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# LOCAL WISDOM ON PALM SUGAR PRODUCTION AND ADAPTATION OF THE PALM JUICE VILLAGE, PAK NAM SUB-DISTRICT, CHACHOENGSAO, THAILAND

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## Abstract

This article aims to study local wisdom on palm juice production and the adaptation of palm juice producers. The results of the research were as follows: 1) Regarding the local wisdom on a palm sugar's production in the past, sugar would be boiled and simmered until it was almost dry. Then it would be wrapped in dried banana leaf sheaves to prevent moisture. The production aimed for consumption within society and for export to sell in other areas. In the early days, the producers would carry palm sugar to wholesalers. As for the local wisdom on the palm sugar's production in the Palm Juice Village at present, simple processes are used, such as boiling and selling it as palm juice, and transforming it into concentrated sugar, as called Namtan Ngob (cake-shaped palm sugar) by the villagers. The production process starts from kneading sugar palm, simmering palm juice, and then selling it to customers. 2) Regarding the adaptation of palm juice operators, the operators built relationships to transfer knowledge and wisdom for local adaptation. Moreover, the operators took part in the development of learning resources on community palm sugar production and encouraged the Palm Juice Village to use modern technology to develop the capacity for production of palm juice and other products, create value for palm sugar, develop community potential, inherit the knowledge of the community in the production of palm juice, develop tourism routes systematically with standard, and develop a brand reflecting the uniqueness of the community.

**Keywords:** Palm Sugar, Operator, Community Learning Resources, Community Tourism

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## Introduction

The Agricultural Development Plan under the 12<sup>th</sup> National Economic and Social Development Plan (2017-2021) and government policies aimed at strengthening farmers and farmer institutions, improving the management of agricultural products throughout the supply chain, enhancing competitiveness with technology and innovation, and promoting balanced and sustainable management of agricultural and environmental resources can help drive the country towards stability, prosperity and sustainability (Office of the National Economic and Social Development Council, 2017). In Europe, consumers have higher demands for coconut palm sugar as it is considered a healthier alternative to sugar. Europe has many food industries. The European food and beverage sector generated revenue of €1,205 billion in 2018, making it the largest manufacturing sectors in Europe. There were approximately 291,000 companies, and the total EU palm juice value was estimated at €404 billion in 2019. The number of coconut palm sugar importers from France, the Netherlands, and Italy continues to increase (Ministry of Foreign Affairs, 2022). The agricultural system is affected by the expansion of industrial plants, the opening of free trade, and less labor in the agricultural sector due to the migration of workers into the industrial system. City expansion to support trade and services has led to a career change. Moreover, higher education made most people turn their backs on agriculture (Piampongsan & Krunnual, 2015). As a result, villagers and communities need to gain more knowledge and local wisdom.

Folk knowledge about sugar palms of the villagers is extremely valuable for utilization, conservation, and management of local sugar palm resources and the development of the sugar palm business. It also creates careers and income or the economy of the community, maintains cultural identity, and creates sugar palm businesses based on knowledge and folk wisdom. Villagers who perform sugar palm farming as a profession are very knowledgeable about sugar palms - their general characteristics and harvesting of their produce, the words or names referring to sugar palms in various matters, and classification of sugar palms. Farmers gained local knowledge, in-depth knowledge, or special knowledge about sugar palms from their parents, grandparents, or neighbors in their communities (Kamnuansin, 2016). To promote sugar palm farming, the Palm Juice Village was established through the budget of the Ministry of Agriculture and Cooperatives in 2003 for the villagers who produced palm juice in this area to conserve local wisdom and disseminate knowledge to tourists and the new generations to learn the process of making palm juice and palm sugar (Ceediz.Com, 2022). The Palm Juice Village of Pak Nam Sub-district, Bang Khla District is the largest sugar palm plantation area in the eastern region of Thailand. The villagers in this community are still attached to the sugar palm trees and mainly engaged in making ready-to-drink palm juice and palm sugar through the local wisdom inherited from the ancestors in the production of palm juice - from climbing sugar palm trees to the process of producing quality palm juice. Today, such occupations have declined steadily due to changing social conditions. Many families have abandoned sugar palm plantations. Some houses have turned the area into shrimp farms instead. Meanwhile, some people still preserve the production of palm sugar. Tourists can visit the Palm Juice Service and Learning Station, also known as Somnuk Palm Juice, which continues to carry on the sugar wisdom of Pak Nam Sub-district (Tourism Authority of Thailand, 2022). The Palm Juice Village is located at Ban Pak Nam, Village No. 11, Wanaphut Road, Pak Nam Sub-district. It is the only ready-to-drink palm juice producer in the East. You can watch the process of producing palm juice from sugar palm trees and experience the lifestyle of farmers who produce palm juice. The production process of palm juice starts from climbing the tall sugar palm trees to get the morning and evening palm juice followed by the process of boiling palm juice for sale all over the country, and making coconut palm sugar. Before going back, you can shop for OTOP products as souvenirs, such as ready-to-drink palm juice, coconut palm sugar, Kui Loei hats, and male sugar palm flower

