



Development of Trade in Creative Goods Network: Case Study in Sa Kaeo Province in Thailand

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ABSTRACT

The main objectives of this study are to examine the context of trade in creative goods, specifically herbs used in traditional medicine and dietary supplements, networks in Sa Kaeo province and the neighboring countries. The methodology of this research includes (a) the value chain development of creative goods, (b) social network analysis, and (c) analytical framework from the Stan Shih's Smiling Curve conceptual framework to increase creative goods' value. Herbs used in traditional medicine and dietary supplements have the potential to be listed as Sa Kaeo's creative goods. The core business form contracts and profit-sharing with villagers as main partners which consist of villagers' families, friends, and neighbors. The main distribution channel is through contracts with the Chao Phya Abhai Bhu Bejhr Hospital Foundation. The extended organization consists of other herb production groups networking with other enterprises under a similar contract with the Chao Phya Abhai Bhu Bejhr Hospital Foundation and Ban Dong Bang group to tackle insufficient production for distribution. The business ecosystem involves government agencies' assistance in the form of projects, such as the solar greenhouse project for processing and preserving products. Based on the field study, the international market network is yet to be established for the products in this group. The value-adding of herb products can be categorized into two parts: product quality and production networks.

1. INTRODUCTION

International trade in creative goods has long experienced continuous growth and rapid expansions. The value of creative goods exports in the global market has increased from 208 billion US dollars in 2002 to 509 billion US dollars. The value of creative goods imports in the global market has increased from 227 billion US dollars in 2002 to 454 billion US dollars in 2015. Developing countries exported creative goods more than developed countries. In 2015, Thailand is the seventh-largest creative goods exporter of the developing countries generating a value of 6.1 million US dollars. In 2015, 62 percent of the products exported were design and media products while 38 percent were publications, arts, crafts, audiovisual works, performing arts, and new media [1].

The scope and definition of creative economy differs in each country due to different social landscape, but it could be defined based on these two factors: intellectual capital and adaptive skills [2,3]. The definition of intellectual capital is original or new knowledge from the development of human, culture, or social capital. The definition of adaptive skills is skills that support applying knowledge

and intellectual capital to produce products or services that create value. This gives rise to the creation of creative products or services specific to that country as shown on Table 1.

The creative industries are a part of the "Creative Economy Programme" by the United Nations Conference on Trade and Development (UNCTAD). The creative economy was defined as the economic development and improvement of local communities with creative industries as the core of the creative economy. The creative services are the products of human creativity that integrate economy, society, culture, indigenous knowledge, and innovation. Its unique characteristics and intellectual properties can add value to the products, such as architectural works, advertising, entertainment, creative research and development, and tourism. UNCTAD has classified creative industries into four categories: heritage, arts, media, and functional creations. The cultural industries for creative industries under UNESCO include publishing, music, crafts and design [4]. Cultural heritage knowledge may contribute to the creation of value-added products or services which are part of creative industries.

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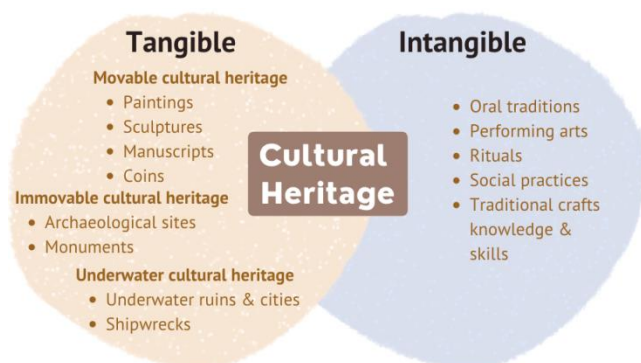
Not all cultural heritages are creative industries. The term cultural heritage encompasses several main categories as shown on Figure 1 [4]. Tangible cultural heritage includes paintings, sculptures, coins, manuscripts, monuments, and archaeological sites [5]. Intangible cultural heritage

includes traditions or knowledge that is transmitted from one generation to the next such as oral traditions, performing arts, rituals, social practices, and knowledge and skills to produce traditional crafts [5,6].

Table 1. Creative Economy Comparison Chart between Thailand and other Countries/Organizations

Types of Products/Services	DCMS (UK)	Symbolic Texts	Concentric Circles	WIPO	UNCTAD	UNESCO/UIS	Thailand
1. Advertising	V	V	V	V	V	V	V
2. Architecture	V		V	V	V	V	V
3. Design	V		V	V	V	V	V
4. Fashion	V	V	V			V	V
5. Film and Video	V	V	V	V	V	V	V
6. Computer hardware	V	V		V		V	
7. Tourism			V		V	V	V
8. Literature		V	V	V	V	V	V
9. Music	V	V	V	V	V	V	V
10. Museum, Theater, and Library			V	V		V	
11. Publishing	V	V	V	V	V	V	V
12. Software	V	V		V	V		V
13. Sports		V					
14. Performing arts	V	V	V	V	V	V	V
15. Audio		V	V	V	V	V	V
16. Video games	V	V	V	V	V	V	V
17. Visual arts, Photography, and Crafts	V	V	V	V	V	V	V
18. Thai food							V
19. Traditional Thai medicine							V

Source: Arkhom Termpittayapaisith (2010).



