

Approach to Overcome the Workforce Shortage of the Northern Thai Tea Plantation

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Abstract

This research investigates the problem of workforce shortage of tea plantations in the Northern region of Thailand. It is the first study to explore the issue. There are two research objectives; firstly, to study the workforce shortage situation in tea plantations in the Northern Thailand, and secondly, to study the approaches to overcome the workforce shortage in these tea plantations. This study was conducted by using the in-depth interviews on eight Assam-growing tea plantations. The results showed that half of the sample tea plantations were experiencing a workforce shortage. This is due to the changing population structure and the changing work values of the new generation who perceive agriculture as hard work. Tea plantations facing workforce shortages have different approaches to solving the problem, including the use of harvesting machinery; developing tea production methods to sell tea at a higher price; the use of job rotation in human resource management; and the employment of foreign workers and ethnic minorities.

Keywords: 1) Workforce shortage 2) Tea plantation 3) Human Resource Management
4) Job Rotation 5) Northern Thailand

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Introduction

Tea is the most consumed beverage in the world after water (Euromonitor International, 2020, pp.1-2). It is a beverage that has long been associated with mankind's history. It is believed that Chinese people were the first to initiate tea-drinking culture before being spread out to various countries on many continents around the world (Van Driem, 2019, pp.100-150). These days there are a lot of people who are now involved in tea businesses. From those farmers who manage their tea plantations to those who work in the wholesaler and retail stores. For this reason, there is plenty of research related to tea products, from research that seeks to improve tea cultivars to research that explores the issues in tea production. These research have the same objective and that is to study and solve problems that may be occurring in the tea production industry with the hope that the business in this industry would be able to continue without being interrupted (Chen, Apostolides and Chen, 2012, pp.1-3).

However, research on labour in the tea production sector is limited. Particularly the research that directly studies workers who work in tea plantations. Most of the research and literature that has been done so far with the study of labour in the tea plantation have a tendency to examine mainly issues related to the welfare and working conditions of tea plantation workers in South Asian and African countries. This is due to the fact that workers in these countries often experience poor living conditions which is the result of the history of tea cultivation that was initiated during impe-

rialism (Makita, 2012, pp.87-107; Krumbiegel, Maertens and Wollni, 2018, pp.195-212). Therefore, when it comes to examining the problem of workforce shortages in tea plantations, there is little literature and research that directly discussed the issue.

Furthermore, along with the issue stated above, the statistical data of Thailand has pointed out that the labour force in agricultural sector is declining (Chantharat, Atthawanich, Sa-ngiamnet, Chenpeungporn, 2019, pp.1-3). As tea production is considered a business in the agricultural sector, this issue needed to be addressed whether or not Thai tea plantations already faced this kind of difficulty. Particularly when there is a gap in the study concerning research and data on the working workforce who work in the Thai tea plantations, the authors of this research have decided to examine further this issue including related problems which might have happened among the labours. The samples of this research were the tea plantations in the upper northern part of Thailand. As tea is an agricultural product that has quite a lot of economic value which means that it is capable of generating income for citizens in many provinces, the authors hoped that examining the current situation as well as the problems may therefore bring more attention from the public to the context. We also hope that the results and findings of this research could, later on, be used as a guideline for planning strategies for the tea production industry in the upper north of Thailand in the future.

Research Objectives

1. To examine the current situation of workforce shortage in tea plantations in upper northern Thailand.

2. To examine the approaches to solving workforce shortage problems in tea plantations in upper northern Thailand.

Literature Review

Tea is a commodity that generates income for people in many countries. Though tea is grown on many continents around the world, most of the production is still in low-income countries (Han, Li and Ahammed, 2018, pp.1-5). Dry tea production involves many complicated steps and requires extensive labour. Especially working in tea plantation, from past to present, the tea plantation owners rely heavily on human labour to harvest the top buds and leaves which will then be processed as raw materials (Moxham, 2003, pp.200-250). On issues related to labour in the tea plantation, research is already being done in many countries. Two studies have investigated the issue of workforce shortages in tea plantations in east Asia; Taiwan and Japan (Hasemi and Ando, 2014, pp.60-65; Arai, 2016, pp.211-227). Other studies examine the welfare issues of the tea plantation workers in South Asian and African countries (Makita, 2012, pp.87-107; Oxfam and Ethical Tea Partnership, 2013; Gupta and Swamy, 2017, pp.431-439; Krumbiegel, Maertens and Wollni, 2018, pp.195-212).

