

**YANGON UNIVERSITY OF ECONOMICS
DEPARTMENT OF APPLIED ECONOMICS
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(NAY PYI TAW)**

**A STUDY ON THE SOCIO ECONOMIC DEVELOPMENT IN
PYINMANA TOWNSHIP**

**LAY SEINT SEINT
EMPA – 17 (18th BATCH)**

MARCH, 2023

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**A STUDY ON THE SOCIO ECONOMIC DEVELOPMENT IN
PYINMANA TOWNSHIP**

A thesis submitted as the partial fulfillment of the requirements for the degree of
Master of Public Administration (MPA)

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This is to certify that this thesis, entitled "A Study on the Socio-Economic Development in Pyinmana Township," submitted in partial fulfillment of the requirements for the degree of Executive Master of Public Administration (EMPA), has been accepted by the Board of Examiners.

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ABSTRACT

The primary objectives of the study are to examine the socioeconomic development in Pyinmana Township and how they have changed over time. The current economic and social situations in Pyinmana Township were examined using a descriptive method based on secondary sources and information. The data was processed and then shown in tables and graphs. Major data sources included the Ministry of Planning and Finance's Planning Department of Pyinmana Township, the Departments of Health, Education, and General Administration of Pyinmana Township, as well as websites on the Internet. The study's time frame is between 2011–2012 and 2020–2021. This study explores the development of economic and social sectors such as education and health in Pyinmana Township. Moreover, the study also utilized socio-economic indicators to analyze the socio-economic development conditions of this township. The findings of the study show that Pyinmana Township experienced favorable economic conditions during the study period. With the economic growth in the agricultural and industrial sectors, the annual incomes of the local people in the township increased, and consequently, their consumption of services also increased. When analyzing the socioeconomic indicators, the results proved that the township has been experiencing favorable conditions in education, health, and other social sectors. This means that Pyinmana Township has experienced favorable socio-economic conditions.

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LIST OF ABBREVIATIONS

FY	Fiscal Year
GDP	Gross Domestic Products
GNI	Gross National Income
Nominal GDP	GDP calculated current price
Real GDP	GDP calculated constant price
SDGs	Sustainable Development Goals

CHAPTER I

INTRODUCTION

1.1 Rationale of the Study

Development is the most important goal for almost everyone in the world. Development as a means of achieving improvements in welfare includes GDP per capita growth but also broader notions of human development and sustainability. Sustainable economic development and economic growth are closely related, and without growth, there would be no development. If economic growth is the most important goal of society, social aspects of development should be included in development objectives. (World Bank, 2004).

The government of Myanmar has emphasized achieving sustainable development for the country, not only in the economic sector but also in the social sector. Many efforts to attain socioeconomic development can be seen throughout the country to achieve a balanced development between states and regions. Initially, the government set out 12 economic policies to achieve dramatic development in the country.

Moreover, the government has been formulating and implementing development plans at both national and regional levels, as well as sectorial development plans, with the aim of accelerating growth and achieving equitable and balanced development all over the country. With the implementation of these development plans, significant progress has been achieved in various sectors, such as agriculture, industry, infrastructure, transport and communication, health, education, etc.

While the government endeavors to achieve the socio-economic development of the whole country, the development of local areas, including both urban and rural areas, is crucial to attaining the sustainable development of the entire nation. In other words, the development of a country dramatically depends on every area within its boundaries. Therefore, there is no doubt that the achievement of Myanmar's

development depends on the growth and prosperity of its regions and states. Likewise, the progress of those regions and states depends, to a large extent, on districts, townships, and villages within their territories because the progress of local areas affects the country's progress.

Therefore, analyzing the socioeconomic development conditions at a local level is crucial for achieving sustainable development in Myanmar. As such, this study intends to investigate the socioeconomic development of Pyinmana Township. Pyinmana is one of the local levels in Nay Pyi Taw Council, the Union Territory, and the administrative capital of Myanmar. As part of the capital city of Myanmar, the development of Pyinmana Township represents the development of the capital city. Therefore, Pyinmana Township has geographical advantages over other regions and localities. Furthermore, the economic opportunities of Pyinmana Township are very promising due to its proximity to the administrative and commercial hub. From this study, we can learn about the development of productive and social sectors in Pyinmana Township. Before 2006, Pyinmana Township relied on the agriculture sector. Pyinmana Township is an economically developed township and is situated in the Yemathin District of Mandalay Region. It is a junction for the Yangon, Mandalay, Magway, and Shan State trade routes. After 2006, Pyinmana Township changed and developed in all areas, such as infrastructure, trade, living standards, and social conditions. There were benefits to the new capital city, Nay Pyi Taw. In this case, Pyinmana Township in Nay Pyi Taw Union Territory has been selected as a case study to prove that the development of a region is attributed to the development of a nation.

1.2 Objective of the Study

The objectives of the study are:

- (i) to study socio-economic development in Pyinmana Township; and
- (ii) to examine the changes in the social condition and economic status in Pyinmana Township

1.3 Method of the Study

The method of this study is a descriptive one based on secondary data and information. The data were presented in tables and graphs and analyzed.

This study was based on a literature and document review and government publications. Major sources of data were collected from the Planning Department of Pyinmana Township under the Ministry of Planning and Finance, the Department of Health, the Department of Education, the Department of General Administration of Pyinmana Township, and internet websites.

1.4 Scope and Limitations of the Study

The scope of the study is limited to an analysis of the socioeconomic development conditions in Pyinmana Township. The study period is from 2011–2012 to 2020–2021.

1.5 Organization of the Study

The study consists of five chapters. Chapter I involves the rationale of the study, the objectives of the study, the method of the study, the scope and limitations of the study, and the organization of the study. Chapter II indicates a literature review relating to socioeconomic development concepts and the important roles of health and education in the socioeconomic development of the country. Moreover, this chapter describes the definitions of some important economic and social sector indicators. Chapter III describes information about Pyinmana Township, including the historical background, the location and population, and the land use pattern of the study area. Chapter IV provides a descriptive analysis of socio-economic condition in Pyinmana Township, and Chapter V concludes with findings and recommendations.

CHAPTER II

LITERATURE REVIEW

This chapter includes the concept of development, the definition of related terms, socioeconomic indicators, and a review of previous studies.

2.1 Concept of Development

The term "development" is used in many disciplines. It is a dynamic concept. It has different meanings for different people. Indeed, there is no agreement on the meaning of development among scholars and practitioners. Some people insist that development means an increase in income. Hence, development is measured by achieving sustained rates of growth in income per capita to enable a nation to expand its output at a rate faster than the growth rate of its population.

Levels and rates of growth of real per capita gross national income (GNI) (monetary growth of GNI per capita minus the rate of inflation) are then used to measure the overall economic well-being of a population how much real goods and services are available to the average citizen for consumption and investment. In this sense, development was nearly always seen as an economic phenomenon in which rapid gains in overall and per capita GNI growth would either "trickle down" to the masses in the form of jobs and other economic opportunities or create the necessary conditions for the wider distribution of the economic and social benefits of growth. Problems of poverty, discrimination, unemployment, and income distribution were of secondary importance to growth. The emphasis is on increased output, measured by gross domestic product (GDP), which is an economy's total output of goods and services (Todaro and Smith, 2015). Thus, the traditional concept of development or economic growth refers to an increase in a country's production or income per capita.

On the other hand, other people emphasized employment, income, quality of life, and so on. Therefore, development refers to economic growth accompanied by changes in output or income distribution and economic structure. These changes may include an improvement in the material well-being of the poor, a decline in

agriculture's share of GDP and the corresponding increase in the GDP share of industry and services, an increase in the education and skills of the labor force, and substantial technical advances originating within the country.

Todaro and Smith (2015) define economic development as an increase in living standards, improvement in self-esteem needs, freedom from oppression, and greater choice. Therefore, development is a multidimensional process involving the acceleration of economic growth, the reduction of inequality, and the eradication of poverty. There are three objectives for development:

- To increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health, and protection.
- To raise the standard of living, including, in addition to higher incomes, the provision of more jobs, better education, and greater attention to cultural and human values, all of which will serve not only to enhance material well-being but also to generate greater individual and national self-esteem.
- To expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence, not only in relation to other people and nation-states but also to the forces of ignorance and human misery

Since development has multiple dimensions, another perspective of development incorporates three basic components, or core values, which serve as a conceptual basis and practical guideline for understanding the inner meaning of development. These three core values include (i) sustenance, (ii) self-esteem, and (iii) freedom. Sustenance means the ability to meet basic needs such as food, clothing, and shelter that are necessary to sustain an average human being at the bare minimum level of living. Self-esteem is the feeling of worthiness that society enjoys when its social, political, and economic systems and institutions promote human values such as respect, dignity, integrity, and self-determination. Freedom means being able to choose. It involves an expanded range of choices for societies and their members, together with the minimization of external constraints in the pursuit of some social goal. Therefore, the concept of freedom is understood as a situation in which a society has at its disposal a variety of alternatives from which to satisfy its wants and individuals enjoy real choices according to their preferences (Todaro and Smith, 2015).

Overall, the only thing on which everyone agrees is that development is necessary and that development improves people's standard of living. Development, conceived of as economic growth, is a quantitative concept. Economic growth only brings quantitative changes to the economy. Economic development is more than economic growth alone. Economic development refers to growth accompanied by qualitative changes in the structure of production and employment, generally referred to as structural change (Kuznets, 1966). Hence, economic development brings qualitative and quantitative changes to the economy. Growth is generally necessary, though not sufficient, for achieving development. The goal of development is to raise the standard of living of the masses and provide them with the opportunity to develop their potential. Thus, the definition clarifies that development implies not only expansion in quantitative terms but also structural changes in society and its economy. It can be concluded that growth is a prerequisite for development, while development involves more than just growth.

2.2 Definition of Related Terms

2.2.1 Economic Development

Economic development can be seen as a complex, multi-dimensional concept involving improvements in human well-being. Economic change is a process in which agriculture, industry, trade, transport, irrigation, power resources, etc. are improving. It is related to the improvement in the economic condition of people and the country as a whole.

Economic development can be achieved by creating employment opportunities for those who are unemployed or by creating better employment opportunities for those who are already employed. Better employment opportunities generate more income, and when income is good, people can improve their living conditions. Expanding activities such as the agriculture industry and services helps generate more income. One of the working definitions of economic development is that it is a process whereby an economy's real national income increases over a long period of time.

2.2.2 Social Development

Social development concerns with investing in people. In other words, social development is about putting people at the center of development. This means a

commitment that development processes need to benefit people, particularly but not only the poor, but also a recognition that people, the way they interact in groups and society, and the norms that facilitate such interaction, shape development processes.

Moreover, social development is defined as an improvement in the standard of living. Likewise, social development also means fulfilling the basic needs of people and achieving a fair distribution of wealth gained as a result of economic growth, the development of human resources, and expanding the scope of options available to them with an emphasis on social justice, equal opportunities, and the eradication of poverty and illiteracy, taking into consideration that social development is equal to and an integral part of economic development.

Therefore, it could be asserted that social development is about improving the well-being of every individual in society so they can reach their full potential. The success of society is linked to the well-being of each and every citizen. Long-term social policy investments in society promote sustainable development and economic growth. Education, health, and social protection systems provide people with the opportunity to develop from their own resources and live independently.

Overall, social development is related to improvements in health, education, housing, drinking water, etc. and social status as a whole. Improvement in them may be indirectly related to economic development because if income increases, people can enjoy better health, education, nutritional food, and housing. If the people are poor, they can suffer malnutrition, sickness, illiteracy, homelessness, etc. So, the essence of economic development is the growth of output, or real income per head of population.

2.2.3 Socio-economic Development

Socioeconomic development is the process of social and economic development in a society. It is the relationship between economic activity and social life. Therefore, socioeconomic development includes activities involving both social and economic factors that result in the growth of the economy and societal progress and are measurable in both economic and social terms, e.g., growth in the number of jobs created and an increase in life expectancy.

The need to accelerate socioeconomic development is vital to poverty reduction. Poverty alleviation requires actions to increase the poor's access to social services and their ability to generate income to improve their living standards.

Therefore, it is important to accelerate socioeconomic development to achieve sustainable development.

2.3 Socio-economic Indicators

Socio-economic indicators have been used to organize, monitor, and assess information in the development process. According to Diaz-Chavez (2014), socioeconomic indicators are used to analyze a particular social phenomenon or a society as a whole. They are useful for:

- Monitor developments over some time (against a baseline).
- be considered along a standard or certification scheme
- employ qualitative and quantitative data

2.3.1 Economic Indicators

Economic indicators are used to assess how economically developed a country is. They can give some sense of how wealthy a country's people are and how they actually earn that wealth. An economic index of development is the rate of growth of per capita income, or per capita GDP, and household consumption expenditure. Economic indices measure a country's development and express citizens' wealth and causes of wealth. The most common indicators for measuring economic development include (1) gross domestic product (GDP) and (2) per capita income, and details of these are discussed below:

(1) Gross Domestic Product (GDP)

The gross domestic product (GDP) is one of the primary indicators used to gauge the health of a country's economy. Gross domestic product (GDP) is the final value of the goods and services produced within the geographic boundaries of a county during a specified period of time by both residents and nonresidents.

GDP is the most popular method of measuring an economy's output and is therefore considered a measure of the size of an economy. GDP is important because it gives a bird's-eye view of how an economy is doing. The GDP growth rate is an important indicator of the economic performance of a country. Gross domestic product (GDP) can be measured by three methods, namely: the output method, the expenditure method, and the income method.

(2) Per capita income or per capita GDP

Per capita income is widely accepted as a general measure of development. It is customary to identify whether a region has been backward or advanced in its levels of development using estimates of per capita income. The regions that enjoy higher per capita income are deemed to be more developed than the states or regions with low per capita income. Generally, per capita income has been taken at the current price. This variable or component is commonly used for measuring economic development. Under-developed economies are distinguished from developed economies based on their low per capita income. Thus, per capita income can be taken as one of the components of development. The total output of a country is the gross domestic product (GDP) divided by the number of people in the country. The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries. A rise in per capita GDP signals growth in the economy and tends to translate into an increase in productivity.