Source: UNESCO (n.d).

Fig. 1. Cultural Heritage.

The Thai government recognized the importance of

creative economy and had it included in the Twelfth National Economic and Social Development Plan from 2017 to 2021. Global cultural trends shifts and blends with the local cultures, lifestyle, and consumption patterns. These cultural aspects create opportunities for more value-added creative goods and services. The Twelfth National Economic and Social Development Plan aims to create a strong and competitive economic system by bringing in new knowledge to increase product value. As for the industries, it promotes the establishment and development of markets for value-added products by encouraging businesses to develop creative goods productions with internationally certified quality and standards [7]. Traditional Thai herbal medicine and Thai food can be transformed into creative products in Thailand.

In developing countries, several studies exploring creative ideas and cultures can be transformed into creative products such as Indonesia's batik fractal [8], Cambodia's handcraft pottery [9], Malaysia's Islamic films [10], Brazil's digital games industry [11], and India's creative products in Smart Cities Varanasi [12]. However, there are a limited number of studies investigating how creative products and services contribute to the success of Thailand's creative economy [13-17]. Thai cuisine, culture, creativity, and innovation could drive the tourism industry and boost the national economy [13]. Creative sports and eco-cultural tourism in Buriram, Nakhon Si Thammarat, Chanthaburi, and Nakhon Pathom provinces contributed considerably to Thailand's creative economy [14-17]. The promotion of a creative economy through creative tourism could be made possible by increasing and improving infrastructure, capacity management, physical environment, and the availability of public transportation [16,17].

Sa Kaeo province is located in the eastern region of Thailand, approximately 247 kilometers from Bangkok. The province shares its border with Cambodia covering approximately 165 kilometers in length across four of Cambodia's districts: Aranyaprathet, Khlong Hat, Ta Phraya, and Khok Sung. This makes Sa Kaeo a strategic gateway between Thailand's northeastern region and Indochina. There is an interlink route from the northeastern region of Thailand to Phnom Penh, Cambodia, and Vietnam along with a rail line from Cambodia, Aranyaprathet, Prachinburi, Chachoengsao, and Bangkok. There are four checkpoints: two border checkpoints and two checkpoints for border trade. The two checkpoints for border trade are Ban Nong Prue-Malai checkpoint, located between Aranyaprathet and Malai district in Banteay Meanchey province, and Ban Ta Phraya-Bueng Ta Kuan checkpoint, located between Ta Phraya district and Thma Puok district in Banteay Meanchey province. Rong Kluea market or the Bann Klong Luk Border Market in Aranyaprathet district is the largest source for secondhand goods in the region that generated billions of baht per year. Several Sa Kaeo's small and medium-sized enterprises may receive support from the Provincial Community Development Office of Sa Kaeo and the Office of Small and Medium Enterprises Promotion (OSMEP), but to increase the competitive capability for sustainable growth an effective business network must be created to increase communication channels, product value, and help maintain agility to be able to compete sustainably in the market.

Therefore, the study of the development of Sa Kaeo's creative goods, specifically herbs used in traditional medicine and dietary supplements, network is important to propose an appropriate approach of value chain development with the neighboring countries. The main objectives of this study are (a) to explore the context of

creative goods, (b) to analyze the networks of creative goods, and (c) to give recommendations on the network development framework for creative goods traded in Sa Kaeo and the neighboring countries.

The contributions of this study aim towards the following audiences: (a) departments related to community, enterprise, and trade networks developments which include agencies involved in the formulation of national development policies and international relations policies that may benefit from the analytical data and recommendations to determine policies and operations, (b) the private sector may use the information to develop the creative goods and services network and establish effective and sustainable long-term business strategies, and (c) to obtain the final report and policy brief that can be used as guidelines for policy planning of government agencies and the private sector.

2. SA KAEO PROVINCE ECONOMIC OVERVIEW

Sa Kaeo yielded the gross provincial product per capita of 65,669 million baht per annum in 2016 [18], ranking at 62nd highest in the country. Most of the revenue came from the agricultural sector, worth 10,328 million baht, followed by industrial production sector, worth 7,260-million-baht, wholesale-retail sector, worth 5,757 million baht, and other sectors (government administration and national defense, education, and real estate services) worth 16,980 million baht [19]. Most of the important agricultural products are agricultural commodities such as rice, maize, cassava, sugarcane, and eucalyptus. The registered geographical indications include Nam Dok Mai mango and Khlong Hat rose apple. In addition, the province is also an important source of medicinal plants such as turmeric, cassumunar ginger, and Indian gooseberry.