bunches that villagers believe can cure diabetes (DooAsia, 2011). One of the oldest occupations of Thai people is palm sugar making, which keeps declining each day due to many reasons, such as a decreasing number of sugar palm trees as a result of cutting down trees to use the space for other purposes. Moreover, the number of farmers doing this occupation have decreased because it is a risky occupation that requires specific abilities. This makes the occupation that was once common become rare nowadays (Jorpor, 2022).

At present, the problem of lacking knowledge about sugar palm trees is prevalent in Thailand, with many communities being affected. Pak Nam Sub-district, Bang Khla District, Chachoengsao Province is an old community located along the Bang Pakong River Basin and is engaged in subsistence farming, which consists of fruit orchards, vegetable crops, rice cultivation, fisheries, and the production of palm juice from sugar palm trees. The Palm Juice Village community has also been affected by the changes. This is because most of the people who worked in the agricultural sector saw that the agricultural occupation had no break-even point, leading to debts. Therefore, they turned to work in industrial areas and do other occupations. This has caused the community that was once famous for producing products from sugar palm trees to be unable to inherit local wisdom, and the limited knowledge of the community cannot respond to the current changes. Therefore, many people have to stop producing sugar palm products. However, some people in the community who have strong ties to the sugar palm occupation have formed a palm juice community enterprise to maintain the identity of the sugar-making community. There are products still being produced, such as palm juice, coconut palm sugar, and palm juice jelly. These products arise from the use of local and modern knowledge through the support of government agencies in the area in order to create cultural capital in the community, and such capital is extended to create economic value and community tourism at present.

Therefore, this research aims to study the local wisdom on sugar palm production and the adaptation of operators in the communities involved in order to be a guideline to develop the body of knowledge in sugar palm production in order to enable the people in the area to adapt to the current changes. It also serves as a guideline for the development of operators to maintain the local identity and existing knowledge, and conserve the sugar palm production occupation within the community. European consumers are looking for healthy and natural products and natural sweeteners. For example, coconut palm sugar is increasingly used as a substitute for sugar in food and beverages. This promotes the formation of a body of knowledge on sugar palm production in the village, adjustment of palm juice operators, household production system, community attractions, cultural capital and local wisdom, and creative industry of Palm Juice Village, Bang Khla District, Chachoengsao Province. The objectives of this research project were to study local wisdom on sugar palm production in the Palm Juice Village, Bang Khla District, Chachoengsao Province, and to provide a guideline for the adjustment of palm juice operators of the Palm Juice Village, Bang Khla District, Chachoengsao Province

## **Research Methodology**

This study is a qualitative research to study local wisdom on sugar palm production and the adjustment of Palm Juice Village operators of Pak Nam Sub-district, Bang Khla District, Chachoengsao Province.

## **Participants**

This research aims to study local wisdom and community adaptation. There are four main groups of stakeholders in the community, namely 1) palm juice producers, 2) a government agency in the area, namely Pak Nam Sub-district Administrative Organization in charge of Bang Khla Community Development, 3) people in the area, community enterprises, religious organizations, and 4) tourists.

## **Research Instruments**

The research data were collected using qualitative research. An in-depth semi-structured interview method was used to obtain important data. The scope of content included local wisdom on sugar palm production of the Palm Juice Village, production process, knowledge, production equipment, social and cultural dynamics, and changes and the adjustment of palm juice producers.

## **Data Analysis**

The qualitative data were analyzed using a descriptive analysis method. The data collected were processed in a descriptive form and sorted according to the research objectives with the details of the research process, research results, conclusion, and recommendations.

