



The Study of Environmental, Economic and Social Assessment of King Bhumibol's Project, the Center of Agricultural Development and Service, Huayzonhuayzua, Nasaithong, Vientiane, Lao People's Democratic Republic

¹Prayoon Wongchantra, ²Kuantean Wongchantra, ¹Kannika Sookngam, ¹Suparat Ongon, ¹Likhit Junkaew, ¹Surasak Kaeongam and ¹Uraiwan Praimee

¹*Center of Environmental Education Research and Training, Faculty of Environment and Resource Studies, Mahasarakham University, Maha Sarakham, Thailand*

²*Srimahasarakham Nursing College, Maha Sarakham, Thailand*

Key words: The Royal project, Huai Son-HuaiSua, Lao People's Democratic Republic, environmental, economic and social impacts

Abstract: This research aims to study the environmental, economic and social impacts of the royal project on agricultural development and service center Huai So-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. Sample groups used in the study are executive branch and head of the project. The study process uses studies from relevant research textbooks and in-depth interviews. Then the data were analyzed and presented according to the qualitative research process. The results showed that the project covered approximately 325 rai of land with 2 creeks, Huai Son and Huai Sua. The project area is located south of Ban Na Yang, Na Sai Thong Vientiane Capital. There are 5 target villages around the project which are Ban Na Yang, Ban Na Son, Ban Hua Kua, Ban Nam Kiang Nuea and Ban Nam Kiang Tai. A total of 1,076 households, a population of 6,090 people, total agricultural area of 6,287.50 rai. The training mission is divided into 5 branches, each of which will train people around the center and the provinces according to the Thai-Laos plan that has been jointly set every year. There are 36,480 people who have trained. There are about 1,518 interns. There are approximately 58 Thai interns. And there were approximately 32,132 people in the field trip and exchange of knowledge by being approximately 15,310 guests from Thailand. As for the study of the environmental, economic and social impacts of the project, it is found that overall the project is an important part in the development of the environmental management system of the area around the project. Resulting in the development of basic infrastructure of the community. Established a department for research and development by focusing on preserving the local environment.

Corresponding Author:

Prayoon Wongchantra
Center of Environmental Education Research and Training, Faculty of Environment and Resource Studies, Mahasarakham University, Maha Sarakham, Thailand

Page No.: 104-115

Volume: 14, Issue 3, 2020

ISSN: 1994-5396

Environmental Research Journal

Copy Right: Medwell Publications

INTRODUCTION

Environmental problems are serious problems that are facing the world now. This is because environmental problems affect human life at the individual, family, community, national and global levels. And tend to be more intense, respectively. Environmental problems that because human impacts include air pollution, heat and drought, loss of forests, natural disasters, soil degradation, waste water, water shortage, solid waste and sewage, etc. Nowadays, natural resources have deteriorated considerably because humans have used natural resources to meet their needs both in the manufacturing sector. Industrial sector. Transport and other activities, so much that it causes environmental impact problems at the national and global levels. Effective environmental management is therefore very necessary to help solve environmental problems present and in the future^[1].

In the past increasing awareness of the importance of the environment as a matter of success in national development efforts. By considering the relationship between poverty and environmental destruction that may result from neglect or the economic necessity of the people in that community. That may destroy or use all those resources by mistake. The destruction of the environment will adversely affect economic development. Will cause high costs in developing countries. Through the production and productivity of agricultural production is declining. The efficiency of natural resources that is reduced. Health expenses as well as problems of inaccessibility of hygiene promotion will affect the poor in the end. Therefore, it can be seen that this environmental problem is related to the efficiency of the use of resources and the conditions of the well-being of the people in that community.

The population, consumption and technology Is the main driving force that leads to environmental changes. Consumption population and capacity of the world to sustain life. Including the development of technology that will meet human needs and carefully manage natural resources. Environmental problems in developed countries are often the result of extravagant and inefficient consumption patterns. For developing countries, environmental problems often associated directly linked to poverty. When people are under pressure, they will seek new resources. Find new areas to exploit. The sustainable development approach therefore focuses on operations to resolve extravagant consumption. Correcting or eliminating poverty as well as operations in various parts associated. Will see that the success of sustainable development must come from interdisciplinary operations. With a variety of cultures and conducting in many dimensions at the same time to ensure equal development for all groups in society. Especially, to meet the needs of the most disadvantaged and the weakest in

society including low-income children, women and rural people. Sustainable development must respect the rights and dignity of humanity and the environment^[2].

For the royal project on agricultural development and service center Huai Son Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. Is a project to enhance good relations between Lao-Thai in various fields of agriculture more closely. By helping in technology transfer and academic knowledge to be a venue to demonstrate various activities agricultural. With regard to the environment and the topography is important. As well as promoting various agricultural activities for the people of Laos. By training for the people of Laos to apply various academic and technical knowledge to the profession. Which can be learned from real examples. And finally, to aim to promote and upgrade the living status of Lao people in the project area And better nearby. With the results of operations and project activities conveying knowledge lessons and experiences from real examples for the villagers. As well as rural developers of Lao. The main agricultural development and service center project 22 has supported various activities. According to the 7 main work plans. With two staff members working together and Thai officials have circulated to work in Lao once a month. In order to monitor the operations and jointly discuss, make suggestions and solve problems. And training for the people of Laos to apply academic knowledge and various technologies to use in a career. Which can be learned from real examples.