2.4 Reviews on Previous Studies

Ahmad, Afzaal (2011) studied the impact of population growth on socio-economic development: Pakistani experience". This study investigated the relationship between a high population and economic development. It stated that, against the backdrop of Pakistan, this situation has worsened as the problem was never given due attention and the gravity of the problem with its multi-dimensional facets has become very complicated. Despite limited possible government efforts, the fertility rate has not decreased to stabilize the population growth rate at a desirable level. The huge population size deprived of health care, education, and employment facilities is a titanic load on the poorly managed economy, which is growing at a snail's pace. He argued that the empirical analysis done in this thesis supports the hypothesis that population growth is negatively related to factors involved in sustainable economic development.

Jonas L. Appelt (2022) studied the socioeconomic outcomes of agricultural land use change in Southeast Asia. This thesis focused on agricultural land use and socioeconomic development linked to the SDG Goals. It was stated that agricultural land use was transformed rapidly in Southeast Asia, often supported by development policies aimed primarily at economic growth, and the socioeconomic outcomes of these changes for smallholder farmers remain unclear. There is a systematic review of

cases of agricultural land use changes in Southeast Asia to assess their socioeconomic outcomes and potential trade-offs and synergies in these outcomes. In the 126 reviewed cases, this study found mostly positive outcomes for income (SDG 1, 100 cases) and employment (SDG 8, 11 cases), while outcomes on health (SDG 3, 9 cases) were mixed, and outcomes for food security (SDG 2, 44 cases), gender equality (SDG 5, 13 cases), and economic equality (SDG 10, 14 cases) were mostly negative. These studies described multiple outcomes showing indications of synergies between income and food security and between income and employment, as well as potential trade-offs between income and economic equality. It is finding that economic land concessions result in multiple negative outcomes more often than other types of land governance regimes. And this study's results provide evidence that economic gains from agricultural land use change often come at the cost of other dimensions of sustainable development.

In MDevS Thesis of Zar Ni Su Hlaing's (2019), the study focused on the socio-economic condition in Hlegu Township during the period 2009-2010 to 2017-2018. The purpose of the study was to identify the changes in the socio-economic situation in the study area. This study stated that among economic sectors, the production sector was the largest share of GDP and the major economy of Hlegu Township was agriculture. Moreover, the study also mentioned that the industrial sector in Hlegu Township had good development opportunities, and service sectors, communication, and transportation sectors were well increased in the study period. She suggested that in the education sector, the number of schools has been increased at all levels but the number of teachers should be appointed in middle schools and high school levels for increased teacher-student ratio, and in the health sector, more doctors and healthcare workers should be provided. Finally, the study found that Hlegu Township was trying to get its development goals and it will be a developed township if the required plans and projects are implemented with government and non-government organizations' support to provide the necessities in urban and rural development.

CHAPTER III

THE OVERVIEW OF PYINMANA TOWNSHIP

3.1 Historical Background of Pyinmana Township

In this chapter, the historical background of Pyinmana Township, its location and total area, natural flora and fauna, and population of Pyinmana Township are described. Pyinmana Township in Nay pyi Taw Union Territory was organized by an announcement by the Ministry of Home Affairs on November 9, 1972. There was a district under Yamethin District in the past, and Pyinmana, Lewe, and Tatkon were composed as Pyinmana districts, whereas the district level office and its symptoms are there. Long ago, Shan merchants traded in this town as a camp where goods were carried. Cows rest in the Ywakauk location east of this town, and they cross a temporary bridge (locally called Nin-Kyan) of the Nga-Lite Creek (about 5 meters wide) for traveling. Nin-Kyan Town was the name of this town. There are a lot of Phankhar (local call) fruit trees. This tree was called Pin-mon-na at this time. Shan Trader called Pin-mon-na, and it seemed that moved over to Pyinmana. Pyinmana Township has a railway and car highway from Yangon to Mandalay. Moreover, some junctions of the Pyinmana to Kyauk Pan Taung railway and Pyinmana to Pinlaung (which connects to Shan State and Kayah State) car highway road It has very good access roads and ways, plenty of farm products, and is also a cloudy town.

3.2 Location and Total Area of Pyinmana Township

Pyinmana Township is situated in the middle of Myanmar and is included in Dekhinathiri District, Nay Pyi Taw Union Territory. It is located between 19 degrees 18 minutes and 20 degrees 2 minutes north latitude and 95 degrees 4 minutes and 96 degrees 46 minutes east longitude. The bordering Township with Pyinmana Township is Pinlaung and Phekhone (Shan State) and Thantaung Township (Kayin State) to the east, Zabyuthiri Township and Dekhinathiri Township to the west, Lewe Township and Yay Dar Shay (Bago Region) to the south, and then Pobbathiri Township, Zeyarthiri Township, and Pinlaung (Shan State) to the north. The total area of

Pyinmana Township is 425.78 square miles, and the total acres are 272,502. The distance from east to west is 31 miles, and from north to south is 34 miles.

3.3 Topography and Climate of Pyinmana Township

The natural trees are teak, ironwood gum Kino tree, red timber tree, red silk cotton tree, indainn tree, chestnut tree, and bamboo. The animals inhabiting Pyinmana Township are an elephant, goat, pig, monkey, tiger, rabbit, partridge, quail, owl, viper, cobra, python, and centipede. The topography of Pyinmana Township is the Shan Mountain range in the east and the Bago Mountain range in the west, from the northwest and the east to the south. The Paunglaung River flows from the north to the south. Pyinmana Township is situated 320 feet above sea level. There are three seasons: the average high temperature is 43.50 degrees centigrade in the summer season and the average lowest temperature is 11.50 degrees centigrade in the winter season; the average annual rainfall is from 40 inches to 60 inches; and the climate is wet-tropical. There are three seasons: the average height temperature is 41 degrees centigrade in the summer season, and the average lowest temperature is 12 degrees centigrade in the winter season. The average annual rainfall ranges from 11.1 inches to 58.19 inches. It has a tropical monsoon climate.

Table (3.1) Rainfall and Temperature

Sr. No.	Year	Rainfall		Temperature	
		Number of Days	Total Rainfall (Inches)	Summer (C°)	Winter (C°)
				Maximum	Minimum
1	2017	99	58.19	38.8	22.5
2	2018	16	11.1	40.0	12.0
3	2019	66	43.39	41	14
4	2020	80	34.80	34.7	21.5
5	2021	57	33.4	41	13

Source: General Administrative Department, Pyinmana Township

In Table (3.1), it is shown the number of rainfall days, rainfall inches, and temperatures of summer and winter in Pyinmana Township from 2017 to 2021. In 2017, the total number of rainfall days was 99, the total rainfall inches were 58.19, the maximum temperature in summer was 38.8 degrees centigrade, and the minimum temperature was 22.5 degrees centigrade in winter. This year has the highest rainfall days and inches in Pyinmana. In 2018, the total number of rainfall days was 16 and the total rainfall inches were 11.1. The maximum temperature in summer was 40 degrees centigrade and the minimum temperature was 12 degrees centigrade in winter.

In 2019, the total number of rainfall days is 66, the total rainfall inches are 43.39, the maximum temperature in summer is 41 degrees centigrade, and the minimum temperature is 14 degrees centigrade in winter. In 2020, the total number of rainfall days will be 80, the total rainfall inches will be 34.80, the maximum temperature in summer will be 34.7 degrees centigrade, and the minimum temperature will be 21.5 degrees centigrade in winter. In 2021, the total number of rainfall days is 57, the total rainfall inches are 33.4, the maximum temperature in summer is 41 degrees centigrade, and the minimum temperature is 13 degrees centigrade in winter.

3.4 Ethnics and Religion

Kachin, Kayah, Kayin, Chin, Burma, Mon, Rakhine, Shan, Chinese, Indian, and others are residing in Pyinmana Township. The ethnic groups residing in Pyinmana Township are presented in Table (3.2).

**Table (3.2) Population of the Township by Ethnic Groups as of
2020-2021 Fiscal Year**

Sr. No.	National Ethnic Groups	Number of People	Contribution to Total Population (Percent)
1	Kachin	34	0.02
2	Kayah	2661	1.42
3	Kayin	9991	5.33
4	Chin	212	0.11
5	Burma	157575	84.07
6	Mon	31	0.02
7	Rakhaing	45	0.02
8	Shan	633	0.34
9	Chinese	512	0.27
10	Indian	1124	0.60
11	Others	14621	7.8
	Total	187439	100

Source: General administrative Department of Pyinmana Township

As it is shown in Table (3.2), many national races, all together, live in Pyinmana Township, and among them, Burma is the biggest group. The second-biggest group is others. Kayin is the third-biggest group.

Every citizen in Myanmar has the right to believe in every religion. Therefore, the people who live in the township have a chance to enjoy freedom of religion. There are 161294 Buddhists, 10037 Christians, 310 Hindus, and 15798 Muslims found as various religions of faith in the Township. Thus, Buddhism is the dominant religion in Pyinmana Township. The total number of people who have each religion is shown in Table (3.3).

Table (3.3) Population of the Township by Religions 2020-2021 Fiscal Year

Sr. No.	Religion	Number of People	Percentage
1	Buddhism	161294	86.0
2	Islam	15798	8.4
3	Christianity	10037	5.4
4	Hinduism	310	0.2
Total		187439	100

Source: General Administrative Department, Pyinmana Township

As shown in Table (3.3), the majority of the population of the township is Buddhist, and its contribution to the total population is 86.0 percent. The second largest religious group is Islam, with a contribution of 8.4 percent. And the third and fourth groups believe in Christianity (5.4 percent) and Hinduism (0.2 percent), respectively.

Within the township, there are many Buddhist monasteries, churches, mosques, Hindu temples, and other religious buildings. For different religious groups, there are several religious buildings and monuments to visit. There are 8 pagodas and 205 monasteries, 24 nunneries, 35 Dhammah Halls, 1166 monks, 1440 novices, 324 nuns, 3 churches, 12 mosques, 1 Hindu temple, and 3 Chinese temples in Pyinmana Township. The facts and figures concerning religious affairs are pointed out in Table (3.4).

Table (3.4) The Number of Religion Idols in Pyinmana

Sr. No.	Particular	Total Number
1	Pagodas	8
2	Monasteries	205
3	Nunneries	24
4	Dhammah Hall	35
5	Monks	1166
6	Novices	1440
7	Nuns	324
8	Churches	3
9	Mosques	12
10	Hindu temple	1
11	Chinese temple	3

Source: General Administrative Department, Pyinmana Township (2020-2021 FY)

3.5 Land use of Pyinmana Township

In Pyinmana Township, land rights are defined as land use. There are four (4) types of land use, and the extent of rights that users can enjoy under each type is determined by various laws. In general, the types of land classified by the Department of Agricultural Land Management and Statistics in Pyinmana Township are: (1) agricultural land; (2) reserved forest land; (3) wild land; and (4) non-agricultural land. In Figure (3-1) and Table (3-5), Land use Type in Pyinmana Township (2020-2021) are shown as below.

Figure (3.1) Land Use Type in Pyinmana Township

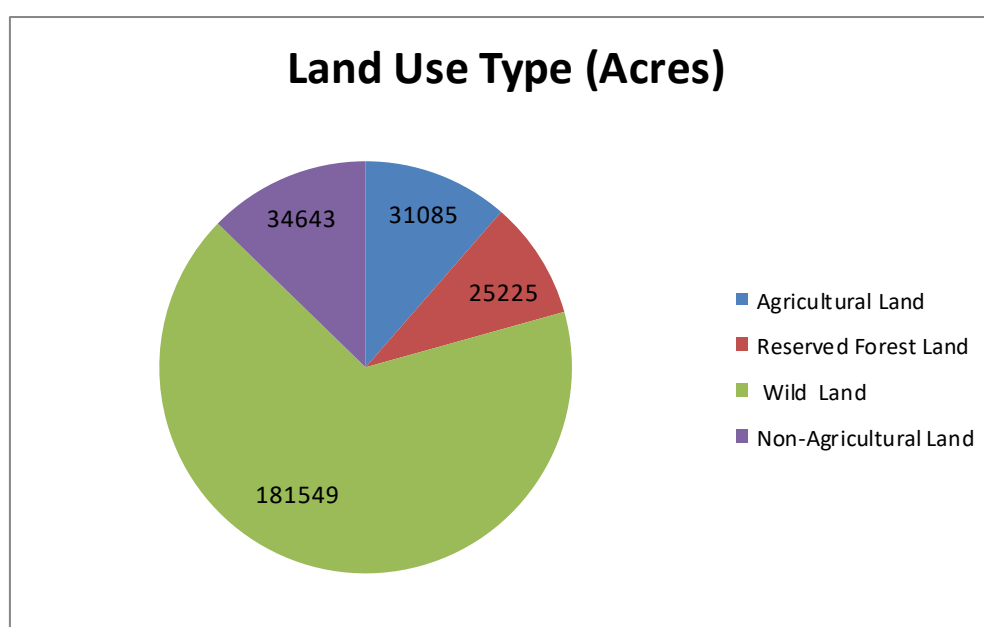


Table (3.5) Land Use Pattern of Pyinmana Township (2019-2020)

Sr. No.	Types of Land	Acres
1	Agricultural Land	31085
	1 Farm Land	16450
	2 Ya Land	7096
	3 Perennial Crops Land	7539
2	Reserved Forest Land	25225
3	Wild Land	181549
4	Non-Agricultural Land	34643
	Total	272502

Source: The Department of Agricultural Land Management and Statistics (2020-2021)

As shown in Table (3.5), Pyinmana Township has a total land use area of 272502 acres. As Pyinmana Township is surrounded by forest, the other wild forest land constitutes 66.6% of total land use, and the reserved forest land is 25225 acres. Agricultural land (31085 acres) constitutes 11.41% of total land use. The majority of agricultural land is farmland (16450 acres), Ya land (7096 acres), and perennial crop land (7539 acres). Types of agricultural land are agricultural land, Kaikyun land, garden land, and thatched land. However, Pyinmana Township does not have kaikyun land or thatch land.