## **Research Findings**

### **Local Wisdom on Sugar Palm Production of the Palm Juice Village**

Regarding the local wisdom on sugar palm production of the Palm Juice Village in the past, the production of products from sugar palm trees has greatly declined from the past. Because of the change in social conditions in the modern era where the industrial system has replaced the occupation in the community, this has caused more people in the area to find jobs outside the community to seek a more stable income when compared to a career in the household production system. Therefore, local wisdom on the production of food, products, and rituals related to sugar palm and the culture of the community has changed a lot. Now, the production of sugar palms and winter farming are carried out alternately. From December to March, there is a high yield of palm juice. The palm juice obtained will be boiled and simmered until it is almost dry. Then it will be wrapped in dried banana leaf sheaves to prevent moisture. For sale and distribution, in the early days of marketing, there would be customers in other sub-districts to come and buy the products. Some came through boats to collect the products via the Bang Pakong River and some were factories, which purchased a large amount at a time. For transportation, producers would carry sugar to middlemen who came to buy the products by boat through the Bang Pakong River while merchants would come to buy the products at the port of Bang Khla District every week. In winter when sugar yielded a lot, the villagers would simmer the concentrated sugar and store it in a jar for sale. During the period of low yield of sugar palms, in the past, farmers would produce sugar for household consumption or distribute it to relatives between January and May, the time they were free from farming.

In the past, the sugar palm production system and marketing was a traditional economy. There was a limited amount of sugar palm products that were sold as commodities in the market, and the market could not grow widely as sugar palm produce was not determined by supply and demand. Sugar palm prices in traditional economies were determined by tradition rather than by law. From the market analysis, it is found that Pak Nam Sub-district Community partially exports sugar palm products and some are used for consumption in the community. Members of society have little knowledge of sugar palm production and services. This is because the productivity, techniques used in production, and economic structure are similar. In addition, the structure of social marketing implies the relationship between local markets, urban markets, national markets, organizations, institutions and agencies that coordinate among different markets. Prices of goods and services are affected by other market variables and do not change much.



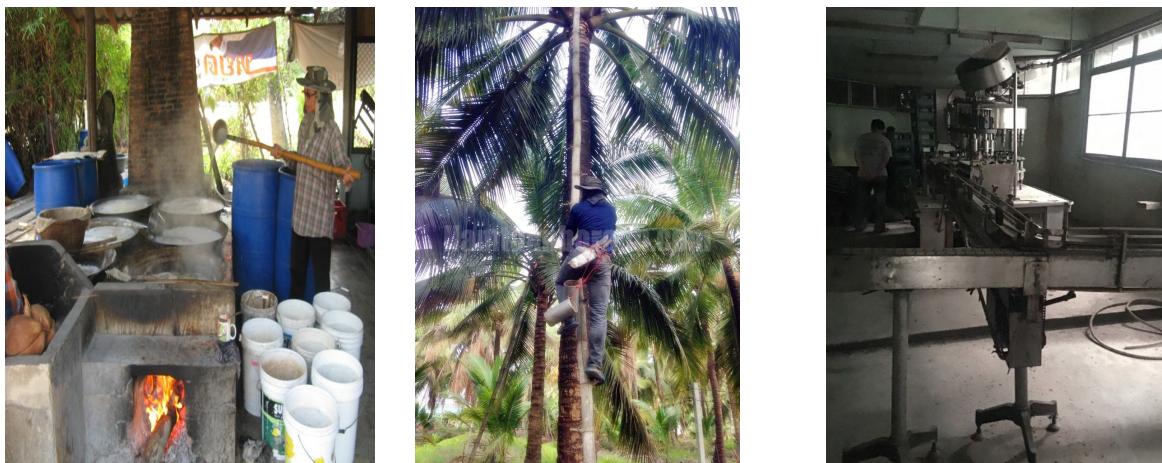
**Figure 1** Traditional sugar palm production equipment

As for the local wisdom on sugar palm production of the Palm Juice Village at present, there is a production of palm. The villagers view that it is an occupation that directly generates income. Some households do it as their main occupation while others as a supplementary one. The main production process is processing sugar by boiling and selling it as palm juice, and processing it into concentrated sugar called Tan Ngob. The production process includes sugar palm kneading, cutting, pickling, collecting palm juice from sugar palm trees, and boiling it. Then it can be sold as soon as customers come to buy. Some producers have knowledge and expertise in production by using the resources available in the community as raw materials. Sales for generating income can be divided into wholesaling to recipients who come to collect products from the producer directly, and retailing by people in the locality. People in the community are engaged in sugar production and have been developed to employ standardized production with minimal distribution through middlemen. Most importantly, households earn more income.

The current knowledge, methods, and processes in the production of palm juice have changed drastically. In the past, palm juice could be produced in large amounts, but now the production has decreased in scale, and the tools for the production of palm juice have also changed. For example, clay pots were used in the past, but now stainless steel pots and pans are used instead; jars were traditionally used to store palm juice, but now plastic buckets are in use; bamboo cylinders were used for taking palm juice from the trees, but now buckets and plastic bottles are used instead. Formerly, the palm juice would be boiled and simmered until it was almost dry. Then it would be wrapped in dried banana leaf sheaves to prevent moisture. However, now it is baked in the oven. The traditional local wisdom which we still can see today is picking sugar palms, making palm juice, and preserving food produced from sugar palms.