In the industrial sector, Sa Kaeo houses 580 factories most are waste separation, landfill, solar power plants, agriculture processing, non-metal processing, and wood processing factories. In 2013, the government has announced Sa Kaeo Special Economic Zone (SEZ) of four subdistricts in two districts, namely Phak Kha subdistrict of Watthana Nakhon district and Ban Dan subdistrict, Pa Rai subdistrict and Tha Kham subdistrict of Aranyaprathet district, with the land area totaling 207,500 rai or 332 square kilometers [19]. The four companies relating to animal food production, plastic products, appliance, and vehicle parts sought investment support which totals 1,315.6 million baht. In 2017, the cabinet approved the establishment of Sa Kaeo Industrial Estate at a budget of 700 million baht. In the present, two businesses in cleaning solution and automotive wiring harnesses production have signed a rental contract in the area [19].

Regarding the border trade with Cambodia, Thailand's total trade value with Cambodia through Aranyaprathet custom was 54,717.74 million baht, consisting of 16,925.93 million baht on import and 71,467.26 million

baht on export, tallying up to Thailand's trade balance of 54,541.33 million baht [19]. Thailand's major export products are automotive, motorcycle engines, motorcycle parts, and tractors. Major imported products from Cambodia include cassava, ISO tanks, aluminum motor components, and canine food.

Table 2. Sa Kaeo Province Local Creative economy Potential Development Analysis

Strengths	Weaknesses
<p>S₁ An ideal location to produce GAP agricultural products.</p> <p>S₂ The largest border trade market in Thailand.</p> <p>S₃ Sa Kaeo acts as a transportation hub linking markets from the eastern region, southeast region, and the neighboring countries.</p> <p>S₄ A national park recognized as a world heritage site.</p> <p>S₅ Historical sites with traces of Thai and Cambodian cultures.</p>	<p>W₁ Insufficient water supply for agriculture due to inefficient water management.</p> <p>W₂ Soil quality deterioration problems.</p> <p>W₃ Lack of tourist attractions development and systematic management.</p> <p>W₄ Lack of technologies used to increase agricultural production.</p> <p>W₅ Insufficient border area infrastructure, such as transportation systems, public utilities, and a lack of systematic sanitation management.</p>
Opportunities	Threats
<p>O₁ Geographical location of Sa Kaeo connects to the Southern Economic Corridor and Indochina.</p> <p>O₂ Thailand becoming an aging society means that trends in health care will support the development of medical tourism sites, modern medicine, and Thai traditional medicine.</p>	<p>T₁ Agricultural prices fluctuate with world market prices and compete with other countries in price and quality. This increases the competitiveness of some products in the free market trade.</p> <p>T₂ Policy restrictions, laws, and complicated international regulations not conducive to trade, investment, and tourism.</p> <p>T₃ Problems caused by human trafficking, undocumented immigration, and the COVID-19 outbreak from neighboring countries.</p>

Source: Compiled by the research team.

Sa Kaeo has a lot of economic potentials for development due to its strategic location for trade and GAP certified agricultural production, natural and cultural resources, and resource development institutions. There are

also several historical sites containing traces of Thai and Cambodian cultures which may serve as eco-cultural tourist attractions. The geographical location of Sa Kaeo has the potential for local economic development by serving as a pathway connecting the Southern Economic Corridor and the Indochina; however, several limitations may hinder the development such as water and land resource instability, low value added in the agricultural and industrial sector, and the lack of public transportation convenience among tourist attractions. These limitations are factors that cause low economic development in Sa Kaeo when compared to other provinces. Additional threats to Sa Kaeo's economic development involve agricultural price fluctuation, human trafficking, undocumented immigration, and the COVID-19 outbreak. A SWOT analysis explaining the relationships of possible issues when applying the creative economy concept in Sa Kaeo is shown in Table 2.

Sa Kaeo Provincial Development Plan from 2018 to 2021 has prioritized the development of strategic positioning in (a) safe agriculture, (b) border trade in the SEZ, and (c) eco-cultural tourism (Table 3). Although the role of the creative economy has not been addressed directly in Sa Kaeo, the concept of the creative economy is aligned with the development guidelines of the three value chains set by the province. Sa Kaeo's safe agriculture potentials are the high volume of crops and GI products but were hindered by market price fluctuations and technology limitations on agricultural production. The opportunities in creative goods and services include investment in research and development in technology to create more value-added products and promote agro-tourism. The potentials of border trade are convenient location and high demand for Thai products, but there is an insufficient quantity of Sa Kaeo local products for trade. The opportunities in creative goods and services include developing business matching between Thai and Cambodian entrepreneurs and organizing trade fairs. The potentials of eco-cultural tourism are attractive landscapes and cultural sites where events may be held, such as sporting events and the Pang Sida Butterfly Watching Festival, but were hindered by the lack of destination awareness and public transportation. The opportunities in creative goods and services include filming movies, music, or any entertainment production in Sa Kaeo to promote and encourage tourism.