There are 25,225 acres of forest land in the belt. However, during the study period, the protected forest lands within the township area were still preserved without being used for any purpose. Wildland means trees, whether bamboo or thistles are growing or not. It means new land that has never been cultivated. Non-Agricultural Land means mining land in non-cultivable land; cattle grazing land; railway land; and road land. Irrigation canal dam land, rivers, and underwater land; lake land, factory land Residential land within the city, village land Airport land includes religious cemetery land and other lands.

The length of Pyinmana Township from east to west is about 31 miles, and the south-to-north distance of the township is about 34 miles wide. . In Table (3.6), the total area of Pyinmana Township is 425.78 square miles, the area of the city is 2.29 square miles, and the village tracts are 423.49 square miles.

**Table (3.6) Land Use Area Miles of Pyinmana Township
(2020-2021 Fiscal Year)**

Sr. No.	Particular	City Area Square Miles	Village Tracts Square Miles	Township Area Square Miles
1	Pyinmana	2.29	423.49	425.78
	Total	2.29	423.49	425.78

Source: General Administrative Department, Pyinmana Township

3.6 Population of Pyinmana Township

In 2020–2021, the population of Pyinmana Township will be 187439, consisting of an urban population of 77384 and a rural population of 110055. There are a total of 14594 households in 7 wards of the urban area and 23704 households in 29 village tracks in rural areas of Pyinmana Township. Therefore, there are a total of

38298 households in both the 7 wards of urban and the 29 village tracks of rural in Pyinmana Township. The population is shown in the following table.

Table (3.7) Population of Pyinmana Township (2020-2021 Fiscal Year)

Sr. No.	Location	Particular	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
1	Urban	Population	74581	75252	75960	76672	77384
		Male	34996	35311	35642	35976	36309
		Female	39585	39941	40318	40696	41074
2	Rural	Population	106326	107283	108205	109130	110055
		Male	51244	51705	52150	52598	53047
		Female	55082	55578	56055	56532	57009
3	Total	Population	180907	182535	184165	185802	187439
		Male	86240	87016	87792	88574	89356
		Female	94667	95519	96372	97228	98083

Source: Annual Report, General Administrative Department of Pyinmana Township

According to table (3.7), the total population is divided into urban and rural, with male and female. In 2016–2017, the total population was 180907, and it comprised 86240 males and 94667 females. In the rural area, the total rural population is 106326, including 51244 males and 55082 females. In 2017-2018, the total population was 182535, which comprised 87016 males and 95519 females. In the rural area, the total population is 107283, including 51705 males and 55578 females. In 2018-19, the total population of Pyinmana Township was 184165, which comprised 87792 males and 96372 females. In the rural area, the total population is 108205, including 52150 males and 56055 females.

In 2019–20, the total population of Pyinmana Township will be 185802, which comprises 88574 males and 97288 females. In the rural area, the total population is 109,130, including 52598 males and 56532 females. In 2020–21, the total population of Pyinmana Township will be 187439, which comprises 89536 males and 98083 females. In the rural area, the total population is 110055, including 53047 males and 57009 females.

3.7 Labor Force in Pyinmana Township

Labor Force is divided into Agriculture, livestock and breeding, fishery, government employees, industries, services, merchants, casual workers, and other workers.

Pyinmana Township's labor force participation is 106691 persons, employment is 103097, and unemployment is 3594. Therefore, the employment rate is 96.63 percent and the unemployment rate is 3.37 percent in Pyinmana Township. Labor force participation is shown in Table (3.8).

Table (3.8) Labor Force Participation in Pyinmana Township (2020-2021 FY)

Sr. No	Categories	Total	percentage
1	Government Employees	2633	2.6
2	Services	19204	18.6
3	Agriculture	27419	26.6
4	Livestock and breeding	1005	1.0
5	Merchant	19204	18.6
6	Industries	16004	15.5
7	Fishery	106	0.1
8	Casual workers	9325	9.0
9	Other workers	8197	8.0
	Total Employees	103097	100.0

Source: Annual Report, General Administrative Department of Pyinmana Township

In Table (3.8), there is total employment of 103097 employees, comprising 2633 government employees, 19204 in services, 27419 in agriculture, 1005 in livestock and breeding, 19204 in merchants, 16004 in industries, 106 in fisheries, 9325 casual workers, and then 8197 other workers. The maximum labor force is 26.6% of the total workforce in agriculture. The minimum labor force participation rate in the fishery is 0.1%. And then livestock and breeding workers' participation rate is 1.0%, 15.5% is found in the industry sector, 18.6% is found in the services sector, merchants' participation rate is 18.6%, and government employees are found at

only 2.6%. The casual workers' participation rate is 9.0%, and the other worker's participation rate is 8.0% in Pyinmana Township.

3.8 Agriculture Sector of Pyinmana Township

Pyinmana Township has more rural households than urban areas. The local people in the township make a living as farmers, agriculturists, and merchants. The main products of the township are rice, paddy, and various beans, which are mainly exported to the upper and lower parts of Myanmar. In the net cultivated area of Pyinmana Township, the main crops are paddy, mung bean, green peas, peanuts, sesame, and other marketable crops such as sunflower, maize, maize lentils, and mung beans. In addition, perennial crops such as sugar cane, betel, coffee, tea, coconuts, mangoes, bananas, and sorghum Table 3–9 shows the acreage and land use of the five main crops grown in Pyinmana Township; in which paddy was the most cultivated acreage of net cultivated land from 2016–2017 to 2020–2021.

Table (3.9) The Acreage and Land Use of the Five Main Crops in Pyinmana Township

Sr. No.	Type of crops		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021	
			Acreage	%	Acreage	%	Acreage	%	Acreage	%	Acreage	%
	Net cultivated land		28916		30864		39864		31096		31085	
1	Paddy	Rain	18162	62.8	16181	52.4	16240	40.7	16204	52.1	16180	52.1
		Summer	1844	6.4	1981	6.4	2826	7.1	3477	11.2	2400	7.7
2	Mung bean		12329	42.6	13699	44.4	9294	23.3	8442	27.1	9185	29.5
3	Green peas		3653	12.6	4209	13.6	2852	7.2	3814	12.3	3102	10.0
4	peanuts	Rain	196	0.7	268	0.9	172	0.4	178	0.6	263	0.8
		Winter	625	2.2	908	2.9	597	1.5	967	3.1	952	3.1
5	Sesame	Rain	1969	6.8	3083	10.0	2565	6.4	1824	5.9	2608	8.4
		Winter	315	1.1	363	1.2	175	0.4	64	0.2	500	1.6

Source: Department of Agricultural Land Management and Statistics of Pyinmana Township

According to Table (3.9), in 2016–2017, the acreage of monsoon paddy was 18,162 acres (62.8%), mung bean accounted for 12329 acres (42.6%), and the second portion of the acreage of net cultivated land was used. In 2017–2018, monsoon paddy was cultivated on 16181 acres (52.4%) and mung bean on 13699 acres (44.4%). In 2018–2019, it was found that many crops were planted less due to low economic benefits for farmers. The cultivation of mung beans, green peas, peanuts, and sesame has decreased. Due to the decrease in land area from 2019–2020 to 2020–2021, it was observed that monsoon/summer paddy, green peas, and winter peanut acreage of cultivation decreased and rain peanut and winter sesame acreage of cultivation was increased. Moreover, there were many changes in crop acreage because farmers only changed crops and they assumed that they will get more profitable each year. Due to the multiple plantings, the percentage of various crops planted on the cultivated land is increased.

3.9 Education Sector of Pyinmana Township

There are 9 high schools, 6 attached high schools, 6 middle schools, 9 attached middle schools, 70 primary schools, 28 post-primary schools, 3 pre-schools, 6 monastery schools, and one Agricultural Sciences School in Pyinmana Township.

Table (3.10) The Proportion of Teacher and Student in Pyinmana Township

Sr. No.	Grade of School	Teachers	Students	Proportion
1	Agricultural Sciences	26	679	1:26
2	High School	160	4024	1:25
3	Middle School	530	12054	1:23
4	Primary School	502	21245	1:42
5	Monastery School	34	352	1:10
	Total	1252	38354	

Source: Annual Report, Planning Department of Pyinmana Township (2020-2021)

Table (3.10) shows that, according to the 2021 annual report, the proportion of teachers and students in Pyinmana Township. There are 26 teachers and 679 students in the Agricultural Sciences; the teacher-student ratio is 1:26 in Pyinmana Township. There are 160 teachers and 4024 students in the high school; the teacher-student ratio is 1:25 in Pyinmana Township.

There are 530 teachers and 12054 students in the middle schools; the teacher-student ratio is 1:23 in Pyinmana Township. And then there are 502 teachers and 21245 students in primary schools, so the teacher-student ratio is 1:42 in Pyinmana Township. There are six monastic education schools with 34 teachers and 352 students. Five-year-old students' enrollment is 1446 boys and 1352 girls, and the enrollment rate is 99.39%. The adult literacy rate for the township is 99.64%.

3.10 Health Sector of Pyinmana Township

The health sector is an important basic need for human beings. According to the 2021 annual report in Pyinmana Township, a 200-bed hospital, a 16-bed Thiri Yadanar private hospital, a 25-bed Thiri Thukha private hospital, a 16-bed Yezin private hospital, and a 25-bed Mandalay private hospital have a total capacity of 307 beds in 6 hospitals in Pyinmana Township. In rural and urban areas, 6 general clinics, 8 dental clinics, and 85 clinics altogether render health care services to the public.

Table (3.11) The Proportion of Doctor and Population (patients) in Pyinmana Township

Sr. No.	Categories	Doctors	Proportion
1	Doctor	78	1:2403
2	Nurse	115	1:1424
3	Midwife	45	1:3015
	Total	238	

Source: Annual Report, Planning Department of Pyinmana Township (2020-2021)

According to the table (3.11), in the 2020–2021 annual report, there are 78 doctors, 115 nurses, and 45 midwives in Pyinmana Township. The ratio of doctor to patient is 1:2403, the ratio of nurses to patient is 1:1424 and the ratio of midwife to patient is 1:3015 in Pyinmana Township.

According to the report of Township Administration 2021, common diseases in the Township are 21 cases of malaria, 1165 cases of diarrhea, 201 cases of TB, and 283 cases of dysentery. 1 person died of diarrhea and 2 people died of TB in 2020–2021. The birth rate is 17, the maternal death rate at birth is 0.3 percent, and the child death rate at birth is 9 percent.

CHAPTER IV

ANALYSIS OF SOCIO-ECONOMIC CONDITION IN PYINMANA TOWNSHIP

4.1 Background Information of Economic Situation in Pyinmana Township

A nation's economy can be divided into various economic activities. These economic activities can be divided into three sectors of activity: extraction of raw materials (primary), manufacturing (secondary), and services (tertiary). The main focus of an economy's activity shifts from the primary sector through the secondary sector and finally to the tertiary sector.

The primary sector of the economy can be classified as the "extractive" industry. These include the industries that produce or extract raw materials, such as agriculture, livestock, fishing, forestry, and mining. Countries with a low per capita income are in an early stage of development; the main part of their national income is achieved through production in the primary sector. Thus, the primary sector represents a large share of the economies of developing countries. Moreover, the primary sector usually remains the largest sector of employment.

The secondary sector of the economy is comprised of the manufacturing industries. The secondary sector is also called the "industrial" sector. The manufacturing industry takes raw materials and combines them to produce a higher-value finished product. Countries in a more advanced state of development with a medium national income generate their income mostly in the secondary sector. Thus, the secondary sector is usually strongest in so-called "transitional" economies that are changing from traditional to market economies.

The tertiary sector of the economy is the service industry. The service sector is concerned with the intangible aspects of offering services to consumers and businesses. It involves trading and providing services such as communication, hotel and tourism, banking, etc. In highly developed countries with high incomes, the

tertiary sector dominates the economy's total output. Therefore, the tertiary industry is usually most vital in advanced market economies.

The economy of Myanmar can be divided into 14 economic sectors, which comprise the agriculture sector, livestock and fishery sector, forestry sector, mining sector, energy sector, processing and manufacturing sector, power sector, construction sector, transportation sector, communication sector, finance sector, social and administration sector, rents and other services sector, and trade sector. Like other countries' economic sectors, the economic sectors of Myanmar can be classified into primary, secondary, and tertiary sectors. Thus, the primary sectors of Myanmar's economy include agriculture, livestock and fisheries, forestry, and mining. The processing and manufacturing, electrical power, and construction sectors are regarded as the secondary sectors. Finally, transportation, communication, finance, social and administrative services, rents and other services, and trade sectors are included in the tertiary sector.

To compute the gross domestic product (GDP) of Myanmar, Myanmar's 14 economic sectors can be grouped into (i) the agricultural sector (A), (ii) the industrial sector (I), and (iii) the services sector (S). In this way, agriculture, livestock, fisheries, and forestry sectors are considered agriculture sectors. Then, mining, processing, manufacturing, energy, electrical power, and construction sectors are regarded as industrial sectors. Finally, transportation, communication, finance, social and administrative services, rents, and services and trade sectors are grouped as the Services Sector. Out of the 14 economic sectors of Myanmar, the economy of Pyinmana Township includes 13 sectors except the energy sector. In this study, the 13 economic sectors of Pyinmana Township are grouped into agricultural, service, and trade sectors and the economic conditions of Pyinmana Township are analyzed. Based on the GDP calculation of Pyinmana Township at 2010-2011 constant producers' prices from 2011-2012 to 2015-2016 and then 2016-2017 to 2020-2021 in calculated 2015-2016 constant producers' prices.

The average growth rate in 10 years has been calculated using the CAGR (compound annual growth rate) formula. The formula calculates the average growth rate in the planning department. It formula states that;

$$= (\text{Power } ((\text{EV}/\text{BV}), 1/n)-1)*100$$

EV = GDP's ending value

BV = GDP's beginning value

n = number of periods

-1 = Subtract one from the subsequent result.

Multiply by 100 = to convert the answer into a percentage

4.2 Economic Sectors and Conditions in Pyinmana Township

4.2.1 Data Profile

All of the data and documents are secondary data gathered from a variety of sources, including the Planning Department of Pyinmana Township under the Ministry of Planning and Finance, the Department of Health, the Department of Education, the Department of General Administration of Pyinmana Township, and internet websites.

