

YANGON UNIVERSITY OF ECONOMICS

MASTER OF ECONOMICS

**RICE PRODUCTION IN
MAWLAMYINEGYUN TOWNSHIP (2005 – 2017)**

YU YA PHYO

JUNE, 2018

Yangon University of Economics

Master of Economics

RICE PRODUCTION IN

MAWLAMYINEGYUN TOWNSHIP (2005 – 2017)

This research paper is submitted as a partial fulfilment towards the requirements for the Master of Economics, M.Econ (Economics) Degree

Supervised by

Shu
19/6/18

Daw Kay Thwe Khine

Lecturer

Department of Economics

Yangon University of Economics

Submitted by

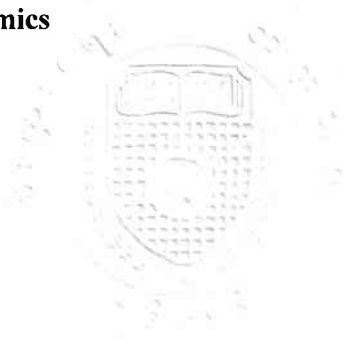
[Signature]
19/6/18

Yu Ya Phyo

Roll No. 8

M.Econ (Eco) II






2017 – 2018




YANGON UNIVERSITY OF ECONOMICS
MASTER OF ECONOMICS

This is to certify that this thesis entitled “**Rice Production in Mawlamyinegyun Township**” submitted as a partial fulfillment towards the requirements for the Degree of Master of Economics, have been accepted by the Board of Examiners.

BOARD OF EXAMINERS

1. Professor Dr. Tun Aung
Pro-Rector
Yangon University of Economics

(Chief Examiner)
2. Professor U Than Aung Yin
Pro-Rector (Retired)
Yangon University of Economics

(Examiner)
3. Professor Daw Nyunt Nyunt Swe
Professor and Head (Retired)
Department of Applied Economics
Yangon University of Economics

(Examiner)
4. Professor Dr. Thida Kyu
Professor and Head
Department of Economics
Yangon University of Economics

(Examiner)
5. Daw Myint Myint Maw
Lecturer
Department of Economics
Yangon University of Economics

(Examiner)
6. Daw Thu Zar Lin
Lecturer
Department of Economics
Yangon University of Economics

(Examiner)


June, 2018

(Than Soe Go)
Head of Department
Academic Affairs
Yangon University of Economics

ABSTRACT

Mawlamyinegyun Township locates at Ayeyawaddy delta and is region that produce a considerable amount of rice. Mawlamyinegyun has the best weather for crop production and is able to cultivate land. Mawlamyinegyun Township has been chosen to analyze the growth of agricultural products. This thesis is used in descriptive method. The study of Myanmar agricultural sector finds that delta is important role in the total of agricultural land. Most of the delta is in the main region of Ayeyawaddy delta and is the rice cultivation breadbasket. Rice is the dominant crop and other major crops such as sesame, groundnut, sunflower, matpe (black gram), padesein (green gram) and chilli. Sown acreage and paddy production are significantly increased during the studies period. But sown acres and production of sesame, groundnut, sunflower, matpe (black gram), padesein (green gram), black-eye pea and chilli crops decreased during the studies period.

Acknowledgment

I would like to acknowledge Professor Dr. Khin Naing Oo, Rector of Yangon University of Economics, and Dr. Tun Aung, Pro-Rector, Yangon University of Economics for this permission of the study for my selection of my research topics as a partial fulfillment towards the degree of Master of Economics.

I would like to express my appreciation to Professor Dr. Thida Kyu, Head of Department, Professor Dr. Nilar Myint Htoo, Department of Economic, Yangon University of Economics for her continuous support, encouragement and permission to carry out this research paper.

I am greatly indebted to my supervisor Daw Kay Thwe Khine, lecture for her valuable advice, guidance and giving me close supervision, invaluable suggestions, comments and encouragements offered during the course of research work.

I would like to express my sincere gratitude to all teachers who have provided their greatest effort in teaching during two years time.

I am indebted to U Than Oo, Department of Agricultural Land, Management and Statistics (Mawgyun), U Myint Sein and Ma Ei Ei Mon, Department of Agriculture Administration Office (Mawgyun), U Than Htike, Department of Farming industry for their enthusiasm, patience and willingness in providing the required information.

I would like to express a lot of thanks to my family, and librarians who had provided me everything I need for my thesis to be completed.

Ma Yu Ya Phyo

Roll No.8

M.Econ (Eco)

CHAPTER 1

INTRODUCTION

1.1 Rationale of the study

Most of the developing countries rely on agriculture for development. Agricultural sector is essential included in Rostow's Five stages of Economic growth model as the first three stage. In first stage is traditional society in which this is an agricultural economy of mainly subsistence farming, little of which is traded. The size of the capital stock is limited and low quality resulting in very low labour productivity and little surplus output left to sell in domestic and overseas markets. Second stage is Pre-conditions for take-off that agriculture becomes more mechanized and more output is traded. Savings and investment grow although they are still a small percentage of national income (GDP). Third stage is take-off which manufacturing industry assumes greater importance, although the number of industries remains small. Political and social institutions start to develop external finance may still be required. Savings and investment grow, perhaps to 15% of GDP.

Agriculture assumes lesser importance in relative terms although the majority of people may remain employed in the farming sector. There is often a dual economy apparent with rising productivity and wealth in manufacturing and other industries contrasted with stubbornly low productivity and real incomes in rural agriculture. Thus, increase in agricultural production and the rise in the per capita income of the rural community, together with the industrialization and urbanization, lead to an increased demand in industrial production. In this way, agricultural sector helps promote economic growth by securing as a supplement to industrial sector.

Myanmar is an agricultural country, and the agriculture sector backbone of its economy. The agriculture sector contributes to 37.8 percent of GDP, accounts for 25 to 30 percent of total export earnings and employs 70 percent of the labor force. Myanmar agricultural sector finds that delta is important role in the total of agricultural land. Most of the delta is in the main region of Ayeyawaddy delta and is the rice cultivation breadbasket. Mawlamyinegyun Township locates at Ayeyawaddy delta and is a region that produce a considerable amount of rice. Mawlamyinegyun has the best weather for crop production and is able to cultivate land.

Therefore, the study of agricultural products in Mawlamyinegyun Township will be presented.

1.2 Objective of the Study

The objectives of this thesis are as follows.

- (1) To analyze the growth of rice production in Mawlamyinegyun Township during the period 2005-2006 to 2016-2017.

1.3 Method of Study

The study mainly uses the descriptive method. To prepare this thesis some information and necessary data have been collected from Ministry of Agriculture Livestock and Irrigation, Department of Agricultural Land, Management and Statistics, Department of Agriculture, Department of National Planning and Department of Education and Health. The data and information used for this study are secondary data.

1.4 Scope and Limitation of the Study

This thesis focuses on Agricultural products in Mawlamyinegyun Township for the period 2005-2006 to 2016-2017. It consists of development conditions of some major crops production.

1.5 Organization of the Study

This thesis is basically formulated for the study of agricultural production in Mawlamyinegyun Township and it consists five chapters.

Chapter 1 examines Introduction which involve rational of the study, objective of the study, scope of the study, method of the study and organization of the study.

Chapter 2 mentions the literature review in which meaning of agriculture, the role of agriculture in economic development, agricultural policies of developing countries, agricultural policy on rice and agricultural policy on other crops.

Chapter 3 represents Historical background that contains characteristics features of Mawlamyinegyun Township, land usage, chemical fertilizer consumption and use pattern, development in paddy production and reasons of fluctuation in crop production.

Chapter 4 describes agricultural crops production in Mawlamyinegyun Township. In this chapter crop grown and production, cattle and agricultural machinery property, transport and communication system and social welfare are involved.

Finally, Chapter 5 is presented by Findings and suggestion.

CHAPTER 2

LITERATURE REVIEW

2.1 Meaning of Agriculture

The term agriculture is derived from the Latin words ager and cultura. Ager means field or soil and cultura means cultura or tilling. But agriculture refers to the art of rising plant life from the soil. It is not merely tilling of land but implies a conscious and determined effort on the part of man to utilize the soil for his benefit. It includes all such human efforts that are conducive to the quick and better growth of vegetables and animals product for the benefit of man. It is the most important of all primary human occupation and is carried out all over the world except in the Polar Regions. In many countries of South East Asia, such as India, and Bangladesh more than 70 percent of the population depends upon agriculture. Even in the highly industrialised economies of Europe and America, agriculture is an important activity, and agricultural products are indispensable. Agriculture provides food crops like rice and wheat; industrial raw materials like cotton, sugarcane and rubber and many other products like dairy products, fruits and vegetables. However, the type of crops, the methods of farming and the amount of yield vary from place to place depending upon a number of geo-economic factors.

2.2 The Role of Agriculture in Economic Development

Agricultural sector plays a strategic role in the process of economic development of a country. It has already made a significant contribution to the economic prosperity of advanced countries and its role in the economic development of less developed countries is of vital importance.

- (1) By providing food and raw material to non-agricultural sectors of the economy,
- (2) By creating demand for goods produced in non-agricultural sectors, by the rural people on the strength of the purchasing power, earned by them on selling the marketable surplus,
- (3) By providing investable surplus in the form of savings and taxes to be invested in non- agricultural sector,

- (4) By earning valuable foreign exchange through the export of agricultural products,
- (5) Providing employment to a vast army of uneducated, backward and unskilled labour.

