

**THE IMPACT OF AGRICULTURAL REFORMS ON RICE PRODUCTION
IN MYANMAR SINCE 1988**

**By
SAW NAING**

THESIS

**Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirement
for the degree of**

Master of Public Policy

2002

**THE IMPACT OF AGRICULTURAL REFORMS ON RICE PRODUCTION
IN MYANMAR SINCE 1988**

**By
SAW NAING**

THESIS

**Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirement
for the degree of**

Master of Public Policy

2002

Professor Ju-Ho-Lee

ABSTRACT

Myanmar is a country whose economy depends much on agriculture sector and its varieties of agricultural product are important for self-sufficiency in food as well as for foreign earnings for economic development. Among them, rice is the most important crop not only for daily consumption but also for export.

Rice has been cultivated as a staple crop in Myanmar since prehistoric time. According to **Kandaw Mawkun**¹ record, up to 187 rice varieties² had been grown in the region where Myanmar will be located later on. During the reign of ancient Myanmar kings, rice production was mainly for local consumption. Under British Colony since 1885, rice became a significant export item and production also increased steadily from year to year. When Suez Canal was opened in 1896, demand of Myanmar rice from other countries sharply increased. Amount of export reached about 3 million tons annually and so Myanmar was the dominant rice exporting country in the world during the first half of 20th century (particularly between 1921 and 1941), accounting for nearly three-fourth of the world export. However, rice cultivated area declined in the intermediate post-war period due to devastation by war and civil unrest³. After regaining independence in 1948, rice production increased again under short-term economic plans. Nevertheless, there were still fluctuations in production in the entire decade after 1965. Actually; rice production was under the control of the successive governments with various political systems soon after independence. At the beginning of 1976-77, improved technologies

¹ It is the name of ancient record.

² The Ministry of Agriculture and Irrigation, **Agricultural Development in Myanmar** (1996,p.20)

³ Rice cultivated area was 12.51 millions acres in 1940-41 and then decreased to 6.65 million acres in 1945-46.

were adopted and practiced under the guidance of Socialist government in order to secure food for growing population and to raise level of export. Rice production increased about one decade from the beginning of the program because of increase in yield per acre. In the following years, it fluctuated from year to year as a consequence of decrease in sown acreage.

In 1988, the State Law and Order Restoration Council assumed the responsibilities of the State and then economic system was also transformed from centralized system into market-oriented system. Reform measures in agriculture sector, the key sector of the economy, were conducted in line with market-oriented system and rice (which covers the largest portion of cultivated area) is designated as the most important “national crop” not only for staple food but also for export.

In 1992-93, Summer Rice Program (post-monsoon paddy) was initiated with the government’s supporting. As a result of the program, there was a surge in production during the preceding three years after 1992-93. Not only sown acreage but also production increased. Yield per acre under summer paddy program highly increased because of government’s strong supporting inputs. But, yield of regular monsoon paddy did not increase significantly. So, average yield per acre remained the same as before. The government’s supply of important inputs such as chemical fertilizer and diesel oil gradually decreased because of deficit budget. Actually infrastructure development in Myanmar agriculture sector has been severely constrained by the government budget problem, particularly the shortage of foreign exchange, and slow inflow of FDI to the agricultural sector since 1989 as well. So, rice farmers had problems of insufficient inputs such as diesel oils for irrigation, which is very important for summer paddy, and chemical

fertilizer, which is a key input for increase in yield. Although the government encouraged the private sector to join in supply of agricultural inputs and machineries, the participation of private sector have still been minimal.

Moreover, the government also abolished control system of crop pattern under the market economic system, so the farmers had their own crop choices. After 1996-97, some farmers changed their crop pattern from paddy to other commercial crops such as pulse and beans which have more price incentives, compared with rice (Appendix D). Although rice had been only commercial crop before, price incentive of rice became less and less for farmers because the role of importing rice was very feeble. Regarding the quality, Myanmar export rice cannot compete with others in the world market. So, demand for Myanmar rice decreased from year to year. Even if there is demand, the price level is low¹, comparing to others. Despite allowing the private sector for domestic marketing of agricultural products as well as export, rice is still monopolized by the government for export. So, the amount of other commercial crops such as pulses and beans the private sector exports became bigger and bigger from year to year. The more export of pulses and beans, the higher the price of pulses and beans. So, the high prices of other commercial crops are very attractive to farmers to change their previous crop pattern. With problem of shortage in inputs under the inconsistent policies, three-year continuous success of summer paddy program became sluggish at the beginning of 1996-97. In the following years, there was no increase at all and rice production under the agricultural reforms did not achieve sustainable growth.

¹ Export price of Myanmar rice is about half of Thailand rice price.

Dedication to

To my dearest father (passed away in 1994) and mother,

My teachers in my country, and

Korean International Cooperation Agency (KOICA)

KDI School of Public Policy and Management

Korea, the country that has good relationship with my motherland, Myanmar

Thank a lot more than I can express.

가장 사랑하는 어머니와

존경하는 아버지(1994 년 돌아가심)

내 조국의 선생님 들과

한국국제협력단,

KDI 국제정책대 력원

그리고 나의 조국 미얀마의 친구나라인 한국

감사합니다.

Acknowledgement

I wish to convey my gratitude's to all people who have given me the opportunity for further study here, in Korea. My deepest and heartfelt gratitude to my supervisor Professor **Ju-Ho Lee** who gave me encouragement for preparing my thesis and good Comment on my paper. Finally I would like to **thank Dean, all professors, staffs of KDI School**. Especially, I would like to express my gratitude to Korean International Cooperation Agency (KOICA) which provided not only financial supporting but also necessary arrangements during my stay in Korea and **Mr. Jongwon-Choi**, who always gave help me whenever I came across any difficulties at KDI school.

CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1	Introduction to Myanmar -----	1
1.2	Objectives of the Study -----	2
1.3	Method and Scope of the Study -----	2
1.4	Organization of the Study -----	3

CHAPTER TWO

OVERVIEW ON RICE SECTOR IN MYANMAR

2.1	Development of Rice Sector in British Colonial Period -----	4
2.2	Situation of Rice Sector during the Post-independence Period -----	6
2.3	Rice Sector under the control of Socialist Government -----	7
2.4	Current Situation of Rice Sector in Myanmar -----	10

CHAPTER THREE

THE GROWTH OF RICE PRODUCTION BEFORE 1988

3.1	General Overview on Rice Production -----	11
3.2	Situation of Determinants for Growth of Rice Production	
	3.2.1 Land Utilization and Irrigation -----	14
	3.2.2 Other Important Inputs, Research and Extension Activities -----	18
	3.2.3 Procurement System -----	19
	3.2.4 High Quality Seed Program -----	23
3.3	Growth of Rice Production from Independence era to 1988 -----	28