This study uses time series data from the fiscal years 2011–2012 to 2020–2021, in particular, annual observations on gross domestic products at 2010–11 and 2015–16 constant prices. The study utilizes ten years of annual data (from 2011–12 to 2020–21) for the variables, such as (i) the real gross domestic product (GDP), (ii) the per capita GDP, (iii) the growth rate of the real GDP, (iv) the economic sectors of Pyinmana Township, and (v) the social conditions of Pyinmana Township.

4.2.2 Agricultural Sectors

This section describes the performance of agricultural sectors, which included agriculture, livestock and fisheries, and the forestry sector of Pyinmana Township. The production value of each sector is compared over the ten years from 2011–2012 to 2020–2021.

(i) Agriculture Sector

In the agriculture sector of Pyinmana Township, around 61 crops are grown. The main crops of the agriculture sector of Pyinmana Township include paddy, millet, maize, varieties of beans and sunflower, groundnut, sesame, sugar cane, vegetables, pepper, varieties of fruits and flowers, betel, and tea plants. Monsoon paddy has been the major crop and the largest sown acres in the agriculture sector of Pyinmana Township. The plan target value of the agricultural sector, the production value of the agriculture sector from 2011–2012 to 2020–2021, is presented in Table (4.1).

**Table (4.1) Production Value of Agriculture Sector from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	12529.1	18297.4	17283.9	20485.6	20805.9	21659.7	21397	27519.6	27884.6	24976
Performance Value	17241.4	18954.9	19872.8	20522.1	24034.1	30477.5	22079.8	23864.6	23573.1	22437.0
Performance %	137.6	103.6	115.0	100.2	115.5	140.7	103.2	86.7	84.5	89.8
Annual Growth Rate %	7.6	9.9	4.8	3.3	17.1	26.8	-27.6	8.1	-1.2	-4.8
The average growth rate in 10 years (%)	3.4									
Contribution % of GDP	15.1	13.5	14.1	13.4	14.2	17.3	11.4	11.2	10.3	10.1

*Note: The growth rate in 10 year was calculated a formula that = $(\text{power} ((EV/BV), 1/10)-1)*100$*

Source: Township Planning Office, Pynmana Township

Table (4.1) indicated that within ten years of observation, the production of the agricultural sector exceeded the targeted plan value from 2011–2012 to 2016–2017. With the exception of 2018–2019, 2019–2020, and 2020–2021, the production value did not reach the target of the plan. The main reason for not meeting the target plan is likely to be the fact that the target was set higher than the actual implementation. Furthermore, sown acreage and the output of paddy, beans, sesame, tea, and vegetables were less than the targeted sown acres and their outputs.

Moreover, during the observation period, the annual growth of the production of the agriculture sector increased successively up to 2016–2017. After that period, the growth rate for 2017–2018 was (-27.6%) less than 2016–2017, 2019–2020 was (-1.2%) less than 2018–2019, and 2020–2021 was (-4.8%). Within the ten-year period, the annual growth rate of the production of the agricultural sector (26.8%) stood at its highest in 2016–2017. In 2017-2018, the annual growth rate dropped dramatically, which was a negative growth rate (-27.6%), which means that the performance value this year was less than that of the previous year. The reason for the declined annual

growth rate was due to decreased sown acres of summer paddy, beans, pulses, sugar cane, etc. In 2019-2020, the annual growth was negative growth rate (-27.6%), the reason for the declined annual growth rate was due to the decrease in the acreage of summer paddy corn and sugarcane, and crop production decreased, resulting in negative growth. In addition, a growth rate (-4.8) occurred in 2020-2021 because the acreage and yield of monsoon paddy and sesame crops were less than the previous year. The average growth rate in 10 years was 3.4%. Therefore, it can be seen that the output of the agricultural sector increased during the observation period. The contribution of the agriculture sector to the gross domestic product (GDP) of Pyinmana Township during the observation period was more than 10%. The highest percentage of its contribution was 17.3% in 2016–2017. Therefore, this sector represents a medium portion of the GDP of Pyinmana Township.

(ii) Livestock and Fishery Sector

The livestock and fishery sector of Pyinmana Township includes raising animal husbandries such as freshwater fish, chicken, duck, buffalo, cattle, sheep, goats, and poultry. Moreover, it involves the production of fish and meat, which include chicken, pork, beef, and mutton. This sector also produces draught buffalo, cattle, milk, leather, eggs, feathers, honey, and cocoons. The plan target value and the production value of the livestock and fishery sectors from 2011–2012 to 2020–2021 are presented in Table (4.2).

Table (4.2) Production Value of Livestock and Fishery Sector from 2011-2012 to 2020-2021 (Real GDP)

(Million Kyat)

	2011 2012	2012 2013	2013 2014	2014 2015	2015 2016	2016 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	3425.5	3561.9	3681	4085.4	4613	4730.1	4932.6	6901.9	7201.4	9542.5
Performance Value	3433.6	3699.3	4002.3	4195.6	6005.3	4649.3	6965.9	8238	8477.2	8946.0
Performance %	100.2	103.9	108.7	102.7	130.2	98.3	141.2	119.4	117.7	93.7
Annual Growth Rate%	11.6	7.7	8.2	4.8	43.1	-22.6	49.8	18.3	2.9	5.5
The average growth rate in 10 years (%)	11.2									
Contribution % of GDP	3.0	2.6	2.8	2.7	3.5	2.6	3.6	3.9	3.7	4.2

Note: The growth rate in 10 year was calculated a formula that = $(power ((EV/BV), 1/10)-1)*100$

Source: Township Planning Office, Pyinmana Township

As shown in Table (4.2), within ten years of observation, the production of the livestock and fishery sectors exceeded the targeted plan value in eight years. However, in the other two years, the production of livestock and the fishery sector did not reach the target of the plan. However, the performance of the sector almost met the plan.

The annual growth of the production of the livestock and fishery sectors widely fluctuated within the ten-year period. The annual growth rate of the sector hit its highest in 2017-2018, at 49.8%. The reason for the sharp increase in annual growth rate in 2017-2018 was due to the increased production of fish and meat. The sector's annual growth rate declined significantly in 2016-2017 and accounted for (-22.6) %. The reason for the significant decline in annual growth rate during 2016-2017 is that the production of egg, milk, honey, and goat meat decreased compared to 2015-2016. The average growth rate in 10 years was 11.2%. It can be seen that the output of the livestock and fishery sectors increased during the observation period. The contribution of the livestock and fishery sectors to the gross domestic product (GDP)

of Pyinmana Township during the observation period was less than 5%. The highest percentage of its contribution was 4.2% in 2020–2021. Therefore, this sector represents a smaller portion of the GDP of Pyinmana Township.

(iii) Forestry Sector

The forestry sector of Pyinmana Township involves the production of teak, hardwood, firewood, charcoal, bamboo, hemp, cane, honey, honey wax, and bark. The plan target value of the agricultural sector and the net output value of the forestry sector from 2011–2012 to 2020–2021 are presented in Table (4.3).

**Table (4.3) Production Value of Forestry Sector from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Plan Target	149.7	140.5	55.8	134.6	201.7	42.7	231.8	60.5	313	288.6
Performance Value	138	210.1	144.2	147.4	107.5	62.4	227.9	285.3	245.9	260.7
Performance %	92.2	149.5	258.4	109.5	53.3	146.1	98.3	471.6	78.6	90.3
Annual Growth Rate%	12.9	52.2	-31.4	2.2	-27.1	-42.0	265.2	25.2	-13.8	6.0
The average growth rate in 10 years (%)	4.04									
Contribution % of GDP	0.1	0.1	0.1	0.1	0.06	0.04	0.1	0.1	0.1	0.1

Note: The growth rate in 10 year was calculated a formula that = $(\text{power} ((EV/BV), 1/10)-1)*100$

Source: Township Planning Office, Pyinmana Township

Table (4.3) indicated that the annual target plan for the production of the forestry sector has fluctuated. This is due to the changes in government policy toward more conservation of the forests but less production of forest products. Therefore, timber extraction from forests has been halted in Pyinmana Township. As a result, the production of the forestry sector was unstable. The actual production of the sector did not even meet the target plan except for five years.

The annual growth of the production of the forestry sector was negative and positive within the ten years. The sector's annual growth rate declined in 2013-2014 (-31.4) %, 2015-2016 (-27.1) %, 2016-2017 (-42.0) %, and 2019-2020 (-13.8) %. This is due to the changes in government policy toward more conservation of the forests but less production of private and public forest products such as teak and hardwood. The average growth rate in 10 years was 4.04%. It can be seen that the output of the forestry sector increased during the observation period. The contribution of the forestry sector to the gross domestic product (GDP) of Pyinmana Township during the observation period was less than 1%. The highest percentage of its contribution was 0.1%. Therefore, this sector represents a small portion of the GDP of Pyinmana Township.

(iv) Summary Condition of Agricultural Sector

During the study period, the total values of agricultural sectors, including their contributions to the township's GDP, are summarized in Table (4.4).

**Table (4.4) Total Production Value of Agricultural Sector in GDP
from 2011-2012 to 2020-2021 (Real GDP)**

(Million Kyat)

Agricultural Sectors		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Agriculture	Value	17241.4	18954.9	19872.8	20522.1	24034.1	30477.5	22079.8	23864.6	23573.1	22437.0
	% of GDP	15.1	13.5	14.1	13.4	14.2	17.3	11.4	11.2	10.3	10.1
Livestock and Fishery	Value	3433.6	3699.3	4002.3	4195.6	6005.3	4649.3	6965.9	8238.0	8477.2	8946.0
	% of GDP	3.0	2.6	2.8	2.7	3.5	2.6	3.6	3.9	3.7	4.2
Forestry	Value	138.0	210.1	144.2	147.4	107.5	62.4	227.9	285.3	245.9	260.7
	% of GDP	0.14	0.15	0.10	0.1	0.06	0.04	0.1	0.1	0.1	0.1
Total	Value	20813.0	22864.3	24019.3	24865.1	30146.9	35189.2	29273.6	32387.9	32296.2	31643.7
	% of GDP	18.2	16.30	17.0	16.2	17.8	19.9	15.1	15.2	14.1	14.7

Source: Township Planning Office Pyinmana Township

As shown in Table (4.4), the conditions of the agriculture, livestock and forestry sectors are revealed. The agriculture sector mainly contributed to GDP, the production value increased from (17241.4) million kyats to (22437.0) million kyats. In the livestock and fisheries sector, the production value increased from (3433.6) million kyats to (8946.0) million kyats. In the forestry sector, the production value increased from million kyats (138.0) to million kyats (260.7).

The contribution rates of agricultural sectors decreased from 18.2% to 12.7% over the study period. The decreased contribution of agricultural sectors to GDP reveals more contributions from the industrial and services sectors to GDP, meaning Pyinmana Township generates its income mostly in the industrial and services sectors.

4.2.2 Industrial Sectors

This section describes the performance of the industrial sector, which includes mining, processing, manufacturing, electrical power, and the construction sector of Pyinmana Township. The performance of each sector is compared during the ten-year period from 2011–2012 to 2020–2021.

(i) Mining Sector

The mining sector of Pyinmana Township mainly includes the extraction of stones and sand. There are no state-owned mining enterprises in the township, and the private sector plays a key role in the mining sector. The Township General Administration Office has controlled private sector production in terms of issuing annual production licenses. The net output values of the mining sector from 2011–2012 to 2020–2021 are shown in Table (4.5).

**Table (4.5) Production Value of Mining Sector from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Plan Target	116.3	149.5	158.4	109.5	102.0	87.7	87.8	101.8	62.8	61.8
Performance Value(Million Kyat)	106	121.2	140.1	140.5	32	112.2	57	61.9	61.9	53.7
Performance Percentage	91.1	81.0	88.4	128.3	31.4	127.9	64.9	60.8	98.6	86.9
Annual Growth Rate	14.9	14.3	15.6	0.3	-77.2	250.6	-49.2	8.6	62.1	-13.2
The average growth rate in 10 years (%)	-22.5									
Contribution % of GDP	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.04	0.03	0.02

Note: The growth rate in 10 year was calculated a formula that = $(\text{power} ((EV/BV), 1/10)-1)*100$

Source: Township Planning Office, Pyinmana Township

As shown in (4.5), the actual production of the mining sector had not reached the planned targeted value in the eight years of the study period, whereas it was just implemented to meet the targeted value in the rest of the two years.

The annual growth rate of the mining sector experienced an extreme fluctuation rate in the study period. In 2016–2017, the mining production sharply increased, with a growth rate of 250.6%, because the township general administration office had increasingly issued licenses to private producers to produce the stones and sand in the township. Over ten years, the mining sector experienced a negative slope in 2015–2016 with an annual growth rate of (-77.2%), 2017-2018(-49.2) and 2020-2021(-13.2), respectively. This is because the license renewal was not issued at that time and the production of stone and sand by the private sector had fallen. Overall, the contribution of the mining sector to Pyinmana Township's GDP was roughly stable at a slow rate. Therefore, it can be concluded that the mining sector is not a key player in Pyinmana Township's economy, and the township can successfully control the natural resources exploiting firms that have severe impacts on the township's climate change.

(ii) Processing and Manufacturing Sector

The processing and manufacturing sector, which plays a vital role in the township's economy with increasing product values, contributed around 13% to 17% to GDP annually. The processing and manufacturing sectors include a large number of manufacturing products. The production values of the sector from 2011–2012 to 2020–2021 are shown in Table (4.6).

**Table (4.6) Production Value of Processing and Manufacturing Sector
from 2011-2012 to 2020-2021 (Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	14825.1	16911.0	18773.3	19507.1	21133.3	23023.9	24689.7	35166.9	36699.2	36493.2
Performance Value	14389.3	17608.2	18963.9	20077.9	28436.9	30000.5	32294.9	35312.8	32875.7	31525.4
Performance %	97.1	104.1	101.0	102.9	134.6	130.3	130.8	100.4	89.6	86.4
Annual Growth Rate	14.3	22.4	7.7	5.9	5.3	8.9	7.2	42.4	4.4	-0.6
The average growth rate in 10 years (%)	9.6									
Contribution % of GDP	12.6	12.6	13.4	13.1	16.8	17.0	16.6	16.6	14.3	14.7

*Note: The growth rate in 10 year was calculated a formula that = (power ((EV/BV), 1/10)-1)*100*

Source: Township Planning Office, Pyinmana Township

During the observation periods, the manufacturing and processing sectors contributed to township GDP from a maximum of 17.0 percent to a minimum of 12.6 percent. The performance value of the manufacturing and processing sector had surpassed the targeted value from 2012–2013 to 2018–2019, whereas it was not completely implemented to meet the targeted value in the last three years, 2011–2012, 2019–2020, and 2020–2021. In this three-year period, the performance value of the processing and manufacturing sectors required a small amount to meet the targeted value of the sector, with a performance rate of 97.1%, 89.6%, and 86.4%, respectively.