As a matter of fact, if the process of economic development is to be initiated and made self-sustaining, it must begin for agricultural sector. The agriculture sector is the backbone of an economy which provides the basic ingredients to mankind and now raw material for industrialisation.

Agricultural prosperity contributed considerably in fostering economic advancement. It is correctly observed that, "The leading industrialized countries of today were once predominantly agricultural while the developing economies still have the dominance of agriculture and it largely contributes to the national income."

Agriculture is the basic source of food supply of all the countries of the world-whether underdeveloped, developing or even developed. Due to heavy pressure of population in underdeveloped and developing countries and its rapid increase, the demand for food is increasing at a fast rate. If agriculture fails to meet the rising demand of food products, it is found to affect adversely the growth rate of the economy. Raising supply of food by agricultural sector has, therefore, great importance for economic growth of a country.

Agricultural advancement is necessary for improving the supply of raw materials for the agro-based industries especially in developing countries. The progress in agricultural sector provides surplus for increasing the exports of agricultural products. In the earlier stages of development, an increase in the exports earning is more desirable because of the greater strains on the foreign exchange situation needed for the financing of imports of basic and essential capital goods. The development of agriculture requires roads, market yards, storage, transportation railways, postal services and many others for an infrastructure creating demand for industrial products and the development of commercial sector.

Underdeveloped and developing countries need huge amount of capital for its economic development. In the initial stages of economic development, it is agriculture that constitutes a significant source of capital formation. Agriculture sector provides funds for capital formation in many ways as:

- (i) agricultural taxation,
- (ii) export of agricultural products,
- (iii) collection of agricultural products at low prices by the government and selling it at higher prices.
- (iv) labour in disguised unemployment, largely confined to agriculture, is viewed as a source of investible surplus.
- (v) transfer of labour and capital from farm to non-farm activities etc.

Agriculture provides employment opportunities for rural people on a large scale in underdeveloped and developing countries. It is an important source of livelihood. It is time that rural economy depends on agriculture and allied occupations in an underdeveloped country. The rising agricultural surplus caused by increasing agricultural production and productivity tends to improve social welfare, particularly in rural areas.

In a country which is predominantly agricultural and overpopulated, there is greater inequality of income between the rural and urban areas of the country. To reduce this inequality of income, it is necessary to accord higher priority to agriculture. The prosperity of agriculture would raise the income of the majority of the rural population and thus the disparity in income may be reduced to a certain extent.

During depression, industrial production can be stopped or reduced but agricultural production continues as it produces basic necessities of life. Thus it continues to create effective demand even during adverse conditions of the economy. Agricultural progress is essential to provide food for growing non-agricultural labour force, raw materials for industrial production and saving and tax revenue to support development of the rest of the economy, to earn foreign exchange and to provide a growing market for domestic manufactures.

2.3 Agricultural Policies of Developing countries

The most of national economic development is implementing the best economic policies. Agricultural sector involves the main role of national development and economic policies. Myanmar's national vision is to enhance the socio-economic development for the entire people towards building of a new modern developed

nation. Developing countries have been found the same agricultural policies as follows:

1. Provision of sufficient domestic consumption in which the countries is insufficient domestic foods, able to earn foreign currency from the surplus in producing of agricultural products by promoting the exports.
2. To solve the balance of payments in foreign deficit by reducing the agricultural inputs from abroad (or) input substitution.
3. Agricultural products of general prices are stable.
4. Controlling and improving not to reduce of farmer's incomes level.
5. To reduce the cost and to become more profits firms by promoting the agricultural producing and distribution efficiently.
6. Non-agricultural sector especially industrial sector in that necessary inputs, foods and labor to support from agricultural sector.
7. Taxation and other methods is achieving the revenue for government, on the other hand government need to subsidize in the necessary sectors and collect the capital for national development.

Current situation of Agriculture Sector in Myanmar three main actions are suggested:

1. Increase investment in capacity building, research and development and extension
2. Increase investment in rural infrastructure and
3. Institutional and policy reforms and innovations.

Another significant economic role played by private sector in Myanmar is no other than border trade with the neighboring countries. Private sector dominates the border trade and major export items constitute mainly agricultural commodities while imports mainly comprises of consumer goods.

2.4 Agricultural Policy on rice

Rice plays the enterprise of agricultural policy in the country. During the British colonial period, agricultural policies promoted higher production and exports of rice. After 1948, agricultural policies established rice areas particularly in the lower part of the country abundance during the Second World War. During the socialist

period, centrally planned method followed and much emphasis was put on rice production and exports. The Whole Township Rice Production Program, initiated during socialist reforms had five components.

1. proven new technology
2. government support and leadership
3. selectivity and concentration
4. demonstration and competition

After 1988, rice was liberalized as far as domestic trade was concerned. However, many centrally planned measures as well as state intervention in the market continued. The whole rice economy continued to be subject to extensive controls.

Policies were targeted at rice production. These area production targets were an attempt to ensure that each state and division was self-sufficient in rice. Peasant farmers were forced to grow rice in designated areas especially these with irrigation water as a condition to the access of land and agricultural inputs. There was still state intervention and control like the storage of rice and the movement from one region to another. This was, in fact, exercising the control over the private trade of rice.

The Myanmar Agriculture and Farm Produce Trading (MAPT) was the only state agency was granted monopoly on purchase and export of rice. Peasant farmers were required to deliver a specified quantity of paddy per unit area cultivated to MAPT at a price significantly lower than prevailing market prices. Rice procured by MAPT agency was distributed to government employees and military personnel. The most important function of MAPT was the role of a rice exporter and the maintenance of rice buffer stocks.

The kind of state intervention and controls in the rice market led to significant market distortions. Peasant farmers were much discouraged about the compulsory selling of paddy to the state of agency and had much affect on rice production. After the partial rice liberalization period, the market for pulses and beans was left completely in the hands of the private sector including the right to export without any state intervention. The consequences of this liberalization was the quick response in the growth of the pulses and beans sector.

Regarding rice policies, both area and production of rice are targeted to increase by 21.4% and 82.4% respectively over a period of 15 years from 2001 – 2015. This presupposes major improvements in productivity with sharp increase in average yields. At the same time, the government pursued a policy of allocating about (80,000) acres of agricultural land to private companies mainly for rice production. Private companies were also allowed fish and shrimp farming which have a positive socioeconomic impact in terms of income employment for the respective rural societies.

Although the official statistics revealed the significant gains achieved in rice production, the policies in force provided few incentives for increased productivity due to the continued compulsory procurement program from the state. On the other hand, peasant farmers find very little motivation to invest in land improvement, and agricultural loan given to the farm sector was very much limited. High-level agricultural financing was seen at commercial farming done by private firms but not at the peasantry levels.

In April 2003, the government introduced a new rice trading policy. Policy details were announced in the state newspapers. The new policy abandoned the compulsory procurement of rice by MAPT which also eliminated the role of the MAPT as the chief rice exporter. However, private traders were permitted to export rice only under certain conditions mainly related to national self-sufficiency. The role of MAPT as supplying monthly quotas of rice to government employees has also been eliminated.

The rice trading policy implemented under the guidance and supervision of the Myanmar Rice Trading leading Committee. The specific duties of the Committee were.

1. to grant permission for formation of rice trading bodies.
2. to formulate rules and regulations for rice trade, transport, milling and storage.
3. to decide the permitted volume of rice for export.
4. to coordinate the rice price if disparities arise in prices.
5. to make proposals and submissions for issuance of laws and principles with respect to rice trade.

By looking at the specific duties of the Committee, a very wide scope of action has to be done. Apart from liberalization, these could also be seen as certain measures and control over rice trade.

2.5 Agricultural policy on other crops

Agricultural policy after 1988 was, in fact, based not only on rice alone but also on other three main pillar crops namely pulses and beans, cotton and sugarcane. In order to increase the much needed foreign exchange earnings, concerted efforts were initiated by the state to increase the production of other crops. Pulses and beans must be said to have achieved better performance in terms of both area expansion and production as well as exports. The better performance of the pulses and beans sector could also be explained by an increased demand in the international market.

Although one of the state policies is to achieve self-sufficiency in edible oil. The major role of oilseeds in agricultural production is substantially high and yet there are no policy initiatives placed on important crops. Yearly, there are substantial amount of foreign exchange expended on importing plan oil. An effective self-sufficient policy on edible oil would drastically reduce plan oil imports and could ever lead to exportable surplus.

The climate and topography in Myanmar is favourably suitable for a wide variety of crops, fruits as well as vegetables. A small percentage of private growers and farmers have already taken initiative steps in growing horticulture crops. There is still a large room for program support or policy initiative from production to marketing of such crops. This new cultures will not only contribute towards modernized agriculture but will also provide income as well as employment.

To ensure effective implementation of all agricultural priorities and guidelines, the Ministry of Agriculture and Irrigation had delegated authority and responsibility to the departments concerned. Agriculture plans and programs are drawn at the central level and intensively monitored by the respective agencies. Much of these implementation usages are tended to be more target-oriented rather than putting much emphasis on the impact of these plans and programs. In realized performance targets, the impact should also be targeted towards these in the rural development.

