

# A Survey of Regional Network Characteristics in Rural Areas Contributing Toward Social Innovation

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This survey aims to examine the framework for co-creation of industry, academia, and government-led social innovation and is centered at the Ladkrabang region in Thailand. This region was focused on because there is an existing network of the social sciences field. The significance of selecting this social science network case is that it might give us suggestions on how to revitalize rural areas, such as those in Japan, which is facing a declining birthrate and an aging population. Science and technology cannot solve the problems of an ageing society with a low birth rate, except in rare cases. The Ladkrabang region is not a fully developed area, and thus, is similar to some Japanese local regions. However, the point of differentiation here is that the university's social science knowledge is utilized for community improvement. A close relationship with each community was established as a regional system, and substantial interactions were possible. The role of higher education institutions in the industry-academia-government collaboration in the social sciences field can be summarized as "consulting to create a business model that can realize social innovation." The local government provided strong support for this regional network and regional development of the community.

**Keywords:** Social Innovation, Endogenous Economic Development, Social Science, Local Region, Industry-Academia-Government Collaboration

## 1. Introduction

Rural areas, such as those in Japan, are facing a declining birthrate and an ageing population, and problems caused by this issue cannot be easily resolved (Kiyoshi, 2020). Higher education universities can apply their knowledge in social science to help revive these declining communities. This survey aims to assess the framework for the collaboration of industry, academia, and government towards social innovation. Social innovation "creates new social value and brings economic and social results through business that solves social issues" (Tanimoto et al., 2013). To do so, we proceed by conducting a detailed case analysis of overseas cases that offer many suggestions. We conduct an on-site survey on the community business setup in Thailand and the role of local government and higher education institutions in contributing to the local community. We start by organizing and analyzing the features and benefits of this mechanism of industry-academia-government collaborations. In a rural community, which is often a relatively low-income group compared to that in a large city, a normal for-profit business model is difficult to establish. Here, social business aspects are required; in other words, it is

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desirable to combine economic and social aspects, and the creation of a new framework to actualize this combination is needed. The existence of social issues such as community decline and the search for their solutions resemble Japanese localities, and it is hoped that the higher education institutions will make contributions in such areas.

The Ladkrabang area is located in the eastern part of Bangkok, with an area of 124 km<sup>2</sup> and a population of 16,500 people. Although it is adjacent to Bangkok, household incomes are not high enough; however, local community businesses are able to support such income levels. However, the promotion of these businesses that support such a regional economy, their relationship with regional universities, and the utility of networks for creating local grass-roots innovations that involve regional universities have not yet been examined. The Faculty of Administration and Management (FAM) at King Mongkut's Institute of Technology Ladkrabang (KMITL) and Ladkrabang District Office take charge of local administration as the local government. Questions, such as "how is social transformation being created?" or "what is the nature of the business?" are still to be asked and discussed, especially for the businesses that contribute to society. These elucidations are derived from interviews on the actual conditions of community businesses and the role of universities in the social sciences field. Furthermore, clarification is needed on how the interaction between the parties contributed to the creation of social innovation. We intend to show the framework of industry-academia-government co-creation for social innovation so that the proposed research results can contribute to Japanese localities.

The orientation of innovations in the local community has, so far, been the product of industrial and economic development through the cooperation of industries, academia, and the government. Generally, industry-academia-government collaborations in the social sciences field are not included in this scope. Therefore, this study aims to explore this new aspect and contribute to the field in a novel way.

## 2. Literature review

The research on social innovation is multifarious and abundant, and this section will discuss how previous studies have addressed this topic.

Gershuny studied social innovation early on, providing an analytical framework to consider the impact of Telex technology on future industrial employment patterns, with new offerings for household services, considered to bring about social change and new technologies enabling innovation in service delivery areas that had not seen any change prior (Gershuny, 1982 pp.496-516).

Hazelkorn advanced the debate on activities that create better communities. Although many innovations have been derived from the science and technology in recent years, the remarkably growing creative industry (Art, movies, computer games, clothing design, etc.) needs new concepts in order to develop close links with innovations in a broader economic society. Through concrete explanations,

such as the economic effects of spending on creative services, Hazelkorn facilitated a wide-ranging discussion on innovation that has led to social and economic change. He used Phills' concept of social innovation, which states that it is "truly social only if the balance is tilted towards social value – benefits to the public or to society as a whole – rather than private value – gains for entrepreneurs, investors, and ordinary (not disadvantaged) consumers" (Phills Jr., James A., Kriss Deiglmeier, and Dale T. Miller (Fall 2008) 'Rediscovering Social Innovation', *Stanford Social Innovation Review*, pp.34-43). He also discussed the potential role of higher education, local government, national organizations, non-profit organizations, and corporate alliances in response to diverse regional issues, with ideas for creating a multidimensional and collaborative approach to find solutions. Rather than looking at innovation as a result of commercialization, it was viewed as a complex iterative process involving stakeholders from the private sector, the public sector, and the broader civil society. He also recommended considering how higher education could contribute to the community in addition to volunteer activities. Beyond traditional industry-academia-technology collaboration, this would help build better educational relationships with local stakeholders (Hazelkorn, 2009 pp.1-12).