In addition, government agencies in the community have recognized the importance and benefits of sugar palms in community tourism. Conservation of local wisdom, promotion of palm juice as an important commodity of the community, and creation of shared values for people in the community can help maintain the knowledge of palm juice production in the community. At present, farmers produce palm juice for sale as a profession. Sugar palm trees produce a lot of palm juice during the winter, starting from October to March. It can also be processed as beverages, food, desserts, medicine, or household appliances. It shows that the wisdom of the villagers has been accumulated for a long time. Thus, the villagers of Pak Nam Sub-district are familiar with and know how to gain benefits from sugar palm trees such as using their fruits to cook food and make desserts, using stems for making household appliances, for construction, as house components, using leaves for basketry, using palm

roots for making medicine, using flower bunches for producing traditional sugar, and using leave stalks as fuel and instead of ropes, etc. When we understand the properties and characteristics of raw materials and prepare them according to the studied process to create products in line with cultures, customs, traditions, beliefs, and local geography, it is regarded as the local wisdom that reflects the well-being of the local people which has been passed on until the present.



**Figure 2** Today's palm juice production equipment

Many agencies have provided support; for example, the provincial agricultural office promotes branding and encourages community products to have a logo so that they will be recognized by people outside the community, the district public health office promotes studies and testing of palm juice to examine their benefits in terms of nutritional value. Pak Nam Sub-district Municipality has also adopted the Thai Niyom Yangyuen budget in the fiscal year 2018 to support the construction of standard palm juice production greenhouses to be a center of learning and to welcome visitors. Through the construction of standard greenhouses, the FDA logo can be obtained, and consumers will feel safe consuming the products. However, what is missing is the marketing of palm sugar products because they are not known to many tourists and there is little publicity in the community. Most of the customers are regular customers in Chachoengsao province, while one-time customers will come only on Saturday-Sunday. The amount of palm juice is insufficient for tourists' consumption. Therefore, sugar palm trees should be planted in Pak Nam Sub-district in order to create added economic value, and to conserve local knowledge and wisdom on sugar palm production.

### **Adaptation of Palm Juice Operators**

Operators have built relationships in cultivating knowledge and wisdom of the Palm juice Village for local adaptation through ideas, knowledge, beliefs, and accumulated experience. This promotes awareness and pride for the household wisdom on palm juice production. It also demonstrates the unity and interaction of people in the community. The operators have developed the community potential in terms of occupations related to sugar products. They develop the Palm Juice Village area to become a learning center for local wisdom on sugar palm production and cultural community tourism by using cultural capital in conjunction with community tourism promotion policies, encourage the Palm Juice Village to use modern technology to develop the capacity of production of palm juice and other products, such as food production using sugar palms, expansion of sugar palm cultivation areas, understanding the changing market mechanics and understanding consumer needs, create value for palm juice, develop community potential in inheriting community knowledge about palm juice production, generate additional income from the occupation and make the community a

learning center on sugar palms of the East, so that it will become known among tourists and can attract children and youth to take part in the production process or throughout the process of product sale. Therefore, the youth in the community would realize the value of sugar palms. Displaying pictures of the sugar palm production community and the relationship between people and the sugar palms at the community learning center are other ways of local wisdom conservation. The operators still have to adjust themselves in terms of cultural capital based on the King's science for a sustainable community. Also, the philosophy of sufficiency economy driven by community power needs to be adopted, and a cultural knowledge database for extending the invention or development of cultural products should be established. Tourism routes and activities in the Palm Juice Village should be developed systematically, and the community should ensure a standard image and brand development that conveys the uniqueness and identity of the community. The operators should also develop public relations media and marketing channels for cultural products and their community tourism activities, solve problems through cultural capital and support from local government organizations, establish community enterprises that produce sugar palm products, and establish community networks to develop the community economy through the participation in generating income, strengthening the local community in terms of culture and promoting community tourism.