However, the agricultural development and service center Huai Son-HuaiSua with the development of water resources, digging farm ponds, demonstration of fisheries, livestock, land development and agriculture, providing fish breeding, plant breeding and animal breeding services. In order to improve the lives of people in the project area and nearby. Farmers who are on a study trip can apply the knowledge and apply it to their own areas to develop correctly, according to academic principles. Making it possible to increase productivity and income to rise.

Therefore, students are interested in studying the environmental, economic and social impacts of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. To propose guidelines for sustainable environmental development in the future.

MATERIALS AND METHODS

Research objectives: To study the environmental, economic and social impacts of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic.

Scope of research

Research design: Study the environmental, economic and social impacts of the Royal Project on Agricultural Development and Service Center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People’s Democratic Republic. Is a qualitative research by using an integrated documentary research and descriptive Research.

Research area: Research areas include the Royal Project on Agricultural Development and Service Center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People’s Democratic Republic (Fig. 1).

Populations and samples

Populations: The population used in this research was the royal project personnel, the Royal Project on Agricultural Development and Service Center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People’s Democratic Republic, amount 25 people.

The sample group: The sample group used in this research was executives and project leaders of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People’s Democratic Republic. Which was obtained through a specific interview.

Research tools: Research tools Is an interview form for project managers of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People’s Democratic Republic. Divided into 8 topics as follows:

- The history, mission
- What activities are carried out
- How much service area?
- What are the training engagements? How are participants? (Since, setting up the center)
- What is the mission of providing internship services to people, groups and organizations? (Since, setting up the center)



Fig. 1: A map of Laos people’s democracy

- Has done a lot of services in the field of study visits to which people, groups and organizations? (since, setting up the center)
- What is the mission and support for problem solving in farmers? (Since setting up the center)
- What is your proposal for the development of the center in the future?

Data collection: Contact to the Royal Project on Agricultural Development and Service Center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. To request to survey the data collection area. Plan the research team to survey the data collection area. Into the survey area the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. Bring the data to analyze the environmental, economic and social impact of the project.

Research result

The results of the interview with the project personnel:

This research study, the research team conducted an interview with the personnel of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. In an interview about the implementation of the project by presenting the results of the interviews conducted in the following areas:

General information about the center: The history of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic.

In the year 1994, His Majesty the King to establish the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. (Laos PDR) According to Kaison Phomviharn, former president of Laos PDR. Request a royal project in the same manner as the royal development study center. Considered the beginning of the development center project. Which is located approximately 22 km North of the Vientiane Wall using the guidelines of the royal development study center. Which has activities to create a demonstration plot for fisheries, livestock, land development and agriculture. Providing fish breeding, plant breeding, animal breeding. And training to educate farmers on a study visit in general. By focusing on the farmers in the target villages around the center in the first 5 villages. And later expanded the scope of services by adding 4 more target villages.

The activities of the agricultural service and development center of Huai Son-Huai Sua. The operations

of the royal project on agricultural development and service center Huai Son-Huai Sua have applied the development guidelines in the same way as the royal development study center. Which has important operating guidelines as follows: Study, research, experiment and various development methods to be suitable to different environments are like "models of success".

Exchange communication between academics, practitioners and the people as a source of integration of academics and practices. Is a source of knowledge of the people Is a place to exchange experiences and propose solutions to problems between scholars officials and citizens.

It is an integrated development in every branch in the form of "interdisciplinary" in which each branch has development that is beneficial to each other. With operations and systematic administration. Operations are coordination between various government agencies in terms of coordinating arms and coordinating operations.

A one stop service center with studies, experiments and demonstrations showing the successful results of all operations at the same time as the "Living Nature Museum".

From the operational guidelines in the form of the royal project on agricultural development and service center Huai Son-Huai Sua has stated the above guideline to set operational objectives. With emphasis on the transfer of agricultural technology. Demonstration of agricultural activities and training by learning from the real. Improving the well-being of the people in the project area and nearby. With the goal of developing a sufficient water source. Demonstration and promotion of soil and water conservation, planting and farming, fish farming, professional development, quality of life and operational guidelines. Land development, administrative, academic agriculture, professional development and quality of life. Which is broken down into various activities of the project such as preparation of basic utilities, agricultural demonstration and promotion, fishery, livestock and conservation. Technology transfer, knowledge, training as a guideline for farmers to use in distributing plant varieties, fish species, animal species, etc. Service areas of the royal project on agricultural development and service center Huai Son-Huai Sua.