Preskill noted the importance of evaluating social innovation. In the last few decades, philanthropic efforts to produce larger and more sustainable results have faced increasingly complex problems without a clear path to solutions. He pointed out that traditional program grants alone cannot solve the problems many funders are trying to address. Based on this, non-profit organizations are attempting to create promising social innovations such as system construction, policy advisory, cross-sectoral collaboration, and network construction. However, practical implementation of the core principles of strategic philanthropy (such as attention to performance criteria, assessment of progress towards desired outcomes, etc.) often violates social innovation. Therefore, as a strategic learning approach to decision-making and action, the relationship between strategy and evaluation should be recognized, and that which is evaluated should be related to the organization's strategy, with communication of information and evaluation being a feedback on strategy development and continuous improvement. Once this is implemented this way, organizations can continuously learn, grow, adapt, and change in a meaningful and effective way (Preskill, 2012 pp.1-24).

Terziev et al. discussed the contributions of social enterprises, noting that these enterprises enable market-based ventures to achieve social goals. With creativity and entrepreneurship, they focus on the community rather than individual interests. Social enterprises are in the best position to work with local communities to solve local issues as they are flexible, and this approach supports long-term social inclusion (Terziev et al. 2017 pp.41-46).

The conclusions from these prior studies have helped highlight the significance of social innovation in modern society. The commonly used innovation is a new combination of elements, including new products, new production methods, new markets, new resources, and new organizations, as well as technologies and other aspects, as indicated by Schumpeter (2011, English Edition). On the other hand, social innovation aligns with the meaning of innovation itself. Rather than individual

projects, social innovation aims to bring about a transformation of society as a whole, either through the creation of a better community or a change toward a socially desirable situation, which may have a substantial impact on society. Social innovation also encompasses the regional higher education institutions from the point of view of research and education, with its basic function leading to creation, regardless of culture and reason or whether the company has a useful influence on society through its own business.

### 3. Methodology

The discussion in this paper begins with examining the current framework for industry, academia, and government through qualitative surveys that are carried out through interviews. The discussions begin with introducing the university, followed by showing the activities of community businesses. Subsequently, the role of the local government will be clarified.

Table 1 Qualitative data is retrieved from:

<b>[University]</b>
<b>Destination: Faculty of Administration and Management, 1:30-3:30 pm, May 31, 2019.</b>
<b>Corresponding People: Teerawet Titseesang, Vice president for Academic Affairs Opal Suwnnamek, Assistant Professor</b>
<b>[Community Business]</b>
<b>Destination: Family Group, 10:00-12:00 am, July 3, 2019.</b>
<b>Corresponding Person: Patcharaporn Kamplen, Reader</b>
<b>Destination: Nam Son Nai Pon, 1:00-3:00 pm, July 3, 2019.</b>
<b>Corresponding Person: Ampon Piroj, Reader</b>
<b>Destination: Sang Ta Wan (Yai Was), 3:30-5:30 pm, July 3, 2019.</b>
<b>Corresponding Person: Wasaha Kanchanasin, Reader</b>
<b>Destination: Hatta Sil Chum Chom Rom Klow, 10:00-12:00 am, July 4, 2019.</b>
<b>Corresponding Person: Sunan Rai Wean, Reader</b>
<b>Destination: F-Design, 1:00-3:00 pm, July 4, 2019.</b>
<b>Corresponding Person: Natthanisha Nontapa, Reader</b>
<b>Destination: Chum Chon Khon Muang Learning Center, 3:30-5:30 pm, July 4, 2019.</b>
<b>Corresponding Person: Yupol Sompang, Reader.</b>
<b>[Local Government]</b>
<b>Destination: Ladkrabang District Office, 10:00-12:30 am, August 29, 2019.</b>
<b>Corresponding People: Natrerat Promdech, Officer Chanthana Sirithamsakul, Head of Development section</b>

## 4. Results

### 4.1 Overview of Higher Education Institutions within the region

#### **King Mongkut's Institute of Technology Ladkrabang (KMITL) (Araki, M., 2012)**

KMITL is a comprehensive university with approximately 25,000 students, including graduate students, with ten departments and five colleges. Its history is related to Japan and it is the forerunner of the “Nonthaburi Telecommunications Training Center” approved by the Ministry of Education, established in 1961. To promote Japan’s telecommunications technology and Japanese management overseas, the plan was to set up a telecommunications technology training center for Nippon Telegraph and Telephone Corporation (the Ministry of Posts and Telecommunications) within the Thailand Telephone Corporation. There was also speculation that the increase in foreign engineers trained through Japanese technology would also lead to an increase in exports of telecommunications equipment from Japan.