## **Conclusion & Discussion**

### **Local Wisdom on Sugar Palm Production of the Palm Juice Village**

Regarding local wisdom on sugar palm production of the Palm Juice Village in the past, the palm juice obtained would be boiled and simmered until it was almost dry. Then it would be wrapped in dried banana leaf sheaves to prevent moisture. For sale and distribution, in the early days of marketing, there would be customers in other sub-districts to come and buy products. Some came through boats to collect the products via the Bang Pakong River and some were factories, which purchased a large amount at a time. For transportation, producers would carry sugar to middlemen who came to buy the products by boat through the Bang Pakong River while merchants would come to purchase at the port of Bang Khla District. The villagers would simmer the concentrated sugar and store it in a jar for sale. During the period of low yield of sugar palms, some products would be exported for sale and some were produced for consumption within the community. As for the local wisdom on sugar palm production of the Palm Juice Village at present, sugar is produced from sugar palms. The villagers view it is an occupation that directly generates income. Some households do it as their main occupation while others as their supplementary occupation. The main production process is processing sugar by boiling and selling it as palm juice, and processing it into concentrated sugar called Tan Ngob. The production process includes sugar palm kneading, cutting, and pickling, collecting palm juice from sugar palm trees, and simmering palm juice. Then it can be sold as soon as customers are coming to buy. People in the community are engaged in sugar production and standardized production has been developed, with minimal distribution through middlemen. Most importantly, households can earn more income. The current knowledge, methods, and processes in the production of palm juice have changed drastically. In the past, palm juice could be produced in large amounts, but now the production has decreased in scale, and the tools for the production of palm juice have also changed. For example, clay pots were used in the past, but now stainless steel pots and pans are used instead; jars were once used to store palm juice, but now plastic buckets are used; bamboo cylinders were traditionally used for collecting palm juice from the trees, but now buckets and plastic bottles are used instead. Moreover, the sugar would be boiled and simmered until it was almost dry. Then it would be wrapped in dried banana leaf sheaves to prevent moisture. However, now it is baked in the oven. The traditional local wisdom which

we still can see is picking sugar palms, making palm juice, and cooking food produced from sugar palms.

Rojpitakkul (2007) has studied a model of conservation and promotion of toddy palm products of Tambon Paknam Amphur Bangkla in Chachoengsao Province. As a result of the development of the model, it was discovered that community plays a key role in model development. In other words, the community needs to exercise its leadership in developing quality sugar production, adjust the production process, improve the packaging of sugar products, and connect with relatives, distribute products having government agencies as the main target, and provide support. The result of the development of the operation of the sugar producer group reveals that it has changed for the better. The community can develop the production process to achieve the community product quality standards, be able to expand distribution channels, earn more income, and connect among communities, government agencies, and networks with a certain level of power that shows strength. This serves as a tool to measure the success of the community's occupations, encourage the community to realize its own value, culture, and wisdom, which are connected to the way of life of the community appropriately and in harmony with the social and economic conditions. The study on Conservation and Promotion of Toddy Palm Products: A Case Study of Tambon Paknam Amphur Bangkla in Chachoengsao Province was conducted with a reason. It involves a phenomenon, processes, and patterns of sugar production. The culture and wisdom connects the community economy, the economic system, and capitalism in order to develop the nation towards stability. For the use of culture and wisdom as a tool for development, it should be borne in mind that the community is the owner of wisdom, who possesses capability, knowledge, and expertise. Therefore, government agencies should play a role to support the community rather than controlling it. They can support the community by creating networks to link people of the same and different occupations within the community, connecting with networks outside the community and external markets, providing knowledge and understanding to the community for a thorough understanding of the community itself and outside society in order to adjust their way of life in response to changes in the society. The public sector should promote cultural investment and wisdom using a variety of mass media for giving back to the community.

The results of this study are consistent with the study of Kamnuansin (2016) on An In-depth Study of Phetchaburi People's Local Knowledge of Palmyra Palms Through Terminology. It was found that the sugar palm culture in Phetchaburi involves local botanical knowledge of sugar palms, methods and periods of occupation in sugar palm cultivation, local food culture from sugar palms, and beliefs and customs about the sugar palm-making profession. Culture of knowledge and thoughts involves the knowledge about palms and the ability to differentiate things about sugar palms by villagers who make use of sugar palms as an occupation. It has become a wisdom that is attached to the person or community owning such knowledge and abilities and they can gain benefits from sugar palms. Such wisdom is then passed on to the family or between neighbors in the community to the extent that eventually it has become a culture. The culture will be maintained in the form of continuation of the sugar palm farmer profession. That is, all activities and methods used are related to sugar palms. It was found that the lifestyle of sugar palm farmers in Phetchaburi was the same. When it came to the season of sugar palm yielding, villagers would climb sugar palm trees to knead sugar palms, soak, cut, and collect sugar palm juice, respectively, using their own techniques and methods. However, they would do quite the same as they had learned from each other. Palm juice collection was done twice a day in the morning and afternoon or evening. This was reflected from the terms "breakfast palm juice" and "noon palm juice."