The project area covers an area of approximately 325 rai. Has a square shape with a width of about 800 m, length of about 900 m. Which there are 2 streams which are Huai Son and Huai Sua surrounding the area of the center. Is a hillside interspersed with lowland areas. The highest point is 188 m above sea level. Located to the South of Ban Na Yang, Na Sai Thong city, Vientiane Wall. Consisting of 5 target villages around the center which are Ban Na Yang, Ban Na Son, Ban Hua Kua, Ban Nam Kiang Nuea and Ban Nam Kiang Tai. Total 1,076



Fig. 2: Nature of activities that the agricultural Development and Service Center (Principal 22) operates in Laos

households, population 6,090 people, use the total area of agriculture 6,287.50 rai. Under the responsibility of operating agricultural development and services from the center (Fig. 2).

Training mission and the number of participants (Since, setting up the center) Huai Son-Huai Sua agriculture service and development center has a training mission. Which can be divided into 5 branches as follows: Cultivate a branch of knowledge. Through various courses including courses on how to grow fruit trees, techniques for propagation of fruit trees. Seasonal vegetable growing course. Course to grow vegetables in the nursery. Mushroom culture course (Agar+Plant pellet) and Oyster mushroom cultivation course. Land development, consisting of bio-fertilizer production courses. Production of bio-fermented food from plants and fruits or animal products, fish and chilli. Manufacture of fermented food from herbs. (Protect against insects and plants). Animal raising such as chicken raising courses. Duck feeding course. Cattle raising course and the pig raising course. Fisheries, fish breeding courses, cage culture of sex reversal of Nile Tilapia production course, fish nursery courses, frog breeding course, frog nursery course. Field of irrigation including irrigation management courses and the management of water delivery in Huai Son Reservoir.

Each branch will train for the people around the center and other provinces (provinces), 80 people per 1 year. According to the Thai-Laos plan which is jointly determined every year is $80 \times 5 \times 24 = 9,600$ people which is calculated from 80 people per branch. There is a total of 5 branches for 24 years.

The mission of providing internship services to people, groups and organizations (Since setting up the center)

The royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. There are 1,518 students in the internship which are 1,045 females while 58 Thai students are 32 females.

The mission of providing services in study trips to people, groups and organizations (Since, setting up the center). The royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic. There were approximately 32,132 guests in the field trip, field trips and exchange of knowledge with approximately 15,310 guests from Thailand.

The mission of providing support in solving problems for farmers of the Huai Son-Huai Sue Agricultural Development and Service Center (since, the establishment of the center)

The royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic with support to solving problems for farmers as follows:

Animal raising: Bringing animal husbandry techniques to train the people around the center. And other provinces by bringing about 250 chicken products per year, about 200 ducks per year, 10 pigs per year to promote the people.

Fishery: Fish farming techniques are being used to train the people around the center and approximately 10,000 frogs are produced each year.

Cultivation: Bringing academic techniques on tree planting to train people in the area and other provinces. Brought the product About 100 different kinds of trees per year.

In the field of land development: to bring technical techniques to the people around the center that training to make bio fertilizer, propagation, vetiver grass, fermentation, Insect repellent and composting.

Irrigation has promoted technical support to solve irrigation problems for the people around the center or 7 groups of overtaking farmers with an area of approximately 1,080 rai and an annual rice cultivation of 1,200 rai.

There is promotion in solving problems for farmers, for example, raising model families in the center and around the center, 59 families promoting 52 families in different provinces, promoting 6 schools, promoting 2 centers in a total of 119 (Fig. 2).

RESULTS AND DISCUSSION

Environmental impact data analysis results: The researcher divided the study and analyzed the data by using the qualitative research process, interviewing, surveying and observing. The study was divided into 2 parts which are positive environmental impact and negative environmental effects as follows:

Positive environmental impact: The royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic has operated officially, since, 1994 to the present counted for over 24 years. Which is a project created by the cooperation of Thailand and the Lao People's Democratic Republic. The development is divided into 6 main areas: infrastructure development water source, land development, agricultural development, livestock development and fishery development. Each side has different roles and responsibilities which have different effects as follows:

Infrastructure development; which consists of developing basic essential public utilities such as electrical systems, water supply systems, transportation routes and the area development in agricultural education training. Which results in a better environment, beautiful landscape, the people around the project have a better quality of life. And have utilities that are more suitable for living and occupational enhancement. Have improved the conditions of the area to be more suitable for living.

Water source development; from the study, it is found that the project has developed water sources in the area to be able to store water for use throughout the year. By the construction of the Huai Son reservoir with a capacity of 1.8 million cubic meters. Can be used in agriculture for 2,233 rai in the rainy season. And can be used for agriculture of 1,100 rai in the dry season. And digging 325 water retention ponds for farmers. Supporting the construction of Huai Sua. Irrigation dam and Irrigation dam in various canals. Construction of a canal system in agricultural areas. Allowing farmers in the area around the project to be able to do better farming. Farmers have more agricultural products. Because the area has enough water for agriculture and able to do agriculture in every season. And the important thing is the development of the water source of the project also greatly affects the ecological and biodiversity restoration of the area. Is an important food source of the community. A tourist attraction and is an important breeding ground for fish in the area.