Through advanced human resource development, and to build a strong Japan-Thailand relationship, the institute was promoted to a three-year university in 1964 as Nonthaburi Telecommunications University. From this point onwards, international cooperation became stronger, and it was announced in 1971 that, together with Nonthaburi Telecommunications University, this cooperation would supervise North Bangkok Institute of Technology as well, which was supported by West Germany at the time, and Thonburi Institute of Technology. To create Thailand’s version of MIT, KMIT was born, which bears the name of the prestigious King Mongkut (Rama IV), who is believed to have brought Thailand’s civilization alive. This has led to the university developing a deep relationship with Japan, even after its inception. In addition to Official Development Assistance (ODA) that continued for 40 years up to 2002, agreements and exchanges with Japanese universities and Japanese companies helped the development of resources within the university. By setting up a scholarship program, the university is producing competent engineers who are well-versed in science and technology and offer high on-site quality.

#### **Faculty of Administration and Management (FAM)**

KMITL’s FAM, the research institution, has had a history of developing resources for 36 years since its establishment in 1983. The history can be traced in three phases, as the undergraduate transition.

Phase 1 (1983-2009) was a period of curriculum development in business administration and economics as part of the Department of Agribusiness and Faculty of Agri Technology. The curriculum, for bachelor’s and master’s programs, was prepared in a methodically and stepwise. Furthermore, within the same period (1997), the Faculty of Industrial Education, the Department of Languages, and the Department of Social Science developed a graduate level management curriculum.

Phase 2 (2010-2015) was a period during which the aforementioned two genealogy curriculums were integrated as an administration and management college (AMC). The existing curriculum was re-developed and coordinated, and bachelor’s and master’s programs in business management (industry management, technology management, and agribusiness management) and a doctorate (business

administration) were established.

Phase 3 (2016-2017) was a period where FAM adapted to accommodate new growth and competition by further modernizing the existing curriculum. Currently, FAM has seven curricula: four Thai and three international (English).

The dean of FAM, Dr. Sudaporn Sawmong, developed the vision of “We develop people, people develop the country” when he became dean and made it clear that he aimed to contribute to the development of the nation through human resource development. At the same time, he announced a policy of “FAM to FAMOUS” as follows:

- FAMILY: As a member of KMITL, we aim to become a ranked school in Southeast Asia.
- ABILITY: We aim to teach university students who have the potential, to improve their skills and ability.
- MANAGEMENT: We aim to provide high quality education through an excellent curriculum.
- OUTSTANDING: We aim to be recognized in Japan, Southeast Asia, and around the world.
- UNIVERSAL: We aim for internationalization in all fields such as facilities, curriculum, teachers, and staff.

Furthermore, as part of the guidelines for outreach, the following four items were presented as FAM “Impact”:

- ACADEMIC: FAM faculty members have a track record of research in academic journals that contribute to society and have patent rights that can be implemented.
- EDUCATION: We provide high quality education and curriculum, and improved classrooms and facilities.
- SOCIAL: We promote research that is useful for the real world and that leads to improvement in people's lives.
- INDUSTRY: We recruit talented and dedicated students who are the products of FAM in the private sector of industries.

The FAM curriculum has three elements: science, technology, and management. Graduates study these three elements and, by actively engaging in business collaboration while attending the university, they can gain a competitive advantage in the industrial market. This is a marked change from education that pushed students into classrooms to education that can actively contribute to society. In addition, the university is planning to develop itself globally but centering on East Asia and to develop online lectures as well as to create joint degrees with the world's top universities. In particular, regarding globalization, the university is emphasizing social contribution as well as promoting an increase in foreign teachers and the anglicization of the curriculum. In addition, by organizing international conferences several times a year and disseminating research results globally, FAM intends to develop itself scientifically and, consequently, prove to be useful in improving student education.

A typical example of the social contribution of FAM so far is one from rural villages in Saraburi province, where the university teaches rice cultivation methods for the revival of local endemic species. At the time of harvest, a rice milling machine was designed and manufactured in cooperation with the engineering department at FAM. The technology of this rice milling machine has already been patented. FAM also analyzed the American market and cooperated with hospitals in the prefecture to promote sales in that region, which has proven to be a successful example of its social contribution to the local region.