The situations of workforce shortages in tea plantations were already examined in Japan and Taiwan (Hasemi and Ando, 2014, pp.60-65; Arai, 2016, pp.211-227). The research

done by Hasemi and Ando (2014, pp.60-65) reported on the situation of workforce shortages in Taiwan's tea plantations. According to their research, workforce shortage in Taiwan tea plantations was a result of economic development as when the economy was more developed, people have more access to the less labour-intensive jobs which prevented them from working in the labour intensive jobs such as those in agricultural sector. As a result, the number of workers who wish to work in the tea plantation had become less and less. This issue was worsen when more and more cheaper teas were imported from China and Vietnam. Hasemi and Ando (2014, pp.61) examined the number of tea imports into Taiwan and found that in 2001, Taiwan imported 16,547 tons of tea from abroad, which increased to 32,392 tonnes by 2010, with most tea being imported from China and Vietnam. In order to illustrate how cheap the imported tea was can be clearly seen by comparing the average price of one ton Taiwanese tea which was priced \$13,276 in 2008, while the same amount of tea from mainland China was priced \$1,933 and tea from Vietnam was priced \$1,238. As it is shown, the difference is as high as ten times.

With the intention to differentiate the market and increase the value of Taiwanese tea, the manufacturers in Taiwan have adjusted their strategy by producing premium tea for the upper market which requires higher production techniques. This kind of product can be sold at a higher price and created a profit gap greater than that of the relatively lower grade of tea. In their research, Hasemi and Ando (2014, pp.60-65), found that the production of premium tea



can generate higher yields. In their research, plucking tea leaves by human labour can cost as much as 3.5 times higher than using a cutting machine. However, it seems that the traditional plucking method has worth it as it is shown that when being compared with the price, teas that were plucked by hands can make profits as high as 5 times more than the teas whose leaves were cut by machines (Hasemi and Ando, 2014).

Therefore, in Hasemi and Ando (2014) research, tea plantations in Taiwan have chosen human labour to harvest the tea leaves in order to control the quality of the product. Nonetheless, this has led to another problem. Regarding the fact that the current Taiwanese workers do not like to work in the agricultural sector, this has made it even more difficult to find the labours who wish to work as tea pluckers. Although the data has shown that those who work in Taiwanese tea plantations can earn approximately 2,000 Taiwan dollars for a day. This amount of money in fact is higher than working for a whole day in a convenience store. But as agricultural work is perceived as hard work and requires intensive labour, less young generation want to do the jobs. As a result, many tea plantations in Taiwan have faced a workforce shortage throughout the tea harvest season. Some tea plantations were reported to have solved the problem by persuading those Vietnamese and mainland Chinese people who married the Taiwanese to work as a labour in collecting tea leaves for the factories (Hasemi and Ando, 2014, pp.64-65).

Besides Taiwan, Japan is another country that also experienced workforce shortages.

Particularly after the end of World War II, Japanese developers invented machines that would help the tea farmers to collect tea leaves (Arai, 2016, pp.211-227). After the war, the economy of Japan faced a rapid growth rate. The rebuilding of a nation contributed to economic expansion in all industrial sectors. This economic expansion encouraged labour from the agricultural sector to flow into other industries that generate better income (Arai, 2016, pp.211-227). It wasn't until the second half of the 1950s that tea plantations in Japan turned to use scissors to cut the top buds of tea. The earliest scissors were similar to grass clippers. The blade on one side is attached to a net bag for the tea shoots. The scissors became widespread due to the decline number of the labour force.

In addition to the use of scissors, during the second half of the 20th century, the Japanese had made great use of technology and innovation to create labour-saving machines for harvesting the tea shoots. From scissors with an attached net bag had developed into a tea shoots cutting machine that requires manual labour. This would later then evolve into a driver-driven harvester and ultimately an autonomous harvester. As a result of technological development, the harvesting of tea shoots in modern Japan almost no longer requires human labour (Arai, 2016, pp.211-227).

Nevertheless, for some premium teas in high-end market, some tea plantations still rely on human labour to collect the highest quality of tea buds. This practice has resulted in higher tea production costs. However, a lot

of tea plantations that apply this practice can still make profits. The reason can be explained by the very high prices of the hand-plucked tea in Kyoto (Kyoto Prefecture, 2015, pp.1-10).

As can be seen in the above two literatures, Taiwan and Japan tea planters have already suffered the issue of workforce shortage. These tea plantations, however, have used both business strategies and technology to overcome the problems. As a result, tea plantations in both Taiwan and Japan are capable in carrying on their businesses.