Land development; from the study of land development which is another important mission of the project. Found that the project area and agricultural areas in the service area of the project have deteriorated soil. Low integrity and has quite high acidity and alkalinity. Look like silty that is not suitable for cultivation. After that, the project proceeded to improve the soil with biological processes. By starting with the experiment within the project and then expanding the results to farmers around the project area. Make in the present with increased agricultural production. Fertile areas and the soil quality are more suitable for cultivation. Without destroying ecology and the environment. It also helps other plants to receive nutrients that are distributed throughout the water to use as well.

Agricultural development; it is an important development aspect in the area's environmental system development. The study found that it is the creation of biodiversity and species of field crops, horticulture, vegetables and various kinds of perennials. Such as rice cultivation technology, rice species development, changing the pattern of rice farming from traditional to safe to organic farming. Planting fruits and perennials such as palm, grapefruit, custard apple, lychee, longan, sweet bamboo, Krisana and other plants. Technological development of agronomy such as peanuts, corn, mushroom production and vegetable cultivation. By using an organic vegetable production demonstration plot to be a source of learning and transfer of organic vegetable cultivation. As mentioned above It is an organic process that does not rely entirely on chemicals. Which is good for the environment for biodiversity and food security And create more green space.

Livestock development; The project has brought knowledge and technology in the development of species, breeding and propagation. And the control of epidemics

in animals. With various activities such as raising beef cattle, pig farming, raising ducks and raising chickens, etc. which is part of the production of bio-organic fertilizer applied to plants. And is a part of creating a career, generating income for farmers around the project area and interested farmers. From the environmental impact study, it was found that the positive effect was the transfer of livestock technology from the project. Is a part in creating a variety of pet species. Create food security and create the potential for organic crop production of farmers.

Fishery development the study found that fishery development research is part of restoring the abundance of local fishery resources. The fishery research and development of the project has distributed species of fish in the area. And maintain a variety of species of marine animals in the area. Combined with the development of water resources that correspond causing the species that were developed to spread around. Making the area rich with aquatic resources. Establish a foundation for good fishery resources for farmers.

In summary, The royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao people's Democratic Republic. In terms of environmental impact, it was found that the project is part of ecological and environmental development. Throughout the basic public utility systems of the surrounding communities to be suitable and sustainable. Create resource security and transfer of various agricultural technology. By focusing on organic farming and creating a balance between communities and the environment. The overall project to develop the area deteriorated to return there once again plentiful.

Negative environmental effects: Can analyze the results 3 points as follows: technology for the development of plant species, including rice, vegetables, fruits, crops and horticulture which is currently more advanced. Affect the species of endemic plants to the threat of alien species which causes local vegetation to decline. Or may come from changing people's values resulting in the reduction of local plant species and can lead to the end of the species.

Technology for producing animals that are foreign species resulting in a reduced ratio of local species or cross-breeding, resulting in the loss of the original species.

The royal project on agricultural development and service center Huai Son-Huai Sua has become a source of learning that many people are interested. Which has increased the influx of foreigners and the increase of latent populations that come to study and learn within the project. Bring more use of resources and the rate of increasing pollution to the environment. Such as increasing waste generation, waste water formation and increased risk of communicable diseases.

Results of economic impact data analysis the researcher has studied and analyzed both positive and negative effects. And present the results of the data analysis as follows.

Positive economic impact: Stimulation of the economic system through the transfer of agricultural technology to farmers in the area. Which causes farmers to be able to produce more and higher quality and price. For example, bringing the livestock products of the project to farmers, such as about 250 chickens per year, about 200 ducks per year, 10 pigs per year, fish and frogs each 10,000 per year.

And promoting the cultivation of organic crops such as organic rice, organic vegetables, field crops, horticulture and non-toxic fruits. Which gives more quantity and more quality products, etc. which is one part of creating a career, creating the main income for farmers around the project area.

Stimulation of the economic system from the development of tourist attractions. Because after the project has developed a water source system by building a large reservoir in an area with beautiful scenery. Resulting in a private company entering the concession to develop into a well-known tourist destination for both domestic and international. Causing tourists to visit throughout the year. Increased employment and create a shopping trip several million baht per year.

Stimulating the economic system from the study visit of the project. The royal project on agricultural development and service center Huai Son-Huai Sua has been operating for over 24 years. There are <38,442 people interested in studying, divided into 23,132 domestic people and 15,310 Thai people. Which causes shopping in the community. Purchase of agricultural products and products. As well as shopping for food, beverages and accommodation, etc.

Stimulation of the economic system from internships. The royal project on agricultural development and service center Huai Son-Huai Sua is one of the good internships in the country. The <1,576 domestic and international students have come to practice in the project. There are 58 Thai students. With the duration of the internship required to stay in the project. Resulting in spending in the area.