## 4.2 Growth and Success of Community Businesses

The community businesses in the local areas of Thailand contribute to the development of the local community by providing solutions to various issues in the local community. This is done through business methods and its ensuing effect, such as creation of jobs in the area. A community business is not a business corporation but more like a business group, based on the scope of community activities rooted in the local society, and it is run on a relatively smaller scale. Although the head of the community may act as a representative of the business enterprise group, this varies depending on each community's situation, and there are no fixed management bodies. Many retired seniors and housewives are entrepreneurs, and the business is generally promoted with the thought of social development of their community as the priority.

The administration of local regions in Thailand can be roughly divided into those that are administered by the central government, and those that are administered by local governments. These consist of prefectures, counties, administrative districts, and villages as directly connected to the center. Bangkok, where the Ladkrabang area is located, is administered by the local government and is specially positioned as the capital. Ladkrabang is one of the 50 districts within the capital city of Bangkok, with 65 communities and 35 community businesses being launched. There are also businesses that are not necessarily community-based but are spread across multiple communities.

In the Ladkrabang region, the community businesses are mostly involved in the manufacturing sector. Therefore, it will inevitably be linked to the OTOP (One Tambon, One Product) policy promoted by the Thai government. This measure, called the One Village One Product Movement, is registered for OTOP after a special product passes through several stages of examination by the administration. It is understood that this gives a certain kind of endorsement, which affects sales promotion. In that respect, OTOP can be considered as a type of quality certification system. Registered products are rated with up to five stars, and a certificate showing the number of stars as a Product Champion is issued for 3 or more stars.

Six community businesses were selected as survey targets. The survey aimed to examine the relationship between each business model, the KMITL (especially FAM), and the Ladkrabang district offices. As mentioned above, most of the community businesses in the Ladkrabang area are in the manufacturing sector. The selection of businesses was done with the cooperation of Ms. Yui from the Ladkrabang District Office, and the final list consisted of unique community businesses that did not overlap with other businesses such as food and decorations.

### **Case A**

Job type: Manufacture and sale of insect repellents

Company name: Family Group

Representative Name: Patcharaporn Kamplen

Community name: Malaerai (350 households)

Number of members: 15

**[Business overview]**

This business produces and sells insect repellents for clothes using camphor. It has a history of almost 20 years, and it was launched with a subsidy of ฿13,060 from the Ladkrabang District Office, created from the fund for local community creation by the Thai government, and the selection of the community business to be paid was done after discussions between the Ladkrabang District Office and each community.

Around 300 insect repellents are produced per day and are sold at ฿20 per piece with a net profit of ฿3. Production is done only on weekdays, but the operational system is internal; the work is done on the materials that are brought back by each employee. About 80 insect repellents can be produced from one portion of camphor, and when one distributed portion of camphor is used up, another bag is provided. A lot of production is done for events such as festivals and employees usually develop and sell the product themselves. An amount of ฿3 per product is allocated as commission. When I hear that it is an insect repellent, I have a bland image of a product in a box. However, this product is in the form of a doll accessory, and the camphor is in a pretty bag-like shape. A good design, low price (half the price in the market), and the use of genuine materials (including foreign substances such as salt) are the reasons for the differentiation of this company from other companies, and the business being established in its current strong state. The product has become an accessory itself. Looking to the future, the business is considering upgrading to higher-margin products because profits are less at the moment, owing to the rising prices of camphor and other raw materials.

The reason for promoting this business, and its eventual result, is that the residents of the community have become friendly and cooperative. In addition, the hard manual labor also has a positive effect on health, and it is the purpose of community businesses to contribute to the development of the community.

**[Cooperation with MITL (FAM)]**

There has been no direct linkage with FAM as of yet. Last year, they participated in a website creation workshop sponsored by FAM for expanding sales channels, and this was conducted by Ms. Yui from the Ladkrabang District Office. Its evaluation was done by themselves. One issue that was raised was that the training time was a few days. There was a dilemma here because even if there was a lot of training time, it would be a hindrance to the work. One expectation from FAM in the future would be that the teaching of marketing methods and cost reduction methods be looked into.

For individual projects, access to FAM can be provided via the Ladkrabang District Office, as it has a close relationship with FAM, and it receives invitations to exhibitions to help with actual sales and receiving advice on cost reductions.

**Case B**

Job type: Production and sales of orange juice



Company Name: Nam Son Nai Pon

Representative name: Ampon Piroj

Community name: (A kind of community business but a personal enterprise)

Number of members: 10

**[Business overview]**

This business produces and sells orange juice. It was founded ten years ago by hiring community residents. The representative was originally an office worker, but he wanted to start his own business rather than being hired by someone else. Orange juice is good for health and everyone in Thailand eats oranges. The manufacturing plant is about the size of a small convenience store, and it uses electric and small squeezing equipment to squeeze one ton of oranges into juice per day. Sweet and sour varieties, and varieties from which orange flesh can be easily peeled are all combined to create a sweet, sour, and refreshing taste. The freshness of the taste also comes from using three different types of oranges and the exclusion of any additives. These are key strengths of this business and some of the reasons for it surviving in an area with many competitors. The business representative believes that shipping high quality products contributes to local communities in many ways, such as improving their health. Fresh juice is expensive, so it is difficult to manage it as a community business; however, it is easier to operate it as a personal establishment, which is the current form of operation.

