

THE EFFECTS OF LABOR SHORTAGE IN AGRICULTURE ON ECONOMIC AND SOCIAL ACTIVITIES AT NYAUNG PIN ZIN VILLAGE, SAGAING TOWNSHIP*

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Abstract

Labor is one of the components of agricultural production. The agricultural sector is facing the problem of labor shortage in Nyaung Pin Zin village. This study aims to find out the effects of labor shortage in agriculture faced by the farmers in Nyaung Pin Zin village. This research argues that labor shortage encourages the increasing the labor wages. Both qualitative and quantitative methods were applied in this research. The fieldwork was done from 2022, November to 2023, September. It was found that the demand for labor exceeded the supply and reached its peak during the time of transplanting, weeding, and harvesting. Farmers underwent the effects of labor shortage in agriculture especially on economic activities and social activities of the farmers. This study also revealed the strategies to overcome the labor shortage in agriculture. However, these strategies cannot properly solve the problem of labor shortage in agriculture at Nyaung Pin Zin village.

Keywords: labor shortage, aging farm operators, farmers

Introduction

Labor is an important input into the production and distribution of agricultural commodities and products. Although labor is a key mechanism of agriculture, labor shortage has been faced in all agriculture of the world recently. The term “labor shortage” means sustained market disequilibrium between supply and demand in which the quantity of workers demanded exceeds the supply available and willing to work at a particular wage and working conditions at a particular place and point in time (Barnow et al., 2013). According to Trendle (2008) as cited in Belton et al. (2021), production of lower quality output, lower productivity of workers and machinery, higher wages, and the economy settling into a low-skill equilibrium and lower economic growth as it misses opportunities can also be recognized as consequences of labor shortage. Martin (2007) stated that labor shortage in agriculture, 20 percent of American agricultural products were stranded at the farm gate in 2006, including a third of North Carolina cucumbers, and predicted that crop losses in California would hit 30 percent in 2007. Myat Thida Win et al. (2020) explained that Myanmar’s agricultural sector is increasingly faced with labor shortages that have caused real wages to spike in many rural areas, particularly during peak seasons. She pointed out that rising labor costs have reshaped the structure of agricultural production in Ayeyarwady Delta. This research aims to find out the effects of labor shortage on the economic and social activities of the local people and strategies to solve the problems of labor shortage in agriculture at Nyaung Pin Zin village, Sagaing Township.

Research Method

To understand the effects of labor shortage, qualitative and quantitative research methods were conducted. Qualitative method was used to collect data and get the local’s perceptions, opinions, behaviors, and feelings on labor shortage in agriculture by using observation,

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participant observation, key informant interviews (KII), in-depth interviews (IDI), and group discussions (GD). And quantitative method was also used to analyze the supply-demand gap of labor in agriculture. The fieldwork was done from 2022, November to 2023, September. The study population is the village administrative leaders, village elders, and land surveyors of the village, school teachers, farmers, agricultural laborers (including skilled and unskilled laborers), non-farm laborers and machine owners. During the study period, the numbers of 43 informants were interviewed.

The observation was done by walking around the village to observe the agricultural activities, livelihoods, and farmlands. It also allows the knowledge of how to ask various questions about agriculture. Then, participant observation was conducted to get the rapport and interactions between farmers and laborers. In addition, it supports the understanding of social relationships and social roles of farmers and laborers. Key informant interview (KII) was used to obtain a general overview of the background of the village, occupations, and agriculture and to select informants for the in-depth interview. Key informant interviews were conducted with the village administrator, elderly persons, and farmers. In-depth interviews (IDI) were used to gather a deep understanding of the process of agricultural activities, agricultural risks of farmers, strategies to overcome the problems of agricultural labor shortage, and their feelings, values, and perceptions. Group discussions (GD) were frequently conducted with the farmers, agricultural laborers (including skilled and unskilled laborers), and machine owners to share their experiences, opinions, and practices. The secondary data from the internet, journals, articles, and books were used to gather the relevant data. For the data collection tools, a notebook, and audio recorder were used. During the interview, recordings and photos were taken after asking the informants' permission. The study site is Nyaung Pin Zin village, Sagaing Township and it is located 7.9 km from the west of Sagaing city and bordered with *Pekatoe* (ပဲကတိုး) ward of the Sagaing city on the east, *Myin Hmway* (မြင်းမွေး) village on the west and farmland (*Yar Myay*- ယာမြေ) on the north and paddy land (*Lal Myay*- လယ်မြေ), and silty land (*Kai Myay*- ကိုင်းမြေ) are on the south respectively (see appendix 1). The area of the village is 852 acres (345 hectares). According to the data of the village administrative office, there are 256 households and 1115 total population in Nyaung Pin Zin village (December, 2022).

