RESOURCE POTENTIAL ANALYSIS FOR A SCHOOL GARDEN DEVELOPMENT OF BANHUAYBONG SCHOOL IN CHAIPRAKAN DISTRICT, CHIANG MAI PROVINCE

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ABSTRACT

This research aimed to analyze the resource potential for a school garden development of Banhuaybong School in Chaiprakan district, Chiang Mai province. This qualitative study employed Participatory Action Research (PAR), field note, semi-structured interview, and participant observation as research tools to collect the relevant data from 85 key informants with purposive sampling method and summarized the result using content analysis. The result of the analysis, under the geosocial based development study and permaculture design concept, indicated that Banhuaybong School was surrounded by abundance geographic and socioeconomic resources with highly agricultural skilled community. However, teacher shortage and a lack of school personnel with knowledge and skills in agriculture were limitation to the school garden maintenance. The analysis led to an insightful understanding of the advantages and limitations of the resources. As a result, local officials in Chaiprakan district and organizations in Chiang Mai province acknowledged the potential of the school and community and provided supports as well as participated in the school garden development by sponsoring and organizing activities in order that the school and community can advance toward food security and zero hunger goals of the United Nations.

Keywords: Food Security, Zero Hunger, School Garden, Geosocial Based Development, Permaculture

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INTRODUCTION

One of the worldwide growing movements as part of food security awareness by the Food and Agriculture Organization of the United Nations (FAO) is school gardening. The movement originally has its roots in the 1890s, when educators began using school gardens to teach children about nature and science (Kohlstedt, 2008). In recent years, school gardens have taken on a new role as an effective mechanism towards the Sustainable Development Goals (SDGs) of the United Nations (UN) such as zero hunger, good health and well-being, quality education, climate action, and life on land.

In Thailand, such development goals as zero hunger and quality education are nothing new. Since 1980, Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand, has initiated the Agriculture for School Lunch Project in schools in remote rural areas across the nation (FAO, 2015). This initiative was actuated after her innumerable trips with her late father King Bhumibol Adulyadej (King Rama IX) travailing to remote areas to improve the quality of life for rural citizens living under his reigning kingdom in the 1950s.

In present, Strategy 5.1 of Thailand 's National Scheme of Education B.E. 2560-2579 (2017-2036) aims to encourage educational administration to enhance the quality of an eco-friendly life by promoting environmental awareness to people of all ages in their communities (Office of the Education Council, 2017). However, in 2018, a year after the launch of the scheme, over 200 small schools, having less than 120 students, in remote rural areas were shut down due to teacher shortage causing one teacher having to juggle various classes and subjects plus a range of administrative duties. (Mala, 2018)

Banhuaybong School is a small school in remote rural areas. It is situated 135 kilometers north of Chiang Mai and close to Thai-Myanmar border. Small schools, such as Banhuaybong School, which were unwilling to shut down had to rely on their own funds. As a result, agriculture projects in Banhuaybong School were ceased due to the lack of financial and labor resources. This problem prevented the school and community from reaching food security and quality education goals.

Therefore, this research aimed to study the history of agriculture projects and analyze the resource potential for a school garden development of Banhuaybong School in Chaiprakan District, Chiang Mai Province.

LITERATURE REVIEW

Geosocial Based Development and Permaculture Design were the two main concepts used in this research to guide the resource potential analysis for a school garden development.

Geosocial Based Development

The term "Geosocial Based Development" is translated from “Bhumi-Sangkom” in Thai, meaning geography and society, respectively. It was coined by His Majesty King Bhumibol Adulyadej (King Rama IX) in the 1950s following his nationwide royal development projects (Office of the Royal Development Projects Board, 2020). His philosophy indicated that geography influenced the way of living. That means each area has a unique geo-social environment. Hence, sociological factors must be considered along with geographical factors when an area analysis for a development project is initiated.