CHAPTER 3

HISTORICAL BACKGROUND

3.1 Background History of Mawlamyinegyun Township

The first Burmese arrived in Central Myanmar in the 19th century and they settled in the dry zone of Myanmar, present day's regions of Mandalay and Maqwe. The Ayeyawaddy Delta in those days was almost like a jungle and swampland inhabited by Mons, as a Kingdom of Pegu.

In the middle of the eighteenth century, the Burmese conquered the Mon Kingdom of Pegu, laying waste to and depopulating the country. Up to the early nineteenth century, Myanmar was an absolute monarchy and the structure of village-based agricultural society was feudal. The Ayeyawaddy Delta was still mainly a jungle with very small numbers of inhabitants, most of the population being concentrated near the last Burmese kingdom of Upper Myanmar, "Mandalay".

Before the British annexation, Myanmar agriculture was largely subsistence system. At the time, there was much surplus land. Farmers produced mainly for their own consumption but traded their small surplus outside the region to fulfill their need of other consumer goods.

After the annexation of Lower Myanmar in 1854, the socio-economic condition of Myanmar changed, especially in the agricultural sector, the system changed from one of self-sufficiency to one of export orientation.

There were two main factors in the development of agriculture in Lower Myanmar during the colonial period. The external factors were the stopping of export of rice from North Carolina to Europe due to the American Civil War, resulting in 90 percent of Myanmar's rice exports being sent to Europe and the opening of the Suez Canal in 1869. The main internal factor was the abolishing of the population of exports by the British Government.

These factors induced the Myanmar people to migrate to Lower Myanmar, where there were enormous tracts of virgin lands. The British government encouraged the immigrants by using tax removal for two years and also induced the Indian labourers as a farm labour for the extension of agriculture. The impact was the rapid increase in agricultural production in Lower Myanmar.

The migration of labour to Lower Burma was caused by two factors. First the existing internal conflict in the Myanmar Kingdom which implied unstable and insecure socio-political conditions, pushed the Burmese to the new area of settlement. Secondly, because of the good opportunities, not only did interregional migration take place but also, seasonal labour from India was imported by the British. This caused the reduction of farm wages in Ayeyawaddy Delta.

Subsequently, due to the low wages and good return, the capital started to migrate. The migration of capital come from two main sources: one from the British government, and the other from the private money lenders. This situation with high external demand for the regional output, gave the first economic growth in Ayeyawaddy Delta, through agricultural development.

As state earlier, the rice export of Myanmar exceeded three million tons in 1941, so Myanmar became the largest rice exporter in the world. Since then, forest and mineral products were also exported as an expansion of her main export during colonial period.

Several conclusion can be drawn from this experience. First the growth of Lower Myanmar including Ayeyawaddy Delta was caused by the rapid growth of agriculture through the incorporation of virgin lands. Second, the impact of British "laissez-fair policy" increased the country's primary exports. Therefore, the region developed a comparative advantage in Paddy production. Finally, these advantages included the capital inflows to the region, which have contributed to the regional growth in Ayeyawaddy Delta. The role of the Ayeyawaddy Delta has become important in the Myanmar economy since the middle of the 19th century and at present the region is specializing in agricultural production for domestic and export markets. The Ayeyawaddy core delta is a vast agricultural area which specializes in rice farming. Mawlamyinegyun is located in the Ayeyawaddy Region and its owned the abundant of land and water resource, suitable weather condition to produce the good quality of rice and other crops.

In the era of King Thibaw, in 1878, Mawlamyinegyun was set up by woodcutters who came to the area to cut woods and canes. In the year 1898, it is learnt that the then government handed home ownerships to local people by voting system.

The original location of Mawlamyinegyun was in the east of the Razutineriver. But there were wild animals in the forest and the imminent threat of these animals force local community to move to the west of the Razutineriver. In earlier times, there were various of commercial herbs and trees around the town which attracted people from villages in Hinthada, MyanAung, KyanKhin, Zalon and Pantanaw townships to settle and work in Mawlamyinegyun, making it a bigger town.

The name 'Mawlamyinegyun' was given initially due to unique local flowers that grow across the town and the island like appearance of the town. The convergence of Razutineriver and Tone Hle river gives the appearance of Than Hlyat which can be contrasted with Mawlamyine of Buddha. It was also one of the many reasons why our ancestors gave the name 'Mawlamyinegyun'.

3.2 Characteristic features of Mawlamyinegyun Township

Mawlamyinegyun is one of the famous cities of Ayeyarwaddy delta region which is renowned as the Great Bowl of Myanmar. Mawlamyinegyun boasts geographical advantages of having abundant and extensive water and land resource rich in natural fertilizers. The area also has decent weather conditions and fantastic amount of rainfall that support quality paddy growing businesses. Mawlamyinegyun is a town in the Ayeyarwaddy Region of south-west Myanmar. It is the seat of the Mawlamyinegyun Township in Labutta District. The city exist between North Latitude 16° 05' and 16°35'and East Longitude 95° 02' and 95° 32'. It is 1.99 square miles in size. The area sprawls 1mile 4 falon from east to west and 2 miles from south to north. It lies 7,626 feet above sea level. Razutineriver flows in the east with Tone Hlae river and Saw Kae river flowing from the West and South and North respectively. Vicinities include Bogale township in the east, Warkhelmatownship in the west, Labutta in the south and Kyaiklatt township in the north. In terms of composition and structure, Mawlamyinegyun is made up by 13 wards and 108 groups of villages. The town features even and broad landscape. Local people depend largely on water transportation as there are many streams and rivers. 2012Since, more people use land transportation because many roads were built by government.

Generally, Mawlamyinegyun receives decent annual rainfall ranging from 0.08 inch to 8.74 inch. In summer, the temperature ranges from 16.9 degree Celsius to 40.8

degree Celsius with winter temperatures ranging from 13.0 degree Celsius to 34. 4 degree Celsius. So it can be considered that the weather condition of Mawlamyinegyun is suitable for agriculture.

3.2.1 Agriculture sector

Geographically, Mawlamyinegyun is in lower Myanmar. It features broad and even landscape. One can receive abundant water resource from nearest rivers for planting and irrigation. Weather is best suited to agricultural purpose. There are 108 groups of villages and individual 537 village in Mawlamyinegyun township. The population is 324,632 of the 27,385 person employ the agricultural sector in Mawlamyinegyun Township. Most people make a living with agriculture and fishing. In terms of agricultural sector, people grow rice in summer and rainy seasons and grow sunflower, sesame, ground nut, various kinds of beans (Black peas, Padesein (green gram), Black eye pea). They also cultivate oilseeds in the winter seasons. Paddy is the number one crop followed by sunflower and ground nut. Although crops and vegetables were produced for domestic consumption in the past, people are now more committed to produce quality crops and vegetables for exportation to foreign countries.

3.2.2 Land Usage

Mawlamyinegyun has an overall area of 310654 acres which includes 1276 acres for cityscape and 309378 acres of countryside. In the year 2017, 37269 acres from Labutta was transferred to Mawlamyinegyun because they lie closer to Mawlamyinegyun, which increased the total land of 347,923 acres. More than 50 % of total area is usable for cultivating paddy and crops and can be irrigated from nearby water resources. This is a good opportunity to improve the life of local people by implementing agriculture based economic development.

Land usage of Ayeyawaddy can be categorized into

1. Net Sown Area
2. Fallow land
3. Culturable Wasteland not suitable for crop
4. Reserved forest and

5. Other land

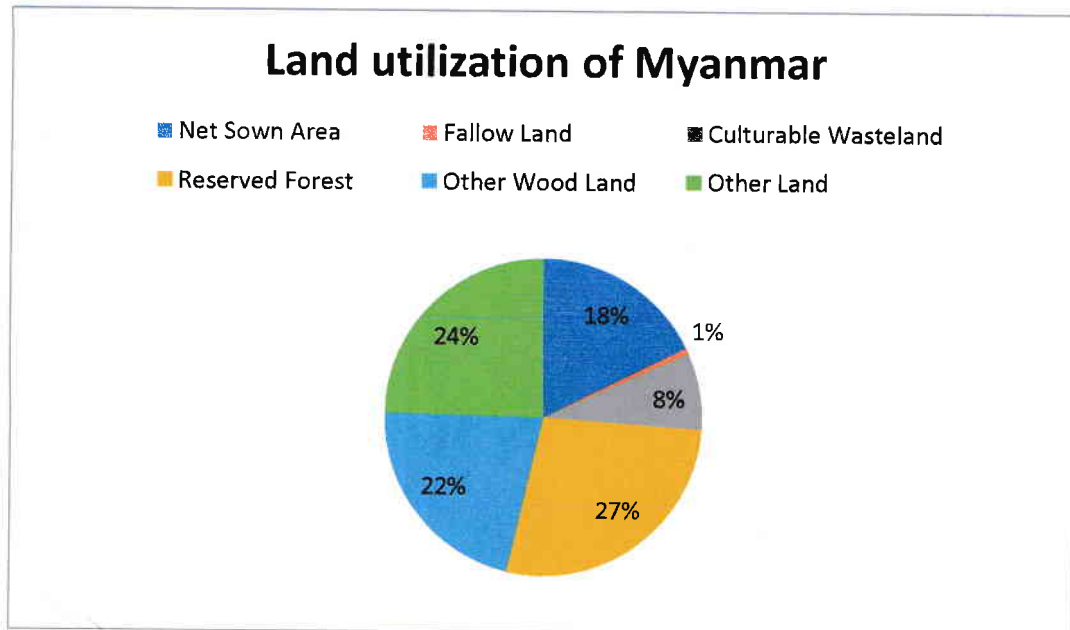
Net sown area is the area sown with crops. Fallow land is land not planted with crops due to various reasons. But Mawlamyinegyun has the less of fallow land.