In this research, firstly the agriculture in Nyaung Pin Zin village is explained. Then the effects of labor shortage on the economic activities and social activities are illustrated. After that, the bad effects of labor shortage on the profit of the agricultural business and the responses to labor shortage in agriculture are discussed. It is concluded that although the farmers solve the problem of labor shortage in different ways, they cannot effectively solve it.

Agriculture in Nyaung Pin Zin village

Agriculture is the main business of Nyaung Pin Zin village to earn income and fulfill the food supply. There are three types of land used in agriculture: paddy land (*Lal Myay*- လယ်မြေ), farmland (*Yar Myay*- ယာမြေ), and silty land (*Kai Myay*- ကိုင်းမြေ). The 592 acres (240 hectares) of land are used for agriculture and it is about 69.48% of the land of the village. According to the field survey conducted in 2022, it is known that 63 % of households own land whereas another 37% are landless (see figure 1). There are 329 agricultural laborers and it includes not only landowners but also landless laborers. In the village, two types of agricultural labor are family labor and hired labor in the village and out of the village. And farmers applied these two types of

labor. However, farmers usually used family labor in less labor-intensive operations such as land operations, irrigation, application of fertilizers and spraying insecticides, and so on.

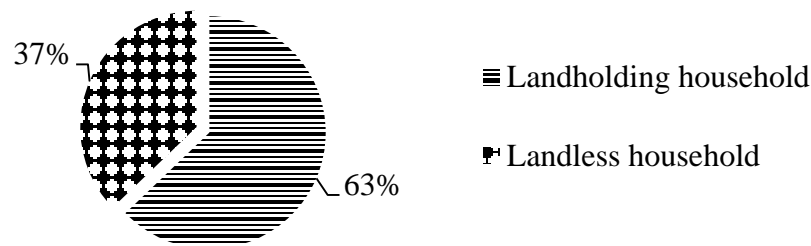


Figure - 1: Land ownership status of Nyaung Pin Zin village in 2022

Rice and sesame, groundnuts, chickpeas, and mung beans are the main cash crops that are grown in Nyaung Pin Zin village (see appendix 2); the yields are locally consumed while the surplus is sold to other regions, especially Sagaing and Mandalay. Moreover, vegetables such as tomatoes, long beans, eggplants, and okras are grown in small amounts for family consumption and to get extra income. Sorghum and corn are also grown as food for the herds.

The paddy land is located in the lowland on the south of the village, and it is wet and muddy since the water from the Ayeyarwaddy River enters. Rice can mainly be grown on paddy land and there are 354 acres (143 hectares) of land. Farmland is located on the north of the village where the water from the river does not enter. It mainly depends on the rain water and crops can be grown only when it rains. There is an area of 159 acres (64 hectares) where sesame and chickpeas are mainly grown. On the south of the village, there is silty land, alluvial soil, an area of 79 acres (32 hectares), and groundnuts and mung beans are grown there. The water from Ayeyarwaddy usually enters in the paddy land and silty land from June (*Nayone*- နယုနီ) to September (*Tawthalin*- တောသလင်း), so crops can only be cultivated after the water has receded.

There are many causes for labor shortage in agriculture at Nyaung Pin Zin village. Agricultural tasks have to be done depending on the weather and it is not sure to get the profit. Moreover, there is no daily income and the tasks have to be carried out under the sun. It can reduce the supply of agricultural laborers. On the other hand, the supply of agricultural laborers reduces since the local people do non-farm jobs. Non-farm jobs are attracting the local people and there are fewer agricultural laborers. In 2022, 56.2% of working people did non-farm jobs (services, construction, trade and so on). In addition, the opening of Sagaing University in 2011, the local people worked as construction workers such as masons, carpenters, and iron benders. Founding the university offers more opportunities to get an education and the local people prioritize the education, so there are fewer laborers from the family workforce to do agricultural business. Moreover, the new generations do not want to succeed in the family agricultural business and the family workforce has decreased. There are two types of labor shortage; quantity shortage and skilled shortage in Nyaung Pin Zin village.