The price of oranges varies greatly depending on the season. During summer (February-September), it is ฿37/kg but during winter (October-January), its price drops to ฿3/kg. During the winter months, it is cheaper because it is shipped in large quantities alongside many other fruits. Seasonal winter oranges produce delicious juices, but the difficulty is that the market demand is often high in summer. Purchasing is done every day from a nearby market, and by purchasing from a trustworthy dealer, the risk of receiving substandard fruit is reduced. The sales channels are mainly factory cafeterias and local food stalls. The products are priced at ฿10 (net profit ฿1), ฿15 (net profit ฿3) and ฿20 (net profit ฿4) in small pet containers of three different sizes. Thousands of items are sold per day, and sales are around ฿50,000. Quality control checks include testing for sweetness, sourness, and salt content with a dedicated measuring instrument.

**[Cooperation with MITL (FAM)]**

The business participated in a website creation workshop aimed at expanding FAM's sales channels. The content of the seminar was good and getting to know other companies was meaningful as it could lead to market development. In the future, the business representative expects advice from universities on the topics of container package development and product development. Although it is an area of the Faculty of Natural Sciences, all orange peels have been discarded so far, even though they may be usable, for example, for marmalade and sweets.

Furthermore, it is also hoped that university students will go to companies and participate in quality control, product development, and marketing. The relationship with the university is not seemingly so distant, and it is hoped that there will be more individual collaboration in the future.

Currently, the business has a close relationship with the Ladkrabang District Office and they are also able to work as consultants.

### **Case C**

Job type: Manufacture and sale of shampoos and perfumes using locally produced herbs

Company Name: Sang Ta Wan (Yai Was)

Representative Name: Wasaha Kanchanasin

Community Name: Mu Ban Kaeha Nakorn 2 (1,000 Households)

Number of members: 2

#### **[Business overview]**

This business manufactures and sells shampoos and perfumes using locally grown herbs. A 73-year-old representative, who had been working as an accountant at a Japanese company, started this business in 2002, after retiring. At the start of the business, she gained product knowledge at a vocational center and began to lead product development for this business. The developed product has earned 5 stars from OTOP.

In addition to the OTOP related exhibitions, sales are made at Suvarnabhumi International Airport. Since the store community is selected according to the products handled at the event, there is no competition. Information on sales destinations is provided by Ms. Yui of the Ladkrabang District Office. The OTOP exhibitions are held in various places, such as national hospitals. Despite its popularity, the frequency of these exhibitions is decreasing every year. The third, fourth, and fifth exhibitions were held once a week in the past, but now they are held once a month. Sales in the past were around ฿7,000 a day but are currently around ฿2,000 a day. In the past, the representative was doing business as a community, but the number of members gradually decreased due to family reasons.

In recent years, the representative has been aging, and she teaches how to make products at a vocational center, free of charge. The students are prominent ones from the community, and are trying to set up small businesses by themselves. Even at her age, she actively teaches young people the knowledge and technology of this product development process to prepare the next generation. There is a definite desire to contribute to the development of the community.

#### **[Cooperation with MITL (FAM)]**

In addition to participating in a website creation workshop that was aimed at expanding sales channels organized by FAM, faculty members also received advice on how to meet the standards when applying to OTOP for products. There was also an English pamphlet for sales promotion. The representative asked the Faculty of Architecture for advice on product development, especially in packaging design, and students brought in product ideas, and were asked to enhance packaging design.

The community business in Ladkrabang area is very close to KMITL and are envied by other areas. She acknowledged that KMITL helps the community.

**Case D**

Job type: Manufacture and sale of comforters using recycled fabric

Company Name: Hatta Sil Chum Chom Rom Klow

Representative name: Sunan Rai Wean

Community Name: Chum Chon Rom Klow 1 (200 households)

Number of members: 31

**[Business overview]**

This business manufactures and sells comforters using recycled fabrics. It is a new business that started in 2018 and received government subsidies for community development activities. After receiving the subsidy, the community implemented two items: launching the business and developing small playgrounds. The 16 small playgrounds were developed for contributing to the health of the community residents, and there was hope for contributing to the reduction of medical expenses of each household.