Mawlamyinegyun is integral to both agriculture and forestry sector of the government. There are some forest reserves which are under government protection for sustainable lumbar production. Local people plant coconut trees, banana, betel and Dani in the forest reserves. Finally, other lands include arable lands, pastry, land near lake and river, underwater land, industry, cemetery and many other civilian lands that are not suitable to use agriculture purpose at the moment.

Land utilization of Myanmar for 2015 -2016

	(million acres)
1. Net Sown area	29671
2. Fallow Land	1111
3. Culturable Wasteland	12964
4. Reserved Forest	45848
5. Other Wood Land	36427
6. Other Land	41165
Total Land	167186

Figure 3.1 Land utilization of Myanmar for 2015 - 2016

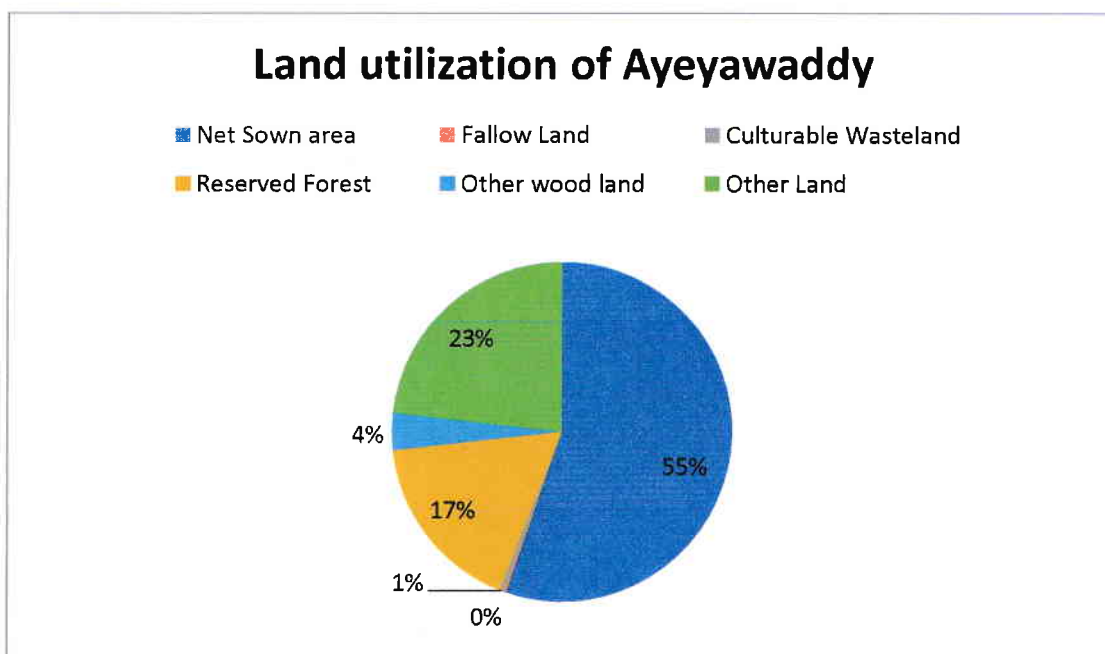


Source: Statistical Year Book, Central Statistical Organization, 2016

Land utilization of Ayeyawaddy region for 2015 -2016

	(million acres)
1. Net Sown area	4 7 8 5
2. Fallow land	1 6
3. Culturable Wasteland	3 9
4. Reserved forest	1 4 9 8
5. Other wood land	3 0 8
6. Other land	2 0 1 1
Total land	8 6 5 7

Figure 3.2 Land utilization of Ayeyawaddy region for 2015 -2016

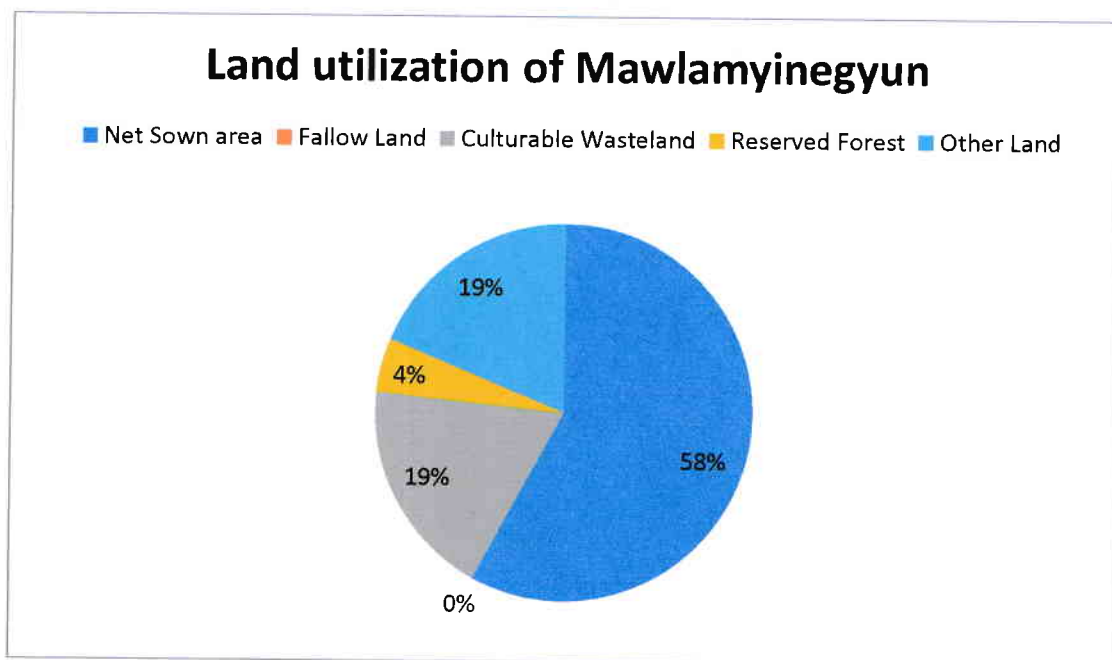


Source: Statistical Year Book, Central Statistical Organization, 2016

Land utilization of Mawlamyinegyun Township for 2016 – 2017

	(acres)
1. Net Sown area	2 0 1 5 1 8
2. Fallow land	-
3. Culturable Wasteland	6 5 1 7 3
4. Reserved forest	1 6 1 3 3
6. Other land	6 5 0 9 9
Total land	<u>3 4 7 9 2 3</u>

Figure 3.3 Land utilization of Mawlamyinegyun Township for 2016 – 2017



Source: Department of Agricultural Land Management and Statistics (Mawlamyinegyun)

According to the figure 3.1, crops are planted in 17.7 % of total area of the country. Additionally, it can be seen that 7.75 % of land remains as culturable wasteland and only 0.66 % of the overall area has been classified as fallow land. From 1996 to 1997, acreage of fallow land and culturable wasteland suitable for crop production exceeded that of net sown crop land. We have seen a decrease in the coverage of net sown land in 2015 – 2016. As a result, people were encouraged to expand land usage for cultivation.

Mawlamyinegyuntownship. Throughout 12 years survey period, there were no significant changes in proportion of net sown acreage and other types of land. In the same period, there was an increase in the number of land area upto 10.7 %. However, 7% reduction in net sown arable was due to increase in the number of cultivable wasteland and other land. Little changes in future land utilization of Mawlamyinegyunis expected because there are no fallow lands and 64.9 % of total acreage has already been used for cultivation. Everything considered, it can be concluded that focusing to improve quality agricultural products can be more economical than expanding net sown acreage coverage.

Before 1988, government implemented plans to develop culturable waste land. After 1988, better crop growing methods were developed. In 2010, increased production per acre was focused more. Now, there are some policies which aim to improve quality and quantity of paddy and other crops. For the long term development, it is important to embrace the utilization of farm machineries to increase production per acre, perfect utilization of chemical fertilizers for quality crop production and to have widespread utilization of input.

3.2.3 Chemical Fertilizer Consumption and Use Pattern

In agriculture, chemical fertilizers, water resource, capital, manpower, machineries are used along with the skills and expertise of farmers. In order to produce the best quality crops, it is necessary to make the most of direct inputs such as existing labor, water resources, seeds and fertilizers and pesticides and indirect inputs such farming machineries, agricultural tools, cow, buffalo and diesel. Inputs can be distinguished into basic inputs and advanced inputs. Seeds are also one type of agricultural inputs. Seeds for crop and paddy production can be local seeds and they can also be genetically modified seeds from foreign countries like China and Thailand. Results of the crop production can vary depending on the type of seeds. So, traditional kinds of seeds are called basic input and genetically modified seeds are called advanced input.