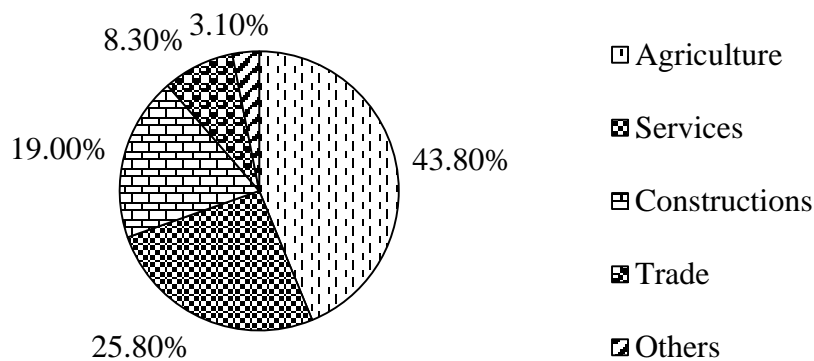


Figure - 2: Percentage of population by type of occupation in Nyaung Pin Zin village in 2022

Figure- 2 shows the percentage of population by type of occupation in Nyaung Pin Zin village in 2022. According to the field survey conducted in 2022, for the numbers of people who do different types of jobs, 43.80 % of the working people did agricultural work whereas 25.80% did in the service industry. Moreover, 19% of the people did construction, 8.30% did trading and 3.10% did others. It can be found that more than half of the laborers are engaged in non-farm jobs.

In addition, it was found that the total demand for man-hours was 80157 man-hours in April but the total man-hours of agricultural laborer in the village in a month was 32,900 man-hours (see appendix 3). So, the supply-demand gap of man-hours in April was 47257 man-hours (see appendix 3). Therefore, the supply-demand gap of laborers in April was 472 and local farmers faced the problems of labor shortage, especially during the months of April, November, January, and December (see appendix 3). In those months, the demand for labor exceeds the supply of labor. Furthermore, the farmers look at the instructions for the agriculture in *Thingyanza* (သင်္ကြန်စာ) and follow the written instructions. *Thingyanza* (သင်္ကြန်စာ) means a bulletin predicting the time of transition into the New Year and climatic and crop conditions to be expected in that year (Myanmar-English Dictionary, 2014). Therefore, the time and period for farming operations are the same and a lot of laborers are needed at the same time. Thus, the supply of agricultural laborers is not sufficient in Nyaung Pin Zin village.

Effects of labor shortage on economic activities

The shortage of labor causes delays in agricultural activities (e.g. preparing the land, weeding, applying insecticides and boosters, and harvesting) during times of high demand for labor. Besides, it can harm the time for cultivating subsequent crops, reduce the yield of crops and can harm the income of farmers. A 54-year-old male farmer who grows rice talked about the shortage of labor and the loss for not harvesting on time;

"I have to postpone the date to harvest since I cannot hire the laborers. The next day, the hailstorms fall and one-third of the rice is lost. Therefore, I hire the laborers earlier in advance since I am afraid that I might lose the rice if there are hailstorms. The field is harvested before the rice becomes ripe. Harvesting like that can reduce the yield, but it is better than getting lost because of hailstorms."

Hence, the shortage of labor does not directly affect the yield, but indirectly affects because of the weather.

Increased wages

During the high labor-intensive seasons (weeding, harvesting, etc.), the farm wages are increased than in other less labor-intensive seasons in the village. For example, the laborers asked for 5,000 *kyats* per day (75,000 *kyats* per acre) even though the groundnut weeding fee is normally 4,000 *kyats* (60,000 *kyats* per acre). It is said that “While the laborers are building the big houses, the farmer stays with an empty stomach”. It means that the farmers have to spend a lot of capital including wages, but it is not sure that they get the profit. In the year when they have a loss of profit, although the farmers get into trouble, the laborers get increased wages without costing the capital. A 64-year-old male farmer said that there are a few laborers who do agricultural work and they are hired competitively. Those laborers ask for increased wages and the farmers have to pay the wages as the laborers ask although they do not want. However, it is still difficult to hire laborers despite the increase in wages.