As of Thailand, according to the search of literature in similar topics, there are no studies so far that directly examine the problem of workforce shortages in Thai tea plantations. However, as workforce shortage has become a widespread issue, some studies have put an effort in studying this problem. For example, Fongmul (2020, pp.118-125) studied the ongoing workforce shortages in agricultural sector of Chiang Mai Province. The results showed that the average age of agricultural workers is increasing. In this particular research, it was argued that the reason was due to the fact that the number of elderly people in Thailand is increasing whereas the number of young workers is declining. The finding of this research is consistent with the agricultural labour report that was conducted by Puey Ungphakorn Institute of Economic Research and the Bank of Thailand (Chantharat, Atthawanich, Sa-ngiamnet, Chenpeungporn, 2019; pp.1-2), which explained that there is workforce shortage in agricultural sector because there is less and less young workers entering the agricultural labour market. It appeared

that those people who work as farmers these days are the same groups of farmers that have been doing this occupation in the past decade. Moreover, younger generation tend to perceive agricultural work as labour-intensive and relying on high risk as the productivity mainly depends on the environment and the weather (Chantharat, Atthawanich, Sa-ngiamnet, Chenpeungporn, 2019; pp.1-5).

In this regard, this research was devoted to studying the working context of the Thai tea plantation as well as workforce shortage that might be ongoing. All tea plantations in Thailand locate in the provinces of the upper northern region such as Chiang Mai, Chiang Rai, Lampang, Mae Hong Son, and Nan (Mae Fah Luang University, 2018). We perceived that in case workforce shortage was already a problem among Thai tea plantations, then the issue should be addressed urgently. As workforce shortage in tea manufacturing process would indeed negatively influence the whole tea supply chain. Nowadays, the processed tea in Thailand are not only sold for domestic consumption but are also exported for customers overseas. This fact shows that the Thai tea industry can generate income for people in the upper northern provinces. According to the annual report of Department of International Trade Negotiations, Ministry of Commerce (Department of Trade Negotiations, 2020) it is shown that the current revenue from tea export is on the rising. Each year, tea producers in the upper northern region can export tea products more than several hundred million baht per year. If the workforce shortage in the tea plantation is an ongoing problem

then there is a need that it should be addressed quickly. Therefore, our research will examine this issue directly and we do hope that the findings could then be beneficial in terms of workforce management and applied for the better HR practices for the Thai tea plantations for now and in the future.

Methods

The initial step was that we searched for relevant information concerning the literature and research studied on tea plantation workforce in the upper north of Thailand. The

authors used data from Thai Digital Collection, Science Direct, Emerald Open Research, ABI/INFORM Collection, Business Source Complete, Google Scholar and J-Stage databases. Data were searched using the following search terms: “farmers”, “tea plantations”, “Labour”, “labour shortage”, and “workforce shortage” in both Thai and English. The search results did not find any research related to this issue in Thai language whereas two related pieces of literature appeared in Japanese. For research in English, no relevant literature was found.



Picture No. 1 The locations of the eight tea plantations

Source: authors

In addition, the authors conducted additional search for more information related to tea cultivation in Thailand. Only quantitative data related to yields and plantations were obtained. In 2016, Thailand had 47,151 Rai (1 Rai equals 1,600 square metres) of tea plantation, comprising 39,052 Rai of Assam cultivar and 8,099 Rai of Chinese cultivar. Around 80-90% of the country's total production is produced in a single province, Chiang Rai (Mae

Fah Luang University, 2018). The research team, therefore, contacted the relevant government institutions for advice on how to recruit samples for interviews. In this research, the authors have set a requirement that the sample group must be a tea plantation that grows Assam cultivar. The reason is due to the fact that Assam tea plantations tend to grow scattered tea trees and are not planted in rows like in the case of Chinese cultivars. The reason that

explained this could trace back to its history. It is because many Assam tea plantations were indeed developed from abandoned Miang farms, the traditional fermented tea that was used for snacks among the locals in northern Thailand for hundreds of years. Therefore, tea plantations that grow Assam variety are unable to use machinery support in harvesting.

The research team consulted the following government institutions for advice in selecting the sample for the interview. Those institutions are listed as follows:

Tea and Coffee Institute, Mae Fah Luang University, Chiang Rai Province

Chiang Mai Royal Agricultural Research Centre (Mae Chon Luang), Chiang Mai Province

Chiang Mai Royal Agricultural Research Centre (Khun Wang), Chiang Mai Province

Chiang Mai Agricultural Research and Development Centre, Chiang Mai Province

The authors chose to consult the above institutions as they are directly responsible for the research and development of tea cultivation in Thailand. These institutions are run by personnel with extensive knowledge and experience in tea cultivation and therefore have an access to the information of farmers who planted tea.

By consulting the government institutions above, we received a list of 11 tea farmers. The authors contacted the farmers to inquire about their convenience and readiness to provide information for the research. Eight tea plantations agreed upon being interviewed for the research purposes. The locations of these tea plantations are as shown in the list below.