The annual growth rate of the manufacturing and processing sector sharply increased in 2012–2013 and 2018–2019, with an annual growth rate of 22.4% and 42.4%, respectively. After this year, the growth rate experienced an acute fluctuation between 2013–2014 and 2016–2017. However, the annual growth rate of the

manufacturing and processing sector decreased in 2020–2021, with an annual growth rate of -0.6%. The reason for decline in growth rate in 2020-2021 was factories and enterprises had to operate under COVID-19 restrictions. The average growth rate in 10 years was 9.6%. It can be seen that the output of the manufacturing and processing sectors increased during the observation period.

(iii) Electrical Power Sector

In Pyinmana Township, the electrical power sector has an insignificant contribution to total GDP, contributing merely between maximum 1.8 percent and minimum 0.9 percent to the township’s GDP. The product value of the electrical power sector is calculated based on the total revenues of the Township Electric Enterprise. The product values of the electrical power sector from 2011–2012 to 2020–2021 are shown in Table (4.7).

Table (4.7) Production Value of Electrical Power Sector from 2011-2012 to 2020-2021 (Real GDP)

(Million Kyat)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Plan Target	1618.7	951.5	1802.7	2656.9	1428.0	1494.3	1814.4	3509.5	3803.5	5005.5
Performance Value	1082.8	1350.9	1725.4	1304	2839.9	3131.3	3324.4	3307.8	2835.6	3270.9
Performance %	66.9	142.0	95.7	49.1	198.9	209.5	183.2	94.3	74.6	65.3
Annual Growth Rate%	16.0	24.8	27.7	-24.4	117.8	10.3	6.2	-0.5	-14.3	15.4
The average growth rate in 10 years (%)	3.1									
Contribution % of GDP	0.9	1.0	1.2	0.8	1.7	1.8	1.7	1.6	1.2	1.5

Note: The growth rate in 10 year was calculated a formula that = $(power ((EV/BV), 1/10)-1)*100$

Source: Township Planning Office, Pyinmana Township

During the observation periods, the performance value of the electrical power sector exceeded the plan's targeted value in four successive years, whereas it could not completely implement the plan to meet the targeted value in the other six years. The main cause of the incompleteness of the targeted plan is that the electrical power has often cut out due to bad weather such as heavy rain and storms.

In 2015–2016 and 2016–2017, the performance value of the sector significantly exceeded the targeted value of the sector with a high performance rate of 198.9% and 209.5%, respectively, because the electrical power sector can increasingly supply household's consumption. This increase in supply is the consequence of the extension of the electrical gridlines to the rural areas of the township.

The annual growth rates of the electrical power sector in 2014–2015 with a negative growth rate of (-24.4), 2018–2019, (-0.5), and 2019–2020, (-14.3) were negative. These years, the electrical power consumption was sharply decreased in household use, industrial use, and general use because the township's access to the electric power supply was limited by electric power cut-out. Overall, the product value of the electrical power sector was increasing, and the contribution of the sector to the township's GDP fluctuated year by year. The average growth rate in 10 years was 3.1%. It can be seen that the electrical power sector increased during the observation period.

(iv) Construction Sector

In Pyinmana Township, the construction sector plays an important role in the township's economy. The product value of the sector is calculated based on the construction projects' value in the public sector and that of the private sector. The product values of the construction sector from 2011–2012 to 2020–2021 are shown in Table (4.8).

Table (4.8) Production Value of Construction Sector from 2011-2012 to 2020-2021 (Real GDP)

(Million Kyat)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Plan Target	27411.3	40863.1	24511.4	25624.8	20472	15440.8	20926.5	51611.5	38932.5	36234.2
Performance Value	30085.1	45134.8	28505.8	26017.6	21970	11166.1	18950.3	22614.2	32280.1	36047.1
Performance %	109.8	110.5	116.3	101.5	107.3	72.3	90.6	43.8	82.9	99.5
Annual Growth Rate%	14.9	50.0	-36.8	-8.7	-15.6	-49.2	69.7	19.3	42.7	11.7
The average growth rate in 10 years (%)	3.3									
Contribution % of GDP	26.3	32.2	20.2	16.9	13.0	6.3	9.8	10.6	14.0	16.8

*Note: The growth rate in 10 year was calculated a formula that = (power ((EV/BV), 1/10)-1)*100*

Source: Township Planning Office Pyinmana Township

During the observation periods, the first five years, the performance of the construction sector was above the plan-targeted value, with a performance rate of 109.8% in 2011–2012, 110.5% in 2012–2013, 116.3% in 2013–2014, 101.5% in 2014–2015, and 107.3% in 2015–2016, respectively. Within the succeeding five years, the township can continuously fulfill its infrastructure requirements by expanding the construction projects undertaken by both the public and private sectors in the township.

In the construction sector, the negative growth rate (-36.8) in 2013-2014 was due to the decrease in the construction of state-owned buildings and irrigation dams less than the previous year. In addition, the negative growth rate in 2014-2015 was (-8.7), 2015-2016(-15.6), and 2016-2017 (-49.2), respectively. This is due to the

completion of the construction of state-owned buildings, construction of irrigation dams, and power grid construction projects, and less construction each year.

The annual growth rate of the construction sector experienced a peak in 2017–2018, with an annual growth rate of 69.7%. This is because the new construction projects were initiated after the existing construction projects in the township ended. After this year, the growth rate continuously increased to 2020-2021. Similarly, the performance values of the sector indicated that the township can continuously focus on infrastructural development for the people, even though construction values were increasing during the study period. The average growth rate in 10 years was 3.3%. It can be seen that the construction sector increased during the observation period.

(v) Summary Conditions of Industrial Sectors

During the study period, the total values of industrial sectors, which include mining, processing, manufacturing, electrical power, and construction sectors, and their contributions to the township's GDP are summarized in Table (4.9).

**Table (4.9) Total Value of Industrial Sectors from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

Production Sectors		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Mining	Value	106	121.2	140.1	140.5	32	112.2	57	61.9	61.9	53.7
	% of GDP	0.10	0.10	0.10	0.10	0.05	0.02	0.10	0.04	0.03	0.02
Processing and Manufacturing	Value	14389.3	17608.2	18963.9	20077.9	28436.9	30000.5	32294.9	35312.8	32875.7	31525.4
	% of GDP	12.6	12.6	13.4	13.1	16.8	17.0	16.6	16.6	14.3	14.7
Electrical Power	Value	1082.8	1350.9	1725.4	1304	2839.9	3131.3	3324.4	3307.8	2835.6	3270.9
	% of GDP	0.9	1.0	1.2	0.8	1.7	1.8	1.7	1.6	1.2	1.5
Construction	Value	30085.1	45134.8	28505.8	26017.6	21970	11166.1	18950.3	22614.2	32280.1	36047.1
	% of GDP	26.3	32.2	20.2	16.9	13.0	6.3	9.8	10.6	14.0	16.8
Total	Value	45663.2	64215.1	49335.2	47540	53278.8	44410.1	54626.6	61296.7	68053.3	70897.1
	% of GDP	39.9	45.8	34.9	31.0	31.5	25.1	28.2	28.8	29.6	33.0

Source: Township Planning Office, Pyinmana Township

As shown in (4.9), the conditions of the mining, processing and manufacturing, electrical power and construction sector are revealed. Among the industrial sectors, the construction sector mainly contributed to GDP and its contribution rates were increasing over the study period. The second contributed largest sector is the industrial sector. The increased contribution of the construction sector to GDP reveals development of infrastructure, urban road and bridge and rural road and bridge.

4.1.3 Services Sector

This section describes the performance of the services sector, which includes transportation, communication, financial, social, and administrative services, rent and other services, and the trade sector of Pyinmana Township. The performance of each sector is compared during the ten-year period from 2011–2012 to 2020–2021. Based on the GDP calculation of Pyinmana Township at 2010-2011 constant producers' prices from 2011-2012 to 2015-2016 and then 2016-2017 to 2020-2021 in calculated 2015-2016 constant producers' prices.

(i) Transportation Sector

The transportation sector of the township, which plays a vital role in the township's economy with increasing service values, contributed between maximum 23.3% and minimum 18.7% to the township's GDP. The service value of the transportation sector is calculated based on the total revenues of the transport enterprises. The service values of the transportation sector are shown in Table 4.10.

**Table (4.10) Service Value of Transportation Sector from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	25920.5	26927.0	26704.9	29978.7	30784.3	31652.4	33563.3	53395.6	50138.7	54445.1
Performance Value	26595.7	26927.0	26409.8	28147.3	36163.2	40069.5	42478.8	47220.2	51461.8	40635.4
Performance %	102.6	100.0	98.9	93.9	117.5	126.6	126.6	88.4	102.6	74.6
Annual Growth Rate%	13.1	1.2	-1.9	6.6	28.5	10.8	6.0	11.2	9.0	-21.0
The average growth rate in 10 years (%)	5.6									
Contribution % of GDP	23.3	19.2	18.7	18.3	21.4	22.7	21.9	22.2	22.4	18.9

Note: The growth rate in 10 year was calculated a formula that = (power ((EV/BV), 1/10)-1)*100

Source: Township Planning Office, Pyinmana Township

The transportation sector had generally implemented the plan to meet the targeted values in six years. However, for four years, the transportation sector needed a small amount to reach the targeted values. Within the study period, the performance of the transportation sector was above the plan-targeted value, with a maximum performance rate of 126.6%, in 2018-2019, a minimum performance rate of 74.6%, and a negative growth rate of (-21.0) in 2020-2021. The reason for the least implementation is due to the restrictions of the railway and the operation of passenger highway buses due to COVID-19 restrictions in the fiscal year 2020-2021. Within these years, the township can continuously implement its transportation sector development by increasing the number of highway expressways in the township.

The annual growth rate of the transportation sector experienced ups and downs during the study period. In 2013–2014, trailers and three-wheel cycles were privately bought to use for the delivery of the commodity within the township at the same time; hiring vehicles for transporting the commodities was significantly decreased in the township. Consequently, the growth rate of the sector decreased (-1.9%) in 2013–2014. The sector’s service values sharply increased to 28.5% in 2015–2016. Consequently, the use of light trucks, buses, and other delivery vehicles increased. The average growth rate in 10 years was 5.6%.

Overall, with an increase in the service value of the transportation sector, the contributions of the sector to the township’s GDP also remained fairly constant during the study period. Moreover, the growth rates compared to 2011–2012 were also increasing during the observation period. Therefore, it can be concluded that the township can continuously focus on improving transportation services for its residents.

(ii) Communication Sector

The net value of the communication sector is based on the total revenue of Myanmar Post and Telecommunication Enterprises and private mobile operators. The service value of the communication sector is indicated in Table (4.11).

**Table (4.11) Service Value of Communication Sector from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	1242.9	1251.6	8966.6	27197.6	63887.4	29564.2	30588.1	18166	18942.4	24698.4
Performance Value	1246.3	2538.3	14454.4	25281.7	11591	14717	21430.5	19947.7	26130.3	20998.9
Performance %	100.3	202.8	161.2	93.0	18.1	49.8	70.1	109.8	137.9	85.0
Annual Growth Rate%	-5.0	103.7	469.5	74.9	-54.2	27.0	45.6	-6.9	31.0	-19.6
The average growth rate in 10 years (%)	32.0									
Contribution % of GDP	1.1	1.8	10.2	16.5	6.8	8.3	11.0	9.4	11.4	9.8

*Note: The growth rate in 10 year was calculated a formula that = $(\text{power} ((EV/BV), 1/10)-1)*100$*

Source: Township Planning Office, Pyinmana Township

During the observation periods, the performance value of the communication sector highly exceeded the plan-targeted value in 2012–2013 and 2013–2014, with performance percentages of 202.8% and 161.2%, respectively. These high rates of performance were due to the fact that the government had implemented mobile networks throughout the country, including Pyinmana Township, and that the mobile SIM card prices were reduced. Within these two years, the township can continuously implement its communication sector development by expanding access to telecommunications in the township. However, in 2015–2016, the communication sector was planned to provide communication services valued at 63887.4 million kyat, but actual performance was 11591.0 million kyat, of which the performance rate was just 18.1%. This failure to meet the target plan was due to the fact that the plan was set so high that the actual implementation was not possible in practice.

The annual growth rate of the communication sector experienced an extreme fluctuation during the study period. The growth rate of the sector had sharply increased from 103.7% in 2012–2013 to 469.5% in 2013–2014. In 2013–2014, the national government issued licenses to two private telecommunications companies, Telenor and Ooredoo. As a consequence of allowing private telecommunication companies, people can get as many mobile SIM cards as they want at cheap prices. Accordingly, the township's mobile phone consumption had significantly increased, and at the same time, the service value of the communication sector was raised. After this year, the growth rate had continuously increased, with a positive growth rate of 74.9 percent in 2014–2015. The performance values of the communication sector were significantly increased annually during these two years as the telecommunication services offered by private telecommunication companies were initiated.

The sector's growth rate declined, (-5.0%) in 2011-2012, (-54.2%) in 2015–2016, (-6.9%) in 2018-2019, and (-19.6) in 2020-2021, respectively. The decrease in 2011-2012 was because two post offices were included in the new township area in the division of new township boundaries and its income had decreased. The growth rate decreased in 2015–2016 and 2018-2019; this is because of lower income from line phone usage, post office, and telegraph. In addition, in 2020-2021 the lower growth rate was due to the reduced use of phones in schools, factories, offices, and postal and telegraph revenues declined, due to Covid-19 restrictions. Overall, with a significant increase in the service value of the communication sector, the contributions of the sector to the township's GDP were also considerably increased during the study period. The average growth rate in 10 years was 32.0%. Therefore, it can be concluded that the township can continuously focus on the communication sector's development.