There are also beliefs and acts of respect for sacred things believed to protect the area and care for sugar palms. Such beliefs are expressed through ceremonies and worship to ask for

protection and safety in the career and high yields. It is a culture of action that has been practiced continuously until present. Material culture includes tools, utensils, food and things made from different parts of sugar palm trees. In each step of sugar palm harvesting, sugar simmering, sugar extraction and others, various self-produced and purchased tools are used. As discussed in the study results, food made from different parts of sugar palm trees represents the sugar palm culture of the people of Phetchaburi. The sugar palm culture of Phetchaburi people is certainly different or may be similar to other local sugar palm cultures.

For the sugar palm production of the Palm Juice Village, Bang Khla District, Chachoengsao Province, there are equipment or tools and production process, which have been a way of life and wisdom of the community for a long time. The production process still maintains the tradition and wisdom of the community in order to obtain products -- nectar with a yellow color similar to the color of sugarcane juice with white bubbles floating on the surface. The nectar from the palm flower bunches and the palm kernel is called "palm juice" by the local. It is the main raw material for easy processing into two types of products, namely palm juice and cake-shaped palm sugar (Tan Ngob). These are the methods of transferring knowledge about sugar production from sugar palm of the community in Pak Nam Sub-district, Bang Khla District, Chachoengsao Province.

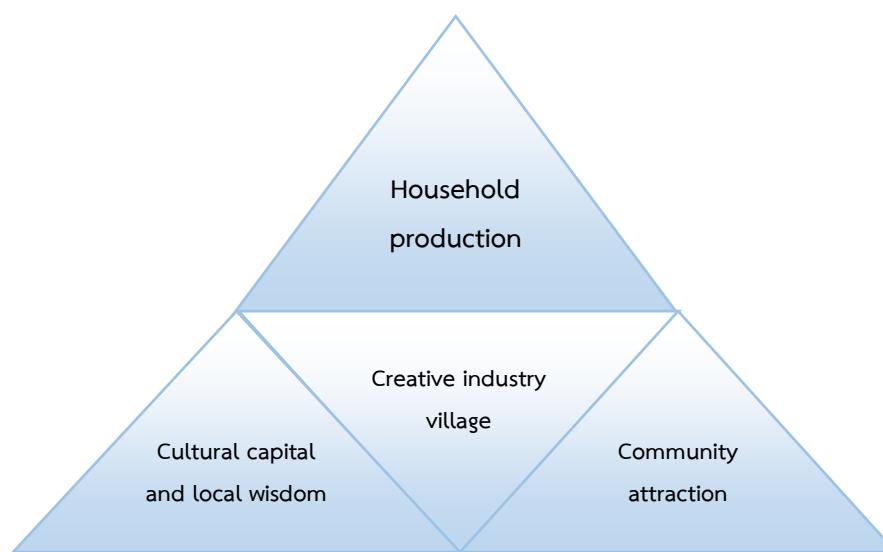
### **Adaptation of Palm Juice Operators of the Palm Juice Village, Bang Khla District, Chachoengsao Province**

Operators have built relationships in cultivating knowledge and wisdom of the Palm Juice Village, which demonstrates the unity and interaction of people in the community. The operators have developed the community potential in terms of occupations related to sugar products. They develop the Palm Juice Village area to become a learning center for local wisdom on sugar palm production and cultural community tourism by using cultural capital in conjunction with community tourism promotion policies, encourage the Palm Juice Village to use modern technology to develop the capacity of production of palm juice and other products, such as food production using sugar palms, expansion of sugar palm cultivation areas, understanding the changing market mechanics and understanding consumer needs, create value for palm juice, develop community potential in inheriting community knowledge about palm juice production, develop tourism routes and activities systematically in the Palm Juice Village, and have standard image and brand development that conveys the uniqueness and identity of the community, develop public relations media and marketing channels of cultural products and their own community tourism activities, establish community networks in order to develop the community economy through the participation in generating income, strengthening the local community in terms of culture and promoting community tourism. Thummarak (2010) studied social and cultural change in sugar palm making. It was found that palm sugar makers had adjusted themselves and created a new relationship system instead of owner-assistant relationship. In other words, a community enterprise had been formed to conserve and develop palm sugar making professions, as well as beliefs and rituals related to palm sugar making professions.

In addition, for the process of adaptation of the community regarding local wisdom on sugar palm production in order to maintain the local identity, the community was facing problems due to social changes that affected people's way of life. The advent of the capitalist economy and new industries had made the community less likely to preserve their own local wisdom. Moreover, in today's world, money is the main factor in the lives of people in the community, causing the thinking system of the people in the community to change according to the trends of society. Abandonment of culture and knowledge of community sugar palm production, and the increasing migration of people in the community to work in the city for more income and economic stability have made it difficult for the community to maintain the knowledge and traditional way of life of the community. Furthermore, the new-generation

population of the community has been shaped by social processes to enter the industrial system during their working age, thus causing the community to face the problem of preserving local culture and their own way of life.