CHAPTER FOUR

AGRICULTURAL REFORMS AND IMPACT ON RICE PRODUCTION

4.1	General Overview on Myanmar Agriculture Sector since 1988 -----	33
4.2	Agricultural Reforms under New Economic System	
4.2.1	Changes on Structure of Agricultural Institutions -----	37
4.2.2	Reform on Factors Determining to Growth of Rice Production -----	41
4.2.3	Reform on Trade and Marketing -----	45
4.2.4	Attraction of Agriculture sector under Newly-formulated Investment Law	47
4.3	The Impact on Factor Determining Growth of Rice Production	
4.3.1	Growth of New Rice Sown Acreage -----	49
4.3.2	Irrigation Works and New Method of Cultivation -----	53
4.3.3	Free Market Price -----	54
4.3.4	Participation of Private Sector and Foreign Investment -----	55
4.4	Growth of Rice Production under Agricultural Reforms -----	57
4.5	Pivotal Strategies under Agricultural Reforms for Development of Rice Sector in the Future -----	60

CHAPTER FIVE

CONCLUSION

5.1	Concluding Remark and Future Prospect -----	63
-----	---------------------------------------------	----

APPENDIX (A)

APPENDIX (B)

APPENDIX (C)

APPENDIX (D)

LISTS OF REFERENCES

LIST OF TABLES

No.	Content	Page
1.	Land Utilization and Percentage of Irrigation for Rice Production (from 1974-75 to 1987-88) -----	15
2.	Irrigated Area from 1961-62 to 1985-86 -----	16
3.	Implementation of Irrigation Projects (1962-1987) -----	17
4.	Price of Paddy (1962/63-1987/88) -----	22
5.	Rice Production and Chemical Fertilizer Utilization under “Whole Township High Yielding Paddy Program” -----	25
6.	Indices for Sown Acreage, Yield and Chemical Fertilizer Utilization	26
7.	Rice Production under the Parliamentary Government -----	29
8.	Rice Production under the Control of Socialist Government -----	31
9.	Growth of Total Sown Acreage and Rice Sown Acreage under the Reforms after 1988-89 -----	51
10.	Increase in Irrigated Rice Sown Acreage under the Agricultural Reforms -----	52
11.	Growth of Rice Production under New Cultivation Program (Summer Paddy Program) -----	53
12.	Price of Rice under Decontrol of Agricultural Marketing (from 1988 to 1998-99) -----	54
13.	Foreign Direct Investment in Myanmar Agriculture Sector -----	56
14.	Rice Production under Agricultural Reforms since 1988-89 -----	58

LIST OF FIGURES

No.	Content	Page
1.	Trend of Rice Sown Acreage, Yield and Chemical Fertilizer Utilization under “Whole Township High Yielding Paddy Program” -----	27
2.	Trend of Rice Sown Acreage , Yield and Production of Rice under the Socialist Regime -----	32
3.	Newly-organized Ministry of Agriculture and Irrigation -----	39
4.	Structure of Ministry of Agriculture and Irrigation -----	40
5.	Trend of Rice Production under the Agricultural Reforms -----	59

CHAPTER ONE

1.1 Introduction to Myanmar

Myanmar formerly known as Burma, with a total land of area of 676,577 sq.km (261,228 sq.miles) is the largest country on the mainland of Southeast Asia. It shares a total of 5,858 km (3460 miles) of international borders with Bangladesh and India on the northwest, China on the northeast, Laos on the east, and Thailand on the southeast. It also has a total length of 2,832 km (1,760 miles) of coastlines. The country stretches 2,090km (1,299 miles) from north to south and 925 km (575 miles) from east to west at its widest points. The capital and major export port is **Yangon** (formerly called Rangoon). Other important metropolitan cities are **Manadalay, Sagaing, Monywa and Mawlamyine. Myanmar** is also a land of hills and valleys and is rimmed in the north, east and west by mountain ranges forming a giant horseshoe. Enclosed within the mountain barrier are the flat lands of **Ayeyarwaddy, Chindwin and Sittaung** river valleys where most of the country's agricultural land and population is concentrated.

Myanmar has a relatively benign climate compared to other neighboring countries. Natural hazard is also very low. As it is generally in the tropical region, there is a tropical monsoon climate with three seasons: the hot season from mid-February to mid-May, the rainy season from mid-May to mid-October and the cool season from mid-October to mid-February. Annual rainfall varies from 500 cm in the coastal regions to 75 cm and less in the central dry region. Mean temperature ranges from 32°C in the coastal and delta area and 21°C in the Northern lowlands. During the hot season, temperatures could run considerably high in the central dry region.

Regarding population, there are about 50 millions (according to 2000 data) that is made up of 135 national races of which majority are **Kachin, Kayah, Kayin, Chin, Bamar, Mon, Rakhine and Shan**. Population growth rate is 1.8 percent. 67 % of total population lives in rural area and 67% of total labor force lives on agriculture sector. The main religions are Buddhism (89.5%), Christian (4.9%), Muslim (3.8%), Hindu (0.05%) and animism (1.3%).

Regarding national economy, Myanmar has been prominent as an agricultural country for many years. The largest portion of GDP is agriculture and it is also a very important sector not only for staple food but also for export earnings. In the present days, Myanmar is still an agricultural country while focusing industrial development.

1.2 Objectives of the Study

The objectives of the study includes:

- a) To study situation of rice production under agricultural reforms of new economic system since 1988,
- b) To point out that policies and strategies practiced by the government directly effect rice production,
- c) To generally analyze success and failure of rice production.

1.3 Method and Scope of the Study

The method applied in this study is a simple library survey. (Library survey). Tables and graphs are also used so that readers can easily understand the presentation. Datum,

information and theoretical aspect are also collected from various agricultural books, working papers and articles on rice production, books on agricultural development theory and especially records and papers published by Myanmar Agricultural Planning and Myanmar Agricultural Services under Ministry of Agriculture and Irrigation.

The study is limited to agricultural reforms and strategies, and their impact on growth rice production since 1988-89. Although the past experience and situation are also reviewed for more understanding of the present issue, the study is primarily focused on effort of the current government SPDP (The State Peace and Development Council is the new name of the State Law and Order restoration Council which was formed in 1988).

1.4 Organization of the Study

The study is divided into five chapters. The first chapter introduces general history of rice production, country profile, objective of the study, method and scope and organization of the study. Chapter Two describes situation of rice sector under different regimes; British colonial period, post-independence period, era of Socialist Government and Current Situation of Rice Sector. Chapter Three deals with growth of rice production from era of independence to 1988 in order to study success and failure in rice production comparatively with current situation. It includes general overview on rice production, situation of determinants for growth of rice production and rice production from independence era to 1988. Chapter four spotlights agricultural reforms and the impact on rice production which comprises general overview on Myanmar agriculture sector since 1988, agricultural reforms under new economic system, the impact of

agricultural reforms on rice production, growth of rice production under agricultural reforms and pivotal strategies on development of rice sector in the future. Chapter Five, the last section, includes concluding remark and future prospects.