Regarding the Sa Kaeo Provincial Development Plan from 2018 to 2021, the potential creative product under safe agriculture is high-quality herbs used in traditional medicine and dietary supplements. These agricultural products act as raw materials to be developed into value-added products used in the medical field and beauty salons. The plantation sites may also act as a tourist attraction. Multiple crops can be cultivated along each other as it does not require a lot of land space and the weather in Sa Kaeo allows production of high-quality herbs. Some farmers provide herbs for Chao Phya Abhai Bhu Bejhr Hospital

while some process the products in-house. Herb production groups, such as Siam Herb, grow herbs through organic farming; however, the method is yet to be applied to the entire process. Fresh herbs, such as cassumunar ginger, turmeric, and king of bitters, were cultivated and processed by 51 Siam Herb members for Chao Phya Abhai Bhu Bejhr Hospital.

The important mechanism is the formation of a contract system between the enterprise and the herb production groups and a contract system between enterprise and group members for quality control. The products will be verified by the hospital. The enterprise groups profits from the difference between contract price and the purchase price. Annual dividend will be yielded as a result from the development of a cooperative system. In terms of production, the group must maintain the level of production delivered to the hospital by buying excess products from other groups, for example, creating a network with Ban Dong Bang group for assistance in product delivery in case of insufficient product volume. Ban Dong Bang is the enterprise group that also has is a contract with Chao Phya Abhai Bhu Bejhr Hospital Foundation. The contract mechanism of herb production groups and the hospital is one of the processes to enforce group members to operate in accordance with the contract. At the same time, the groups require quality control among group members before delivering the products to the hospital. The hospital can also benefit from the contract conditions by raising the productivity standard for all enterprise groups and improve outputs quality throughout the process.

In the production processes, the herb production groups improved the production quality with assistance from government agencies, such as the construction of the solar greenhouse for a longer preserving period of the products and management of products distributed to the hospital. In the sales processes, the herb production group sells its processed products through its physical stores and online platform, Siam Herb. For example, herbal scrubs are distributed in the tourism service supply chain as in spas or Thai massage parlors. In addition, there also a concept development of home stays villages and improving its existing products. This is an extension of the supply chain of herb production as raw materials for the tourism industry.

3. RESEARCH METHODOLOGY

The scopes of this research include (a) evaluating partnerships development and creative goods network in Sa Kaeo, suggest development guidelines of government roles and creative goods network for communities and the private sector, and present a case study of potential creative goods, specifically herbs used in traditional medicine and dietary supplements, traded in Sa Kaeo; (b) analyzing the

value chain development of potential creative goods, specifically herbs used in traditional medicine and dietary supplements, traded in Sa Kaeo to become a cross-border value chain and develop into a regional value chain; (c) examining the guidelines to elevate the value of potential creative goods, specifically herbs used in traditional medicine and dietary supplements, traded such as an analysis based on the Stan Shih's Smiling Curve conceptual framework to create understanding of value-adding processes throughout the value chain in research and development, product design, branding, production, marketing, product distribution, sales, and after-sales service which are the important factors in raising the level of creative service trade; and (d) conducting in-depth interview with local entrepreneurs, government agencies, private sector, education sector, and local communities.

The methodology of this research includes 1) analytical framework from Michael E. Porter (1985) to evaluate the value chain development of creative goods, 2) social network analysis to identify different levels of involvement to the business, and 3) analytical framework from the Stan Shih's Smiling Curve conceptual framework to promote the value of creative goods.

According to Michael E. Porter (1985), the value chain is a concept that helps to understand the roles and relationships of each organization and assists businesses to create value for its customers [20]. The organization's activities must help reduce costs and differentiate its products and services for the business. The value created by the company was measured by considering how much consumers are willing to pay to purchase the company's products or services. Studies and analysis of the relationship between activities consecutively in a chain is called, "Value chain". Activities in the value chain are activities that the organization categorized according to its duties, visions, missions, values, and strategies. The activities is mainly divided into two groups: Primary Activities and Support Activities as seen in Figure 2.

The business ecosystem by Moore (1993) is applied for social network analysis [21] as shown in Figure 3. The business ecosystem consists of 3 layers corresponding to different levels of involvement: core business, extended enterprise, and business ecosystem [22]. The core business layer consists of parties forming the business. The extended enterprise consists of customers, complementors, and second-layer suppliers. The furthest layer consists of universities, trade associations, unions, investors, stakeholders, and other research bodies. These parties may not directly be involved in the business operations but provide significant contributions to the success of the business.

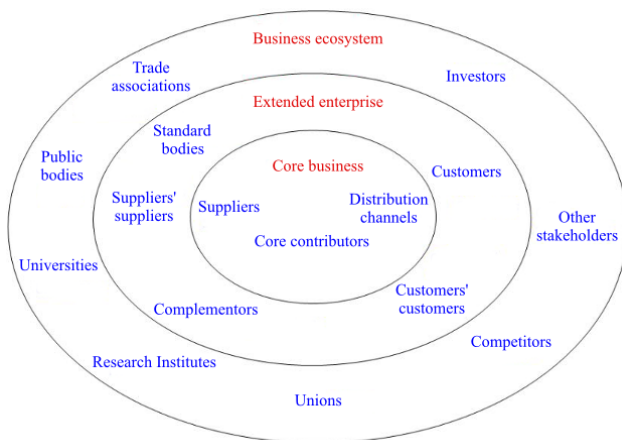
Table 3. Potentials, Obstacles, and Opportunities in Creative Economy Development of Sa Kaeo Province