Advanced agricultural inputs play a pivotal role in increasing output of agriculture sector. Now we will look at chemical fertilizer consumption and use which is one of advanced agricultural inputs.

In Mawlamyinegyun, the majority of farmers rely on chemical fertilizers such as Urea, Tesupafor growth of crops and Potash for bacteria and insect protection. This research focuses total amount of these three chemicals.

Table 3.2 Chemical Fertilizers Utilization

Year	Crop Name (Monsoon paddy= MP, Summer Paddy= SP, Winter Crops= WC)	Sown Acre	Chemical fertilizer utilization in acre	Chemical fertilizer utilization percentage	Chemical fertilizer utilization in ton	Average chemical fertilizer utilization per acre
2005-2006	MP	194094	116456	60%	1452	0.01
	SP	89127	89127	100%	9027	0.10
	WC	121621	11264	9%	1123	0.10
2006-2007	MP	197525	118518	60%	1481	0.01
	SP	88803	88803	100%	9330	0.10
	WC	115184	13914	12%	1391	0.10
2007-2008	MP	198107	118864	60%	1485	0.01
	SP	88850	88850	100%	9335	0.10
	WC	104721	12181	12%	1219	0.10
2008 -2009	MP	222207	122215	55%	1528	0.01
	SP	89109	89109	100%	9301	0.10
	WC	125238	12908	10%	1291	0.10
2009- 2010	MP	221742	133045	60%	1472	0.01
	SP	90078	90078	100%	9351	0.10
	WC	119719	14357	12%	1278	0.09

According to the Table (3.2), from 2005 to 2017, there has been little changes in amount of chemical fertilizer utilization per acre in Mawlamyinegyun. However, it is noted that chemical fertilizers were not used for the whole acre of the crops and the usage of chemical fertilizers were varied depending on the types of crops. 0.1 ton of chemical fertilizers per acre was used in summer paddy production. In contrast, 0.01 to 0.02 ton of chemical fertilizers per acre was used in 55% to 75% of sown acre for monsoon paddy production. For winter crops, 0.10 to 0.2 ton of chemical fertilizers was used in 1 – 12 per cent of sown acre. It should be noted that if chemical fertilizers are scattered by hand, crops will not receive equal amount of chemical fertilizers and a lot of chemical fertilizers may get wasted. Therefore, it is crucial to use modern farming machineries and agriculture methods to ensure paddy and crops receive optimal amount of chemical fertilizers.

3.3 Paddy Production in Mawlamyinegyun

Paddy is the most popular crop in Myanmar. The vast of majority of Myanmar people consume rice on daily basis and play an important role in the GDP of the country. It is one of the country's major exports. Rice is cultivated around Myanmar, so Mawlamyinegyun is also important as a breadbasket. There are four kinds of cultivated land in Mawlamyinegyun. Paddy land comes top with more than 89 % of total land followed by pastry, garden land is about 0.05% so rice are less cultivated in the garden land. Rice are cultivated in pastureland and reserved forest of 13% and 0.4% respectively. In 2010-11, land for nipa palm cultivation made up 0.2 per cent of total cultivated land. Paddy is normally grown in paddy fields and monsoon paddy is grown in 69.2 % and summer paddy is grown in 95.2% of total paddy fields.

3.4 Developments in Paddy Production

Rice is an integral part of daily meal for Myanmar citizens and the country generates millions of dollars every year by exporting rice to foreign countries.

Commodity analysis for Integration of Myanmar Agriculture into ASEAN has shown that there are four major types of crops in Myanmar agriculture sector:

1. cereals (rice, maize, wheat, etc)
2. oil seed crops (sesame, groundnut, sunflower, mustard, etc)
3. Food legumes (varieties of pulses and beans)
4. Industrial crops (cotton, rubber, sugarcane, etc)

Careful analysis of Mawlamyinegyun's total cultivated land suggests that Mawlamyinegyun region is having a considerable impact in the overall rice production of the whole country as 89 % of its cultivated land constitute paddy 12 years, fields from 2005 to 2017, Table 3.3 shows data related to cultivation, harvest, yield and production monsoon paddy and table 3.4 stands for that of summer paddy in the same period.

Table (3.3) About cultivation, harvest, yield and production of monsoon paddy in Mawlamyinegyun from 2005-06 to 2016-17.

Year	Sown Acre	Harvested Acre	Yield (Basket / Acre)	Production (Basket)
2005 – 2006	194,094	194,094	73.85	14,333,841
2006 – 2007	194,094	194,094	73.75	14,314,432
2007 – 2008	222,867	222,867	75.61	16,850,973
2008 – 2009	222,207	222,207	74.33	16,516,646
2009 – 2010	221,742	221,742	74.61	16,544,170
2010 – 2011	221,742	221,742	74.68	16,559,693
2011 – 2012	221,750	221,750	65.71	14,751,193
2012 – 2013	221,755	221,755	66.14	14,666,876
2013 – 2014	221,755	221,755	66.14	14,666,876
2014 – 2015	221,755	221,755	68.62	15,216,828
2015 – 2016	221,755	221,755	69.12	15,327,706
2016 – 2017	251,732	251,732	69.20	17,419,854

Source: Department of agricultural land management and statistic (Mawlamyinegyun)

According to table 3.3, it can be concluded that increase in sown area and use of high quality paddy seeds were reasons to ups and downs of rice production. After 2008, more high quality paddy seeds were used in paddy growing sector. In 2005-06 and 2016-17, there was 21.5% increase in total rice production.

Table (3.4) About cultivation, harvest, yield and production of summer paddy in Mawlamyinegyun from 2005-06 to 2016-17.

Year	Sown Acre	Harvested Acre	Yield (Basket / Acre)	Production (Basket)
2005 – 2006	89,127	89,127	93.24	8,310,201
2006 – 2007	88,803	88,803	95.85	8,511,767
2007 – 2008	88,850	88,850	97.05	8,622,892
2008 – 2009	89,109	89,109	96.88	8,632,879
2009 – 2010	90,078	90,078	96.92	8,730,359
2010 – 2011	92,008	92,008	96.93	8,918,335
2011 – 2012	83,931	83,931	91.56	7,684,722
2012 – 2013	94,953	94,953	93.45	8,873,357
2013 – 2014	121,511	121,511	96.15	11,683,282
2014 – 2015	128,595	128,595	95.65	12,300,111
2015 – 2016	129,600	129,600	95.85	12,422,160
2016 – 2017	130,011	130,011	95.24	12,382,247

Source: Department of agricultural land management and statistic (Mawlamyinegyun)

According to table 3.4, although summer paddy production has enjoyed 49 % increase over the course of 12 years period. But that is still considerably low compared to monsoon paddy production because monsoon paddy requires less chemical fertilizers. Exportation of monsoon paddy is also much higher than that of summer paddy.

Sustainable development in rice production is important and intelligent measures are needed to maintain long term and short term growth in rice production of Mawlamyinegyun.

3.5 Reasons of fluctuation in crop production

Monsoon paddy is the major crop in Mawlamyinegyun region and is responsible for a large number of foreign export. Summer paddy comes second on the list of major crops in the region.

There are several factors contribute to the increase production of monsoon paddy. These are increase in the area of forestry and nipa palm trees and sandy-bank land and incorporation of cultivable land from Labutta region after Nagis. Production of monsoon paddy was also fluctuated due to undesirable weather conditions, market instability and land and water conditions.

Looking at summer paddy production, there was an upward trend in the scale of production which was fuelled by diesel loan schemes of government. However, later 2000, increased cost of diesel and chemical fertilizers, limited availability of labour and increased profits in plantation of other crops have seen decrease in the production of summer paddy.

In 2008-2009 after Nagis, local farmers tend to grow more profitable crops rather than paddy on the ground. Because the profitable crops have increased risks of pests, unexpected heavy rainfall and decreased scale of production in profitable crops.

Factors influencing paddy production are consequences of directly or indirectly impacted bad weather conditions, instable market price and reduced production by crops.

CHAPTER 4

ATRICUTURAL CROPS PRODUCTION IN MAWLAMYINEGYUN TOWNSHIP

It is important to improve quality of life of local people at the same time that agricultural developments in the region are taking place. Better education system, healthcare system and transportation system are also needed to bring development in agricultural sector. In this paper, looking at crop grown and production, benefits from crops, education, healthcare, transportation and communication sectors of Mawlamyinegyun.

4.1 Cropgrown and production

There have been an increase in the number of crop production due to development of more and more net sown area. Table 4.1.shows fluctuations in the scale of crop production during survey period of 2005 to 2017.