Infrastructure system development and area development make it interesting for investors to invest in the area. Establishment of more companies, stores and service centers in the area. Value of investment increased and result in the land price around the area having a higher trading price.

Negative economic impact: The researcher analyzed the results from in-depth studies, found that the development of the project attracted investment. And able to generate income for many farmers in the area. But the investment of investors with higher capital power than the people in

the area. Causing the flow of the economy to happen to most investors. Such as the operation of shops, oil stores, agricultural tools stores and investment in other services etc.

Results of social impact data analysis

Positive social impact: Found that the office of the royal development projects agency surveyed the area around the project in the year 1993 found that the area of the project was originally occupied by farmers in the area around the community. And expropriated by the government of Laos at that time. Is a rural community that mainly engages in farming, raising zoos and other occupations such as civil service, trade and general employment. Which the social system is still a traditional society. Farming is still a traditional form of localization.

After the project has been implemented, the development of basic public utilities such as electricity, water supply and transportation routes will be improved. And to promote agricultural careers for farmers around the project area which results in the following social changes.

Change of well-being society. The development of public utility systems has made the area around the project more transformed from rural society to urban society. Convenient transportation makes it easier to get in and out of the area. And being a part of communicating with the outside more and more conveniently.

Increasing cultural exchange and values with outsiders. The establishment of the project has brought researchers, students, both inside and outside the country into the area. Resulting in increased exchange of knowledge between them. Resulting in the development of a more modern social system.

The communities around the project area can access more technology. As a result of the exchange of learning, seeing and touching, the community needs more access to technology. Improved social basic system and able to develop the social vision of the people in the area well.

Farming systems that have changed from traditional farming systems are made according to soil. And water conditions and relying only on favorable seasons and use agricultural chemicals to help. But now farmers do not need to wait for seasons and favorable weather conditions only. But can do agriculture throughout the year. And change from chemical agriculture to organic agriculture that combines natural technology. Soil quality improvement, water management and development of technology for growing crops and raising animals suitable for the conditions of the area. And enter the society of agricultural life. By using the science of the King as a conductor.

At present, the area around the project has become a natural tourist area. And study areas for important

agriculture and fisheries. Resulting in the community to develop into a more tourist community. The social system of the community is conducive to visitors.

Negative social impact: The researcher conducted an in-depth analysis of the important issues that negatively impact the social impact of the project on the community. The study indicated that social development that has changed from rural society may have an impact on the traditional culture of the communities around the project area. Which is influenced by cultural exchange from outside. Causing the social and cultural system of the community to change such as the dressings of adolescents. Socializing of teens. Teen activities and the treatment of each other in the community that is currently more urgent. And struggling with the times even more. People in the community talk less and focus more on their work. And live the life of the city more.

Summary and discussion: Results of general information about Huai Son-Huai Sua agricultural development and service center. The royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic has operated officially since 1994. According to Kaison Phomviharn, former president of Laos PDR request a royal project in the same manner as the Royal Development Study Center. By studying, researching and researching various development methods to be suitable for the environment. By studying, researching and researching various development methods to be suitable for the environment. It is a communication exchange between academics, practitioners and the public. It is a communication exchange between academics, practitioners and the public. It is an integrated development in every branch in the "interdisciplinary" nature and is a one stop service center. By studying, experimenting and demonstrating the successful results of all operations at the same time as the "Living Nature Museum".

The area project on agricultural development and service center Huai Son-Huai Sua (22nd km) covering an area of approximately 325 rai with a rectangular shape. With a width of about 800 m, length of about 900 m. Which there are 2 creeks which are Huai Son and Huai Sua surrounding the area of the center. Is a hillside interspersed with lowland areas. The highest point is 188 meters above sea level. Located to the South of Ban Na Yang, Na Sai Thong city, Vientiane city Wall. Comprised of 5 target villages around the center which are Ban Na Yang, Ban Na Son, Ban Hua Kua, Ban Nam Kiang Nuea and Ban Nam Kiang Tai, totaling 1,076 households with a population of 6,090 people. The total area of agricultural use is 6,287.50 rai. And has a training mission, it can be divided into 5 branches as follows: Cultivating branches