Sa Kaeo Province Positioning	Potentials	Obstacles	Opportunities	
			Creative Products	Creative Services
Safe Agriculture	<ul style="list-style-type: none"> • High volume of good quality rice, cassava, sugar cane, maize, and soybeans. • Geographical indication (GI) registration for Nam Dok Mai mangoes and Klong Hat rose apple. 	<ul style="list-style-type: none"> • Fluctuation of agricultural products price and high cost of agricultural production in Sa Kaeo remains. • Limitation on technological improvement on agricultural production. 	<ul style="list-style-type: none"> • Promote processing and packaging industry to increase the value of agricultural products. • Support research and technology development to improve the quality, type, and price of agricultural products for added-value. 	<ul style="list-style-type: none"> • Promote agro-tourism. • Develop advertising media for Sa Kaeo agricultural product brand or identity.
Border trade in SEZ	<ul style="list-style-type: none"> • Aranyaprathet district in Sa Kaeo is Thailand's major border trade center that connects to Cambodia and Vietnam. • Sa Kaeo has several major markets such as Bann Klong Luk Border Market, Ban Khao Din checkpoint for border trade market, Ban Ta Phraya checkpoint for border trade market, Ban Nong Prue checkpoint for border trade market and the Ban Noen Makmun Thai-Cambodian border civil market. • High demand for Thai products among the CLMV countries. 	<ul style="list-style-type: none"> • Current export products in the border market are from other provinces not locally produced in Sa Kaeo and they do not generate income to Sa Kaeo locals. 	<ul style="list-style-type: none"> • Develop OTOP (One Tambon (sub-district) One Product) products that are highly demanded in the Cambodian and Vietnamese markets. • Develop business matching between Thailand and Cambodia. 	<ul style="list-style-type: none"> • Organize OTOP events promoting Thailand and Cambodia relations, cultural and traditional exchange, and cross-border tourism.
Eco-cultural Tourism	<ul style="list-style-type: none"> • Pang Sida National Park and Ta Phraya National Park are world heritage forests. Pang Sida National Park is Thailand's top butterfly sighting destination. • Sdok Kok Thom temple is located in Sa Kaeo. The temple was known as the largest Khmer archaeological site in the eastern region with shared history to Angkor Wat-Angkor Thom. The image of Prasat Khao Noi was used in Sa Kaeo's seal. Prasat Khao Loan have beautiful pediments and numerous Khmer castles scattered in the province. • Sa Kaeo organized activities to support the city's eco-cultural tourism, such as sports events, Pang Sida Butterfly Watching Festival, and trade fairs. • Sa Kaeo offers hand-woven fabrics. Phusa Thai silk and Eri Silk are made from worms that eat cassava leaves as cassava is cultivated in Sa Kaeo. 	<ul style="list-style-type: none"> • Minimal awareness about Sa Kaeo attractions have led to a low number of tourists. • Tourist sites were scattered and distant from one another. Travelling requires personal vehicles due to lack of public transportation in Sa Kaeo. 	<ul style="list-style-type: none"> • Promote and develop traditional arts, culture, and new media. • Promote movies, dramas, music or any entertainment taken in Sa Kaeo to encourage tourism. 	<ul style="list-style-type: none"> • Promote creative tourist activities.

Source: Sa Kaeo Provincial Development Plan (2018 – 2021). Sa Kaeo Provincial Office 2016.

Support Activities	Firm Infrastructure General management, planning, financial accounting, strategic planning, quality management, information system, law, and government.				
	Human Resources Management Recruitment, employment, training, and development.				
	Technology Development Research and development, product design, product update, and choosing suitable technology for the production process.				
	Procurement All inputs to be used in the business value chain.				
Primary Activities	Inbound Logistics	Production or Operations	Outbound Logistics	Marketing and Sales	Service
	- Raw materials - Material handling	- Installation and testing production line	- Finance and product distribution	- Promotion and product pricing	- Installation - Maintenance - Spare parts
	Core Activities				

Fig. 2. Porter's Value Chain Model.

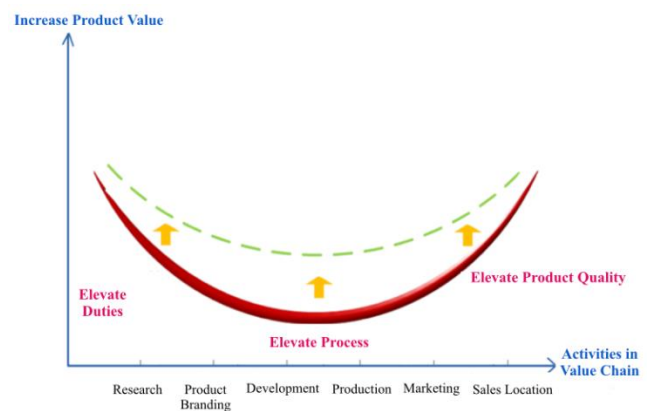


Source: Heikkilä and Kuivaniemi (2012). Adapted from Moore (1993).