Table (4.1) About crops fluctuation inMawlamyinegyun

Subject	2005	2017	Progress (Basket)
Land	310,654	347,923	37,269
Monsoon paddy	14,333,841	17,419,854	3,086,013
Summer paddy	8,310,201	12,382,247	4,072,046
Sesame	86,295	209	-86,086
Ground nut	467,290	20,880	-446,410
Sunflower	566,635	9,500	-557,135
Black Peas	407,975	41,141	-366,834
Padesein (green gram)	720,791	122,481	-598,310
Black-eyed pea	12,781	3,392	-9,389
Chilli	3,852,489	88,620	-3,763,869

Source: Agriculture Administration Office (Mawlamyinegyun) (2005 – 2017)

Table 4.1 indicates 11.9 % increase in area of land and 21.5 % and 49 % increase in monsoon paddy and summer paddy production. Winter crops production in the meantime have drastically suffered with sesame at 99.7 %, groundnuts at 95.5 %, sunflower at 98.3 %,black peas at 89.9%, padesein (green gram) at 83%, Black-

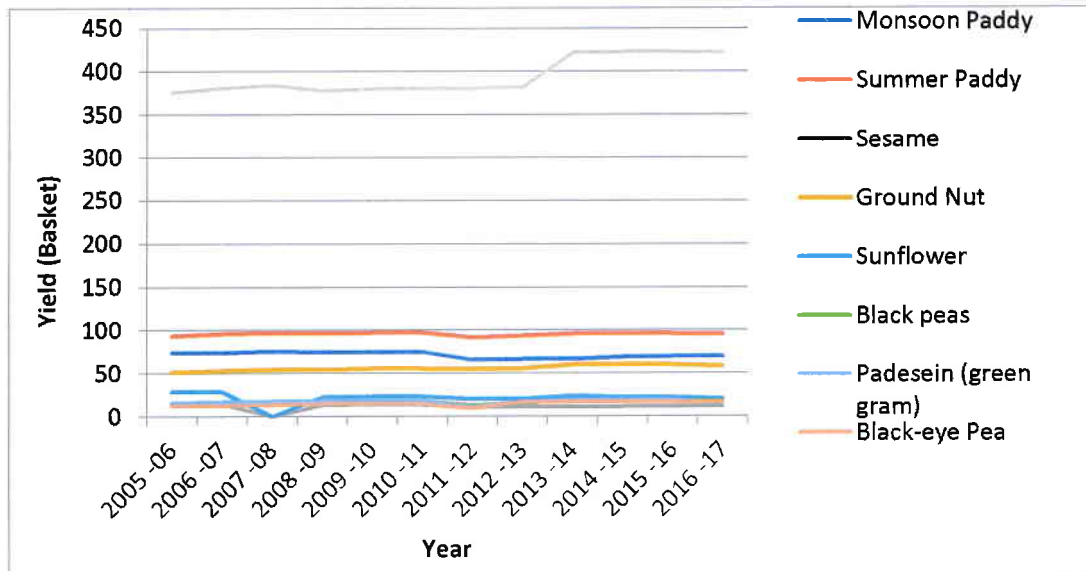
eyed pea at 73.5% and chilli at 97.7 %. It was because of increased cost of advanced input such as seeds and chemical fertilizers, forcing people to grow more on monsoon and summer paddy since 2011.

Table (4.2). Crop production in Mawlamyinegyun from 2005-2006 to 2016-2017

Year	Monsoon Paddy	Summer Paddy	Sesame	Ground Nut	Sunflower	Black peas	Padesein (green gram)	Black-eye Pea	Chilli
2005 -06	73.85	93.24	14.33	51.72	28.52	15.05	15.37	12.68	375.34
2006 -07	73.75	95.85	14.55	53.50	28.63	16.45	16.72	12.75	380.22
2007 -08	75.61	97.05	--	54.49	--	17.10	17.42	13.83	383.96
2008 -09	74.33	96.88	13.13	54.65	22.24	17.15	17.6	14.02	377.54
2009 -10	74.61	96.92	14.11	55.72	23.08	17.24	17.8	14.16	379.54
2010 -11	74.68	96.93	13.88	55.73	23.09	17.28	17.8	14.15	380.12
2011 -12	65.71	91.56	10.53	55.44	20.12	12.36	11.24	9.32	380.54
2012 -13	66.14	93.45	10.8	56	20.12	15.75	17.01	15.9	381.52
2013 -14	66.14	96.15	10.4	60	23.33	17.4	19.3	16.8	422.12
2014 -15	68.62	95.65	11	60	22	17.5	18.9	16.9	422.5
2015 -16	69.12	95.85	11	60	22	17.8	18.9	16.9	422.5
2016 -17	69.20	95.24	11	58	20	17.25	15.50	16	422

Source: Agriculture Administration Office (Mawlamyinegyun)

Figure 4.1 Crops Production in Mawlamyinegyun from 2005-2006 to 2016-2017



Source: Agriculture Administration Office (Mawlamyinegyun)

4.2 Types of crops and profitability

There are 9 major crops and other plantations in Mawlamyinegyuntownship. Other plantation includes coconut, betel, banana and nipa palm plants. It is important to know the trends in the production and profitability of crops in a region. Agricultural development of a region largely relies on growing crops. Accordingly, in this table (4.3) and (4.4), study various kinds of crops, their profitability and importance.

Table (4.3) Types of crops and sown acre

Year	Monsoon Paddy	Summer Paddy	Sesa-me	Ground Nut	Sunflow-er	Matpe (black gram)	Padesein (green gram)	Black-eye Pea	Chilli
2005 -06	194,094	89,127	6,022	9,035	19,868	27,108	47,316	1,008	11,264
2006 -07	197,525	88,803	6,080	9,070	12,908	28,621	49,833	838	13,914
2007 -08	198,107	88,850	6,382	9,894	--	26,194	53,042	928	12,181
2008 -09	222,207	89,109	6,328	10,182	15,060	29,123	43,627	8,010	12,908
2009 -10	221,742	90,078	6,021	9,415	14,962	29,401	40,195	5,368	14,357
2010 -11	221,742	92,008	3,185	9,390	14,463	32,465	41,230	4,413	11,659
2011 -12	221,742	83,931	136	1,762	2,898	29,997	16,547	657	822
2012 -13	221,750	94,953	10	740	1,033	23,722	7,335	182	706
2013 -14	221,755	121,511	50	726	987	23,530	6,525	485	525
2014 -15	221,755	128,595	40	522	966	23,650	8,005	305	405
2015 -16	221,755	129,600	18	350	480	23,704	7,803	118	206
2016 -17	251,732	130,011	19	360	475	2,385	7,902	212	210

Source: Agriculture Administration Office (Mawlamyinegyun)

According to Table (4.3), from 2005-06 to 2016-2017, paddy was the major crop and winter crops were complementary and substitution crops. From 2005-2006 to 2008-2009, cultivation of other crops such as sesame, sunflower, chilli and Bo Kate bean increased and their numbers decreased since 2009-2010 to 2016-2017 calendar year. Especially, sesame cultivated from (6328) acres in 2008-2009 to about (19) acres in 2016-2017. Ground nut cultivated from (10182) acres in 2008-2009 to (360) acres in 2016-2017 and sunflower planted from (15060) acres in 2008-2009 to (475) acres in 2016-2017. Although black peas expended to cultivate (32465) acres in 2010-2011, it is reducing of cultivation (2385) acres in 2016-2017. From 2008-2009 to 2016-2017, pedesein (green gram) cultivated from (43627) acres to (7902) acres, black-eye peas cultivated from (8010) acres to (212) acres, chilli cultivated from (12908) acres to (210) acres.

Even though winter crops saw decreased in their popularity and cultivation of summer paddy and monsoon paddy have increased over the course of time. The table shows there were 194,094 acres of monsoon paddy in 2005-06 and the number increased to 251,732 acres in 2016-17. Likewise, summer paddy production soared from 89,127 acres in 2005-06 to a considerable 130,011 acres in 2016-17. It is noted that increased production cost and less profitability of winter crops rendered local farmers to focus more on summer and monsoon paddy production which can be produced at relatively lower costs but return higher profit margins.

The profitability study of the crop, which was calculated based on important production, market prices, revenues, costs and profits of paddy, groundnut.

Table (4.4) Profits according to each types of crops

Categories of crops	Yield (Basket)	Price (Kyats)	Revenue (Kyats)	Cost of cultivation (Kyats)	Profit (Kyats)	return on investment (%)
Monsoon paddy	69	4,000	276,000	189,500	86,500	45.6
Summer paddy	95	4,000	380,000	248,000	32,000	53.2
Black Peas	17	20,000	340,000	195,000	145,000	74.4
Padesein (green gram)	15	18,000	270,000	195,000	7,500	38.5
Ground Nut	58	7,000	406,000	261,000	145,000	55.5
Sesame	11	32,000	352,000	196,500	155,500	79.1
Sunflower	20	8,500	170,000	100,500	69,500	69.2

Source: Agriculture Administration Office (Mawlamyinegyun) (2017)

Return on investment calculation based on the profits from total outputs and costs of agricultural production.

According to table (4.4), return on investment of monsoon paddy is 45.6%, summer paddy is 53.2%, Black peas is 74.4%, padesein (green gram) is 38.5%, ground nut is 55.5%, sesame is 79.1% and that of sunflower is 69.2%. There are differences in profit ratios of summer paddy, monsoon paddy and beans productions. Even though return on investment of bean is higher compared to that of summer paddy production, yield per acre of bean is much lower than that of summer paddy. Farmer with less financial and labour capabilities carry out Paedesain, Mat Pe, sesame and sunflower cultivation instead of growing summer paddy.

4.3 Possession of cattle and agricultural machineries

In Myanmar's agriculture, many people still rely on cows and buffalos for land preparation and transportation. It is a common sight in Myanmar to see a farmer

working with cows and buffalos in the paddy fields. They are also used in paddy dehusking, separation and many post production processes. So, for farmers, value cattle and buffalos are very precious live-stocks for both agriculture and local economy. In terms of livestock populations, Mawlamyinegyun has 13933 buffalos and 10487 cows.