CHAPTER TWO

OVERVIEW ON RICE SECTOR IN MYANMAR

2.1 Development of Rice Sector in British Colonial Period

The British had evaded Myanmar by creating unreasonable conflicts three times since 1826 and, they occupied the whole country in 1886. The British started to rule parts of Myanmar in 1826. During the British colonial period, they controlled all economic activities and emphasized to exploit all resources in Myanmar. They also drew economic policies and conducted transformations on agricultural activities for commercial production of rice and for development of Myanmar agricultural sector. The major policies used to help develop rice sector under British Colonial rule included the following;

- a) Setting specific grades and standards for rice to facilitate trade
- b) Assisting in the transmigration of settlers from Upper Myanmar to Lower Myanmar and in the immigration of Indians to settle in Lower Myanmar to develop Ayeyarwaddy delta for rice;
- c) Improving river and rail transport to facilitate north-south movement between Upper Myanmar and the delta;

- d) Providing tax exemption for 12 years on newly cleared land;
- e) Providing government loans for development in the rice industry
- f) Providing legal protection for private money lenders and other investors to support development of rice sector
- g) Constructing embankments at government expense in tidal swamp areas to prevent flooding and encroachment of saline water
- h) Providing improved sees to farmers, particularly to improve milling outturn
- i) Encouraging rice milling industry and trade, both internal and external, by helping many commercial firms and private enterprises;
- j) Providing a secure ownership title property owners; and
- k) Providing a “laissez faire ” comparative environment with minimal government intervention in production or trade except fro maintaining basic law and order.

The colonial government encouraged rapid growth in Myanmar’s rice cultivation through free enterprise rice policies with production tripling from 2 million mt in 1885 to 6 million mt in 1910. Rice production, rice exports and rice prices were remarkably stable for a relatively long time under free enterprise system established in their time. Production annually ranged from a low of 5.4 to a high of 7.6 million mt over the same period. Production level varied with the behavior of monsoon rain. Yield per acre remained relatively low over the colonial period, but production was mainly determined by changes in area rather changes in yield. No chemical fertilizer or modern rice varieties were used during that period in Myanmar. When Second World War II broke out, half of the rice cultivated area was abandoned. WWII seriously interrupted Rice production.

The major criticism of the government rice policy during the British colonial

period was that it eventually led to political instability and pressure for land reform, particularly when the private moneylenders ended up owing a major part of the rice land in lower Myanmar. The landlord also charged exorbitant rents ¹. The British colonial system in Myanmar provided no remedies or laws to prevent those economic and social inequalities.

2.2 Situation of Rice Sector during the Post-independence Period

In the following years after Myanmar regained independence, the post-independence government formulated policies and strategies for agriculture sector, especially for expansion of food grain (rice) although there were still multicolor insurgency and political conflicts.

Food grain policy objectives followed by the new independent country of Myanmar from 1948 to 1962 are as followed;²

- 1) Maintaining food set sufficiency and food security
- 2) Improving consumer welfare by subsidized sale basic food grains, particularly rice;
- 3) Expanding food grain production for promotion of export and raising government foreign earnings via implicit export laws for food grain;
- 4) Keeping domestic food grain prices low to maintain a low cost of living to contribute to socioeconomic stability;
- 5) Giving farmers a guaranteed minimum price to maintain stability of farm

¹ Small tenant farmers were often forced to pay about 84% of their output as paid –out costs, largely for rent and interest to their landlord, leaving them only 16% to cover the cost of living.

² Tin Soe , 1994, “Policies and Institutions related to grain trade : Problems and Prospects both in the Short-run and the Medium-Term” FAO /AFMA/ Myanmar Training Workshop, Yangon.

production and income; and

- 6) Stockpiling rice to stabilize the market and domestic price.

The post-independence government promoted food self-sufficiency and food security (welfare and stability) as a major change in rice policy compared to the British colonial period but maintained the principle of export promotion under a mixed economic system that retained a leading role for the free market. The new government's intervention and measures introduced at the beginning of the post -independence period were confined largely to procurement and export of food grain, however, there was also some intervention in domestic retail-marketing to distribute subsidized rice to the poor. Other wholesaling and retailing of food grains continued to be conducted by private traders in a free trade environment .The government maintained a relatively stable rice market from 1948 to 1962 with inflation kept reasonably well under control ¹. The sown acreage was gradually increased to replace the area abandoned during World War II, but Myanmar did not reach the previous level of production 7 million mt achieved by 1930 until the 1960s (only in 1962). But, there was little improvement in varieties or production methods to increase average yield compared with that of the British colonial period.

2.3 Rice Sector under the control of Socialist Government

In 1962, the military corps, forming Revolutionary Council, took the power of the State due to political conflicts. And then the government, taking a socialist stand, formed the Burma Socialist Program Party (BSPP) as nucleus party. Along the lines of its

¹ Appendix (A)

socialist stand, the government nationalized many economic enterprises and began implementing the twenty-year long-term plan in 1973. They adopted policies for the transformation from an agricultural country to an agro-based industrial country as well. Therefore, agricultural sector had been under the full control of the government for about two decades since that time. All activities on rice production were also monopolized by the government at all. The food grain policies followed by the Socialist government until 1988 added two more new objectives to the previous policies.

- 1) To encourage food grain production by subsidized sales of inputs, free provision of agricultural extension services and cheap agricultural credits; and
- 2) To introduce scientific methods and improved cultivation practices in agriculture to raise per-acre yield and total output.

Although the policies objectives of the Socialist government were little changed from of the previous post-independence government, the means applied and the level of intervention in production and trade were changed dramatically. The government's intervention and controls were introduced to cover almost all activities of food grain production, procurement, distribution, milling, storage, transportation and domestic trade. The private land ownership was replaced by "the land tilling right", With the change in property right, farmers became obligated to sell a fixed quota of their food grain, the "compulsory delivery quota", to the government at a fixed price set. The main emphasis of the government was put on consumer welfare with extensive use of food subsidies and private marketing was prohibited. The government subsidized the sale of rice to consumers and distributed rice through the State Economic Enterprises (SEE) system.

From 1962 to 1973, the agricultural sector was relatively stagnant as there was no significant improvement in technology or institutions. Only after formation of BSPP, high growth targets for agriculture sector were laid down and use of new technology and strengthened institutions were promoted to achieve the planned targets of growth. Rice production increased 80% from 1973 to 1983 and surpassed an average yield of over 38 baskets per acre by 1978-79. The sown acreage in high yield varieties (HYVs) increased from 4.3% in 1972-73 to over half of all production in 1986-87. Average fertilizer use per acre increased from 2kg in 1970 to 20 kg in 1983. New technology in rice production introduced through the government extension service in a major campaign in 1973 included use of HYVs, use of chemical fertilizer and pesticide, and other improved practices. The government provided important inputs at a subsidized price. The development program ran into difficulties in the 1980s as fertilizer demand far exceeded supply and farmers were forced to reduce the fertilizer application rate. Despite the high cost of the agricultural development program and consumer subsidies of the Socialist government, only moderate inflation problems were experienced until 1986. But rate of inflation accelerated in the following years because of huge increases in fiscal deficit financed by foreign loans and borrowing from banking sector. Export also became uncompetitive in the world market at the artificial high exchange rate. The severe decline in export earnings reduced the capacity of the economy to import essential capital goods and agricultural raw materials such as fertilizer. The limited earnings from food grain export were drained away by increased import costs of raw materials and by increased domestic cost of food subsidies. The government procurement of food grain also declined, restricting both the domestic food supply and the food grain exports; consequently, the

demand-supply balance of food grains was upset, and the economy deteriorated quickly.