According to the royal development principles, which constitutes geosocial based development concept, gathering data from the people who live in the target area and analyzing the problems and needs of the community should be the first step of any development projects. Before proposing a project, human development should be emphasized by providing knowledge and creating a mutual understanding of project output, outcome and impact to the people based in and around the development project. This principle is known as ‘Explosion from within’. It is to ensure that the community is ready for a new development project which will lead to the sense of belongingness and the sustainability of future development projects.

Permaculture Design

Permaculture design is a design concept that serves human needs and benefits the environment. It is a new term coined by Bill Mollison in the 1980s. The core ethnics of the permaculture design concept were care for earth, care for people, and returns of the surplus. It focuses on the harmonious integration of landscape and people towards self-sufficiency (Permaculture Research Institute, 2005). To achieve the sustainable living, the system design begins with the area analysis, known as sector analysis, which creates a better understanding of internal resources e.g., soil, animals, plants which can be managed by human; and external energies such as climate, wind, sun, and rainfall which is beyond human control.

After the sector analysis, a thoughtful and systematically planning design is conducted based on the context of landscape ecology so that human can work with nature while taking into account future impacts on natural resources and ecosystems as a whole (Mollison, 1988). In this study, permaculture design concept was used as an analysis model in the process of resource potential analysis for a school garden implementation in Banhuaybong School.

Relevant Studies

Suwan et al. (2019) conducted Participatory Research and Development on Promoting Safe Vegetable Production for School Lunch in Small School Context (9-Gloriousness Projects) and found that the major problems and obstacles in the school garden implementation were the lack of school personnel with skills and understanding of vegetable cultivation under sustainable agriculture systems and the lack of school personnel with a degree in agriculture field to handle garden maintenance. In addition, the study of Barriers, Strategies, and Resources to Thriving School Gardens by Hoover et al. (2021) summarized the top 3 barriers for the school garden maintenance were inadequate financial resources, insufficient labor supports, and low community involvement. This confirmed the result that Mireskandari (2016) found in the study of Urban Permaculture Educational Business-School Gardens, Permaculture and Business Design: An Exploration of School Gardening Obstacles and Solutions. It was indicated that the community supporting and interacting with the garden maintenance was one of the key successes for the school garden implementation. Moreover, the study of Beyond School Gardens: Permaculture Food Forests Enhance Ecosystem Services While Achieving Education for Sustainable Development Goals by Leni-Konig (2020) found that permaculture design enhanced ecosystem services, reducing maintenance costs, and upholding food production.

RESEARCH METHODOLOGY

This qualitative study employed Participatory Action Research (PAR), field notes, semi-structured interviews, and participant observation as research tools. Secondary data was derived from databases and official documents of Chaiprakan District Office, the Office of the Basic of Education Commission (OBEC), the Land Development Department (LDD), and the Geo-Informatics and Space Technology Development Agency (GISTDA) for fundamental information in geosocial aspects of Banhuaybong School and community. Primary data was collected from 85 key informants which were categorized into 3 groups: 8 school personnel, 27 students, and 50 community stakeholders. This research used purposive sampling method. The results were summarized using content analysis.

RESEARCH RESULTS

There were two stages of this study. The first stage was to study the history of agriculture projects in Banhuaybong School to understand the situation of previous implementation and problems for the school garden maintenance. Then, the second stage was to analyze the resource potential of the school and the community to establish a development plan that suited the available resources.

History of Agriculture Projects in Banhuaybong School

In the first stage of this study, it was found that there were 3 major agriculture projects in Banhuaybong School. The first one was a learning center for making compost and liquid fertilizers project which happened in 1982, approximately 4 years after the school was founded. The second agriculture project was a chicken house and mushroom cultivation project in 2016 which was partially funded by OBEC and other government agencies such as LDD and Chaiprakan District Agricultural Extension Office. The last project of greenhouse and irrigation storage was in 2017 also sponsored by OBEC as part of the Agriculture for School Lunch Project. However, all agriculture activities were ceased due to the lack of labor and financial support for maintenance.