1. Tea Plantation A is located in Wiang Pa Pao District. Chiang Rai

2. Tea Plantation B is located in Wiang Pa Pao District. Chiang Rai

3. Tea Plantation C is located in Wiang Pa Pao District. Chiang Rai

4. Tea Plantation D is located in Mae Taeng District. Chiang Mai Province

5. Tea Plantation E is located in Mae Fah Luang District. Chiang Rai

6. Tea Plantation F is located in Mae Fah Luang District. Chiang Rai

7. Tea Plantation G is located in Mae Ai District. Chiang Mai Province

8. Tea Plantation H is located in Mueang Pan District, Lampang Province.

The authors collected data using in-depth interview method. Semi-structured questions are designed by using the open-ended questions for gathering further information. The researchers designed the questions based on information presented in the research by Hasami and Endo (2014) and Arai (2016) that investigated the workforce shortage issues in Taiwanese and Japanese tea plantations. Before the interview starts, the authors collected the basic information of the tea plantation, the history of the tea cultivation and the number of workers in each tea plantation. Then the authors began asking questions related to the working conditions in the tea plantation and factory, workforce shortage, and their solutions to the problems.

All interviews were conducted between April 2019 and April 2020. Interviewed participants were farmers who owned and managed tea plantations. The interviews were



conducted at their tea plantations. The information of the interview is noted in a word file format. The research team then analysed the details of the interviews. Information is divided into categories according to the research objectives. The content of the interview was divided into basic information about the tea plantation, the working context of labour within the tea plantation, and various methods used by tea plantations to solve the problem of labour shortage which are presented in the result section of this study.

Results

The situation of workforce shortage and its effects

According to the interviews with eight tea plantation farmers, it was found that workforce shortages occurred in only some tea plantations. Four tea plantations reported that they faced difficulty in recruiting the workforce, this number accounted for 50% of the tea plantations being interviewed. The tea plantations facing workforce shortage were plantation A, B, C and D, whereas the tea plantations that did not face workforce shortage were E, F, G, and H, respectively.

After analysing the characteristics and the locations of the tea plantations being surveyed, the authors found that those plantations that faced labour shortage were relatively closer to town and civilised cities compared to those that did not face the labour shortage issue. These tea plantations are all owned and managed by either the northern Thai people (of Lanna descent) or those of Chinese-Thai descent. While the tea plantations that did not

face labour shortages are all located in remote areas. These tea plantations are usually owned and managed by those who belong to the tribes and ethnic minorities.

In interviews with tea plantations A and B, it was revealed that workforce shortage has been a problem for more than a decade. In the past, the workers who harvested the tea leaves were villagers who lived nearby. Most of them were women in the village who had no other occupations other than being housewives. When they had spare time after finishing their own housework, they would come and work part-time as tea pluckers. The problem began when fewer and fewer of these villagers participated in tea plucking. People who used to do this job in the past are now too old to do the work while those who are still young do not have an intention to work in the agricultural sector even for a part-time work. For younger people, working in larger cities and having a life there has become their new ultimate goal.

“Right now, no one wishes to come to do this work anymore. In the past, there were housewives who had free time so they came to be the tea pluckers. But now there's no more. Everyone is old. And young people don't want to do it. After finishing high school here, they would go to other cities like Lampang, Chiang Rai, Chiang Mai. If you want to find someone to work in the tea plantations, you have to recruit Tai-Yai.” (Mrs A, personal communication, April 9, 2019)

“The worker who stayed with me the longest was ten years. The shortest was three months or five months. Now the workers have many choices. They come here to do the job

but if they didn't like it they would just go. They have options." (Mr B, personal communication, April 9, 2019)

"I can't find any Thai worker. Thai people do not want to do it. So I hired Burmese people. But I'm doing it all legally. I hired them and take care of them, letting them live on the farm, eat, live, and sleep on that farm. I have built all the accommodation for them." (Yawirach, personal communication, May 4, 2019)

"In the past, we had more than twenty tea pluckers a day. It's about twenty years ago. All were the old generations. Recently, the new generation do not want to do it. They would go out of town to work. With no people to do the job, our production falls. That's why I needed to recruit people from other places." (Kiatkarun, personal communication, April 17, 2019)

Furthermore, in the case of tea plantation C, which is located in Wiang Pa Pao district of Chang Rai, reported that by the time of the interview, the tea plantation had only Tai-Yai and Burmese workers. As for the Thai workers who lived in the village, there was no one left. The reason is that those workers who used to work in tea plantations in the past are now getting old. And the new generation prefer to work in the city. Young people are not interested in agriculture, particularly working as labour in the agricultural sector as the job itself has been perceived as a labour-intensive job. The situation was similar to that of tea plantation D at Mae Taeng district, Chiang Mai province. In tea plantation D all the workers were Hmong people. Only the plantation owners and managers were of Thai-Chinese descent.