2.4 Current Situation of Rice Sector in Myanmar

The military government (The State Law and Order Restoration Council) assumed power in 1988 and adopted the concept of a market-oriented economy. As soon as the government took the state's duties, agriculture sector was reformed. Official food grain policy objectives of the SLORC were 1) to produce surplus paddy for domestic food security and for promotion of exports, 2) to be self sufficient in vegetable oils and 3) to expand production of pulses and beans for export.

In line with the SLORC's goal of developing a market-oriented economy, the subsidized sale and rationing of food grains became limited to only government employees. However, a program to increase the supply of "nutritional food" for the poor was also initiated. The major policy change of the SLORC was to replace the former socialist government's welfare first, import substitution, and inward-looking programs with growth-first, export-promotion, and outward-looking programs.

Method of increasing the food supply were defined by the SLORC as follows:

- 1) Transforming wasteland into cropland;
- 2) Expanding the capacity and sources of irrigation;
- 3) Increasing the cropping intensity;
- 4) Increasing the use of high-yielding seed varieties, modern inputs and improved

And locally suitable practices and technologies, and

- 5) Encouraging the enterprise the entrepreneurial skills and the innovation ability of farmers.

In 1992, rice was designated as “ a vital national crop and a special program known as Summer Paddy Program was initiated in order to boost price production.

CHAPTER THREE

THE GROWTH OF RICE PRODUCTION BEFORE 1988

3.1 General Overview on the Situation of Rice Production

In studying the situation of rice production before 1988, there are four circumstances depending on political atmosphere. However, we have only two periods in term of government' intervention and control: free environment of rice production from post-independence era to Pyidawthar¹ Plan period of Parliamentary government and from time of Revolutionary Council (the council established Myanmar Socialist Program Party in 1974 to 1988). Most activities on rice production were almost under liberalized environment although there was some intervention government from post-independence period of 1948 until the beginning of the Revolutionary Council. The whole agricultural sector, including rice sector, was under the full control of the government after formation of Myanmar Socialist Program Party.

In the subsequent years after independence, rice-sown acreage and yield per acre did not evidently increase. Sown acreage declined from 9.8 million acres in 1948-49 to 9,02 million acres in 1949-50 and then 9.2 million acres in 1950-51 to 9.5 million acres in 1952-53. From 1952-53 to 1959-60 was the time of eight-year Pyidawthar Plan. Under

¹ It is the name of an economic plan implemented by the parliamentary government. The period is from 1952-53 to 1959-60.

the plan, policies related to agriculture sector were amended and formulated .The government conducted other supporting. Because of the government’s effort, production level slightly increased again during the plan period. The highest sown acreage was 11.1 million acres and the highest yield per ha was 32.80 baskets in 1958-59. Total output level increased from 5.8 million tons in 1952-53 to 6.9 million ton. But sown acreage did not reach the plan target of 12.92 million acres.

In 1962, after taking over the State’s duties, the Revolutionary Council controlled the economy and agricultural sector especially rice sector was also monopolized. The agricultural institutions and policies in place resulted in centralized control of land, crop choice, and input supply including all internal and external trade in rice. The government emphasized on growth of rice production through amending pattern of land use, implementing irrigation works, subsidizing agricultural inputs and introducing new technologies and new improved varieties. Moreover, the government used “compulsory procurement system” as a primary mean to control land use. The State Economic Enterprises distributed compulsory delivery quota from farmers to army group, civil personal and for export. All land is owned by the State and farmers have only the right to cultivate.

During that period, sown acreage amounted to 12.6 millions, more than the pre-war level of 12.5 million acres. Yield per acre also increased moderately and total output became 8.47 million tons in 1973-74. But, it did not achieve sustainable growth because there was a continuous increase during the first four years (from 1961-62 to 1964-65), but in the following years there was fluctuation in sown acreage and yield per acre. After the formation of Myanmar Socialist Program Party, the government drew up a Twenty-Year

long-term plan for political, economic and social development in 1974-75. The major development policy objectives for agricultural sector can be identified as:

- 1) Expansion of agricultural production to meet food self-sufficiency and nutritional requirement of increasing population
- 2) Export expansion of surplus agricultural commodities to increase foreign earnings and saving of foreign earnings through import substitution, and
- 3) Sufficient production of industrial raw material crops to meet requirement of domestic agro-based industries.

Within the framework of the short-term and long-term policies, guidelines and targets for rice production were also laid down. During that period, increase in yield per acre (land intensification) was carried out rather than expansion of sown acreage (land extensification). In order to achieve a full efficiency for rice production, various agricultural institutions were established to support inputs and to diffuse new technologies among farmers. Under the Twenty-Year Plan of Myanmar Socialist Program Party, one of the most significant features regarding rice production was “ the Whole Township High Yielding Paddy Program”. As a result of this program, yield per acre gradually increased and total output nearly 14.5 million tons could be produced. Total sown acreage did not increase. The program became sluggish after 1984.

3.2 Situation of Determinants for Growth of Rice Production

3.2.1 Land Utilization and Irrigation

Soon after independence, the government attempted to abolish land tenure system¹ as well as to rehabilitate abandoned land during the war. In some years after independence, there were no special projects for growth of rice production. Rice sown acreage declined from 1948-49 to 1951-52. In the period of Pyidawthar Plan (from 1952-53 to 1959-60), although sown acreage became 10.1 million acres in 1959-60 although sown acreage did not reach the target level of 12.92 million acres of the final year of Pyidawthar Plan. In 1961-62, sown acreage increased to 11.36 million acres. Under the Revolutionary Council, sown acreage for rice remarkably increased from 11.36 million acres in 1961-62 to 12.58 million acres in 1973-74 owing to the government's strong supports. Under the long-term plan of the Socialist government, increasing in yield per acre was emphasized rather than expansion in sown acreage.

The government also made the concerted efforts on irrigation works to provide necessary water for agriculture. Dams, reservoirs, canal and embankments, which were destroyed in the war, were maintained and new ones were also built. In 1962, the Revolutionary Council formed the Irrigation Department and implemented irrigation projects. Besides, flood control and flood protection projects and other water supply systems were implemented.

In spite of government's efforts, rice-sown acreage and rice-irrigated area became stagnant and fluctuated from year to year because of inefficient management. (See Table 1 and 2)

¹ Land tenure system is the rights and patterns of control over land.