Nowadays, there have been more use of farming machineries and agricultural tools in order to save human labour and livestock labour. The desperate damage caused by Cyclone Nagis has left farmers with very low population of livestock, leaving them to rely more on modern facilities and machineries. Under the market economic system, in addition to the state sector, private sector participation is increasing in utilizing the farm machineries and equipments for various activities of agricultural production. Increased cropping intensify has expanded the use of machineries in agriculture from land preparation, to harvesting and drying. Require machineries should be produced and assembled locally or imported for distribution to farmer. Now, we will be looking at application of farming machineries and agricultural tools from 2010-11 to 2016-17.

Table (4.5) Utilization of Agricultural Mechanization yearly

Categories of machines	2010 - 11	2011 - 12	2012 - 13	2013 - 14	2014 - 15	2015 - 16	2016 - 17
Tractor	18	23	23	25	22	25	28
Paddy reaper	4	11	12	25	198	210	241
Water pump	1923	2878	2891	2991	4881	4910	4925
Semi-tractor	2390	5756	5843	5908	5940	6054	7508
Thresher	1641	2878	2891	2991	3348	3378	4868
Threshing machines (Combined harvesters)	-	-	1	2	12	25	37

Source: Department of Farming industry (Mawlamyinegyun) (2005 – 2017)

According to table (4.5), there have been increased application of farming machineries. Government is encouraging people to embrace modern farming devices through subsidizing schemes and loans and allowing farmers to hire tractors and other machines. Public companies such Shwe Bone Pwintare also playing a pivotal role by selling heavy machines and providing after sales service. They help farmers purchase powerful machines with certain installation schemes. All these measures have already have helped farmers save time, money and labour.

These are positive signs and it is likely that more usage of farming machines and agricultural tools in agriculture would substantially boost the country's economy.

4.4 Road transportation and communication

The transportation performance is improving that will lead to increase the trade sector.

Being a small island encircled by rivers, water transportation is the major mean of transportation in Mawlamyinegyun. In 2012-13, the then government constructed more roads and transportation infrastructure in order to facilitate agricultural products transportation and communication. According to the data, movement of agricultural goods were not very smooth in 2005 as there were limited road infrastructure. In terms of water transportation, there are routes from Mawlamyinegyun to Yangon, from Mawlamyinegyun to Myaungmya, from Mawlamyinegyun to Warkhelma and from Mawlamyinegyun to Labutta. Local authorities extended road access from Mawlamyinegyun to nearby townships such as Maubin, Bogale, Warkhelma, Kyaiklatt and Kyone Ma Ngyay. Data suggests that there are 3 high way roads, 7 bridges which are higher 180 feet and 11 bridges which are lower than 180 feet. These helped local people to commute more conveniently and bring developments in communication, information transfer and transportation.

Table (4.6) follow the applying of communication system in Mawlamyinegyun Township.

Rural / villages	Post Office	Marconigram	Telephone line	Mobile	Population of internet user
Rural	1	1	745	9,520	3,155
Villages	2	--	--	59,333	17,489
Total	3	1	745	68,853	20,644

Source: Department of planning (Mawlamyinegyun) (2005 – 2017)

According to table (4.6) Mawlamyinegyun Township has three post office, (68,853) Mobile, (745) Telephone line and in the village hasn't use the telephone line. Mawlamyinegyun has the population of (324,632), application of mobile percentage is 21.2%. The internet users have 20,644 by the percentage of 6.3 percent.

4.5 Education and Health

Increasing income of farmers' families is important because this can also lead to increased national income. To increase income of farmers, good literacy, good healthcare system and ability to get access to modern education are also important. The government need to take measures to improve the education sector by increasing literacy rate of children who live in villages. When people can get a chance to study the higher education system effectively in every village, they will be able to apply their agricultural knowledge and expertise in using the agricultural machinery well, which can result in production of good quality agricultural outputs and importing them to the market at good pricing. Table 4.6 shows the social wellbeing of Mawlamyinegyun compared to 2005 and 2017.

Table (4.7) Social Sector in Mawlamyinegyun (2005 to 2017)

	2005 - 2006	2017 - 2018	Progress
<u>Education Sector</u>			
Schools	298	412	114
Teachers	1192	2160	968
Students	40598	52347	11749
Teacher-student ratio	1:34	1:24	1
Basic Level students	29398	34730	5332
Middle Level students	8818	13272	4454
High Level students	2382	4345	1963
<u>Health Sector</u>			
Hospital	1	1	
Local Hospital	1	3	2
Doctor	6	23	17
Trained Nurse	11	36	25
Blue staff	6	20	14
Lady Health Vistor (LHV)	7	9	2
Midwives	34	84	50
Assistant public health supervisor	7	14	7

Source: Department of Education and Healthy (Mawlamyinegyun)

According to table (4.7), there were (298) schools including 13 self-helped schools and 31 monastery education schools in Mawlamyinegyun in 2005-06. In 2016-17, after government subsidized self-helped schools and monastery schools, the number of total schools in the township rose to 412. The number of students also was up from 40598 in 2005 to 52347 in 2017. Unfortunately, the number of high school students were much lowered compared to that of basic and middle school students. So it is possible that less people were able to go to high schools. Teacher student ratio was 1:34 in 2005 but it increased to 1:24 in 2017. It was also notable that many teenage students went into agriculture sector before finishing their high school education.

In 2005, there was a 50 Bedded Hospital and was later relocated and upgraded to a 100 Bedded hospital in the 2017 .In 2005, very few doctors and nurses worked in local hospitals and healthcare centres. However, the government is posting more doctors and nurses to the region lately. That increased number of doctors and nurses helped a lot in the healthcare service of local people. Nowadays almost every village has rural health department where midwives, lady health supervisors and other healthcare professions work for the health of villagers.

CHAPTER 5

CONCLUSION

Agriculture is still standing at the higher position in priority for the development of national economy. So, consecutive governments have been performing the main backbone of agricultural sector. As a developing countries agriculture sector can be defined as engine of growth in Myanmar. Agricultural development is correlated with the regional development to export flexible of agricultural outputs. The Finding from the case study of rice production in Mawlamyinegyun Township during 12 years.

5.1 Findings

Myanmar is still depending on agricultural sector for economic development. Thus, sound agricultural policy and strategies have been concentrated and agricultural development plan in the long term and short term have also been formulated. If the sufficient and extra production of domestic consumption, will earn foreign currency by exporting the surplus of agricultural products. The high quality of agricultural products need to produce for the export. Mawlamyinegyun Township have been used the following methods.

- Before 1988 duration, used to detect the priority of fallow land and cultivation land
- After 1988, used to change the agricultural system
- After 2010, used to increase rate of output per acreage (quantity method)
- And now used to improve the quality of crops (quality method)

But most of the farmers do not cultivate to follow as the agriculturalists learning modern techniques. Therefore, some agricultural outputs have the less defects. As farmers are reluctant to use this techniques because the insufficient capital, deficient labor force and inadequate amount of time.

After 2008 only monsoon paddy and summer paddy have to expand cultivation and winter crops are cultivated bit. Therefore, winter crops are cultivated a little amount because winter crops costs aren't recover the expenses. So, monsoon paddy and summer paddy are more cultivate than winter crops for export to abroad.

Winter crops are only cultivated for complementary crops and substitutional crops. Rice is a main cultivation not only consumption but also export in Mawlamyinegyun.

Agriculture produces the best quality of crops need to use the best quality seeds, fertilizer, agricultural machinery. In Mawlamyinegyun, the majority of farmers rely on chemical fertilizers such as Urea, Tesupa for growth of crops and Potash for bacteria and insect protection. And then, For the quantity of crops necessary to make the emergence of new agricultural land in flooded areas, existing fallow land, waste and virgin lands at which cost of land preparation is too high. Formally, land preparations by departmental tractors were purely departmental operations. Farm tractors are now available on hire services to user-farmers or as outright contracts. Farm mechanization has benefited the farmers in terms of time saving, labor saving and human energy saving. In addition, it has contributed to increased cropping intensity of the Mawlamyinegyun.

Regional transportation and communication development are essential to export the right time of good quality products. Previously, crops were exported only by boat in Mawlamyinegyun. When the export depend on water way, especially the export of perishable outputs have problems such as delay and damage of products. Now, Although the high way is expanded by pass, the weight of products such as rice are transported by water way. So transportation and communication situation is poor for Mawlamyinegyun.

The study of farmer's socio economics such as education and healthy. Most of the farmer's education sector in Mawlamyinegyun Township which high level students are less relative to middle level students and primary level students. Some villages can't open the high school and middle school, so some students go and attend to the attached-high school and attached-middle school at another villages. Therefore, as the poor family which include the students can learn the middle-level and they employ as the labor force in other sector. Government supports the healthy sector become to be good farmers' healthy such as open the clinics in rural, expand to open the local hospital, establish the local health department every village in which more constitutive the Obstetricians, Lady Health Visitor(LHV), Midwives, Health Supervisor than before.

5.2 Suggestion

Although Myanmar is mainly an agricultural country, the lack of usage of modern technology has caused difficulties in the export market due to low yield, low quality and poor packaging. The country is not able to fully leverage its capacity because it does not have the best machinery, nor the best quality seeds and undertakes limited research and development.