In addition, the tea plantations above also provided additional information that young people in their community usually receive their education up to secondary school from the local schools. After finishing high school, most of them would travel to larger cities in order to pursue higher education. And when they get the degree, they would also find jobs there. They would come back to visit their family only during the holidays. And for young people who chose to stay inside the town even after their high school graduation, these people would find more comfortable jobs with a more comfortable working environment. Therefore, the new generation does not like to work on the tea plantation. There are no Thai workers in plantations A, B, C, and D. All of them are Tai-Yai, Hmong and Burmese people.

However, the situation in tea plantations that have not yet experienced a workforce shortage is a different story. These tea plantations share the characteristics with one another in the sense that all of them are located on high mountains and deep in the forest. The journey to these plantations from the city centre is a long and daunting distance. Three among four are located among ethnic minority communities. The details of each tea plantation are as follows.

The locations of tea plantations E and F are near the border between Thai and Myanmar in Mae Fah Luang district of Chiang Rai province. In the village, there was a cohabitant between the Akha tribe, the Muser tribe, and the Lisu tribe. Assam tea has been cultivated there since twenty years ago. Most of the tea productions here are dedicated to

domestic consumption, mainly used as the raw materials for ready-to-drink tea in Thailand.

Tea plantation G is located on a high mountain range in the territory of Doi Pha Hom Pok, in a deep forest near the Thai-Myanmar border, Mae Ai district, Chiang Mai province. Over there was a small community of the Lahu tribe who migrated to Thailand more than half a century ago. Assam tea trees have been planted there for more than four decades. It was the Royal Project that recommended them to plant tea to reduce opium cultivation.

Tea plantation H is located in the jungle of Chae Son National Park, Mueang Pan district, Lampang province. It is a small village of Thai Lanna people who migrated from the lowland two hundred years ago. The tea trees here were originally harvested for the purpose

of making Miang, the fermented tea that was used for snacks for Lanna people in the past. However, as the number of people who eat Miang nowadays is declining, those tea trees that were used for Miang were renovated into tea plantations.

In the four tea plantations above, only plantations E and F have a processing tea factory. The tea products here are low-grade tea leaves that were mainly used for ready-to-drink tea production.

On the contrary, tea plantation G which locates in Doi Pu Muen in Mae Ai district does not own any medium- or large-scale factory. The villagers there normally sell fresh tea leaves to the Royal Project's factory on the lowland in Fang, not far away from Mae Ai.



Picture No. 2 Assam teas being planted in rows to prepare for the machinery harvest

Source: For the purpose of publishing this research only (Yawirach, personal communication, May 4, 2019)

As of tea plantation H, it is located in Chae Son National Park, Lampang. Fresh tea leaves are wholesaled to tea processing factories in Wiang Pa Pao district, Chiang Rai. The working pattern in harvesting tea leaves at tea plantations G and H are similar in the sense that the villagers are likely to cooperate. For instance, if any family is free from housework or personal work, they will help the neighbour to harvest tea leaves. The revenue from the sold leaves then will be divided and shared among the plantation owners and their neighbours (the helpers) based on the weight of the fresh leaves being harvested each day.

At tea plantations E and F, the villagers who live inside the village are usually hired to do the tea plucking job. Even though the tribes in these four tea plantations are different, the working patterns are the same as in tea plantations G and H.

The four tea plantations above reported that they did not experience a workforce shortage. Furthermore, they did not have any plan for preparation for any workforce shortage that may rise in the near future.

Approaches to solving workforce shortage in tea plantations

Because the second objective of this research is to study approaches to solving the problem of workforce shortage in tea plantations, the four tea plantations (A, B, C, and D) that reported the experience of workforce shortage were therefore interviewed further on issues related to the approaches and strategies being used to overcome this issue in their tea plantations. According to our in-depth interviews with the tea plantation farmers, it was

found that each tea plantation has different approaches to solving the labour shortage. These four plantations reported not using only one single method, but rather employing some or the combinations of the approaches altogether to overcome the issue. The approaches being employed can be categorised into four groups as follows.