Table (1) Land Utilization and Percentage of Irrigation for Rice Production

(From 1974-75 to 1987-88)

Year	Rice Sown Area (Thousand Acres)	Irrigation (% of total rice sown acreage)
1974-75	12,793	17
1975-76	12,858	17
1976-77	12,547	16
1977-78	12,690	17
1978-79	12,957	17
1979-80	12,420	17
1980-81	12,668	17
1981-82	12,610	17
1982-83	12,064	16
1983-84	11,938	17
1984-85	12,151	18
1985-86	12,114	17
1986-87	11,968	18
1987-88	11,531	17

Source: Myanmar Agriculture Service

Table (2) Irrigated Area from 1961-62 to 1985-86

Year	Total Irrigated Area (Thousand acre)	Irrigated Area for rice (Thousand acre)
1961-62	1407	1168
1970-71	2331	1814
1973-74	2716	2041
1975-76	2785	2163
1977-78	2758	2070
1981-82	2925	2136
1983-84	2984	2071
1985-86	3048	2114

Source: Myanmar Agriculture Service

Table (3) Implementation of Irrigation Projects from 1962 to 1987

No.	Project	Location	Catchments Area (In acre)
1.	Kyetmauktaung dam	Kyaunkpadaung	29,786
2.	Washaung diversion dam	Waingmaw	17,450
3.	Ngwedaung dam	Demaw Soe	6,825
4.	Heho valley project	Heho	5,000
5.	Pyauingbya dam	Nahtogyi	7,000
6.	Khetlan dam	Nahtogyi	7,000
7.	Yezin dam	Pyimana	16,000
8.	Hopong valley project	Hopong	25,000
9.	North Nawin project	Pye	96,769
10.	Chaungmagyi dam project	Pyabwe	9,276
11.	Moebye irrigation project	Loikaw	19,942
12.	Naglaik dam project	Pyinmana	13,099
13.	Shwele dam project	Pauhkaung	5,000
14.	Sedawgyi multi-purpose dam and irrigation project	Patheingyi	28,203

Source: Irrigation Department

3.2.2 Other Important Inputs, Research and Extension Activities

The other important inputs for rice production include fertilizer, insecticide, quality seed, cattle, modern machines and agricultural credit. Fertilizer can be divided into two categories: natural fertilizer and chemical fertilizer. Most of Myanmar rice farmers use both natural fertilizer and chemical fertilizer in high yielding crop production. Chemical fertilizer was imported in the early years after independence. In 1970, the government established the first domestic chemical fertilizer plant (*Salay*). Then, *Kyunchaung* plant (1971) and *Kyaw Swa* plant (1985) were built to cover chemical fertilizer imports financed with foreign earnings. Those three local plants are urea fertilizer plants and they can supply about 300 thousand tons annually. Phosphate and potash fertilizers have to be imported, as there are no resources or raw materials for domestic production of these types of fertilizer for domestic production. After the 1970s, as rice varieties used by Myanmar farmers are especially fertilizer-responsive, availability of fertilizer became more and more important for farmers. Besides domestic production, the government had also subsidized imported fertilizer to farmers at a level of price lower than market price.

Farmers traditionally obtain seeds for their own production. After formation of agricultural institutions, the government distributed high quality seeds through research and imported quality seeds to farmers. In 1966, high yielding varieties from International Rice Research Institute (IRRI), Philippines, were introduced to farmers. When Agriculture Corporation was established in 1972, Seed Development Projects were implemented and distributed new improved varieties to farmers more than before?

Farm animals like cattle are also important for ploughing, harrowing and transportation traditionally. On account of the government's encouragement for increase in quantity and quality of draught cattle, number of cattle increased from 3.9 million in 1964-65 to 6.3 million in 1983-84. In addition, Myanmar Insurance Corporation provided facilities for farmers to insure their cattle against loss. In 1962, Agricultural Mechanization Project was implemented and in 1972 it was reorganized as Agricultural Mechanization Department to expand use of machines to solve the problem in shortage of draught cattle. At the same, the government gave continuous support for rice production by selling machineries and hiring them at suitable rates. In 1983-84, there 88 tractor stations in Myanmar and 4250 state-owned tractors. As regards agricultural credit, the first agricultural banks were established in *Mandalay, Bago, Insein* and *Hinthada* districts in 1953 and 250 village banks also opened in 1962. Myanmar agricultural banks rose per acre lending rate from year to year.

Research and extension activities are also basic requirement for development of agriculture. An Agriculture Research Center was established in *Yangon* in 1954 and research activities were firstly emphasized on rice. In 1971, Central Agricultural Research Institute was established in *Mandalay* again.

3.2.3 Procurement System

When the State Agricultural Marketing Board (SAMB) was established, the government monopolized export of rice. The government purchased over 40 percent of total production at price during the period of the 1950s. Most was exported and some of its procured rice was also distributed at a fixed price in order to stabilize food grain price

in the domestic market. Moreover, the government allowed private traders to become engaged in procurement and distribution of rice domestically. But that the government's involvement in the domestic market gradually increased by providing rice at the subsidized prices to urban areas and rice-deficit areas all over the country.

In 1962, the SMAB was transformed into Trade Corporation No.1 and it took charge of the trading of eleven essential crops including rice. After the government-established depots for buying paddy directly from the farmers, private trade in rice in the domestic market was officially prohibited in 1964. The government's purchase also became difficult because the market price was substantially higher than the government procurement price. (See Table 4)

The price policy of the government kept price of paddy low so that it could be able to supply to urban consumers at low price level and it would make profit for capital accumulation for development of the country. That price policy was consumer-biased and a kind of welfare policy measure. But the price level obviously depressed the incentives of farmers to expand rice production. In 1974-75, the government implemented a new procurement system. Under the new system, a quota of paddy had to sold at a fixed price to the government depots by each farmer. The quota was based on the size of holding and estimated yields and only the surplus could be sold within an area they live. The government also provided incentives for sale of rice above the quota. Those who sold extra rice to the government depots could have a chance to buy some commodities at the State shops at official prices, which was much lower than free market prices.

The government procurement price was not a good incentive to attract rice farmers. For about one decade after 1962, the government procurement price had changed very

slightly. The price level still remained Kyats 149 per ton from 1962-63 to 1965-66. After the mid-1960s, the government procurement prices were raised to kyats 172 per ton. In 1974-75, the price level became twice of that of 1972-73 price level from Kyat 204 per ton to Kyats 432 per ton. This price level caused enthusiastic response from the rice farmers and their sown acreage increased. The procurement price level was raised again respectively in 1978-79 and, in 1980-81 and it reached to a level of Kyat 472 per ton in 1980-81. After 1980, the price level was kept constant and the market price went on increasing whereas. So the incentive created by the government procurement price became feeble to the rice farmers.

In 1987, a most radical reform in marketing policy was introduced when the government lifted the 21-year-old restrictions on free trade of rice, maize and other seven varieties of beans and pulses.

Table (4) Price of Paddy (1962/63-1987/88)

Year	(Kyat* per ton)	
	Government Procurement Price	Free Market Price
1962-63	149	166
1965-66	149	147
1968-69	172	528
1971-72	172	538
1974-75	431	729
1977-78	431	732
1980-81	472	1253
1983-84	472	2291
1986-87	472	2597
1987-88	472	2879

Source: Ministry of Planning and Finance, report to the Pyithu Hluttaw , (various issues) and Review of the Financial and Social Conditions for 1989/90, and Central Statistical Organization Selected Monthly Economic Indicators (various issues)

* Kyat is the name of Myanmar currency unit.