In Mawlamyinegyun, rice is the main cultivation not only for consumption but also for export. The export of rice as good quality products needs to be undertaken at the first stage of cultivation carefully. It defines that one needs to perform not only the post-harvest stage but also the pre-harvest stage. In particular, special efforts are required to achieve surplus production of rice, a national crop, to achieve self-sufficiency in edible oil, and to step up the production of industrial crops and pulses for export. To fulfill these requirements, the following five activities should be performed in

- The development for new agricultural land
- Provision of sufficient irrigation water
- Provision and support for agriculture mechanization
- Adoption of improved agro-techniques and
- Development and utilization of improved varieties.

To promote wide adoption of farm machineries at reasonable costs, the government has taken measures such as provision of loans for buying machineries, exporting agricultural products and importing machineries and encouraging local production of the machineries by government, departments and by private organizations.

The more important is “To find markets with good prices for agricultural products”. “To have good crop price, to extend more agricultural loans and to give more payback time are more important than those workshops. Price especially is the lifeblood for the farmers. If they earn good price from agricultural products, they will expense education sector and health sector. If the adult people which employ the agricultural sector has chance to study the higher education effectively, they can cultivate by using of modern agro-technique system, time saving and labor saving, more produce the good quality of crops and find markets with good prices. In these

regions, if efforts to strengthen the farm sector could include investment and improvement in productivity, potentially catastrophic changes to its rural economy.

The government should priority to implement for improvement of farmers living standard such as get the security of farmer's land property, earn the agricultural loan at the right time of cultivation season without delay, reduce taxation for agricultural inputs, provision of sufficient irrigation water, support for electricity and provide the good situation of transportation and communication.

References

- Agricultural policy*. Yangon: Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC).
- Lwin, M. (May 2006). *A study on Agriculture Development in Myanmar (1962-63 to 2004-05)*. Yangon.
- Mya, L. L. (April 2006). *Agricultural growth and regional development*. Yangon: M.Econ (Eco).
- Oo, M. M. (August 2007). *Agricultural Development in Myanmar: Improving land records by using digital maps*. Yangon.
- Oo, T. H. (March 1996). *Myanmar Agriculture Under the Economic Transition: Present situation and Emerging trends*. Yangon.
- Soe, W. P. (2018). *Current Situation of Agriculture sector Development in Myanmar*. Yangon: Ministry of Agriculture, Livestock and Irrigation.
- Statistical Year Book*. (2016). Yangon: Central Statistical Organization (CSO).
- Thein, M. (2000). *Economic Development of Myanmar*. Singapore: Institute of South East Asia Studies.
- W-mellor, J. (n.d.). *The Economics of Agricultural Development*.
- Zaw, K. (1984). *Agricultural growth and regional development (case study in Irrawaddy Delta)*. Yangon: Master of Development Studies .
- (2018). *Myanmar Times Daily Newspaper*.

CHAPTER 5

CONCLUSION

Agriculture is still standing at the higher position in priority for the development of national economy. So, consecutive governments have been performing the main backbone of agricultural sector. As a developing countries agriculture sector can be defined as engine of growth in Myanmar. Agricultural development is correlated with the regional development to export flexible of agricultural outputs. The Finding from the case study of rice production in Mawlamyinegyun Township during 12 years.

5.1 Findings

Myanmar is still depending on agricultural sector for economic development. Thus, sound agricultural policy and strategies have been concentrated and agricultural development plan in the long term and short term have also been formulated. If the sufficient and extra production of domestic consumption, will earn foreign currency by exporting the surplus of agricultural products. The high quality of agricultural products need to produce for the export. Mawlamyinegyun Township have been used the following methods.

- Before 1988 duration, used to detect the priority of fallow land and cultivation land
- After 1988, used to change the agricultural system
- After 2010, used to increase rate of output per acreage (quantity method)
- And now used to improve the quality of crops (quality method)

But most of the farmers do not cultivate to follow as the agriculturalists learning modern techniques. Therefore, some agricultural outputs have the less defects. As farmers are reluctant to use this techniques because the insufficient capital, deficient labor force and inadequate amount of time.

After 2008 only monsoon paddy and summer paddy have to expand cultivation and winter crops are cultivated bit. Therefore, winter crops are cultivated a little amount because winter crops costs aren't recover the expenses. So, monsoon paddy and summer paddy are more cultivate than winter crops for export to abroad.

Winter crops are only cultivated for complementary crops and substitutional crops. Rice is a main cultivation not only consumption but also export in Mawlamyinegyun.

Agriculture produces the best quality of crops need to use the best quality seeds, fertilizer, agricultural machinery. In Mawlamyinegyun, the majority of farmers rely on chemical fertilizers such as Urea, Tesupa for growth of crops and Potash for bacteria and insect protection. And then, For the quantity of crops necessary to make the emergence of new agricultural land in flooded areas, existing fallow land, waste and virgin lands at which cost of land preparation is too high. Formally, land preparations by departmental tractors were purely departmental operations. Farm tractors are now available on hire services to user-farmers or as outright contracts. Farm mechanization has benefited the farmers in terms of time saving, labor saving and human energy saving. In addition, it has contributed to increased cropping intensity of the Mawlamyinegyun.

Regional transportation and communication development are essential to export the right time of good quality products. Previously, crops were exported only by boat in Mawlamyinegyun. When the export depend on water way, especially the export of perishable outputs have problems such as delay and damage of products. Now, Although the high way is expanded by pass, the weight of products such as rice are transported by water way. So transportation and communication situation is poor for Mawlamyinegyun.

The study of farmer's socio economics such as education and healthy. Most of the farmer's education sector in Mawlamyinegyun Township which high level students are less relative to middle level students and primary level students. Some villages can't open the high school and middle school, so some students go and attend to the attached-high school and attached-middle school at another villages. Therefore, as the poor family which include the students can learn the middle-level and they employ as the labor force in other sector. Government supports the healthy sector become to be good farmers' healthy such as open the clinics in rural, expand to open the local hospital, establish the local health department every village in which more constitutive the Obstetricians, Lady Health Visitor(LHV), Midwives, Health Supervisor than before.

5.2 Suggestion

Although Myanmar is mainly an agricultural country, the lack of usage of modern technology has caused difficulties in the export market due to low yield, low quality and poor packaging. The country is not able to fully leverage its capacity because it does not have the best machinery, nor the best quality seeds and undertakes limited research and development.

In Mawlamyinegyun, rice is the main cultivation not only for consumption but also for export. The export of rice as good quality products needs to be undertaken at the first stage of cultivation carefully. It defines that need to perform not only post-harvest stage but also pre-harvest stage. In particular, special efforts are required to achieve surplus production of rice, a national crop, to achieve self-sufficiency in edible oil, and to step up the production of industrial crops and pulses for export. To fulfill these requirements, the following five activities should be performed in

- The development of new agricultural land
- Provision of sufficient irrigation water
- Provision and support for agriculture mechanization
- Adoption of improved agro-techniques and
- Development and utilization of improved varieties.

To promote wide adoption of farm machineries at reasonable costs, the government has taken measures such as provision of loans for buying machineries, exporting agricultural products and importing machineries and encouraging local production of the machineries by government, departments and by private organizations.

The more important is "To find markets with good prices for agricultural products". "To have good crop price, to extend more agricultural loans and to give more payback time are more important than those workshops. Price especially is the lifeblood for the farmers. If they earn good price from agricultural products, they will expense education sector and health sector. If the adult people which employ the agricultural sector has chance to study the higher education effectively, they can cultivate by using of modern agro-technique system, time saving and labor saving, more produce the good quality of crops and find markets with good prices. In these

regions, if efforts to strengthen the farm sector could include investment and improvement in productivity, potentially catastrophic changes to its rural economy.

The government should priority to implement for improvement of farmers living standard such as get the security of farmer's land property, earn the agricultural loan at the right time of cultivation season without delay, reduce taxation for agricultural inputs, provision of sufficient irrigation water, support for electricity and provide the good situation of transportation and communication.

References

- Agricultural policy*. Yangon: Food and Fertilizer Technology Center for the Asian and Pacific Region (FFTC).
- Lwin, M. (May 2006). *A study on Agriculture Development in Myanmar (1962-63 to 2004-05)*. Yangon.
- Mya, L. L. (April 2006). *Agricultural growth and regional development*. Yangon: M.Econ (Eco).
- Oo, M. M. (August 2007). *Agricultural Development in Myanmar: Improving land records by using digital maps*. Yangon.
- Oo, T. H. (March 1996). *Myanmar Agriculture Under the Economic Transition: Present situation and Emerging trends*. Yangon.
- Soe, W. P. (2018). *Current Situation of Agriculture sector Development in Myanmar*. Yangon: Ministry of Agriculture, Livestock and Irrigation.
- Statistical Year Book*. (2016). Yangon: Central Statistical Organization (CSO).
- Thein, M. (2000). *Economic Development of Myanmar*. Singapore: Institute of South East Asia Studies.
- W-mellor, J. (n.d.). *The Economics of Agricultural Development*.
- Zaw, K. (1984). *Agricultural growth and regional development (case study in Irrawaddy Delta)*. Yangon: Master of Development Studies .
- (2018). *Myanmar Times Daily Newspaper*.