Fig. 3. The Layers of a Business Ecosystem.

Finally, the third analysis was based on the Stan Shih's Smiling Curve (Figure 4) conceptual framework to understand the process of adding value throughout the value chain. Based on the Product Value Chain Development Guide (2017), it explains that activities under the value chain start from research and development, business design and branding, production factors procurement, manufacturing production, marketing, and product distribution [23]. Entrepreneurs who receive the most benefits are those who take part in the activities on both sides of the Smiling Curve, which are the brand owners or those responsible for the product production and distribution to customers. This individual has the highest bargaining power and is able to assign roles and duties to other members in the value chain under the Value Chain

Development conceptual framework.



Annotation: Value Chain Development Conceptual Framework to raise Added Value adapted from Stan Shih's Smiling Curve Source: Juthatip Patrawart (2017). Product Value Chain Development Guide.

Fig. 4. Value Chain development conceptual framework to increase added value.

4. RESULTS

The methodology of this research comprises of an analytical framework from Michael E. Porter (1985) to evaluate the value chain development of creative goods, specifically herbs used in traditional medicine and dietary supplements. For the supply chain of herbs to be processed into creative products, the operation consists of the following components: procurement of raw materials, production of processed goods, and distribution of products from suppliers to customers. In Figure 5, key activities in the supply chain of cultivating herbs for processing into

medicine, dietary supplements, and cosmetics can be identified as follows.

1. Raw material procurement of herbs that were grown organically; however, organic farming is yet to be applied to the entire process. Examples of fresh herbs grown are cassumunar ginger, turmeric, and king of bitters.
2. Processed product production and dehydration process. The improvements in production quality were assisted by government agencies such as the construction of the solar greenhouse for a longer preserving period of the products.
3. Distribution activities refer to sales to Chao Phya Abhai Bhu Bejhr Hospital Foundation. Processed products were sold through physical stores and online platforms, Siam Herb. For example, herbal scrubs are distributed in the tourism service supply chain such as spas or Thai massage parlors. There is also a concept development of home stay tourism and improving its existing products. This is an extension of the supply chain of herb procurement as raw materials for the tourism industry.
4. Supporting activities are workload distribution management, financial and accounting management, benefit allocation, and communication with other parties.

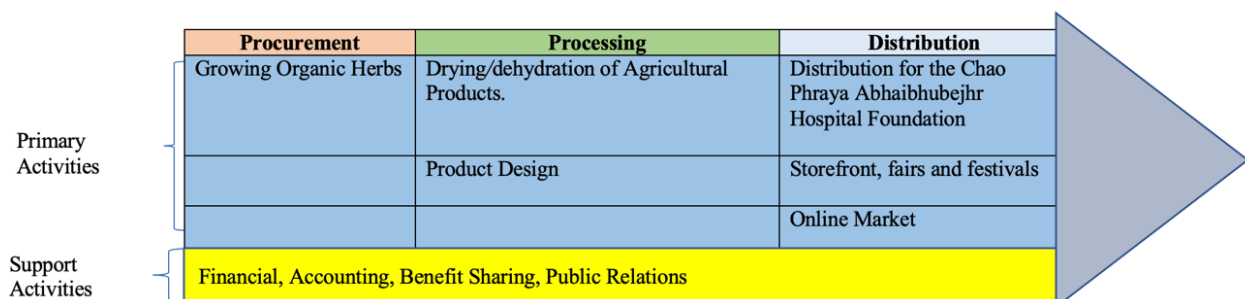
The herb production groups share the same agricultural plantation problems which is drought that causes issues to some herbs requiring high volume of water, such as king of bitters, to yield a lower number of crops. The second problem encountered is the management of plots that have residue of inorganic substance. Herbs' quality issues might occur when delivered to the hospital. Lastly, involvement of government agencies in the project might not bring additional benefits to the group after the project ends and may cause a variety of problematic factors.

The second methodology of this research is social network analysis to identify different levels of involvement in the creative product business. Identifying all parties in the core business, extended enterprise, and business ecosystem layers and building knowledge networks, innovations, and team collaboration will contribute to the long-term success of the creative product business. The social networks analysis of the business ecosystem in cultivating and processing creative products in Sa Kaeo is shown in Figure 6.

Based on Figure 6, important organizations and relationships in the network of the business ecosystem in cultivating and processing herbs into traditional medicines, cosmetics, and tonics can be identified as follows.