On the other hand, the farmers pay the laborer’s wages in advance since the laborers borrow the money when they need it so that they can be hired easily. In this way, laborers can settle for the debt with their physical work. Besides, farmers give produce from their farms (groundnuts, chickpeas and so on) and clothing to laborers as present. In this way, the laborers are willing to do their work. If not, it is not easy to hire them. One of the solutions to solve the shortage of labor is to hire laborers from outside of the village. During times of high demand for laborers such as weeding and harvesting times, laborers from outside of the village are hired. The farmers who hire laborers from outside of the village pay transportation fees in addition to the wages.

Mechanization

Local farmers explained that they also use farm machines to solve the problem of the shortage of labor. According to the field survey conducted in 2022, there were about ten tractors in Nyaung Pin Zin village. Farmers who own many farmlands purchased the farm machines and also hired other farmers. It is learned that farmers hired harvesters instead of laborers in harvesting. Although the shortage of labor decreases for using the harvesters, the harvesters harvest only one foot of the tip of the paddy and the farmers get a little hay for animals and the yield is reduced since all the seeds cannot be taken. Threshers are used to make the chickpeas and mung beans clean. Labor, time, and energy can be saved by using those machines. However, the farm mechanizations are used just for some work and they are not used for all work due to the expensive of farm machines and preferring the traditional techniques than farm machines. Therefore, the human workforce is still used for rice cultivation, weeding, spraying fertilizer and insecticides, harvesting crops, taking groundnuts, and cleaning the crops. As a result, the labor shortage is still faced by farmers. Therefore, farmers shifted from high labor-intensive crops to less labor-intensive crops to reduce the shortage of labor.

Shifting to less labor-intensive crops

Especially, instead of groundnuts and rice, mung beans which need a few laborers are substituted starting from 2017. A 57-year-old male farmer said;

“In the past, mung bean did not get high prices and it was planted around the groundnut field just to feed the cows. After 2017, it was exported and it got a high price. Some farmers started to grow mung beans since it got a high price and there was a shortage of labor to harvest the groundnut.”

Before exporting to foreign countries, one basket (32.65 kg) of mung beans gets only 15,000 kyats, but the price rises to 60,000 kyats (2022) for a basket after exporting. Moreover, mung bean is planted since it needs fewer laborers and costs less wages compared to groundnuts and rice.

Renting and selling the land

There is renting and selling the land because of the shortage of labor in Nyaung Pin Zin village. Most of the people who have many acres and fewer family laborers rent the lands just to reduce the land due to the lack of agricultural laborers and the expenses of wages. Moreover, farmers who do not have a new generation to transmit agriculture and women who lead households cultivate some of the farmlands for family consumption and rent the others.

In 2013, the government made no.7 forms, a certificate to do farming. Those who hold the no.7 forms could sell and buy the land legally and the prices of the land go up gradually starting from 2013. The rise in the price of the land attracts the farmers to sell their lands and some farmers want to sell the land due to the hardship of agricultural business and the shortage of labor. A 55-year-old male farmer who wants to sell the land due to the labor shortage said;

“Our family owns over ten acres of land, but there are only two people in the family who do the agricultural work. We get in trouble if we have to hire a lot of laborers. We are tired physically and mentally when we have to hire laborers for the date we want due to the shortage of labor, so we want to sell some parts of the land.”

Besides, it is found that the money gained from selling the land is used as capital to run other businesses (running tea shops or stores) since agriculture cannot provide regular income.

Effects on labor structure of agriculture

According to the field survey conducted in 2022, 15% of the people who do agricultural work are over 60 years old and most of the farmers are around 50 years old. Therefore, it was found that it partially depends on the elderly agricultural laborers in Nyaung Pin Zin village (see figure 3). A 47-year-old female farmer said;

“Sometimes, child laborers and the aged operators are hired if there are no agricultural laborers. They have to be hired if we cannot hire others although they cannot work well. Children can do easy operations such as taking out the groundnut seeds.”

Child labor is used in addition to the old laborers as a consequence of labor shortage. Most of the children who help their parents during the holidays are under 15 years old, and they are hired to harvest groundnuts (see figure 4). It is understood that the old farmers do not want to retire due to the shortage of labor and not being able to attract the new generations to do agricultural work.



Figure - 3: An old man ploughing the land



Figure - 4: A child helping his mother in plucking groundnuts

Effects of labor shortage on family relationship

According to the field data in 2022, an average number of two in the family did agriculture. The family members who do agricultural work have to manage all the agricultural operations. Especially, in busy months such as in April and November the farmers with less family workforce get tired because the workforce and the workload are not equal. Moreover, some farmers have to do housework and they blame and argue with the family members just to release the stress. A 56-year-old female farmer who argues with her family members said;

“Only two people in my family do agricultural work. Therefore, we have to do all the agricultural operations. In busy months, we cannot handle the work since there is no one to help. Our minds are not in good condition since we are tired. Therefore, we shout at each other, argue, and have disputes, but we can make up within a short time. Sometimes we cannot take the rest even though we are ill.”