3.2.4 High Quality Seed Program

After the Revolutionary Council merged ministries, Ministry of Agriculture and Forest was formed in order to fully concentrate on agricultural development activities. Under this ministry, various organizations and departments were formed to undertake extension works and agricultural education activities. In 1966, high yielding varieties (HYVs) for future growth of rice production were introduced. But, diffusion of these varieties was slow and a program was needed to achieve a new rice technology, which could be widely used among farmers. So, Agricultural Corporation sought to introduce a new technology through a special program. A training and visit extension approach (T&V) ¹ which has been found successfully in many countries was tried in one of rice cultivated area in lower Myanmar. The approach, however, could not guarantee success of technology diffusion and it became necessary to formulate a new strategy that would take maximum advantage. So, the so-called “ Whole Township High Yielding Paddy Program” was introduced as a new strategy. This strategy was a selective concentrative one.

There are five components of the new selective concentrative strategy.

1. Proven new technology
2. Government’s support and leadership
3. Selectivity and concentration
4. Mass participation’
5. Demonstration and competition

The new phase was firstly tried on 400 acres in 1975-76. Yield per acre increased

¹ T&V approach is an agricultural extensive activity, which was originally developed in rice growing area.

from 36.98 baskets before program to 99.66 under the program. The success of first stage of program led to expansion of the program to include five villages' tracts covering 4600 acres. In 1977-78, the first "Whole Township High Yielding Paddy Program" was launched at **Shwebo** in upper Myanmar and **Taikkyi** in lower Myanmar. Then, the program was extended to cover 2101 thousand acres. It was further extended to 3295 thousand acres in 1979-80, bringing total number of townships to 43. It could be seen that Myanmar rice farmers accepted new technology which sharply increased yield per acre(table 5).

The introduction of High Yield Varieties was a notable technical breakthrough in rice production during the period of Socialist government. But in the late periods after 1983-84, growth of HYVs production was sluggish and slowly declined because of weak supply of important inputs such as chemical fertilizers and pesticides (Table 6).

**Table (5) Rice Production and Chemical Fertilizer Utilization
under “Whole Township High Yielding Paddy Program”**

Year	Number of township	Sown Area thousand acre)	Yield per acre (in basket)	Total Output (In million basket)	Utilization of Chemical fertilizer (MetricTon)
1977-78	2	236	57.11	13	-
1978-79	23	2101	55.65	114	143650
1979-80	43	3295	60.53	181	16206
1980-81	72	5703	65.91	360	203698
1981-82	78	6426	67.24	415	226580
1982-83	82	6445	70.40	434	182282
1983-84	82	6349	68.37	423	326421
1984-85	82	6340	69.20	418	291673
1985-86	82	6319	68.15	418	323727

Source: Myanmar Agriculture Service

**Table (6) Indices for Sown Acreage, Yield Per Acre and
Chemical Fertilizer Utilization under the Program**

Year	Sown Acreage	Yield per acre	Chemical fertilizer Utilization
1977-78*	100	100	-
1978-79#	890	97	100
1979-80	1396	106	11
1980-81	2417	115	142
1981-82	2723	118	158
1982-83	2731	123	127
1983-84	2690	120	227
1984-85	2686	121	203
1985-86	2678	119	225

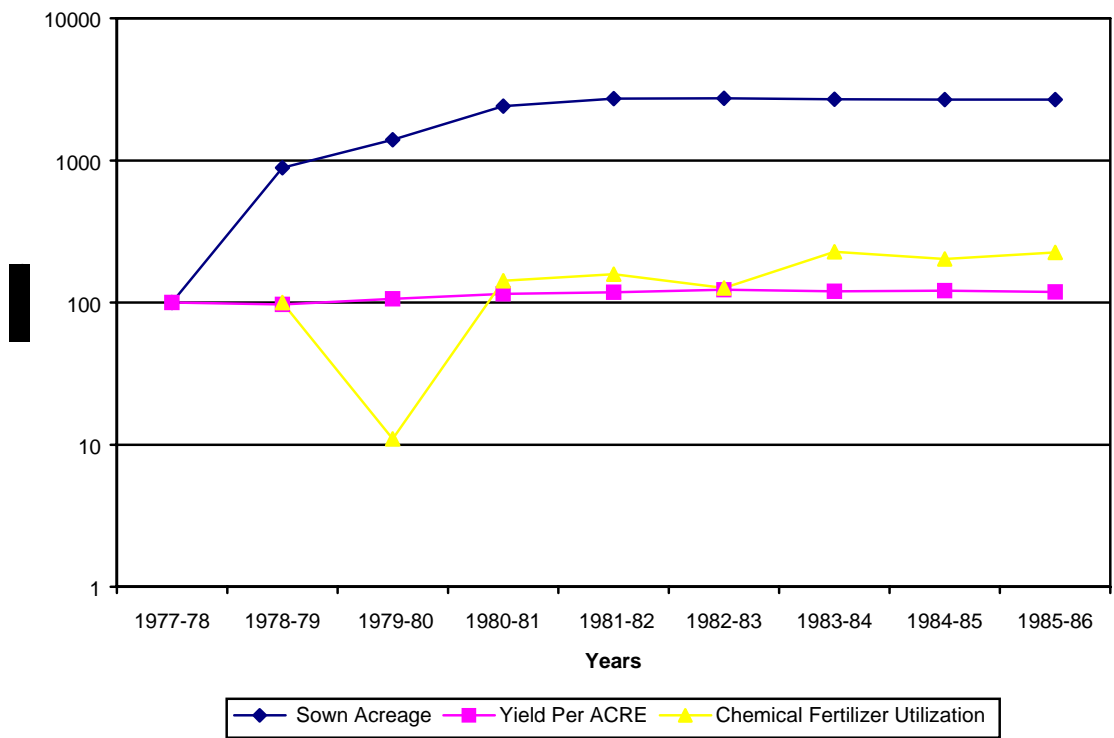
Source: Table (5)

* Base year 1977-78=100

Base year for chemical fertilizer utilization 1978-79=100

Figure (1)

Trend of Growth of Sown Acreage , Yield Per Acre and Utilization of Chemical Fertilizer under " Whole Township High Yielding Paddy Program



Source: Figure (6)

3.3 Growth of Rice Production from post-independence era to 1988

Rice cultivated area still failed to reach the pre-war level till 10 years after independence. Sown acreage noticeably decreased from 9.8 millions acres in 1948-49 to 9.02 millions acres in 1949-50 and yield per acre also declined from 26.18 baskets in 1948-49 to 25.10 in 1949-50. The decline in sown acreage and fluctuation in yield per acre reduced level of production .In 1949-50, only 45 million tons of total production could be produced in the whole country. In 1951-52, though yield per acre and production level slightly increased, sown acreage did not reach the previous level of 9.8 million acres in 1948-49

Under the **Pyidawthar** Plan of the Parliamentary government, the highest sown acreage was 11.1 millions acres and the highest yield per acre was 32.80 baskets in 1958-59. Total production increased from 5.8 million ton in 1952-53 to 6.7 million tons in 1959-60. Level of sown acreage did not reach the target level of 12.92 million acres of Pyidawthar.

Table (7) Rice Production under the Parliamentary Government

Year	Sown Acreage (Thousand)	Yield Per Acre (basket)	Production (thousand ton)
1948-49	9796	26.18	5077
1949-50	9017	25.10	4501
1950-51	9150	28.90	5303
1951-52	9458	29.28	5508
1952-53	9924	29.84	5822
1953-54	9969	26.33	5571
1954-55	9821	28.85	5634
1955-56	10009	28.71	5537
1956-57	10074	30.76	6007
1957-58	9849	26.36	5218
1958-59	11100	32.80	6476
1959-60	10377	32.90	6743

Source: Myanmar Agriculture Service

@1952/53-1959-60 is the period of Pyidawthar Plan.