(iii) Financial Sector

The net value of the financial sector is calculated based on the total revenues of public and private financial institutions such as banks, insurance companies, and microfinance firms. The revenue of the financial institutions mainly includes interest, service charges, and insurance fees. The service value of the financial services sector is shown in Table (4.12).

**Table (4.12) Total Value of Financial Sector from 2011-2012 to 2020-2021
(Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	136.8	179.0	228.1	401.5	536.3	546.5	823.3	781.9	609.3	763.8
Value of Net Output	430.0	446.1	536.4	603.0	554.7	444.5	566.5	783.6	748.5	749.2
Performance (%)	314.3	249.2	235.2	150.2	103.4	81.3	68.8	100.2	122.8	98.1
Annual Growth Rate (%)	148.3	3.7	20.2	12.4	-8.0	-19.9	27.4	38.3	-4.5	0.1
The average growth rate in 10 years (%)	15.8									
Contribution % of GDP	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3

*Note: The growth rate in 10 year was calculated a formula that = $(power ((EV/BV), 1/10)-1)*100$*

Source: Township Planning Office, Pyinmana Township

During the study periods, the performance value of the financial sector exceeded the plan's targeted value starting from 2011–2012 to 2015–2016 and 2018–2019 to 2019–2020. However, the performance value had not reached the plan target in 2016–2017, 2017–2018, and 2020–2021. In 2016–2017, the financial sector planned to have the financial services valued at 546.5 million kyat, but actual service values received 444.5 million kyat, with a performance rate of 81.3%. In 2017–2018, the financial sector planned to have the financial services valued at 823.3 million kyat, but actual service values received 566.5 million kyat, with a performance rate of 68.8%. Similarly, the sector planned to have financial services valued at 763.8 million kyat, but actual service values received 749.2 million kyat, with a performance rate of 98.1% in 2020–2021.

Within the last seven years of the study period, the performance of the financial sector exceeded the plan's targeted value, with performance rates of 314.3%, 249.2%, 235.2%, 150.2%, 103.4%, 100.2%, and 122.8%. During these seven years,

the township can continuously implement its financial sector development by increasing the number of private banks and expanding financial services in the township.

The annual growth rate of the financial sector had experienced wide fluctuations. The growth rate of the sector increased from (-19.9%) in 2016–2017 to (27.4%) in 2017–2018 because the government initiated three microfinance projects initiated by private companies within the township, and the number of private banks also increased from 3 in 2012–2013 to 10 in 2013–2014. After this year, the growth rate had slowly increased with a positive rate starting from 2011–2012 to 2020–2021, excluding 2015-2016 in (-8.0%), 2016–2017 in (-19.9%), and 2019–2020 in (-4.5%), which had minus growth rates. The reason for such lower growth rates was that in 2015-2016, Myanmar's insurance corporation moved to Pobbathiri Township and the income decreased the reason for the lower growth rate in 2016-2017 decreased in the interest income of the Agricultural Development Bank, the income of the Co-operative Bank, and the Myawady Bank. In addition, the decrease in growth rate in 2019-2020 was due to the decline in interest income and remittance fees of private banks. The average growth rate in 10 years was 15.8%.

Overall, with an increase in the service value of the financial sector, the contributions of the sector to the township GDP, the maximum was (0.4%) and the minimum was (0.3%), during the study period. Therefore, it can be concluded that the financial sector contributed a small amount to the township's economy and was not a key player in the township.

(iv) Social and Administrative Sector

The net value of the social and administrative sectors is based on the current expenditure of government institutions and non-profit social organizations. The service value of the social and administrative service sector is shown in the following table (4.13).

**Table (4.13) Service Value of Social and Administration Sector
from 2011-2012 to 2020-2021 (Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Plan Target	4367.2	1224.7	1369.7	1380.1	2462.8	1870.8	2064.3	4239.5	4832.6	5077.8
Value of Net Output	1344.4	1440.3	2186.1	2487.7	3635.5	3757.1	4832.5	4905.2	5721.6	5737.1
Performance (%)	30.8	117.6	159.6	180.3	147.6	200.8	234.1	115.7	118.4	113
Annual Growth Rate (%)	14.9	7.1	51.8	13.8	46.1	3.3	28.6	1.5	16.6	0.3
The average growth rate in 10 years (%)	5.1									
Contribution % of GDP	1.2	1	1.5	1.6	2.1	2.1	2.5	2.3	2.5	2.7

*Note: The growth rate in 10 year was calculated a formula that = $(power ((EV/BV), 1/10)-1)*100$*

Source: Township Planning Office, Pyinmana Township

The service value of the social and administrative sectors had exceeded the plan's targeted values throughout the whole study period. There was an upward trend in the value of services in the social and administrative sectors. This is because the government has decided to increase rents, salaries, and other benefits for government staff. Due to the increased rents and salaries of the public sector, the social and administrative sectors could implement more than the plan's target. However, the performance value had not reached the plan target in 2011–2012.

The annual performance of the sector gradually increased from 1344.4 million kyat in 2011–2012 to 5737.1 million kyat in 2020–2021, with an average growth rate is 5.1%. The social and administrative sectors had experienced a large fluctuating growth rate with a positive trend. During the study period, the number of government staff and current expenditure were continuously increased through the movement of the regional and district-level offices, which affected the social and administrative sectors of the township.

(v) Rent and Other Services Sector

The net value of rent and other services is based on the estimated total revenue of the businesses, which excludes other economic sectors. The service value of rent and other services is presented in the following table (4.14).

Table (4.14) Service Value of Rent and Other Services Sector from 2011-2012 to 2020-2021 (Real GDP)

(Million Kyat)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Plan Target	3068.9	3204.7	4199.1	4251.3	5099.1	6691.6	5879.6	11111.9	12055.7	11740.2
Value of Net Output	2845.9	3479.7	5137.3	4729.2	6076.3	8181.9	9361.9	11458.2	12039	11575.3
Performance (%)	92.7	108.6	122.3	111.2	119.2	122.3	159.2	103.1	99.9	98.6
Annual Growth Rate (%)	-18.4	30.5	46.6	3.9	1.3	34.7	14.4	22.4	5.1	-3.9
The average growth rate in 10 years (%)	16.4									
Contribution % of GDP	2.5	2.5	3.6	3.1	3.6	4.6	4.8	5.4	5.2	5.4

Note: The growth rate in 10 year was calculated a formula that = $(power ((EV/BV), 1/10)-1)*100$

Source: Township Planning Office, Pyinmana Township

During the observation period, the service value of the rent and other services sector gradually exceeded the plan's targeted values except in 2011–2012, 2019–2020, and 2020–2021. The performance of the sector was annually increased, and it produced 2845.9 million kyat in 2011–2012 and increased to 11575.3 million kyat in 2020–2021, with an average growth rate is 16.4%. During the period, the annual growth rate fluctuated. The sector's growth rate declined (-18.4%) in 2011-2012 and (-3.9%) in 2020-2021. The decrease in 2011-2012 was because some businesses were included in the new township area in the division of new township boundaries. The

negative growth in 2020-2021, was because the income of restaurants, beauty saloons, private schools, tuitions, hotels, motels, and Inn were decreased, due to the COVID-19 restriction.

The contribution of the sector to the township's GDP was around 2.5% to 5.4% during the study period. The number of small businesses increased, and consequently, their income was also included in the sector's service values. Overall, within the study period, the township can increasingly implement the sector.

(vi) Trade Sector

The trade sector plays a vital role in the township's economy, with a contribution rate of around 13% to 16.9% in GDP annually. The calculation of the value of the trade sector includes trading the outputs from agriculture, livestock and fisheries, forestry, mining, and the manufacturing and processing industries. Therefore, with the growth of production in agriculture, livestock, forestry, mining, and manufacturing and processing sectors, trade also increased; consequently, the service sector has grown. The net value of the trade sector is based on the net value of agriculture, livestock and fisheries, forestry, mining, and manufacturing and processing sectors that traded in the township. The main exports of the township to other regional townships are paddy, beans, sesame, vegetables, and other agricultural products; housing decoration products made from wood; and some consumer goods such as candles, noodles, and snacks. The main imported goods from other townships were raw materials needed to produce consumer goods such as sugar, packaging material, etc., and many consumer goods such as makeup, shampoo, shower, paper, etc. The value of the trade sector is presented in Table (4.15).

Table (4.15) Value of Trade Sector from 2011-2012 to 2020-2021 (Real GDP)

(Million Kyat)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Plan Target	12587.6	14246.5	14413	15454.2	16249	22567.4	24652.7	34478.6	37047.7	37955.1
Value of Net Output	15425.6	18386.5	19253.1	19942.7	27924.9	29845.8	31414.8	34653	33398.6	32529.7
Performance (%)	122.5	129.1	133.6	129.0	171.9	132.3	127.4	100.5	90.2	85.7
Annual growth rate (%)	13.6	19.2	4.7	3.6	40.0	6.9	5.3	10.3	-3.6	-2.6
The average growth rate in 10 years (%)	9.1									
Contribution % of GDP	13.5	13.1	13.6	13.0	16.5	16.9	16.2	16.3	14.5	15.1

Note: The growth rate in 10 year was calculated a formula that = $(\text{power} ((EV/BV), 1/10)-1)*100$

Source: Township Planning Office, Pyinmana Township

During the study period, the contribution of the trade sector to the township's GDP was at a minimum of 13.0% and at a maximum of 16.9%. The performance of the trade sector had surpassed the plan's targeted value in eight successive years, whereas it could not completely implement the plan to meet the target value in the other two years. During the study period, the performance value of the sector significantly increased from 15425.6 million kyat in 2011–2012 to 32529.7 million kyat in 2020–2021, with an average growth rate is 9.1 percent. Overall, the trade sector is an important economic sector in the township's economy, with an increasing contribution rate to GDP. The more production sectors were implemented, the more the trade sector developed. Consequently, the township's economy has also grown.

However, the growth rate of the sector fell sharply to (-3.6%) in 2019–2020, and (-2.6%) in 2020-2021. This is because in 2019-2020, the agriculture and forestry sectors were not able to fully perform their targets and growth rates were decreased which directly affected the trade sector and caused negative growth. Similarly, in 2020-2021 was found the agriculture, mining and manufacturing and processing sectors were not able to fully implement their targets and the growth rates were decreased which directly affected the trade sector and caused negative growth.

(vii) Summary of the Condition of Service Sectors

During the study period, the values of the service sectors, which include transportation, communication, financial services, social and administrative services, rent and other services, and the trade sector, and their contributions to the township's GDP are summarized in Table (4.16).

Table (4.16) Total Value of Service Sectors from 2011-2012 to 2020-2021)

(Million Kyat)

Service Sectors		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Transportation	Value	26595.7	26927.7	26409.8	28147.3	36163.2	40069.5	42478.8	47220.2	51461.8	40635.4
	% of GDP	23.3	19.2	18.7	18.3	21.4	22.7	21.9	22.2	22.4	18.9
Communication	Value	1246.3	2538.3	14454.4	25281.7	11591	14717	21430.5	19947.7	26130.3	20998.9
	% of GDP	1.1	1.8	10.2	16.5	6.8	8.3	11	9.4	11.4	9.8
Financial	Value	430.0	446.1	536.4	603.0	554.7	444.5	566.5	783.6	748.5	749.2
	% of GDP	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3
Social and Admin	Value	1344.4	1440.3	2186.1	2487.7	3635.5	3757.1	4832.5	4905.2	5721.6	5737.1
	% of GDP	1.2	1.0	1.5	1.6	2.1	2.1	2.5	2.3	2.5	2.7
Rental & Service	Value	2845.9	3479.7	5137.3	4729.2	6076.3	8181.9	9361.9	11458.2	12039	11575.3
	% of GDP	2.5	2.5	3.6	3.1	3.6	4.6	4.8	5.4	5.2	5.4
Trade	Value	15425.6	18386.5	19253.1	19942.7	27924.9	29845.8	31414.8	34653	33398.6	32529.7
	% of GDP	13.5	13.1	13.6	13.0	16.5	16.9	16.2	16.3	14.5	15.1
Total	Value	47887.9	53218.6	67977.1	81191.6	85945.6	97015.8	110085.0	118967.9	129499.8	112225.6
	% of GDP	41.9	37.9	48.1	52.9	50.7	54.9	56.7	55.9	56.3	52.3

Source: Township Planning Office, Pyinmana Township

In Table (4.16), the conditions of the transportation, communication, financial, social, and administrative sectors, rent and other services, and trade sectors are revealed. There are three vital service sectors in Pyinmana Township: transportation, communication, and trade. Social and administrative expenditures are government expenditures, including salaries and other expenditures. Rent and other services are estimated to be the total revenue of the businesses, which excludes other economic sectors. According to Table 4.16, the transportation sector mainly contributed to GDP, with increasing contribution rates over the study period. Moreover, the trade sector and communication sector contributed secondarily to GDP.

4.3 Socio-Economic Development in Pyinmana Township

4.3.1 Economic sectors Development in Pyinmana Township

The net product value and service value of the three main sectors; agricultural, industrial, and service sectors of Pyinmana Township during the period from 2011–2012 to 2020–2021 are described in Table (4.17).