Therefore, the labor shortage affects the family relationships and farmers cannot take care of their health because of the small family workforce. Because the family workforce becomes less, they can't help each other and the relationships between farmers and their relatives are not close compared with before. However, when relatives and friends or laborers from other villages and wards are hired it can make the friendship stronger, and new relationships with other laborers can be built. The relatives do the agricultural activities as their own work and the work can be done widely. When the other laborers are hired, they do just to fulfill their duty and it is needed to use a lot of laborers to complete the work in time.

Effects on the relationship between farmers and laborers

According to interviews with local farmers, it is found that the laborers do not keep their promises as there is a labor shortage. In the past, the farmers did not hire laborers who did not keep the promise, but now the laborers who do not keep the promise are hired due to the labor shortage. A 63-year-old male farmer explained about the people who do not keep their promises. He said;

“In the past ten years, laborers were afraid that they would lose the reputation for not keeping the promise. If they were regarded as the people who did not keep their promises, they would not be hired. If so they would not earn a living. However, due to the shortage of labor, it is not trustworthy even if they say they will do the work. They will work for the person who pays more although I hire them earlier in advance.”

Some laborers shirk while working. For example, they do not make the weed clean while weeding and do not take all the seeds of the groundnuts in plucking the groundnuts. Ten years ago, they took a rest once a day, but now they take the rest frequently and it is needed to hire more laborers. Moreover, they do not want to do the work which does not meet the expected wages. For this reason, the farmers are dissatisfied with the laborers, yet they have to tolerate the laborers because of the labor shortage. The farmers have to pay them extra pocket money, rice, groundnuts, and chickpeas in addition to the wages, so that the laborers do not shirk in doing the job. In the past, the laborers had to worry that they were not hired by the farmers, but now, the farmers worry that the laborers do not do their work. It is studied that the roles of laborers and farmers have changed due to the shortage of labor.

A 47-year-old female farmer who is suffering from anxiety about hiring laborers said;

“There are very few laborers in the time to harvest and weed. We have to go around the village and hire laborers. If I cannot hire the laborers, I lose my sleep because of anxiety. Even if I can hire the laborer, I have to worry about when they will come to the house and tell me that they cannot do the work. The anxiety disappears only when all the work is finished.”

It is found that the relationship between the farmers and the laborers changes due to the labor shortage in agriculture.

Effects on social activities

The shortage of labor has many effects on farmers in Nyaung Pin Zin village and the impact on social activities is one of them. The first aim of the majority of the local people is to own a house and farm, and to hold the novitiation ceremony for their offspring whereas the final dream is to hold *Kahtein* (ကဆံနီ) donation and to get their offspring married. No vitiation ceremonies and weddings are held for two days: the eve day and the ceremonial day. According to the custom of the village, a family that has a single woman, a single young man, and a married man have to help in the ceremony. It is learned that if the people do not help in the ceremony, they have to pay 5,000 *kyats* as a fine to the village social association. However, a family that does not have a single woman, single man, or married man does not need to pay the fine. There is a delay in doing the agricultural operations since at least three people in the family have to help in the ceremony. The worst thing is that the ceremonies are held during the months with a high shortage of labor in April and November. A 63-year-old male farmer talked about the delay in the business and the loss of holding the ceremony during the time of labor shortage. He said;

“We have to stop working for two days on the eve day and the ceremonial day. It is not a problem if we are free. However, it was not convenient for us to stop working in busy months (April and November). If we do not go to the ceremonies

of our close friends, they will get angry. Therefore, we have to leave the work not to ruin the friendship. If the works are left, the cultivation time will be late, the crops will get damaged and there will be delay to do the weeding.”

It has been studied that they prioritize friendship over business. Therefore, the farmers requested the village social association not to hold the ceremony so as not to harm the social relations and the work. Then, the village association decided that ceremonies should not be held in April and November since the farmers could face difficulties and inconvenience.