During the period of Revolutionary Council, sown acreage amounted to 12.6 million acres more than pre-war level of 12.5 million acres. Yield also increased moderately and rice production became 8.47 million tons .So, production level gradually increased year by year and reached a maximum output of 8.47 million ton in 1973-74. (as mentioned before)

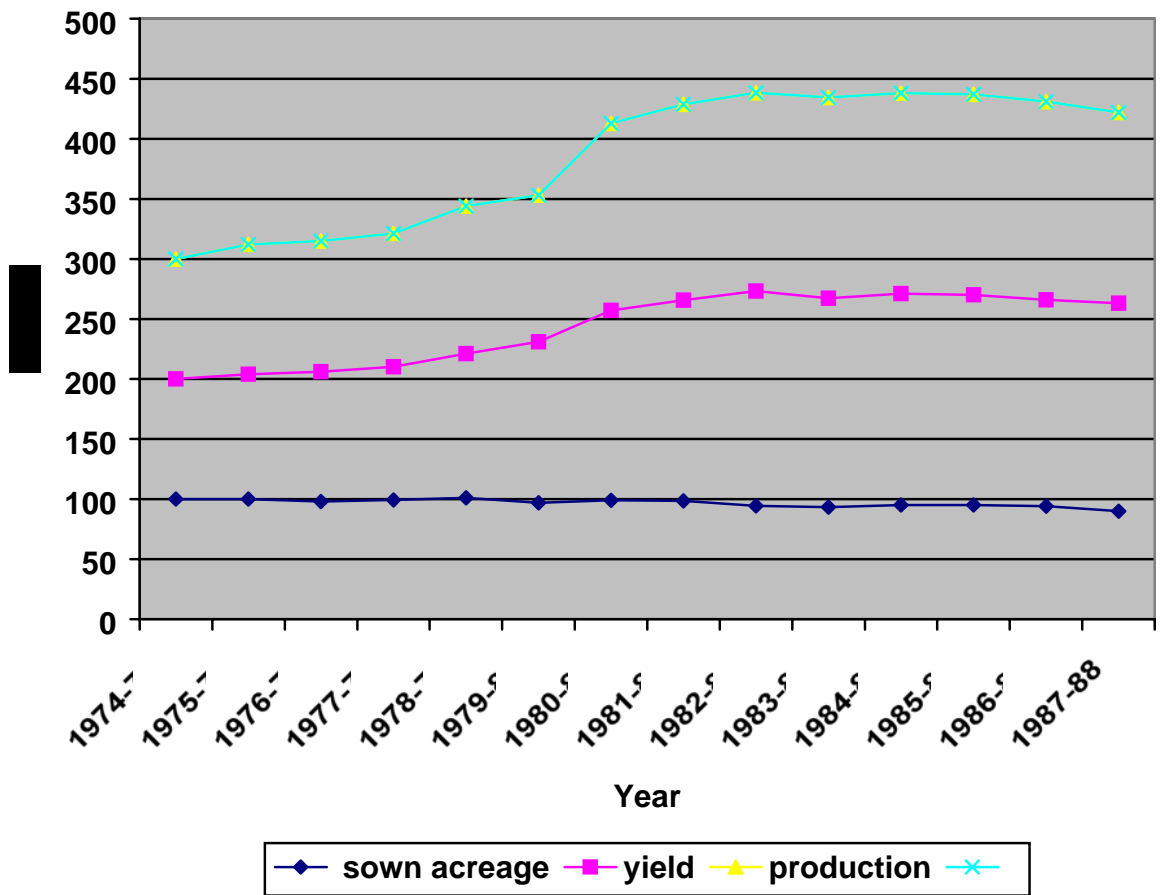
Under the Twenty-Year Plan of Myanmar Socialist Program Party (from 1973-74 to 1988) , Level of production became more progressive due to adopting HYVs among farmers . Production sharply increased till 1985-86 due to increase in yield per acre without significant increase in sown acreage (Figure 2). So, growth of sown acreage was stagnant in the whole decade of the 1980s. Finally, it led to a narrow growth of rice production. Nevertheless, application of HYVs among farmers had a positive effect for growth of rice production.

Table (8) Rice Production from 1974-75 to 1987-88

Year	Sown Acreage (Thousand)	Yield Per Acre (Basket)	Production (Thousand ton)
1974-75	12,793	34.09	8553
1975-76	12,858	35.51	9207
1976-77	12,547	36.80	9319
1977-78	12,690	37.73	9462
1978-79	12,957	40.75	10528
1979-80	12,420	45.62	10448
1980-81	12,668	53.80	13317
1981-82	12,610	57.06	13923
1982-83	12,064	61.10	14146
1983-84	11,938	59.48	14287
1984-85	12,151	60.09	14255
1985-86	12,114	59.58	14317
1986-87	11,968	58.72	14126
1987-88	11,531	59.00	13636
Indices			
1974-75	100	100	100
1975-76	100.1	104	108
1976-77	98	108	109
1977-78	99.2	111	111
1978-79	101	120	123
1979-80	97	134	122
1980-81	99	158	156
1981-82	98.6	167	163
1982-83	94.3	179	165
1983-84	93.3	174	167
1984-85	95	176	167
1985-86	95	175	167
1986-87	94	172	165
1987-88	90	173	159

Source: Myanmar Agriculture Service
Base Year =1974-75

Figure (2) Trend of Rice Sown Acreage, Yield and Production of Rice under the Socialist Regime



Source: Table (8)

CHAPTER FOUR

AGRICULTURAL REFORMS AND IMPACT ON RICE PRODUCTION

4.1 General Overview on Myanmar Agriculture Sector since 1988

No policy is ever perfect. Even if it will perfectly adapted to the circumstance, there be alternative policies that are more effective because society's desire is always changeable according to the nature. So, it can be seen in every economy that reform measures are often formulated for economic development.

Myanmar has experienced political and economic changes since independence era. In 1988 the State Law and Order restoration Council assumed the state's responsibility while having unsuccessful experiences of planned economic system and then prepared to introduce multiparty democracy system. The previous economic system was also changed into market-oriented economic system. Since then, the government changed economic environments by drawing new plans and by laying down new policies for economic development. The objectives for economic development laid down by the government are;

- 1) Development of agriculture as the base and all around development of other sectors of the economy as well,
- 2) Proper evolution of the market-oriented economic system,
- 3) Development of the economy inviting participation in terms of technical know-how and investments from sources inside the country and abroad, and
- 4) The initiative to shape the national economy must be kept in the hands of the State and the national people.

Then, the government also managed the economy by annual plans with following objectives.

- a) To achieve economic recovery with stability in the short-term period, and
- b) To lay down firm foundation for sustainable growth in the long-term period.