The production materials of a comforter are received free of charge, with some charges for scraps to be destroyed from two apparel companies in the same community. After deciding on the overall design, the end pieces are shaped into triangles and squares, and then sewn together with a sewing machine. This is a copy of a Japanese futon. The business has sold 100 sheets so far, but there are 30 sheets in the warehouse, and it cannot be said that the business is on track. It takes two days to create one comforter, and each employee takes the product from the beginning to final completion. Out of the 31 members, 25 are part-timers and are free to attend work if they have time.

The foundation to support this business is a ฿100 fund, paid monthly by each member. This system, based on a non-compulsory payment, can be likened to a stock-like system. All dividends are recorded and are distributed at the end of the year, according to the investment ratio. This system is considered by all members and 60% of the sales are paid to employees salary, with the remaining 20% being divided as 10% each for material expenses, heating, and water expenses and dividends.

The issue is that the sales channel is not fixed, and the business is in consultation with the Ladkrabang District Office. There is only one type of product, and an adult comforter (80 x 60 inches) is sold at the price of ฿700. This product has versatility as a bed cover for children. The members are aware of the need to develop other products in the future, and are also thinking about developing rugs and bags.

The strength of this business is in the re-usability of the pieces that are scheduled to be discarded and the subsequent environmental friendliness of the business model. The slogan for this business is "Save Things, Reduce the World." The final parts of apparel and garments are considered waste in the industry, and this business has solved this issue by reusing these end parts. However, Thai people are still not aware of environmental conservation, and the grounds for accepting this business have not been developed.

**[Cooperation with MITL (FAM)]**

The business participated in a website creation workshop aimed at expanding sales channels, sponsored

by FAM, and is already operating a website that utilizes this knowledge. The next issue is about attracting customers, and they believe that strengthening their marketing is the most important task ahead. There is no individual relationship with the university so far, but they would like to strengthen this relationship so that they can get advice from the university. They believe that various issues being faced in community businesses can be resolved by the university's knowledge of the social science academic field.

In the past, they have collaborated with faculty members of the architecture department to assist with the projects of KMITL and the Government Saving Bank. They were also trained in the packaging of goods through the mediation of the Ladkrabang District Office. The students also came to the factory, and after several days of observation, they proposed several product development ideas. The opinions of young students are considered to be valuable.

#### **Case E**

Job type: Manufacturing and sales of accessories

Company name: F-Design

Representative Name: Natthanisha Nontapa

Community name: Chum Chon Rom Klow 201 (1,000 households)

Number of members: 10

#### **[Business overview]**

This business manufactures and sells hand-made accessories. The representative started in 2008 when she left her job after having a baby. Initially, they started with manufacturing sandals and sold them online. The popularity of flowers and other decorations, which were showcased at the beginning of the collection increased, resulting in an increase in sales. However, mass production as a community business was difficult, and it shifted to manufacturing accessories and necklaces. Since sewing was originally possible, this technique was utilized.

There are various types of accessories, with prices ranging from ฿150 to ฿1,000. The business commercializes pebbles, beads, etc. by hand spinning with yarn while attaching small items. Some 700 different types of accessories, like slippers, are sold online every month. The target audience are office workers and university students, and the average sales are around ฿30,000 per month. The manufacturing work is divided into two business divisions: netting and embroidery. A design study session is held in the mornings some days, and the manufacturing itself is such that each member can take their materials home. The salary is ฿4 for large accessories and ฿2 for small accessories, and large ornaments are created by combining multiple parts. Surplus profit is distributed as a special bonus and used for community activities, such as festivals. In recent years, the representative has taught young volunteers how to make accessories as well. The representative has expressed her desire to contribute to the income and growth of young people through knowledge. There are only a few people who know how to make such accessories, and they are doing these activities for community development.

**[Cooperation with MITL (FAM)]**

The business participated in a website creation workshop organized by FAM for the purpose of expanding sales channels. They had directly interacted with the faculty of architecture for their logo design via Ms. Yui from the Ladkrabang District Office. Through a design seminar planned by the Ladkrabang District Office in the past, it was possible to get acquainted with the faculty members and access this expertise.

The business feels that KMITL has a high reputation within the community because its members are actively engaged in social contribution.

**Case F**

Job type: Manufacture and sale of tea using butterfly beans

Company name: Chum Chon Khon Muang Learning Center

Representative name: Yupol Sompang

Community name: Chum Chon Bung Bua (600 households)

Number of members: 9

**[Business overview]**

This business manufactures and sells fragrances and detergents using butterfly beans, with a focus on butterfly tea. In Thailand, there has been a culture of using butterfly beans for tea since ancient times, and it is growing rapidly nowadays. Ingredients that are effective for maintaining health are included as medicinal herbs. The company started operations in 2013 and uses the image of a lotus flower, with many canals, as the logo, to establish the image of a new product in the community. The lotus flower is a local product, and the canals represent the blue tea.