Therefore, the adaptation process of palm juice operators and the preservation of local wisdom on sugar palm production involves promotion of food security. More sugar palm trees should be grown in Pak Nam Sub-district and sugar palms should be processed into more diverse foods. Production in the local industrial system must be driven by community capital as a drive, and a community learning center should be established. Conservation of cultural values must start from the people in the community and family first. They need to mutually learn local knowledge and culture and community identity through the education system and the activities of the community in various dimensions both through education in school and in the community itself, dissemination of knowledge about sugar palms, and participation in activities or learning processes. Therefore, there should be an appropriate approach consistent with the context of the community. At present, the community is about to become a new tourist attraction in Chachoengsao Province and is becoming known to many people. The community should take this opportunity to promote local development trends and adjust itself accordingly as the tourism trend has brought a variety of people into the community. People who enter the community want to enjoy the localism of the community in terms of local wisdom, culture, products, beliefs, and community way of life. Therefore, it can be used as a selling point for the community and a highlight that can attract tourists. In addition, the current tourism trend is family, colleague, and group tourism. Since the Palm Juice Village, Pak Nam Sub-district is a community adjacent to the Bang Pakong River and travel can be accessed in a variety of ways, so it is a good opportunity to develop the community in response to the changing social trends.



**Figure 3** Diagram showing the development of an industrial village

The community's focus on tourism can preserve the local identity of the community, which can serve as a selling point for tourists who will come to the community, buy various products, and experience the atmosphere of cultural tourism. It will make tourists feel worth the investment and cost. The people in the community also benefit from the income that comes from tourists. This allows the community itself to be able to generate additional income for the people in the community and also generate income that is shared with the people who live in the Pak Nam community. When tourism is growing, the community's economic system will also improve due to the flow of capital into the community,

investments in goods and services such as community food sales, boat tourism, etc. Rojpitakkul (2007) study on a model of conservation and promotion of toddy palm products found that as a result of the development of the model, community plays a key role in model development. In other words, the community needs to exercise its leadership in developing quality sugar production, adjust the production process, improve the packaging of sugar products, and connect with relatives, distribute products having government agencies as the main target, and provide support. The result of the development of the operation of the sugar producer group reveals that it had changed for the better. The community could develop the production process to achieve the community product quality standards, be able to expand distribution channels, earn more income, and connect between communities, government agencies, and networks with a certain level of power that shows strength. This serves as a tool to measure the success of the community's occupations, and encourage the community to realize their own value, culture, and wisdom, which are connected to the way of life of the community appropriately and in harmony with the social and economic conditions. The study on Conservation and Promotion of Toddy Palm Products: A Case Study of Tambon Paknam Amphur Bangkla in Chachoengsao Province was conducted with a reason. It involved a phenomenon, processes and patterns of sugar production. The culture and wisdom connected the community economy, the economic system, and capitalism in order to develop the nation towards stability. For the use of culture and wisdom as a tool for development, it should be borne in mind that the community is the owner of wisdom, who possesses capability, knowledge, and expertise. Therefore, government agencies should play a role to support the community rather than to control it. They can support the community by creating the networks to link people of the same and different occupations within the community, connecting with networks outside the community and external markets, providing knowledge and understanding to the community for thorough understanding about the community itself and outside society to adjust their way of life in response to changes in the society. The public sectors should promote cultural investment and wisdom using a variety of mass media in order to give back to the community. Sawangpanapan (2012) study on Sustainable Tourism Potential of the Tan Tanod: A Case Study of Tan Tanod Community, Tham Rong Sub-district, Ban Lat District, Phetchaburi Province found that there was the availability of natural resources including the culture and traditions that come from the way of life related to the sugar palm trees. At present, it is still a unique identity inherited from the people in the community. Also, it is considered a prominent feature that is important in the development of the sugar palm community to be a tourist attraction for learning people's way of life. This will generate income and create a trend of conservation and cherishment of the authentic way of life and culture of the community. This requires cooperation from people involved in tourism development, and community members must have knowledge and understanding of sustainable tourism management and promote the establishment of community tourism networks with external tourism communities in order to create more potential community-based tourism networks. This is in line with the work of Thummarak (2010), which investigated social and cultural change in palm sugar making. Social and cultural changes of palm sugar-making professionals were found. Palm sugar-making professionals had adjusted themselves, and a new relationship system was established instead of the Owner-Assistant Relationship. In other words, a community enterprise had been formed to conserve and develop the palm sugar making profession, as well as beliefs and rituals related to the profession of sugar palm making. Sawangpanapan (2012) studied the potential of sustainable tourism in the sugar palm community. It was found that there was the availability of natural resources including the culture and traditions that came from the way of life related to the sugar palm trees. At present, it is still a unique identity inherited from the people in the community. Also, it is considered a prominent feature that is important in the development of

the sugar palm community to be a tourist attraction for learning people's way of life. This will generate income and create a trend of conservation and cherishment of the authentic way of life and culture of the community. This requires cooperation from people involved in tourism development, and community members must have knowledge and understanding of sustainable tourism management and promote the establishment of community tourism networks with external tourism communities to create more potential community-based tourism networks.