Land development branches animal raising branches Fishery branches and irrigation branches. Each branch will train for the people around the center and other provinces, 80 people per 1 year. According to the Thai-Laos plan which is jointly determined every year is $80 \times 5 \times 24 = 9,600$ people which is calculated from 80 people per branch. There is a total of 5 branches for 24 years. The mission is to provide internship services to people, groups and organizations. The center has approximately 1,518 students enrolled, representing 1,045 females while approximately 58 Thai students representing 32 females. As for the study visit. There were approximately 32,132 guests in the field trip, field trips and exchange of knowledge with approximately 15,310 guests from Thailand. Promoting problem solving for farmers in the center. There is support for solving problems for farmers. In animal husbandry, fishery, cultivation, land development and irrigation. This is consistent with research by Arunchat^[3]. That mention the project due to the royal initiative as a demonstration site for agricultural activities suitable for the environment in the area. Farmers can come to learn and requesting support for agricultural production factors. In order to bring integrated agriculture in accordance with the new theory approach including sufficiency economy principles to develop their own agricultural areas. Resulting in the people in the area who previously had farming without principles. Plant monoculture with chemical pesticides which weaken the body. Many expenditures and liabilities have changed into integrated agriculture that grows a variety of crops. Including raising pigs, ducks, chickens, fish that focus mainly on family consumption. If you have leftovers from consumption, thus leading to sales. Resulting in the villagers participating in the project have a better life and more revenue. In addition, Anulom Tuna Lom *et al.*. Research subject water management strategy for cultivation in Huai Son-Huai Sua basin. Irrigation area Vientiane capital Lao people's democratic republic. Found that the current state of water management for cultivation in the Huai Son-Huai Sua basin irrigation area. At a high level including water management for cultivation Information on water management and maintenance and repair of irrigation systems. This is because the 22nd agricultural development and service center project has transferred knowledge. Lessons and experiences from real examples for the villagers. As well as the rural developers of Laos PDR to support various activities in accordance with the 7 main work plans with staff from both sides working together and having Thai staff circulating to travel to work in the Lao PDR. 1 time each. In order to monitor the operations and jointly discuss, make suggestions and solve problems. And Yanyong Inmuang mentioned the concept of integrated water management that it is a systematic process for procuring, inspecting and using water resources for

sustainable development. Meet the objectives of society, economy and environment. Integrated water management concepts It is a new concept in water resource management that encourages all sectors of society to participate in water resource management. From the local level to the regional level. Which originally managed water resources around the world including Thailand using water management concepts with emphasis on the supply side, responding to plans or branch development projects. Such as water management for agriculture, consumer goods, energy industry, etc. Based on the aforementioned concepts of water management, a branch water management unit has been established. Those specific development. For example, the irrigation department is responsible for managing water for agriculture. Metropolitan waterworks authority and regional waterworks. Which is responsible for managing water for public consumption and so on.

The environmental, economic and social impact studies of the royal project on agricultural development and service center Huai Son-Huai Sua (22nd km), Na Sai Thong, Vientiane Capital, Lao People's Democratic Republic.

Environmental impact study results: The researcher has studied and analyzed the environmental impact by using academic principles to predict or predict the effects, both positively and negatively of the development project that will be on the environment in all aspects, both natural economic and social resources. This is consistent with the concept of the Office of Environmental Impact Assessment^[4] has mentioned about the environmental impact analysis is the use of technical principles in predicting the positive and negative impacts of development projects on the environment. Both natural, economic and social resources in order to find a way to prevent the negative effects that occur. At the same time, the use of natural resources is useful. Most effective and most cost effective. As well as suggesting mitigation measures and environmental quality monitoring plans. Both during the construction and operation of the royal initiative, the agricultural development and services center Huai Son-Huai Sua, Na Sai Thong city, Vientiane Capital Lao People's Democratic Republic has positively impacted the environment, both physical environment including the development of basic public utilities, land development, irrigation systems and the improvement of the conditions to facilitate learning resources for farmers in the model community. And positive biological effects, such as the development of irrigation systems, land development and promoting agricultural resulting in the area to recover completely. Promoting organic agriculture contributes to the conservation of local biodiversity. And research and promotion of livestock and fishery are one of the direct and indirect biodiversity of the surrounding

area. Consistent with Kasem Chankaew environment means everything that occurs naturally or man-made with benefits and harms. See and do not see with the naked eye concrete, poisonous and non-toxic things. Which can be in other words that the environment means the things that are around us. Is a short definition, easy to understand. But this meaning suggests that the environment in this world is everything. Such as things, houses, roads, temples, rivers, soil, forests, water, regulations, etc. And from the negative environmental impact of the project, it is found that the project causes a small environmental impact. Which has an impact on the biological environment such as the development of plant and animal species in order to promote the farmers in the area around the project. Which may cause a reduction, crossing and the end of native plant species and native species. This is consistent with research by Arunchat^[3] mentioned that the Huai Son-Huai Sua agricultural development and service (Lak 22) is a project due to the royal nature that is "Living Nature Museum" which is a demonstration site for agricultural activities that are suitable for the environment in the area. And is a one stop service center where farmers can come to learn and requesting support for agricultural production factors. In order to bring integrated agriculture according to the new theory approach including principles of sufficiency economy to return to develop their own agricultural areas. Resulting in the people in the area who previously had farming without principles. Plant monoculture with chemical pesticides which weaken the body. Many expenditures and liabilities have changed into integrated agriculture that grows a variety of crops. Including raising pigs, ducks, chickens, fish that focus mainly on family consumption. And if there is any left over from consumption then can be sold until able to save as savings. Resulting in the villagers participating in the project have a better life and more revenue. For the main development guidelines of the project, there are 7 points which are. Infrastructure development such as road construction, electricity building, water supply. Water source development such as the construction of Huai Son reservoir. Which can store approximately 2 million cubic meters of water. The construction of the HuaiSua dam, Digging farm ponds. Land development such as promoting the planting of ground cover plants, composting, planting vetiver grass for ground cover. Agricultural development such as promoting the planting of various rice varieties, field crops, fruits, vegetables, kitchen gardens, ornamental plants, mushroom breeding. Livestock development such as promoting the raising of pigs, cows, ducks, chickens. Fishery development such as the breeding of various types of fish Nile tilapia, carp, frog raising. Technical development and knowledge transfer such as supporting and training villagers in the project and those who study visit. And consistent with the Huai Son-Huai Sau agricultural development and service