This business has also received government subsidies for community development activities. After receiving a ฿200,000 subsidy, the community committed to launching the business and improving tourism. The reason for starting the business was to promote community health. There were many residents who were ill, and they thought about developing therapeutic products using medicinal herbs which could also be used as souvenirs.

**[Cooperation with MITL (FAM)]**

They participated in a website development workshop organized by FAM for expanding sales channels. They have not collaborated individually with FAM, but they would want to do so in the future.

As for the issues of the whole community, cooperation with the Faculty of Agricultural Industry and the Faculty of Science has been maintained so far. Since oil is necessary for diesel engines used in agriculture, a project to reuse waste oil from households was undertaken. In addition, since there is an industrial park near this community, the business received cooperation in setting the appropriate standards for discharged sewage, which was useful for negotiations with industrial park companies. The community is most concerned about the environment and hopes that further collaboration with KMITL will be actualized.

### **4.3 The role of local government to solve social issues: Ladkrabang District Office**

The capital city of Bangkok is divided into 50 administrative districts, among which Ladkrabang is the responsibility of the Ladkrabang District Office. As a local government with jurisdiction over the eastern region, it carries out local district activities such as tax collection, public works, social welfare, and education (kindergarten, elementary school, and junior high school). About 1,000 staff members are located at 65 offices per one headquarter and community to support the locals. The community here is positioned like a small village in Japan, and a leader in the community is elected in each election. Under the law, 100 or more households are regarded as one community; but in rural areas such as Ladkrabang, there are also communities with 10 or less households. In fact, the division is flexible and often determined by the location of roads and canals. Each community has a different situation but the mechanism to raise reports from each branch is well established, with the headquarters staff also regularly visiting one or more places within the community every day. The headquarters has 14 full-time employees, 4 annual contract workers and 40 volunteers. These volunteers are selected by the leaders from each community, and this ensures the interaction between the headquarters and community. In this way, information can be acquired easily by the headquarters, the issues can be shared and resolved, and the negotiations become seamless.

Activities carried out to solve problems in collaboration with KMITL are diverse, and areas of involvement range from environment, transportation, business, and agriculture. The topics vary— from the improvement of rice productivity and the protection of mangoes from pests to the improvement of materials utilizing nanotechnology and the promotion of tourism. The collaboration with KMITL for solving regional issues is essential to the Ladkrabang District Office. The close network with each community captures the requests from within the respective community, and when there is an urgent problem to be solved (such as water pollution), the head office accesses the university resources to obtain academic knowledge. In general, community businesses in regional areas are small, and direct access to universities is often insecure. About 80% contact FAM via the Ladkrabang District Office. Community businesses with relatively strong human resources and financial resources are often referred to directly.

#### **Working with FAM**

The Ladkrabang District Office is the coordination point for these activities. Ms. Yui, as the staff member in charge, has been responsible for community support for 23 years, and has a good understanding of all the communities in Ladkrabang area, and she also plays a role in coordinating with universities. On the other hand, the contact point from FAM, who will be related to the industry-university cooperation in the social sciences field, has still not been determined so far. There has also been inconvenience because the person in charge of the cooperation changes when the dean changes. However, in 2013, the Academic Service Center (ASC) was established as an undergraduate organization within FAM, and organizational flow began to be established. Requests from the

community businesses, which are small-scale businesses, were connected to the ASC, with the Ladkrabang District Office as the window for coordination.

As the core element of the organized industry-academia-government collaboration, FAM holds a seminar every year for people in charge of community businesses to contribute to problem solving. The government's budget for community contribution has made its way to the university, and seminars will be held with this source of funding. The contents to be dealt with are decided by the ASC by considering the requests from each community, and are then communicated to the headquarters of Ladkrabang District Office. Seminars are held on a one to three day schedule, depending on the content. In addition to the lecture format, it is practical to learn how to solve problems through case studies and conducting workshops in groups. In the past, pertinent issues within the community, such as product development improvement and packaging methodology, were dealt with this way. In 2019, the program was held at FAM with 25 organizations participating for two days, and it incorporated content to learn more about the online market. It consisted of learning the creation of websites. It was decided that in the next year, content that contributes to the solution of issues, such as improving website access and other requests from the participants, would be included. According to the questionnaire that was sent to the seminar participants by the ASC, the results were generally satisfactory. There are 35 community businesses in the Ladkrabang area with about 300 workers. The connection within each community is also a network based on other people, and there is a strong sense of trust and cooperation within it. Since most businesses are small and uncomplicated, collaboration with universities is desired in the field of social sciences, such as marketing and financial accounting.