The use of harvesting machinery and planting tea trees in rows for convenient harvest

The uniqueness of Assam tea plantation is that each tea tree was planted randomly on the land. It is because many Assam tea plantations were in fact developed from abandoned Miang plantations that were used for the cultivation of Miang in the past. In some tea plantations that the authors interviewed, namely plantations A, B, C, D, and H, the tea bushes are decades-old. Particularly in plantation C where the current owner is the fifth generation reported that some of his tea trees were planted over a hundred years ago by his ancestors. Among these five tea plantations, the information is consistent in the sense that these Assam tea trees were not planted originally for the purpose of tea processing, but rather for the production of Miang, the traditional fermented tea leaves used for snacks for Thai-Lanna people in the past. Harvesting tea leaves for Miang production in the past was a manual job like that of tea production nowadays but leaves that are suitable for Miang are leaves that already matured, not young leaves like in the case of tea. Since the era of Miang production, sometimes new tea trees would be planted to replace the dead tea trees and



the cultivation areas would be recognised as “Rai Miang” and “Pa Miang” which refer to “The Cultivation of Miang” and “The Forest of Miang”, respectively. This is the unique characteristic of the Assam tea plantation which is different from the case of the Chinese cultivar plantation that was planted in rows which is more popular in the present era.

The original Rai Miang that was developed into tea plantation usually possesses old tea trees that sometimes are more than a hundred-year-old. These old tea trees still provide a stable yield and usually are harvested to process their leaves into dried tea similar to the younger tea trees that were newly planted. However, in some Assam tea plantations, namely plantations A and C, the new tea plants were now planted in rows like in the case of Chinese cultivars to support the use of machinery for harvesting. These two plantations reported that they utilised the style of planting Chinese tea just in case there are not enough workers in the future. This practice can be seen as one approach of the Thai tea farmers in trying to overcome the workforce shortage problem. In fact, as it has become more and more difficult to recruit tea pluckers nowadays, plantations A and C have now bought some tea-harvesting-scissors to assist the workers in harvesting tea shoots.

Developing the production process to make the higher quality tea

Tea plantations A, C, and D that reported to be experiencing labour shortages also reported having improved the tea processing method to produce higher quality teas and sell them at higher prices.

These three tea plantations stated that controlling the tea plucking can enhance the quality of the plucked leaves which will then relate to the quality of the finished products. They also reported that this practice allowed them to be able to sell their teas at higher prices. By specifying the quality of tea leaves and processing methods, the finished products can satisfy the demand of some high-end customers. However, the difficulty of this type of tea is that it needs to be plucked only by human hands. Moreover, the making process also requires experienced, and highly skilled workers who understand the taste, and the development of the tea fermentation. In tea plucking process, the more experience the workers have, the faster and more efficient they would be able to work. In these three plantations that reported to adopted this approach stated that their tea leaves are still plucked by human hands. The advantage of this approach is that when teas are sold at higher prices, tea plantations make more profit and those profits enable them to increase the wage for the tea pluckers to ensure the quality of the tea leaves. It also makes sense to hire tea pluckers at a high price to harvest the best tea shoots in order to make high-quality tea.

However, in tea plantations A and C, apart from producing higher quality teas, there is another group of workers who harvest the tea leaves by using machines. These tea shoots will be specifically used to produce cheaper tea, such as tea leaves for making milk tea or ready-to-drink bottled tea.

Managing human resources through job rotation

This solution was found in just one of the four tea plantations that reported to be experiencing workforce shortages according to our interviews. Plantation D reported to use job rotation to help them manage the limited number of employees by assigned each employee the different tasks throughout the year.

The advantage of job rotation is flexibility. Plantation D reported that one worker does not need to perform only one specific task all the time, but rather has opportunities to perform other tasks within the tea plantation. Because in plantation D, there are not only factory and plantation, but restaurant and tea shop are also operated. This means that employees who work there have to rotate their job positions from time to time. For example, employees who work in the tea shop can go help plucking tea shoots in case there are not enough people to do the job. The case might happen with those who work in the restaurant that when there are fewer customers, they may go sorting the quality of dried tea leaves before delivering the products to wholesale customers.

However, this particular human resource management practice was found in only one case of the interviewed sample. In other tea plantations, the employees who work in both tea plantations and factories have separated duties and do not usually cross over. Even the employees whose job duty is to mow the grass need to do the same job throughout the year. As in Thailand, the weather is relatively warmer, so the grass tends to keep growing.

Once mowing the grass in the whole tea plantation is completed, the grass in the area that was first cut would have grown long enough so that the next round of mowing needs to immediately begin.