Discussion

In Nyaung Pin Zin Village agriculture is the main business and the main crops are rice, sesame, groundnuts, chickpeas, and mung beans. In the study of Aye Sandar Phyo et al. (2016) the farm labor cost is high in the peak growing season compared to the slack period due to labor shortage in the villages of Ayeyarwady Delta and Central Dry Zone regions of Myanmar. At the Nyaung Pin Zin village after facing the shortage of labor, it is not easy to hire laborers and the wages of labor also increase during the weeding time and harvesting time. Baba et al. (2011) supported that especially during critical farm activities; labor shortage has negative impacts on the profitability and productivity levels of the farm. In Nyaung Pin Zin village, there is a shortage of labor, and there is a delay in doing farming operations such as weeding and harvesting. Therefore, the crops fall down, get rotten, and get wet, or there will be loss because of the destruction of animals. In such kind of situations, the farmers can have a bad effect on the profit of the agricultural business.

In India, mechanization of agricultural operations, shifting towards less labor-required crops, hiring labor from outside the village, intensive use of family labor, and giving land on lease are the major strategies to overcome labor shortage by farmers (Satishkumar and Umesh, 2018). It is mostly similar to the research area. The farmers in Nyaung Pin Zin village also hire laborers through the connection of relatives and friends. If the laborers near the village are hired, it is needed to pay just the wage. If the laborers far away from the village are hired, it is needed to pay not only the wage but also the transportation fee. It is found that there is a shift to the mechanized farming system just to overcome the shortage of agricultural labor by using tractors, harvesters and threshers instead of human laborers. The farm mechanizations are used just for some work and they are not used for all work due to the expensive of farm machines and preferring the traditional techniques than farm machines.

Aguirre et al. (2013) explained that although the surplus and the shortage of labor exist at a prevailing wage over time, the labor market should clear, that is, a labor shortage should cause an increase in wages, so the relative labor shortage would disappear. In Nyaung Pin Zin village the farmers attract the laborers by giving more wages than other farmers. The labor market is not clear and some farmers give more wages and some farmers do not. Advance wages are one of the responses to the labor shortage in agriculture in Nyaung Pin Zin village.

Conclusion

This research focuses on the effects of labor shortage on economic activities and social activities of the Nyaung Pin Zin village. The research findings show that agricultural tasks have to be carried out depending on the seasons, and it is needed to do the farming operation in time.

If not, it can have a bad effect on the yield of the crops and the profit. In 2011, the farmers from Nyaung Pin Zin village have encountered the problems of labor shortage, especially during the months of April, November, January, and December. In those months, the demand for labor exceeds the supply of labor. Moreover, while growing the farms, the farmers look at *Thingyanza* (သင်္ကြန်စာ) and farming operation times are the same. Consequently, labor shortage affected delays in field operations and the timeline of subsequent crops, increasing wages, and decreasing agricultural productivity and profitability. In addition, due to the shortage of labor, the social relationships between the family members, farmers and laborers, are changed. Then the shortage of labor makes the roles of the laborers higher, but their efficiency declines. In such kinds of situations, the farmers have to suffer from emotional stress such as worry and depression. Moreover, as a consequence of the shortage of labor, there is an effect on social occasions such as novitiation ceremonies and wedding ceremonies that were not held in the periods of labor shortage, April and November. Besides, aged agricultural laborers and child laborers are seen in the process of agriculture. Then, it is studied that as long as it fails to attract the new generation to do the agricultural work, the aged laborers and child laborers will be used continuously in the future. To solve the problems of labor shortage, paying increases in wages in advance, hiring laborers from outside the villages, using farm machines, shifting less labor-requiring crops, and renting the land is conducted by the farmers. Although the farmers solved the problem of labor shortage in different ways, they cannot effectively solve it.