center. Has divided the development of the project area in 6 main areas which are infrastructure development, water source development, land development, agricultural development, livestock development and fishery development. Which causes the environment of the project area to be fertile and the farmers have enough water for agriculture and have land suitable for cultivation.

The study of economic impact: From the study of the economic impact of the project, it has been found that from the implementation of the project for 24 years, the project has been a part in stimulating the local economy from various development. Including the stimulation of the economic system through the transfer of agricultural technology to farmers in the area. Which causes farmers to be able to produce more agricultural products and higher quality and price. Stimulation of the economic system from tourist attraction development in the area, the development of the Huai Son irrigation system. Stimulating the economic system from the study visit of the project. Stimulation of the economic system by recruiting interns. And the development of utility systems and various areas of development make it interesting for investors to invest in the area. Establishment of more companies, stores and service centers in the area. Value of investment increased and result in the land price around the area having a higher trading price. Consistent with the concept of Sunanta Suwanndome. The transition from agriculture to industry cause that will cause a change in the social and economic impacts and consequences. Parsons, a psychologist in the structural functional theory, sees society as a social system consisting of various subsystems that are held together and have a mutual relationship. Changes may occur in one system and affect other parts. Thai society has changed very quickly. Especially in the material partly due to economic growth that has a high rate of growth. And the study also found that the development of the project has attracted investment outside the area. And able to generate income for many farmers in the area. But the investment of investors with higher capital power than the people in the area. Causing the circulation of the economy to happen to most investors such as the operation of shops, oil stores, agricultural equipment stores and investment in other services etc. But when comparing the positive and negative effects, it was found that the impact of the project is more positive than negative. Consistent with the concept by Tawilaphiphatkun^[5]. Having a well-developed infrastructure system. Especially communication routes and the development of transportation technology that makes the movement of people and goods much easier. Economic growth model especially the government that aims to stimulate industrialization and the growth of non-agricultural activities. The location of the region that

has an area adjacent to a major city along the transport route is therefore very important in investment. Investment in industries in these areas will use lower costs. When considering all types of production factors and can also avoid the frustration that occurs in large cities. Consistent with the research by Satyanuwat^[6] studied about university expenditure, resulting in economic growth of the community. And causing changes in agricultural land use around the university to be commercial economic activities that affect the area's growth include the housing estate industry and university. For the economic impact in the form of revenue generated. The spending category that generates the most income is food, housing. The economic impact of total university expenses was 6,108,636,466.75 baht from students. 5,625,585,924 baht. The number of teachers and personnel 483,050,542.75 baht is an economic impact on communities in the study area in the amount of 3,580,169,177.42 baht. And is an economic impact outside the community In amount of 2,528,467,289.33 baht. The economic impact that occurred on the community continued to be affected, including trade development. Orderly housing in the area near the university and disordered traffic travel in the area.

Social impact study results: The study of the social impact of the project found that the project is an important part of the development of the social system of the area around the project. Elevated from rural society to urban society. More people have access to communication systems and technology. More exchanges with external societies. Social adaptation to be a natural tourist city and agricultural tourism at present and in the future. Social culture has evolved. Values and a social system to live in an urban society. Everyone in society understands the country's overall social system and is safer in life and property than before. But social development that has changed from rural society may have an impact on the traditional culture of the communities around the project area. Which is influenced by cultural exchange from outside. Causing social and cultural systems of the community to change. And the former social system has been slightly erased. In accordance with the concept of Herbert Spencer, he proposed that the evolution of human society is a unilinear in which everything in the universe originates from one source. And combined with the synthesis process resulting in more advanced and complex development. The development of society will evolve according to the laws of nature that is humans have the ability to adapt to the new environment very well will survive forever. Consistent with the concept of Surichai Wankaew (2006), explain that social change refers to the change in the relationship system between members of society and the structural change of the relationship between groups and between components of that society.