Nevertheless, it should be noted that the work in tea plantations and processing factories usually stops during December and March. This period is the dry season in Thailand and hence there is fewer rains than usual. Tea trees will stop growing new shoots during this period. Some tea farmers call this period as the hibernation season of the tea tree. During this period, the factories and tea plantations will be closed. There will be no jobs. Most of the workers will be resting, staying at home and lacking income during this period. The tea plantation will only have a few employees left to guard the tea plantation and the factory. As for the tea plantation, fertilizing, and pruning, are the main maintenance to keep the tea plant healthy, strong, and be ready for following season's harvest.



Picture No. 3 Assam teas are usually planted randomly

Source: authors

Recruiting Burmese and ethnic minority workers

Four tea plantations that faced labour shortage issue reported recruiting workers from ethnic minorities group and Burma. In tea plantations A and B, workers from Tai-Yai ethnic group are employed, whereas tea plantations C employed Burmese and Tai-Yai, and tea plantation D employed Hmong people.

As for the wages that the plantations paid to their workers, interviewed samples reported to ranging from 300 baht per day up to 500 baht per day. Some workers who are skillful in tea-picking are paid as high as 500 baht because they can harvest more than 20 kilograms of tea leaves in a single day. In the case of new workers, the wages start from 300 to 350 baht depending on the agreement between them and the tea plantation. In this case, the workers are also expected to be able to harvest more than 10 kilogrammes of tea leaves. It is also reported that in common case,

the average amount of tea each worker can pluck is up to 16 kilogrammes per day.

As for tea plantation C, Burmese workers are legally employed. They are paid 400 baht per day. All the workers are provided free accommodation on the farm and registered for social security for migrant workers. However, in other tea plantations, social security is not provided to the workers.

Conclusion and Discussion

The authors summarised and discussed the results in accordance with the research objectives as follows.

Firstly, as this research intended to examine the workforce shortages that might occur in the northern Thai tea plantations, the authors concluded that labour shortage has already been an issue. Nevertheless, not all tea plantations faced this issue according to research findings.

Secondly, tea plantations that already experienced labour shortages have adopted various approaches to solving the problem. As summarised in the result section, tea plantations have used some or the combination of these approaches together to ensure that the amount of labour is sufficient for the work in the plantation.

In addition, by comparing the result of this study with that of Hasami and Endo (2014) and Arai (2016), the authors concluded there are some similarities among these research. Firstly, it was found that the situation in labour shortage in Thai, Japanese, and Taiwanese tea plantations is similar in the sense that the tea farmers are unable to find sufficient amount of labour. This insufficient amount of labour has caused the problems because the amount of labour is less than the amount of work available. Thai and Taiwanese tea plantations adopted the approach to recruiting foreign workers to solve this issue. In case of Taiwan, workers who are of Vietnamese and Chinese descent are hired to be the tea pluckers (Hasami and Endo, 2014, pp.64-65), whereas in the case of Thai tea plantations, workers from Burma and other ethnic minority groups, namely Tai-Yai, Lisu, Lahu, and Hmong are employed.

Besides, some approaches being used by Thai tea plantations are also similar to the study of Arai (2016) which studied the cases of Japanese tea plantations. In the case of tea plantations A, B, and C some machines are used to assist in harvesting the tea leaves like in the case of tea plantations in Japan.

In sum, strategies in overcoming workforce shortage for tea plantations A, B, C, and

D can be categorised into four groups: namely, using of harvesting machinery and planting tea in rows for convenient harvest, developing the production process to make the higher quality tea, the use of job rotation, and recruiting Burmese and minority workers.

Furthermore, the authors have discussed the advantages and disadvantages of the above strategies as follows:

Firstly, by comparing the findings of Hasami and Endo (2014) and Arai (2016) with this study, the authors perceived the potential of using harvesting machinery that it could be a long-term solution to the workforce shortage in the future. Since controlling and operating a machine is a routine job, workers do not need to constantly learn new skills all the time, which means that once the worker has learned how to operate the machine, then they can keep working with that machine on a regular basis. And by operating these machine, the workers can collect large amounts of tea leaves in a short period of time. To make the comparison clearer, in this study we have found that a single experienced worker can harvest approximately twenty kilogrammes of tea leaves in a day whereas two workers holding a machine to harvest the tea shoots can collect up to four hundred kilogrammes of tea leaves in an hour according to Arai's (2016) research.

However, harvesting tea shoots by machines can be a challenge for some tea plantations. Because tea plants that can be harvested by using the machines must be planted in rows. When it's time to harvest, the workers who wish to harvest tea leaves by



machine need to walk and carry the harvester by using blades to cover the tea bushes so the tea leaves could be cut. The blade then will cut the young shoots of the tea leaves and the wind from the dryer then will be blown so that tea shoots will be moved into the large net

bags. Although some Assam tea plantations that we interviewed have initiated planting the tea plants in rows, it still takes time to wait for the tea plant to mature before.