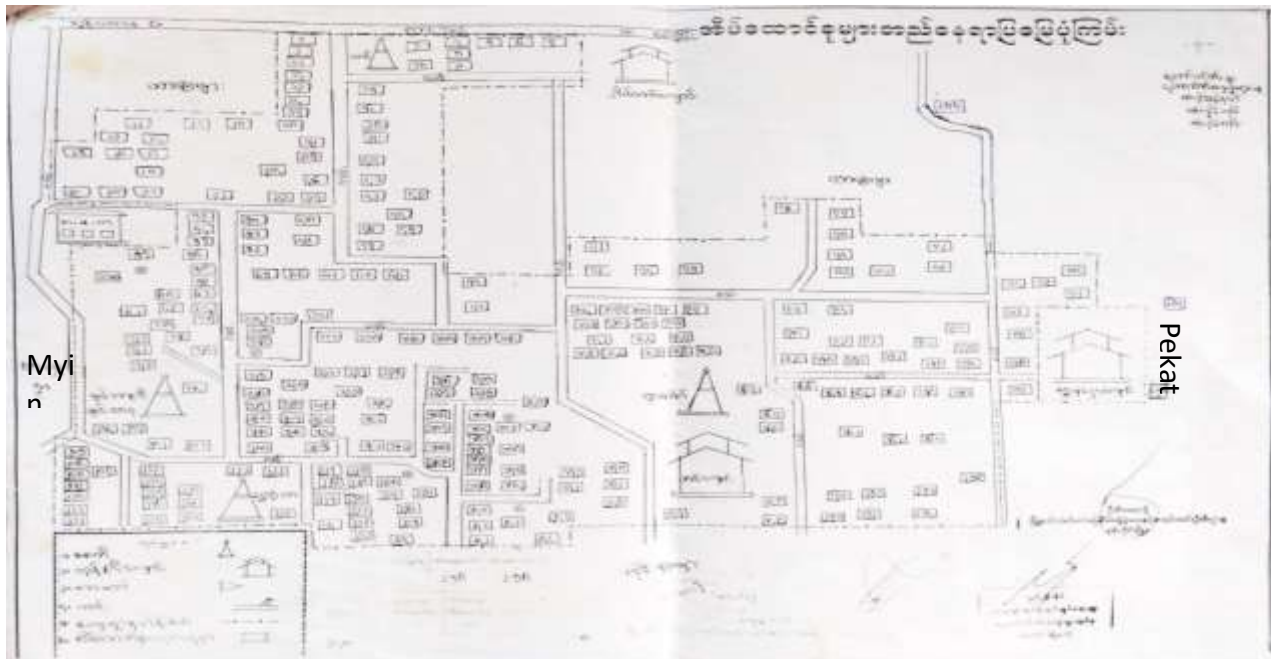
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APPENDIX- 1
Map of Nyaung Pin Zin village



APPENDIX- 2

**Month-wise agricultural operations and labor requirement (man-hours) for main crops of
Nyaung Pin Zin village in 2022**

Crops	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rice	Irrigation, fertilizer application, weeding (138)	Irrigation, fertilizer application (18)	Irrigation (15)	Harvesting (252)	Harvesting (252)						Land preparation, broadcast seedings, irrigation (133)	Rising the paddy dyke, transplanting, irrigation (139)
Groundnuts	Weeding, insecticide spraying (122)		Harvesting (337)	Harvesting (337)						Land preparation, manure application (90)	Sowing (4)	Insecticide spraying, weeding (123)
Mung beans	Insecticide spraying (4)	Harvesting (184)								Land preparation, sowing, manure application (54)	Weeding, insecticide spraying (68)	Insecticide spraying (4)
Sesame						Land preparation, manure application (48)	Land preparation (24)	Land preparation (18)	Sowing (12)	Weeding, insecticide spraying (95)	Harvesting (145)	
Chickpeas	Harvesting (95)	Harvesting (95)				Land preparation, manure application (54)	Land preparation (24)	Land preparation (24)	Land preparation (18)	Sowing (4)	Weeding, insecticide spraying (64)	Insecticide spraying (4)

APPENDIX- 3**Month-wise agricultural labor supply-demand for main crops of Nyaung Pin Zin village in 2022**

Crops	Area(Acres)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Rice	354	48852	6372	5310	73080	16128						47082	49206
Groundnuts	71	8662		16850	7077						6390	284	8733
Mung beans	8	32	1472								432	544	32
Sesame	110						5280	2640	1980	1320	10450	15950	
Chickpeas	49	2850	1805				1911	2646	1176	882	196	3136	196
Demand of man-hours		60396	9649	22160	80157	16128	7191	5286	3156	2202	17468	66996	58167
Supply-demand gap of man-hours		-27496	23251	10740	-47257	16772	25709	27614	29744	30698	15432	-34096	-25267
Supply-demand gap of agricultural laborers		-274	232	107	-472	167	257	276	297	306	154	-340	-252

Supply of human labor (man-hours): $329 \times 100^{**} = 32900$

* Total agricultural laborer population of Nyaung Pin Zin village

** Man-hours employed per month per laborer