Resource Potential Analysis for a School Garden Development

In the second stage of this study, the result of the analysis under the geosocial based development and permaculture design concept indicated that Banhuaybong School surrounded by abundance geographical resources such as materials for soil improvement and water resources from both rainfalls and community reservoir. Soil samples were collected for soil testing, the soil analysis resulted in sandy clay soil with pH balance of 5.8 and had 1.63% of soil organic matter. Some soil properties within the study area provided moderate drainage and moisture retention, which was suitable for gardening, yet required soil improvement by adding compost. For the socio-economic aspect, it was found that the community was fully equipped with the necessary infrastructure such as transportation routes, communication networks, and water and electricity. There were also 4 local shops, 3 community markets, and 1 post-harvesting dealer that could be a sales channel to support school garden yields in case there were over supply. In addition, people in Banhuaybong community were farmers by ethnic default and highly involved in community participation whenever requested by the community leaders. Most of households in Banhuaybong community had small kitchen gardens and small livestock.

The analysis indicated that Banhuaybong had moderate resource potential in the school garden implementation. Even though the school lacked development funding, there were local officials such as Chaiprakan District Chief Officer and Chaiprakan Agricultural Extension Officer who were incredibly supportive to Banhuaybong community and willing to sponsor production materials when needed. Although the teachers lacked agriculture skills and knowledge, they were willing to participate as well as motivate students in the end-to-end garden maintenance, from soil improvement to produce harvesting. The students had high farming skills and were immensely attentive as well as enjoyed hands-on experience in every process. A major potential for the school garden implementation was Banhuaybong community were an “explosion from within” community meaning the people were ready for community development projects, they would burst out with their inner demand which would lead to a sustainable development as it was driven by the community.

DISCUSSION AND CONCLUSION

In discussion of this research and other similar studies, the resource potential analysis process of this research was conducted prior to school garden development which was similar to the study by Mireskandari (2016) and by Leni-Konig (2020) which indicated that analyzing resource potential based on permaculture design concept before a school garden implementation enabled operational planning to be appropriate to the available resources and reduced barriers to the lack of financial and labor resources.

This research showing that the teachers lacked agriculture knowledge and skills was similar to the research of Suwan et al. (2019) and Hoover et al. (2021) which found that a lack of school personnel with knowledge and skills in agriculture was the obstacle in school garden development.

In conclusion, information collected from teachers, students, and community stakeholders, using geosocial based development and permaculture design concept, created an insightful understanding of the advantages and limitations from both geographic and socio-economic dimensions.

As a result, local officials of Chaiprakan District and organizations in Chiang Mai acknowledged the potential of the school and community for a school garden development. Hence, development activities were organized and various parties were invited to participate and sponsor in the school garden development under the Sustainable Village Program of Chaiprakan District Office. This program revived Banhuaybong School to remain in operation as a small school in the remote areas as well as stimulated the community to advance toward food security and zero hunger of the UN SDGs.

IMPLICATION AND RECOMMENDATION

For the recommendation, the analysis framework of this research may be useful as a reference for other next researches. A study on the school and community participation in the school garden maintenance would be recommended for further research which can be beneficial as a guideline for other schools and communities.

For implication of this analysis framework, there were 4 necessary factors to consider in order to achieve success in school garden maintenance. First, the school and community should possess geosocial resource potential. Secondly, strong community leadership is required to build voluntarily community participation. Thirdly, government agencies should provide financial support for the school to fulfill inadequate or unavailable resources. Finally, the most crucial factor for the sustainability of a school garden was ‘Explosion from Within’ community. Since a school garden requires labors to maintain, it is recommended not to start the project without readiness for development. Before initiating a school garden development, the people in the school and community should be ready and equipped with knowledge and mutual understanding of the development goals.

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