Table No. 1 Approaches to solving labour shortage in tea plantations (Source: authors)

Plantation	Approach	Time to see the results	Suitable for	Barriers
A, B, C	Use of machinery to assist harvesting and planting in rows	Long-term	Limited workforce	It takes many years for tea trees to mature enough for harvesting
C, D	Developing the production process	Long-term	Tea farmers have knowledge and experience in tea processing	Require investment in terms of practices and resources
D	Job rotation	Short-term	Flexible, low-skilled jobs	Not suitable for high skill jobs
A, B, C, D	Recruiting the Burmese and ethnic minority workers	Short-term	Jobs that focus on labour, no use of high skills and communication	Not suitable for jobs that require high skills and communication

It can be harvested. The standard time from planting to maturity is 5 years, so this strategy is a time-consuming approach. However, it can be argued that this approach is quite a good investment in the long run. Because once the tea tree is fully grown, farmers can use the machine for harvest as long as they operate the business.

The second approach that tea plantations in our study used to overcome workforce shortage is to develop the production process to improve the quality of finished teas. This strategy helps tea farmers to sell their products at high prices. However, there are several concerns that the authors would like to address.

The difficulty of this approach is not

only the control of the fresh leaves quality, but also the complexity of the processing method. As high quality teas need complex production process that requires the experience of tea makers to produce teas that are excellent in terms of body, taste, and aroma. This strategy, however, is similar to the case of Kyoto tea plantations in Japan (Kyoto Prefecture, 2016), where high-quality teas are still harvested by human hands. Though high-end tea is respected by the customers, but the complexity in the manufacturing process prevented many farmers from entering this market. Because high quality teas do not only require careful selection of tea shoots, it also means that the skills and technology used in production is necessary.

Moreover, adopting this strategy also requires the specific marketing plan as tea can be sold in wide range of market. Tea farmers that are familiar with selling cheap teas need to learn how to sell high-end teas to the more demanding customers. It is a fact that each type of tea has a different group of customers. Therefore, if farmers do not have the resources in this area, it is difficult to implement such strategy to deal with labour shortages.

Furthermore, as for exercising job rotation to manage the workforce in tea plantation, though it was found that only one tea plantation adopted this method, it is still considered possible to apply this approach to other tea plantations that face workforce shortage in the future. However, considering the characteristic of plantation D, it is quite obvious that this plantation is able to use job rotation because it operates many businesses which allow them to let the employees rotate through various job tasks.

Nevertheless, for tea plantations A, B, and C, the diversity of work within the tea plantation was relatively low. Because apart from working in tea plantations and factories, there are no other jobs. There are no tea shops or restaurants to allow employees to take turns working. Therefore, each employee has only one full-time duty. In this case, job rotation was not found to be a solution to the workforce shortage in tea plantations A, B, and C.

The last approach that was used among tea plantations in this study is the employment of workers from ethnic minorities and from neighboring country, namely, Burma. This approach is similar to the case of

tea plantations in Taiwan in Hasemi and Ando (2014, pp.60-65) research that mainland Chinese and Vietnamese who married and living in Taiwan were employed. We concluded that this approach might be another approach that tea plantations can pursue if they face workforce shortages in the future. However, we suggest that tea farmer should study the laws of employment, as well as regulations regarding to social welfare particularly for foreign workers.

Besides, as working in tea plantation is labour-intensive, it is essential that tea farmers should manage their workers with regard to both legal and humanitarian principles. However, working in the tea plantation is a task that does not require intensive communication. Most of the responsibilities are routine tasks that have to be repeated over and over again. If farmers are able to provide the basic knowledge, as well as provide job training and transfer skills to workers that might already be enough for the context of working in the tea plantation.

Limitations

This research examined only tea plantations that grow Assam cultivars. Therefore, the Chinese tea plantations were out of the scope of this study. For reasons stated in the methodology section, Assam tea plantations usually planted tea trees randomly. This is due to the fact that many Assam tea plantations were developed from Miang plantations. This resulted in difficulty in using machinery to save labour in harvesting. In addition, this study collected data by interviews with only eight tea plantations. Therefore, it lacks the ability



to generalise the results to the large population. As for the direction for future research, the author suggested that future research may explore the issue of workforce shortages in tea plantations by using a mixed research method. This may include expanding the number of samples, for example, quantitative data collection may be used to get an overview of how much tea plantations in Thailand are experiencing labour shortages and what problems the current farmers urgently need government

assistance. In addition, specific studies on labour-related issues may be undertaken. For instance, to study the welfare of workers in tea plantations might also be interesting because the majority of the workers are foreign workers and minorities.

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