**Table (4.17) Total Value of Agricultural, Industrial and Services Sectors
from 2011-2012 to 2020-2021 (Real GDP)**

(Million Kyat)

	2011- 2012	2012- 2013	2013- 2014	2014- 2015	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020	2020- 2021
Agricultural	20813.0	22864.3	24019.3	24865.1	30146.9	35189.2	29273.6	32387.9	32296.2	31643.7
Industrial	45663.2	64215.1	49335.2	47540.0	53278.8	44410.1	54626.6	61296.7	68053.3	70897.1
Services	47887.9	53218.6	67977.1	81191.6	85945.63 995	97015.8	110085	118967.9	129499.8	112225.6
Total (GDP)	114364.1	140298.0	141331.6	153596.7	169371.3	176615.1	193985.2	212652.5	229849.3	214766.4

Source: Township Planning Office, Pyinmana Township

According to the table (4.17), the township's economy had growth, with an increase in each sector except the industrial sector. The agricultural sector increased from 20813.0 million kyats in 2011–2012 to 31643.7 million kyat in 2020–2021. These increasing product values in agricultural sector are the outcomes of the national and local governments' efforts on agricultural development. These efforts include providing qualified seed species, providing technical training, improving public awareness of agricultural knowledge and technologies, increasing agricultural loans for different crops, and increasing the number of agricultural staff in the township. Moreover, the township had improved the industrial sector based on the national industrial development policy, which significantly focuses on the development of small and medium enterprises (SMEs). Within the township, the manufacturing and processing businesses were organized monthly through the Township Planning and Implementation Committee (TPIC), and the representatives of the businesses were elected to participate in the process of township development plans. Based on these plans, the township focused on easing the challenges facing businesses in the industrial sector and increasing the product value of the sector. Consequently, the industrial sector increased from 45663.2 million kyats in 2011–2012 to 70897.1 million kyat in 2020–2021. With the economic growth in the agricultural and industrial sectors, the annual incomes of the local people in the township increased; consequently, their consumption of services also increased.

Moreover, national-level policy implementations such as permitting private mobile operators and accelerating rural development projects, including rural roads, bridges, and electric power, assisted in the development of service sectors in the township. As a consequence of these policy implementations, the services sector increased from 47887.9 million kyats in 2011–2012 to 112225.6 million kyat in 2020–2021. In total, the township's GDP increased from 114364.1 million kyats in 2011–2012 to 214766.4 million kyat in 2020–2021.

In the case of Pyinmana Township, the main reasons for the dominance of the services sector could be explained. The number of micro, small, and medium processing and manufacturing industries is continuously increasing; the value and volume of their production could not go beyond the services sector. Therefore, the industrial sector contributed less to GDP than the services sector. At the same time, the outputs from the agricultural sector are traded, and hence, the trading of agricultural output contributes to the services sector. Moreover, a significant number

of commercial, retail, and wholesale businesses trade consumer goods for residents. The financial institutions are also providing financial services to the public. There are also numerous businesses that are offering services such as restaurants, tuitions that give educational services, laundry services, etc. The incomes from these businesses flow into the services sector. Moreover, the transportation sector accounts for a large portion of the service sector and township GDP. That is why the services sector has the largest share of GDP while the industrial sector is still improving.

The share of agriculture, industry, and services sectors in the GDP of Pyinmana township at constant producer's prices from 2011–2012 to 2020–2021 is presented in Table (4.18).

Table (4.18) The Contribution Percentage of Agriculture, Industry and Services Sector in GDP from 2011-2012 to 2020-2021 (Real GDP)

(Percentage)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Agricultural	18.2	16.3	17.0	16.2	17.8	19.9	15.1	15.2	14.1	14.7
Industrial	39.9	45.8	34.9	31.0	31.5	25.1	28.2	28.8	29.6	33.0
Services	41.9	37.9	48.1	52.8	50.7	54.9	56.7	55.9	56.3	52.3
Total (GDP)	100	100	100	100	100	100	100.0	100.0	100.0	100.0

Source: Township Planning Office, Pyinmana Township

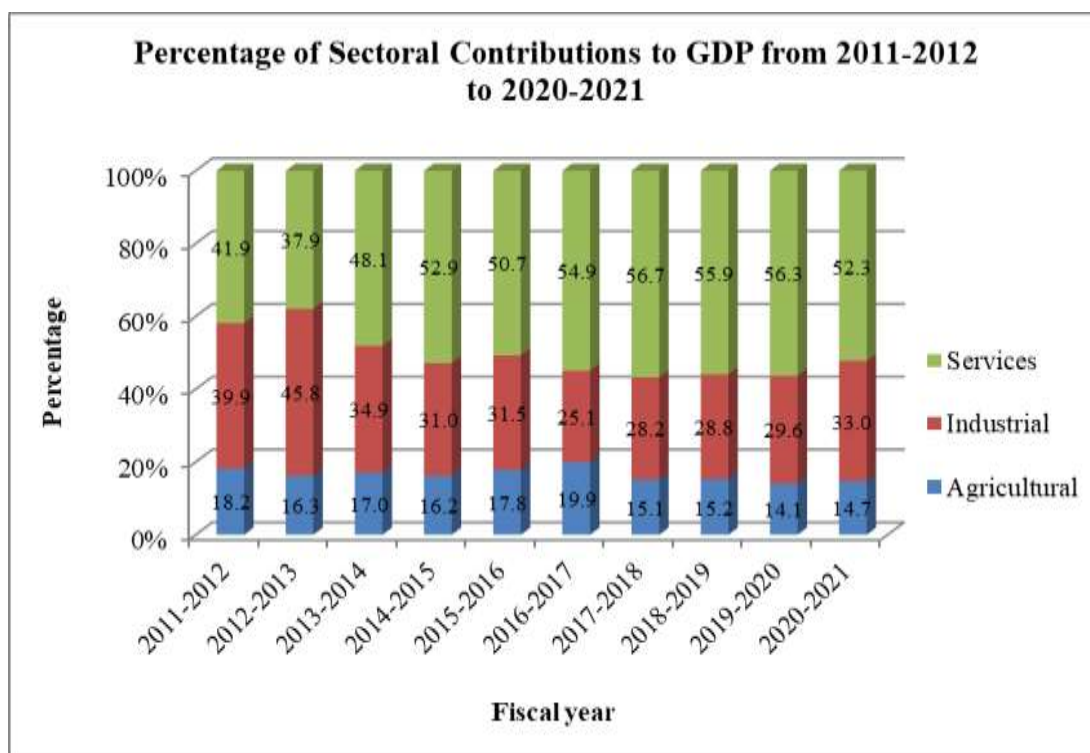
As shown in Table (4.18) and Figure (4.1) during the study period, the Agricultural sector's contribution was significantly decreasing from 18.2% in 2011-2012 to 14.7% in 2020-2021. Likewise, the contribution of Industrial sectors was decreasing from 39.9 % in 2011-2012 to 33.0 % in 2020-2021. Services sectors were considerably increasing during the study period. The service sector's contribution increased from 41.9% in 2011-2012 to 52.3% in 2020-2021.

The sectorial contribution to GDP in Table (4.18) shows that the services sector had the highest contribution than agricultural and industrial sector. The service sector is concerned with the intangible aspect of offering services to consumers and businesses. It involves trading, providing services, such as transportation, communication, hotel and tourism, banking, etc. It is highly recognized that in

developed economies, the services sector dominates the total output of the economy. This means that Pyinmana Township’s economy is based on the services sector and hence, it leads to more advanced economy.

Each sector’s contribution to the township’s economy can also be seen in Figure (4.1).

Figure (4.1) Sectorial Contributions to GDP (Percentage) from 2011-2012 to 2020-2021



Source: Township Planning Office, Pyinmana Township

Table (4.19) shows the township’s real GDP, population, and per capita GDP during the period between 2011–2012 and 2020–2021. According to the table, the township’s real GDP, population, and per capita income are continuously increasing.

Table (4.19) Real GDP, Population and Per Capita GDP from 2011-2012 to 2020-2021

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
GDP (Million kyat)	114364.1	140298.0	141331.6	153596.7	169371.3	176615.1	193985.2	212652.5	229849.3	214766.4
Population (Persons)	182000	184000	186000	190000	194000	197000	200000	205000	209000	213000
Per capita GDP (Kyat)	678325.0	857734.2	835330.1	880228.4	922962.9	931553.3	1020795.0	1198417.1	1283128.2	1187053.1

Source: Township Planning Office, Pyinmana Township

According to Table (4.19), the per capita GDP of Pyinmana Township was 678325.0 kyats in 2011–2012, with a population of 182000. At the end of the study period of 2020–2021, per capita GDP increased to 1187053.1 kyats with an increased population of 213000. With an increase in the GDP value (214766.4 million kyat) in 2020-2021 compared to the GDP value (114364.1 million kyat) in 2011-2012, per capita GDP increased by 5.8 percent in the study period. Hence, it can be easily observed that the economic condition of Pyinmana Township is good, and the living standard of residents in this region is also being raised.

Table (4.20) Shows the Growth Rate of GDP, Population and Per Capita Income (constant price)

(Percentage)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
GDP growth rate	8.4	22.7	0.7	8.7	10.3	4.3	9.8	9.6	8.1	-6.6
Population growth	-21.2	1.1	1.1	2.2	2.1	1.5	1.5	2.5	2.0	1.9
Per Capita GDP growth	48.6	26.4	-2.6	5.4	4.9	0.9	9.6	17.4	7.1	-7.5

Source: Township Planning Office, Pyinmana Township

GDP's growth rate in Pyinmana Township and per capita income had been extremely fluctuating during the study period. Township's GDP growth rate experienced a sharp increase between 2011–2012 and 2012–2013, from 8.4% to 22.7%. Then, the GDP growth rate experienced an increase from 2013–2014 to 2019–2020 again. However, the per capita GDP growth rate had also experienced a wide fluctuation due to population changes. The per capita GDP growth rates in 2011–2012 are high, owing to significant changes in population and township GDP. In 2013, per capita GDP and growth rate decreased a little; the reason is due to the increase in population, but GDP just a little increased.

Table (4-20) highlights the decreased Population growth rate in 2011–2012 because Nay Pyi Taw Union Territory identified the township areas. After 2011–2012, it was found that each year has been steadily rising from 2011–2012 to 2020–2021 in Pyinmana Township. The population mentioned above is the population used for calculating per capita GDP. Myanmar's per capita GDP is calculated based on the population of the Department of Immigration and Population.

4.3.2 Social Sectors of Pyinmana Township

In this section, the social conditions of Pyinmana Township during the study period have been described and analyzed. In analyzing the social sector, two important social sectors, health and education, are explained in each subsection, and the final section describes the analysis of the social conditions.

(i) Health Sector of Pyinmana Township

It is universally accepted that health care is a basic social need for human beings, and a healthy population is a valuable asset for a country. Healthy people are an essential element of economic and social progress. Consequently, the development of the health sector is crucial to building human capital. Healthcare programs have therefore come to be seen as part of a comprehensive strategy aimed at improving the social and economic welfare of the population. The development of health status is reflected in the rapid rise in health infrastructure such as hospitals, dispensaries, and other healthcare facilities and in health indicators such as doctor-patient ratio, nurse-patient ratio, etc. Health care is a basic need for human beings, and a healthy population is a valuable asset for a nation. Therefore, the health sector is an important and basic building block for the general population's gradually increasing health.

Healthy people are an essential element of economic and social progress. Healthcare programs have therefore come to be seen as part of a comprehensive strategy aimed at improving the social and economic welfare of the population.

The constitution of the World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". The development of health status, a primary aim of social development, is reflected in the rapid rise in the number of hospitals, dispensaries, and other health care facilities and the increase in the doctor-patient ratio and nurse-patient ratio.

This section describes the health infrastructure, health-related indicators, and healthcare services accessible in Pyinmana Township.

A. Health Infrastructure

The existence of hospitals, health care centers, and clinics in Pyinmana Township is shown in Table (4.21).

Table (4.21) The Hospitals, Health Care Center and Clinic in Pyinmana Township

Sr.	Particular	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
1	200-Bedded General Hospital	1	1	1	1	1	1	1	1	1	1
2	Maternal and Child Health Centre	1	1	1	1	1	1	1	1	1	1
3	Rural Health Centre	5	5	6	6	6	6	6	7	7	7
4	General Practitioners Clinic	52	55	58	63	65	69	73	78	81	85
5	Private Hospital	1	1	1	4	4	4	5	6	6	6

Source: Township Health Office, Pyinmana Township

According to Table (4.21), there are (1)200-Bedded General public hospital and (1) private hospital for modern pharmaceutical treatment in Pyinmana Township. It could be seen that there were an increase in rural health care centers. In 2011-2012, there were 5 rural health centers but in 2020-2021, there were 7 rural health centers. Therefore, two additional rural health centers were established within the study period. Moreover, general practitioners clinics were available for general health care of Pyinmana Residents. In 2011-2012, there were 52 private clinics but in 2020-2021, there were 85 clinics. In general, it can conclude that the public in Pyinmana Township has adequate health care infrastructure for general health care.

B. Fertility, Mortality, and Life Expectancy

Fertility rate, mortality rate, and life expectancy at birth in the township during the study period (2011–2012 to 2020–2021) are indicated in Table (4.22).

**Table (4.22) Indicators for Fertility, Mortality and Life Expectancy
(2011-2012 to 2020-2021)**

Sr.	Indicators	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
1	Fertility Rate (per 1,000)	17.8	15.81	15.9	15.2	15.7	16.5	17.0	17.2	18.1	18.6
2	Mortality Rate (per 1,000)	7.2	7.4	6.5	5.7	5.6	5.2	5.1	5.6	5.5	5.3
3	Infant Mortality	6.4	6.5	6.8	6.2	5.6	2.13	3.0	3.1	3.1	3.0
4	Maternal Mortality Rate	0.6	0.6	1.2	0.7	0.4	0.3	0.3	0.3	0.3	0.3
5	Life Expectancy	68	69	70	70	70	70	70	70	70	70

Source: Township Health Office, Pyinmana Township

During the study period, the fertility rate of the township continuously increased. In 2020–2021, the fertility rate was 18.6, which increased from 17.8 in 2011–2012. At the same time, the mortality rate continuously decreased from 7.2 in

2011–2012 to 5.3 in 2020–2021. Similarly, infant mortality and maternal mortality rates continuously decreased over the study period between 2011–2012 and 2020–2021. These data prove that the township has successfully implemented infant and maternal health care. To improve the health of mothers and children, the Health Department has been planning and implementing interventions to improve the health status of mothers, newborns, and children. The Health Department has carried out a number of activities that support maternal and child health, such as nutrition programs, quality family planning services, immunization, vaccination, and increasing antenatal, delivery, postnatal, and newborn care services. At the same time, life expectancy at birth also increased from 68 years in 2011–2012 to 70 years in 2020–2021. These outcomes are the consequences of the government’s effort to improve the public health care system.

C. Actual Workforce in Health Services and Population per Doctor

The actual workforce in health services and population per doctor of Pyinmana Township during the study period are indicated in table (4.23).