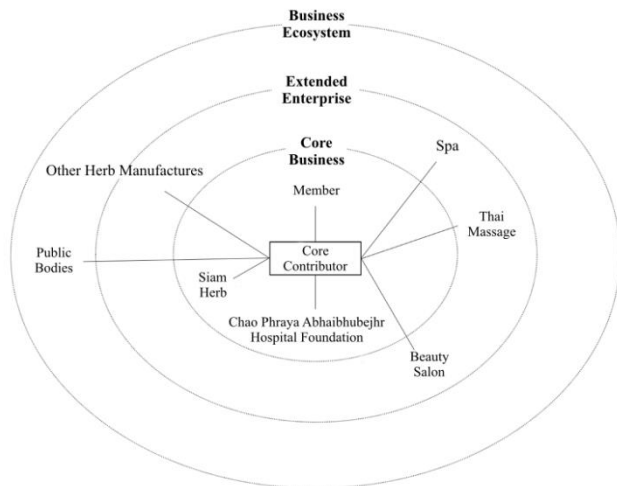
1. Core business organizations form contracts and profit-sharing plans with villagers consisting of villagers' families, friends, and neighbors. The main distribution channel is through Chao Phya Abhai Bhu Bejhr Hospital foundation. The enterprise group sells its processed products through its physical stores and on online platforms, such as Siam Herb.
2. The expanded enterprise consists of other herb production groups networking with other parties under contract with the Chao Phya Abhai Bhu Bejhr Hospital Foundation and Ban Dong Bang group to tackle insufficient production for delivery. This also includes relationships with consumers in related industries, such as spas, Thai massage parlors, and beauty salons.

The business ecosystem receives assistance from government agencies through projects such as the solar greenhouse project for processing and preserving products. Based on the field study, the international market network is yet to be established for the products in this group because the management system may not be established in a short period of time.



Source: Compiled by the research team.

Fig. 5. The supply chain of cultivating herbs for traditional medicine, dietary supplements, and cosmetics use.



Source: Compiled by the research team

Fig. 6. The layers of a creative business ecosystem in cultivating and processing of herbs into traditional medicines, dietary supplements, and cosmetics.

Finally, the third analysis was based on the Stan Shih's Smiling Curve conceptual framework to understand the process of adding value throughout the value chain. As presented earlier, the value adding of agricultural products can be categorized into two parts: product quality and production networks. However, product quality improvement is difficult for agricultural product production when compared to large-scale agricultural industry. Therefore, it can be analyzed as follows:

1. Agricultural products improvement might require plant breeding or higher efficiency plantation process. In this case, a contractual monitoring system for organic farming among farmers is applied. This is to ensure product quality for processing into medicines for the Chao Phya Abhai Bhu Bejhr Hospital. The product purchasing contracts with detailed specifications were made to form a distinct relationship system and avoid conflicts among group members, groups, other networks, and customers.
2. Once the product purchasing contract between the hospital and various groups of herbs businesses were made to standardize the quality and price, businesses can manage the demand and supply which lead to a more efficient production management.

5. CONCLUSIONS AND POLICY RECOMMENDATIONS

Important lessons from Herbal Farming Business:

- Sa Kaeo is an agriculture-based province. It is a challenge for organizations and business networks to create potentials to build a creative economy. Producers have options of traditional agriculture, processing products for added value, and producing

new products as additional income. The challenge lies in creating value-added creative products for more profit than the group's management cost and the opportunity cost of traditional agriculture. In the past, the challenge has been in a form of trial and error among the business networks. The production will come to an end if the business fails to manage network management costs. If a business is successful but lacks certain risk prevention mechanisms, the business network may fall apart.

- Project operation by the government organizations and educational institutions is a system based on the annual budget system with annual reviews. This has led to projects to require more than one year of project development. Project operations will be expedited for results that benefit next year's budget and focus more on productivity measurements rather than on outcomes and impacts. When the annual budget is exhausted, the project will come to a halt and cause discontinuity. There are several projects that resulted in problems and damaged trust between the business network and the government organizations that supported the project.
- The challenges of improving creative product network are (a) creating continuous and sustainable production improvements in management, processing, and product development; (b) creating alternative choices for cost-effective business opportunities to establish network allowing production groups and entrepreneurs into the business operation; and (c) the role and participation of the government sector, private sector, and educational institutions in the development of the business and creative product networks in the province.
- Herb plantation for raw materials provides an alternative and supplemental crop for farmers who already cultivated primary crops. Sa Kaeo is situated next to Prachinburi province where Chao Phraya Abhaibhubejhr Hospital is located. The hospital produces herbal medicine, so herbs were purchased from farmers in Prachinburi and Sa Kaeo province under a contract system with specific product quantity and quality. Production demand from the hospital creates added value to herbs. This also provides occupation opportunities and additional income for farmers.
- Contractual agricultural production is a tool commonly used by private companies or producers allowing control over price management and product quantity and quality from upstream to downstream. Farmers under the contract must comply with the contract such as using raw materials from the contract owner and complying

with production quality control. However, it was found that producers can manipulate the contract by implementing requirements in product quality inspection to lower the prices or refusing to buy back the products while farmers have to invest in raw materials and time. Farmers may also break the contract by refusing to comply with the agreed process specified in the contract. Government agencies cannot get involved as it is a direct contract between farmers and entrepreneurs. On the other hand, there is no strict contract enforcement of growing herbs for the hospital but rather for quality control and reasonable price.