The functions and roles of universities in Thailand are defined as education / research / academic services / art and culture, similar to that in Japan. These are not parallel but contribute to the community as academic services through education and research. As mentioned above, they have launched an ASC as an undergraduate school within FAM, and they are conscious of and work toward community contribution in the social sciences area. This scheme, in which Ladkrabang District Office plays a coordinating role between community businesses and FAM, is a natural derivative. The policy is not preceded by a framework, and it is based on the accumulation of actual activity lines to resolve regional issues promptly and accurately.

However, there are issues that need to be improved in the future, by FAM and the Ladkrabang District Office. First is the issue of securing the budget by the university side. A national budget is available for the aforementioned seminars that will be held widely in the Ladkrabang area. However, for the projects that come up individually to the Ladkrabang District Office, it is not possible to charge the expenses to the national budget, and it thus becomes a free service. It was expected that the contribution from paid services, in the form of income, could be increased through direct collaboration with a business entity of a certain size. Since business success on the part of the enterprise leads to the development of the local community, if a university can also receive compensation in the scheme of market economy, the sustainability of the collaboration can be ensured. As far as KMITL is concerned,

the allocation of funds obtained from companies has already been institutionalized. In fact, 90% of the deposit from a company is considered as the research expenses of the relevant researcher concerned. The remaining 10% will be for the university, 5% of which will be allocated to the department to which the researcher belongs.

Furthermore, there were many cases where it was not possible to respond well to FAM's request for solving problems for each community business. Since it is a regional area, there are many cases where there are multiple issues involved, and it does not mean that it is better to teach, in a divided form, only the topics that are related to FAM's domain, such as marketing and accounting. If the business is involved in the primary industry of fishing, an appropriate form of guidance involves not only the process of selling fish, but also the method to continuously breed fish.

As for Ladkrabang District Office, the problem is that the work is concentrated on Ms. Yui, as the focal officer mentioned above. Currently, the situation is that FAM teachers cannot easily contact her as she has a busy schedule. The work related to industry-academia-government collaboration strongly reflects personal factors such as personal experience and networking connections. However, it is still desirable to train multiple employees who can handle the task.

The local government has a characteristically high involvement that is very central. The industry-academia-government collaboration flow, mainly for science and technology development in advanced countries including Japan, was mainly a collaboration between industry and academia. The role of the government was to mainly provide subsidies. However, in areas where development has not been actualized, like the urban parts of rural areas, the closest thing that underpins community life in reality is the local government, which forms the basis of community businesses. The local government's role in industry-academia-government collaboration has been heightened as the administration now has the role of a coordinator. Close communication is enabled by the local office branch that is set up in each community, and the volunteers hailing from these communities who are at the head office. This set up helps give a detailed understanding of every situation.

## **5. Conclusion: features of collaboration in the Ladkrabang region**

This survey aims to show the framework for collaboration of industry, academia, and government for social innovation. The objective of this setup is not to put profits first, but rather to contribute to community development.

In case A, business promotion was aimed at creating community strength, connections were created, leading to increased cooperation. Case B aimed to contribute to the health of the community by providing high quality beverages. Case C aimed at community activity in the development of products using locally produced materials, and at the same time, was conscious of realizing the sustainability of community activity by making efforts to foster this sustainability back to the roots. In Case D, the aim was to contribute to the community through environmental conservation by reusing



the fabric scraps discarded from apparel companies. Case E was aimed at creating a self-supporting community by empowering young people with accessory production. Case F was aimed at promoting community health with tea containing medicinal ingredients.

For community businesses contributing to public interest, KMITL's FAM held workshops in the Ladkrabang area. The details have been described in previous sections.

In higher education institutions that are based in local areas, such as KMITL, it is particularly important to create a regional network to expand technology and knowledge in universities to respond to a regionalized economy. The characteristic of industry-academia-government collaboration in the Ladkrabang area is that the role of the local district office is extremely important. As described above, a close relationship with each community was established as a regional system, and it was possible to interact substantially. One of the reasons was that there was an understanding of the urgency to seriously engage in the sustainable development of the community, which is also the foundation of the local economy, in order to ensure future development of these communities.

At FAM, they used the network of Ladkrabang district offices to understand community needs. Additionally, they held a workshop that contributed toward solving problems based on their needs and maintained contact with the community. The workshop continued to improve its contents to ensure that they were meaningful going forward. Next year, the workshop will be conducted with content revolving around learning online marketing methods, with the aim to contribute to solving problems such as improving the number of website visitors.

The role of higher education institutions in the industry-academia-government collaboration in the social sciences field can be said to fall within the category of "consulting to create a business model that can actualize social innovation." This case sheds light on how industry, academia, and government interact to enable value creation, the dearth of which was pointed out as an issue. Higher education institutions themselves are not necessarily bound by the fixed concept of having to build a unique and precise network with the industry. In that sense, one can say that regional networks are being built with the philosophy of open innovation.

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