Such as relations between rural people, urban people etc. Such social changes occur at the individual level and at the social institution level. Whether in institution of family, kinship, marriage, housekeeping or political, economic etc. This is consistent with the concept of Saengsuriyachan^[7], studying the changing lifestyle of farmers after the sufficiency economy lifestyle training program, Ratchathani Asoke community, Warinchamrab, Ubon Ratchathani. The samples were divided into 2 groups. The results of the study revealed that the group 1 was the farmers who passed the training program in 2008, did not receive knowledge promotion activities after the training. There is a change in behavior that has improved in some indicators of each side. Group 2 are farmers who have passed the training program in the year 2001-2006 and received the knowledge enhancing activities after the training. There is a better behavior change in all indicators of all aspects. Except for state debt. Factors that because changes are healthy, being of themselves and their families has decreased. Increasing faith in Buddhism and the need to Dharma practice, production cost reduction, increase in revenue, acquiring knowledge from professional training and dharma. An important force that promotes stable and long-lasting behavior is family support, joining professional groups in the village, visitation, follow up and organize knowledge enhancement activities continuously after the training. And in accordance with the research by Sudawan Meibua etc. studied about the lifestyle changes of Kiriwong village community from tourism. The result of the research shows that Kiriwong community in the past has changed slowly. But when there is a famous tourist attraction in Nakhon Si Thammarat. Resulting in a rapid change in lifestyle of the community in the past 4 years. The community has more occupations for tourism. Build houses that are more modern in design and decoration. Agriculture is using modern tools and more chemicals. The economic condition of the community has improved and the income distribution has increased. Liabilities increased due to investment and production of goods and services. There has been a change of land ownership in various people both inside and outside the area and for conducting business in the area. Enjoyed by the whole family, there's more. People in the community pay more attention to education and their children have a higher education level. There are many types of community products. Relationships among people in the community are more distant. Due to be a tourist community. Activities that people participate in the community fairs and mainly festivals. There are some conflicts but not severe. Less crime problems because most communities are local people that have good relations with each other. In summary, the impact of changes in the lifestyle of the community. It consists of positive and negative impacts on economy, society, culture and environment.

SUGGESTION

Suggestions for applying research results: Study of Environmental, Economic and Social Impacts of the Royal Projects, Agricultural Development and Services Center Huai Son-Huai Sua (Lak 22), Na Sai Thong city, Vientiane, Capital Lao People's Democratic Republic at this time. Is a study and analysis of the results by the quality research process and analyze and predict results according to academic principles Interested people can use the information in this research to further the environmental, economic and social development of Huai Son-Huai Sua area.

Those interested can use the information from this study as basic information in establishing agricultural services projects in other areas. In order to improve the way of working to have less impact. Can use the information in this research to improve or improve the research and services.

CONCLUSION

The project has developed an irrigation system in the area that can be used for agriculture and consumption throughout the year. Develop the land to be suitable for cultivation and encouraging farmers to grow more organic and non-toxic products. Investors in services and tourism come to invest in the area. As a result, the development community quickly and have a better economy. Cultural exchange and knowledge with scholars, researchers, visitors and tourists. Causing the community to continually change the social system according to the progress of the community. Although, there are some parts that are affected negatively. But when comparing the positive and negative effects found that the project had a more positive impact than a negative.

RECOMMENDATION

There should be a study of social, economic and environmental adaptation of the community to the Royal Project, Agricultural Development and Services Center.

Huai Son-Huai Sua (Lak 22), Na Sai Thong city Vientiane Capital Lao People's Democratic Republic. Should study about plant and animal species development affecting the native plant species and native species.

Should study about the success and expansion of the Royal Project, Agricultural Development and Services Center Huai Son-Huai Sua (Lak 22), Na Sai Thong city, Vientiane, Capital Lao People's Democratic Republic for sustainable development.

REFERENCES

01. Puchinda, W., 2012. Environmental impacts and measures of a very small renewable power plant. King Mongkut's Inst. Technol. North Bangkok J., 1: 118-130.
02. Intapanya, C., 2005. Environmental management and sustainable development. J. Environ. Manage., 1: 2-3.
- Meibua, S., 2017. Changes in the community lifestyle of Kiriwong village from tourism. J. Nakbutrapharitat, 1: 128-139.
03. Arunchat, S., 2017. Projects due to the royal initiative of the Huai Son-Huai agricultural development and service center (Lak 22), Lao people's democratic republic. Pananyaphat J. Bangkok Civil Serv. Commission, 36: 119-126.
04. Office of Environmental Impact Assessment, 2005. Environmental Impact Assessment System in Thailand. 3rd Edn., Phimphan Printing, Bangkok, Thailand, Pages: 49.
05. Tawilaphiphatkun, D., 1998. Urbanization and Social Change in Developing Countries. 3rd Edn., Chulalongkorn University Press, Bangkok, Thailand.
06. Satyanuwat, S., 2007. Economic impact of the university on the community: A case study of private universities. Master Thesis, Srinakharinwirot University, Bangkok, Thailand.
07. Saengsuriyachan, T., 2010. Changing lifestyle of farmers after training program sufficiency economy guidelines from the Ratchathani Asoke community. KKU. Res. J., 11: 1088-1100.