Table (4.23) Actual Workforce in Health Services from 2011-2012 to 2020-2021

Sr.	Type of Manpower	Person									
		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
1	Doctor	45	46	48	54	57	64	67	70	72	78
2	Nurse	76	82	83	94	97	105	106	95	108	115
3	Midwife	28	35	38	38	38.0	42	47	52	56	45
4	Population per Doctor	3816:1	3774:1	3656:1	3408:1	3140:1	2826:1	2724:1	2630:1	2580:1	2403:1

Source: Township Health Office, Pyinmana Township

According to Table (4.23), the total health workforce in Pyinmana Township has increased from 149 to 238 from 2011–2012 to 2020–2021. In ten years, the number of nurses increased from 76 to 115. As the total population of the year 2021 was 187,439 and the number of doctors was 78, there was on average one doctor for every 2403 people. In terms of health care, on average, a doctor has to care for 45 people in 2011-2012 and 78 people in 2020-2021. This shows that the ratio of doctors is still high and that more doctors and nurses are still required to meet the demand for

health care services in this area. Pyinmana Township is a little better in 2020-2021 than it was in 2011-2012. However, the situation of health care is rather weak in Pyinmana Township. Therefore the medical profession and the staff force in rural areas of Pyinmana Township are needed.

(ii) Education Sector of Pyinmana Township

Education is fundamental to enhancing the quality of life and ensuring social and economic progress. Education plays a vital role in achieving sustainable development. Furthermore, it is vitally important for the human resources development of the country to improve its capacity and access advanced technologies. In studying the socioeconomic development of a certain region, it can be analyzed based on the progress of basic social needs such as education and health. Therefore, the development of the education sector of Pyinmana Township will be assessed by studying the improvement in educational infrastructure, such as the number of schools, teachers, etc., and educational indicators, from 2011–2012 to 2020–2021.

In Table (4.24) shows the number of basic education schools in Pyinmana Township from 2011–2012 to 2020–2021. As presented in Table (4.24), Pyinmana Township had (6) high schools, (3) sub high schools, (3) middle schools, (3) sub middle schools, (86) primary schools, and (10) post-primary schools in 2011–2012. In 2020–2021, there were (9) high schools, (6) sub high schools, (6) middle schools, (7) sub middle schools, (70) primary schools, and (28) post-primary schools. Therefore, the number of schools has improved by three high schools, three middle schools, and decreased by sixteen primary schools from 2011–2012 to 2020–2021. The decrease in primary schools is due to the upgrading of the school from primary level to post-primary level.

**Table (4.24) Number of Basic Education Schools in Pyinmana Township
from 2011-2012 to 2020-2021**

Sr. No	Grade of School	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
1	High School	6	6	6	6	8	9	9	9	9	9
2	Sub High School	3	3	3	3	2	4	3	6	6	6
3	Middle School	3	3	3	4	4	4	4	6	6	6
4	Sub Middle School	3	3	3	5	5	9	9	7	7	7
6	Primary School	86	84	78	79	79	68	68	68	70	70
7	Post-primary School	10	13	21	19	19	26	28	28	28	28
8	Monastery School	6	7	7	7	6	6	6	6	6	6
9	Private School			1	2	2	3	5	8	8	8
	Total	117	119	122	125	125	129	132	138	140	140

Source: Township Education Office, Pyinmana Township

In addition to schools, teachers are a key piece of education infrastructure. The increase in the number of qualified teachers is an important factor in the development of the education sector. In the age of quality-driven education, only qualified teachers can generate qualified students. Therefore, assessing the teacher-student ratio can express the development of the education sector in a particular region. Table (4.25) shows the teacher/student ratio in Pyinmana Township from the years 2011–2012 to 2020–2021.

**Table (4.25) Teacher- Student Ratio of Pyinmana Township
from 2011-2012 to 2020-2021**

Level of Basic Education		2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Primary School	Teacher	440	446	417	417	452	461	473	485	502	502
	Student	17705	17326	18026	18194	18270	19441	20374	20865	21245	21245
	Ratio	1:40	1:39	1:43	1:44	1:40	1:42	1:43	1:43	1:42	1:42
Middle School	Teacher	326	326	339	332	416	486	512	527	530	530
	Student	9345	9528	9852	10423	10582	11685	11946	11980	12054	12054
	Ratio	1:29	1:29	1:29	1:31	1:25	1:24	1:23	1:23	1:23	1:23
High School	Teacher	100	96	126	123	129	136	152	154	160	160
	Student	2858	2962	3146	3753	3810	3842	3919	3975	4024	4024
	Ratio	1:29	1:31	1:25	1:31	1:30	1:28	1:26	1:26	1:25	1:25

Source: Township Education Office, Pyinmana Township

According to Table (4.25), the teacher/student ratio at the high school level showed not much difference, that is, 1:29 in the 2011–2012 academic year and 1:25 in the 2020–2021 academic year. Likewise, the teacher/student ratio at the middle school level had no significant changes: (1:29) in the 2011–2012 academic year and (1:23) in the 2020–2021 academic years. However, at the primary school level, there was a substantial improvement in the teacher/student ratio, which dropped from 1:40 in the 2011–2012 academic years to 1:42 in the 2020–2021 academic years, indicating that one teacher has to teach 42 students.

With a small number of students (42), the teacher can concentrate more on the improvement of each student. Therefore, the ratios between teachers and students in all basic education sectors imply that the teachers are adequate to provide educational services to the students in Pyinmana Township.

CHAPTER V

CONCLUSION

5.1 Findings

Pyinmana Township was situated at the junction of the main roads with good communication in Naypyitaw Union Territory; thus, transportation is a major commercial activity of the Township, and construction is the main source of livelihood for the people of the Township. Consequently, Pyinmana Township experienced an adequate and favorable socio-economic condition during the study period. The township could change its physical infrastructure, such as roads, bridges, schools, and medical centers. These infrastructure developments could help the local people of the township have better conditions for daily life.

The township's economy experienced growth with an increase in each sector. The agricultural sector increased from 20813.0 million kyats in 2011–2012 to 31643.7 million kyat in 2020–2021. Moreover, the industrial sector increased from 45663.2 million kyats in 2011–2012 to 70897.1 million kyat in 2020–2021. Additionally, the services sector increased from 47887.9 million kyats in 2011–2012 to 112225.6 million kyat in 2020–2021. Consequently, the township's GDP increased from 114364.1 million kyats in 2011–2012 to 214766.4 million kyat in 2020–2021. The agricultural sector's contribution was significantly decreasing, from 18.2% in 2011–2012 to 14.7% in 2020–2021. Likewise, the contribution of industrial sectors decreased from 39.9% in 2011–2012 to 33.0% in 2020–2021. Services sectors were considerably increasing during the study period. The service sector's contribution increased from 41.9% in 2011–2012 to 52.3% in 2020–2021.

GDP's growth rate in Pyinmana Township and per capita income had extremely fluctuated during the study period. Township's GDP growth rate experienced a sharp increase from 17.1% in 2011–2012 to 27.8% in 2012–2013. Then, in 2013–2014, the GDP growth rate decreased to -1.60%, followed by a sharp decrease to -5.7% in 2020–2021. However, the per capita GDP growth rate has also experienced fluctuations due to population increases. With an increase in the per

capita GDP of 1192652 kyats in 2020-2021 compared to the per capita GDP of 678325 kyat in 2011-2012, the per capita GDP increased by 514327 kyat. Hence, it can be easily observed that the economic condition of Pyinmana Township is good, and the living standard of residents in this region is also being raised.

Generally, the people in Pyinmana Township have adequate education and health care infrastructure for general health care. In Pyinmana Township, there are 200-bed general public hospitals and six private hospitals for modern pharmaceutical treatment. Similarly, there was an increase in rural healthcare centers. In 2011–2012, there were 5 rural health centers, but in 2020–2021, there were 7 rural health centers. Therefore, two additional rural health centers were established during the study period. Moreover, general practitioner's clinics were available for the general health care of Pyinmana residents. In 2011–2012, there were 52 private clinics, but in 2020–2021, there were 85 clinics. There is little increase in the number of new buildings for healthcare services.

The indicator of health, the ratio of patients per doctor, is one doctor who has to take care of 3816 patients in 2011–2012 and 2403 in 2020–2021. The ratio of patients to doctors health care is lower and in good condition. The fertility rate (per 1000) increased from 17.8 in 2011–2012 to 18.6 in 2020–2021, and the under-1-year mortality rate decreased from 7.2 in 2011–2012 to 5.3 in 2020–2021. The rate of maternal mortality decreased from 0.6 to 0.3. The life expectancy rate of the township significantly increased from 68 in 2011–2012 to 70 in 2020–2021.

5.2 Recommendations

According to the findings of the study, Pyinmana Township already possessed favorable social and economic conditions during the study period. At the same time, the township's social and economic indicators were continuously increasing during the study period. Moreover, it can be observed that the people in the township ensured an increase in per capita income by increasing the township's GDP. However, the township still needs to do more and more to have better socio-economic conditions than the current situation. Therefore, to achieve more sustainable development and economic growth in the township, the following suggestions should be implemented:

To focus on improving the production of the productive sectors: The contribution of the service sector to the township's GDP had significantly increased during the study period. However, the contribution of the agricultural and industrial

sectors to the township's economy continuously decreased during the observation period. Therefore, the township should be improved in productive sectors such as agriculture and industry because the production sectors can provide more sustainable economic growth and higher employment than the service sector. To increase the production values of the sectors, the township should promote the provision of technology and funding that can continuously expand their production.

More improvement in the health sector of the township: For further development of the healthcare sector, the township should focus on the development of health infrastructure, such as hospitals and rural health centers. Additionally, to further reduce the mortality rate of the township, it ought to provide training programs relating to healthy lifestyles. To manage the township's fertility rate, the township needs to educate the people about reproductive health through training programs within the township. Apart from this, human resources in the health sector should be developed by the township with the development projects of the Union government.

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WEBSITE

<https://www.wallstreetmojo.com/cagr-formula-in-excel/>

APPENDIX (1)

Map of Pyinmana Township



APPENDIX (2)

Thirteen Sectors of Real GDP (million kyat) in Pyinmana Township (2011-2012) to 2020-2021 The average growth rate in 10 years

No.	year	Agriculture	Livestock& Fish	Forestry	Mining	Industry	Electrical Power	Construction	Transport	Communication	Finance	Rental&Service	Social	Trade Sector	GDP
1	2010-2011	16015.2	3077.1	175.4	683.7	12590.1	2409.2	25945.9	23507.6	1312.2	173.2	3488.1	2517.7	13574.1	105469.5
2	2011-2012	17241.4	3433.6	138	106	14389.3	1082.8	30085.1	26595.7	1246.3	430	1344.4	2845.9	15425.6	114364
3	2012-2013	18954.9	3699.3	210.1	121.2	17608.2	1350.9	45134.8	26927.7	2538.3	446.1	1440.3	3479.7	18386.5	140298
4	2013-2014	19872.8	4002.3	144.2	140.1	18963.9	1725.4	28505.8	26409.8	14454.4	536.4	2186.1	5137.3	19253.1	141331.6
5	2014-2015	20522.1	4195.6	147.4	140.5	20077.9	1304	26017.6	28147.3	25281.7	603	2487.7	4729.2	19942.7	153596.7
6	2015-2016	24034.1	6005.3	107.5	32	28436.9	2839.9	21970	36163.2	11591	554.7	3635.5	6076.3	27924.9	169371.3
7	2016-2017	30477.5	4649.3	62.4	112.2	30000.5	3131.3	11166.1	40069.5	14717	444.5	3757.1	8181.9	29845.8	176615
8	2017-2018	22079.8	6965.9	227.9	57	32294.9	3324.5	18950.3	42478.8	21430.5	566.5	4832.5	9361.9	31414.8	193985.3
9	2018-2019	23864.6	8238	285.3	61.9	35312.8	3307.8	22614.2	47220.2	19947.7	783.6	4905.2	11458	34653	212652.3
10	2019-2020	23573.1	8477.2	245.9	61.9	32875.7	2835.6	32280.1	51461.8	26130.3	748.5	5721.6	12039	33398.6	229849.3
11	2020-2021	22437	8946	260.7	53.7	31525.4	3270.9	36047.1	40635.4	20998.9	749.2	5737.1	11575.3	32529.7	214766.4
The average growth rate in 10 years (%)		3.4	11.2	4.04	-22.5	9.6	3.1	3.3	5.6	32	15.8	5.1	16.4	9.1	7.3

APPENDIX (3)

Descriptive Statistics for Pyinmana Township

The average growth rate in 10 years (Calculation)

Example (Agriculture Sector)

Formula = (Power ((EV/BV), 1/n)-1)*100

EV = GDP's ending value (22437)

BV = GDP's beginning value (16015.2)

n = number of periods (10)

-1 = Subtract one from the subsequent result.

Multiply by 100 = to convert the answer into a percentage

Formula = (Power ((EV/BV), 1/n)-1)*100

= (Power ((22437/17241.4), 1/10)-1)*100

Answer = 3.4%

Example (Livestock & Fishery Sector)

= (Power ((8946.0/3077.1), 1/10)-1)*100

Answer = 11.2%

APPENDIX (4)

Nominal GDP, Population and Per Capita GDP from 2011-2012 to 2020-2021

	2011 2012	2012 2013	2013 2014	2014 2015	2015 2016	2016 2017	2017 2018	2018 2019	2019 2020	2020 2021
GDP (Million kyat)	123455.2	157823.1	155371.4	167243.4	179054.8	183516.0	204159.0	245675.5	268173.8	252842.3
Population (Persons)	182000	184000	186000	190000	194000	197000	200000	205000	209000	213000
Per capita GDP Kyat)	678325.0	857734.2	835330.1	880228.4	922962.9	931553.3	1020795.0	1198417.1	1283128.2	1187053.1

The formula for Per Capita GDP = Township nominal GDP/ Township Population

For Example (2011-2012) = 123455 /182000
= 0.678325(million kyat)

Multiply by 1000000 = to convert the answer into kyat
= 0.678325x1000000
= 678325 (kyat)

For Example (2020-2021) = 252842.3 /213000
= 1.187053(million kyat)

Multiply by 1000000 = to convert the answer into kyat
= 1.187053x1000000
= 1187053.1 (kyat)