for the management of areas using the Sufficiency Agriculture method using royal science integrated into the learning process of Kok Nong Na R-Model, a case study of demonstration agricultural plots, found that the management of the area was feasible and appropriate with the area can be studied from 1) the development of the experimental area, 2) the management of the Sufficiency Agriculture area, 3) royal science integrated into the learning process, and 4) the learning process of Kok Nong Na R-Model, and 5) the results of learning through the Sufficiency Agriculture method with effective management and learning of the sufficiency agriculture method from the level of success of the experimental area.

References

1. Agricultural Resource Systems Research Center. (2024). Impact of agriculture on natural ecosystems, http://www.mcc.cmu.ac.th/graduate/Agro723/Reading_Materials/GREENAG_ORG.htm.

2. depa. (2024). Agriculture, Alternative Way of Survival, https://www.depa.or.th/th/article-view/agriculture-alternative-way-of-survival.

3. Rattaphong Chantakhananurak et al.(2015). Economic factors of farmers and agricultural development in the agricultural land reform area, Lam Nangrong Subdistrict, Non Din Daeng District, Buriram Province. Veridian E-Journal,Silpakorn University Humanities, Social Sciences and arts Thai version Humanities, Social Sciences and Arts. 8 (3): (September - December 2015), 314-328. https://he02.tci-thaijo.org/index.php/Veridian-E-Journal/article/view/43685.

4. Phra Danaiphob Chutithammo, Nopparit Jitsaitharn and Jirayu Sapsin. (2020). The role of the subdistrict municipality in promoting living according to the philosophy of sufficiency economy in the community of the subdistrict municipality. In Phlapphla Chai District Buriram Province. Journal of Local Administration and Innovation. 4 (1) : January-April 2020,143-156. https://so03.tci-thaijo.org/index.php/JLGISRRU/article/view/240809/164248;

5. Jinaporn Phansawang et al.(2020). Self-reliant lifestyle according to the principles of right livelihood to develop the quality of life of farmers in the central northeastern region. Mahamakakat Rajavidyalaya

University Journal Roi Et Campus. 9 (1): January-June 2020, https://so01.tci-thaijo.org/index.php/AJMBU/article/view/242226;

6. Thaweesak Chaipattha and colleagues. (2009). Ban Phu Community Sufficiency Economy: Into Practice. Journal of Management and Development. 1 (1)): January - April 2009, https://so02.tci-thaijo.org/index.php/admin_develop_journal/article/view/12288.

7. Uthit Tahom et al. (2019). Participatory farmer potential development. By applying the principles of sustainable agriculture to reduce production costs for farmers Ban Khu Khat Community, Satuek Subdistrict, Satuek District, Buriram Province Social Development Journal. No. 21, Issue 2 / 2019,1-27. http://ssed.nida.ac.th/images/jsd/Y21_2/1_Utit.pdf.

8. Rawinan Yimkaew and Kulchai Kultawanit. (2019). Three-dimensional virtual field trip model. Khok Nong Na model for lowland areas. Academic Journal of Rattana Bundit University. 14 (1) January – June 2019, 66-78 http://www3.rbac.ac.th/rbacjournal/papersubmission/ paperjournal/CT61070187.pdf.

9. Busaba Aree, household accounting according to the Sufficiency Economy approach in the era of globalization. Chandrakasemsan Journal.18 (34) January - June 2012,97-105. https://li01.tci-thaijo.org/index.php/crujournal/article/view/30019/25864

10. Sirina Jittjarat. (2019). Promoting activities to develop participatory creative sufficiency economy learning resources of the Ban Yang community Nakhon Pathom Province. Christian University Journal. 25 (4): October-December 2019,67-79. https://he01.tci-thaijo.org/index.php/CUTJ/article/view/162445

11. Pattama Komentjamrat. (2016). The relationship between the level of knowledge about the Sufficiency Economy concept and the level of practice regarding living according to the Sufficiency Economy concept of the Song Khlong Subdistrict Community, Bang Pakong District, Chachoengsao Province. Graduate Studies Journal Valaya Alongkorn Rajabhat University Under the Royal Patronage. 10 (3) September–December 2016,84-98. https://so02.tci-thaijo.org/index.php/JournalGradVRU/article/view/71762