In addition, Angkavanich & Nitjaran (2013) studied the social-cultural changes and adaptation towards the palm sugar making professions. It was found that the traditional palm sugar making professions tended to decline because of the impact of socio-cultural changes. There were also other four dimensions concerned, namely the ecological, socio-cultural, economic, and educational aspects. Farmers had adapted by reducing the production of sugar palms but increasing farming and trying to use modern technology, adjusting production methods by separating the production of expensive genuine palm sugar from cheap molten sugar in line with the market demand. Traditional production of palm sugar using sugar products from sugar palm trees that grow in the fields still exists, but decreases in volume and may disappear in the next 30 years. As some technology and wisdom have been changed, producing palm sugar from sugar palm plantations in the future is likely to develop into a multinational corporation agribusiness.

In this regard, government agencies in Chachoengsao province should promote local wisdom. The province should collect information and knowledge related to palm juice in order to serve as an important source of information and learning base in the future. Government agencies in Bang Khla District, Chachoengsao Province should have a policy on the conservation of local wisdom in Bang Khla District to reflect the values and cultural identity of the community in Chachoengsao Province. In the development of learning resources on local wisdom of the community, agencies from all sectors such as public sectors in the province, universities, community organizations, religious leaders and the people should take part in the design of a community learning center together so as to create a network of cooperation between organizations and to create guidelines for the development of comprehensive participation. For development planning of Pak Nam Sub-district Municipality, Bang Khla District, Chachoengsao Province, there should be a goal to develop local knowledge on sugar palm trees conservation, extend the community development based on the existing social capital for the maximum benefit. The policy for community tourism development and conservation of local wisdom should allow people to participate in decision-making and all the activities by themselves. In addition, the government agencies that issue tourism and promotion policies should support the work of the community and equally distribute benefits to other groups of people in the society.

There should be studies, design, research, experimentation and development of new products that enhance or improve the quality of life of producers, operators and in accordance with community tourism.

### **Body of Knowledge From the Study**

From the study of local wisdom on sugar palm production and adaptation of Palm Juice Village, Pak Nam Sub-district, Bang Khla District, Chachoengsao Province, the researcher summarizes the body of knowledge gained from the research as follows:

Local wisdom on sugar palm production and adaptation of Palm Juice Village

Local wisdom on palm sugar production of Palm Juice Village, Bang Khla District, Chachoengsao Province  
1) Regarding local wisdom on sugar palm production of Palm Juice Village in the past, the palm juice obtained would be boiled and simmered until it was almost dry. Then it would be wrapped in dried banana leaf sheaves to prevent moisture. In the early days of marketing, the producers would carry sugar to middlemen who came to buy the products. The villagers would simmer the concentrated sugar and store it in a jar for sale. During the period of low yield of sugar palms, some products were exported for sale and some were produced for consumption within the community.  
2) Regarding the local wisdom in sugar palm production of Palm Juice Village at present, the main production process is processing palm juice by boiling and selling it as palm juice, and processing it into concentrated sugar called Tan Ngob. The production process includes sugar palm kneading, cutting, and pickling, collecting palm juice from sugar palm trees, and boiling palm juice. Then it can be sold as soon as there are customers coming to buy the products. People in the community are engaged in sugar production and employ standardized production with minimal distribution through middlemen. Most importantly, households earn more income.

Regarding adaptation of palm juice operators of Palm Juice Village, Bang Khla District, Chachoengsao Province, the operators have built relationships in cultivating knowledge and wisdom for local adaptation of Palm Juice Village. They develop the community potential in terms of occupations related to sugar products, jointly develop learning sources for palm sugar production of Palm Juice Village, encourage the Palm Juice Village to use modern technology for improving the capacity in the production of palm juice and other products, create value for palm sugar, develop community potential in inheriting community knowledge in palm juice production, develop tourism routes and activities systematically, and employ standards in developing image and brand to represent uniqueness and identity of the community.

**Figure 4** Body of knowledge from the study

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