- Appropriate implementation of contract conditions with quality control enables herb networks to benefit from the work distribution or joint production of medicinal plants. The condition can be used for price referencing and quality control between producers and herb farmers. This is considered an efficient use of management innovation. Agricultural products, such as durian, are products that are under a contract between farmers and Lhong which forms effective harvest management and wholesaling.
- Encouraging businesses with operational potential is another policy option to support the product production development. The province may need to consider the true potential of the producers' creative product presentation. Herbal agriculture provides farmers alternative sources of income, but with several farmers and producers producing may decrease the herbs' prices. Businesses with potentials may have to implement measures ensuring the government sector will maintain the appropriate price range and quantity control.
- Management under climate risk is an important lesson derived from the study of agricultural products and processed agricultural products. As Sa Kaeo farmers suffer from water shortages, the government needs to provide support for water resource development in agricultural areas to help the farmers in creating and sustaining suitable areas for long term agriculture.
- Using agricultural technologies to increase productivity and organic farming which add value to agricultural products. Quality control of herbs purchased by the hospital was implemented as it is used to produce herbal medicine. Farmers can add value to their primary agricultural products with the help of agricultural technologies; however, organic farming requires a complicated production environment which induces higher production costs than conventional farming. Farmers must possess technological knowledge and the understanding of the additional cost.

Policy Recommendations for Sa Kaeo Creative Products (Herbs for Traditional Medicine, Dietary Supplements, and Cosmetics Use) Network Development:

1. Using Sa Kaeo's participation mechanism and Sa Kaeo's joint public and private sector committee to prepare the provincial strategies for promoting a systematic and continuous operation of the creative products (herbs for traditional medicine, dietary supplements, and cosmetics use) by having distinct responsible units, operational budget, monitoring, and evaluation process. The implementation may require the use of the province's integration budgets to accelerate the process and involve provincial agencies as supporting factors to achieve objectives.
2. Since agencies have close relationships with the local entrepreneurs and possess extensive knowledge of the area, mechanisms should be established for agencies at local level and civil society to participate in Sa Kaeo's creative product strategy preparation. Agencies may include local administrative organizations at various levels consisting of the provincial administrative organization, city municipality, town municipality, subdistrict municipality, and local administrative organizations.
3. Formulate measures encouraging large-scale businesses and potential businesses with standardized operation systems to invest in the Sa Kaeo's creative product supply chain. The government sector may assist in providing information and expediting business establishments and investments if they are benefiting from Sa Kaeo SEZ.
4. Since Sa Kaeo is one of the special economic zones, the government sector must identify ways to induce potential businesses to expand the creative products production scale and increase added value in processing agricultural products [24]. Apart from the tax benefits received from the government, the province may need additional measures to support businesses. For example, the right to use foreign workers on a seasonal basis and facilitation in the business establishment.
5. Surveying international markets in the neighboring countries, such as Cambodia, on the demand for creative products, customers, competitors, desired product models, and price of competing products. The objectives are to identify international market expansion channel for creative product network and sourcing raw material alternatives in the neighboring countries.
6. The government sector, private sector, civil society organizations, businesses, and educational institutions in the local area should cooperate to establish a creative commercial network database of product categories and supply chain of each product groups.

This production database may be used by trade partners in border and domestic trades.

7. Establishing one-stop services to provide information to businesses, consumers, and tourists. This forms a systematic information system for quick access to creative products and creative product networks.
8. Creating a comprehensive network of creative products and services. Once all the units gain access to the database of provincial creative products network, they can attain information on the connection, supply chain capability, and the implementation gap. The implementation gap can be closed via various measures by the public and private sector which elevate the creative product network's potential development.
9. Promoting Sa Kaeo's creative products to pass the area-specific certification process to create identity and increase popularity of the product's benefits among consumers. Sa Kaeo relies on agricultural products and processed agricultural products; therefore, gaining certification from GI system and agricultural quality certification would be viewed as a trusted sign of quality and value.
10. Promoting the development of product production process and distribution by increasing knowledge in targeted operations between the creative product production network and educational institutions. Partnerships can be formed where both parties mutually benefit, such as the creative production network receives product development consultants and educational institution receives student internships. In the internships, professors and students can have roles to elevate the products in the creative product network. The students can apply the practical knowledge they have acquired to solve real-world problems.
11. Improve creative products through higher research and development level with educational institutions than the previous proposal. Some products' production process may be further developed and have higher added value through advanced research and development. For example, developing herbal formulas for patient's treatments, service industry, or to be a certified drug formula. The development process requires large investments and relies on local raw materials. If there is a fair benefit management process, the product network will mutually benefit and be more willing to continuously improve the quality of their outputs.
12. The government and related agencies should have a systematic public relation for creative products and its network through modern media formats. Activities should be organized to promote sales and provide opportunities for creative product businesses to form

different levels of markets at appropriate costs.

13. Encourage the formation of Sa Kaeo's sales distribution platforms. In provinces with a high number of buyers and sellers, the government may help facilitate the distribution platform by systematically categorize creative products and network information, and assist in price management system, product delivery, payment, and product standardization to increase the channels for the creative product manufacturer network. The private sector who realizes the importance of the sales distribution platform may participate in the development of the platform and fair distribution system for all parties.

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