Priority has been placed to the development of primary sectors such as agriculture, livestock and fishery sector while emphasis has also been given to enhance other socio-economic sectors. Actually, among 13 sectors in Myanmar, agriculture sector has been a dominant sector and the backbone of economic development in Myanmar, and it still plays a vital role in GDP and is closely linked to other sectors until the present days. So, the government also concentrated on the development of agriculture sector.

Generally, the important reforms undertaken in agriculture sector include:

- 1) Allowing farmers to cultivate crops of their choice and to process, transport and trade freely (the private sector is freely allowed to process, transport and trade all the agricultural commodities with the only exception of rice export)
- 2) Allowing the State, cooperatives and private enterprises to reclaim and utilize fallow and cultivable wasteland up to 50,000 acres for the enhancement of agricultural production.
- 3) Diversifying exports through introduction of new products and emphasizing on semi-processed and processed goods.
- 4) Allowing foreign direct investment, and
- 5) Abolishing price controls and reducing subsidies.

With the aim to accelerate development of economic and social condition of the country, a short-term plan from 1992-93 to 1995-96 has been formulated and implemented. The main objectives of the short-term plan are to step up production and export for the complete economic recovery and to speed up the development of the economy.

The major policy objectives for agriculture sector in its short-term four-year plan are:

- 1) To achieve surplus in paddy production for export,
- 2) To achieve self-sufficiency in edible oil for saving of foreign exchange through import substitution and
- 3) To increase production and export of industrial crops, pulses and other crops for foreign earnings.

In order to fully implement the policy objectives, more explicit strategies have been formulated with the strong government's support since the beginning of the first four-year plan. The reform strategies of agriculture sector¹ can be also summarized as follows;

1. Development of new agricultural land
2. Increased provision of irrigation works
3. Expansion of small-scale agricultural mechanization
4. Transfer and application of new technology, and
5. Increased supply of agricultural inputs quality seeds

The remarkable policy changes with direct impact on agriculture sector are; liberalizing farmers in production and marketing, and allowing domestic trade as well as

¹ Ministry of Agriculture and Irrigation, Agricultural Development in Myanmar, 1996 p.33

export of agricultural products to the private sector with exception of rice export. The government conducted not only policies and strategies but also structural change of agriculture sector, consistent with new economic system. Ministry of agriculture was reorganized into Ministry of Agriculture and Irrigation with three main objectives; to achieve surplus in production, to achieve self-sufficiency in edible oil and to step up the production of exportable pulses and industrial crops. The government tried to promote collaboration and to induce investment from domestic and foreign entrepreneurs. In 1992, rice was designated as “ a national crop” and its production was further intensified to recover sustainable growth of rice production, which declined before 1988. Abandoned land being uncertain for growing rice before has been reclaimed to establish rice-fish farming system and, summer rice program as new cultivation technology, has been also initiated.

With regard to other important crops, promotion of edible oil production has been concentrated to reach self-sufficiency with intensive effort on expansion of oil crop areas and increase in yield per acre to meet demand of increasing population. Moreover, to increase production of beans and pulses, and industrial crops, necessary efforts have also been made. During the transitional period of agricultural sector, rice production increased from 13.2 million tons in 1988-89 to about 18 million tons in 1995-96. The production of pluses also increased from 0.5 million tons before reforms to 1 million tons under reforms. Production of industrial crop to supply requirement of domestic agro-based industries and surplus for export were promoted with energetic endeavors.

4.2 Agricultural Reforms under New Economic System

4.2.1 Changes on Structure of Agricultural Institutions

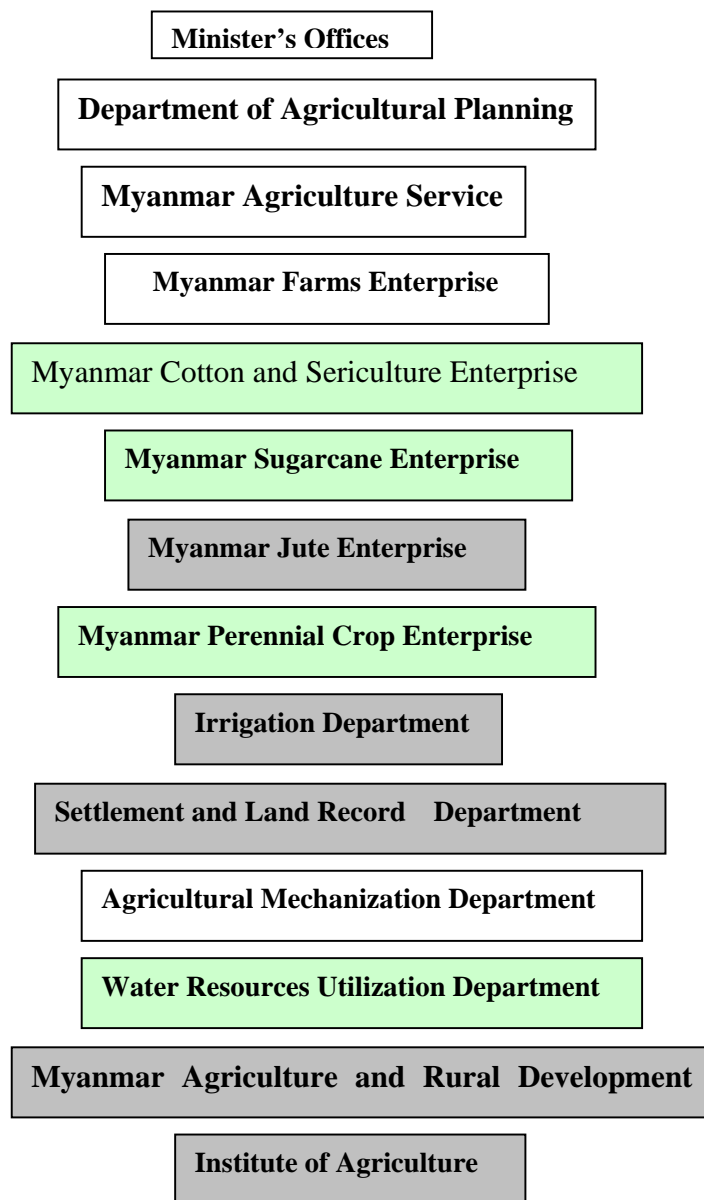
The structure of agricultural institutions has also been reformed under the agricultural reforms. Ministry of Agriculture and Forest was reorganized into two ministries: Ministry of agriculture and Ministry of Forest. In 1993, Institute of agriculture under Ministry of education was placed under administration of Ministry of Agriculture and Irrigation. Similarly, Myanmar Jute Enterprise under Ministry of Industry of Industry No.1 was transferred to Ministry of agriculture and Irrigation and new organizations such as Myanmar Sugarcane Enterprise, Myanmar Cotton and Sericulture Enterprise and Myanmar Perennial Crops Enterprise were newly formed. Moreover, Water Resources Utilization Department was also newly formed to give effective guidance in the use of water for agriculture. In view of accelerated irrigation works in support of agriculture development, Ministry of Agriculture was restructured as Ministry of Agriculture and Irrigation in 1996. Under Ministry of Agriculture and Irrigation, there are 14 institutions. They are

- (1) Minister's office
- (2) Department of Agricultural Planning
- (3) Myanmar Agriculture Service
- (4) Myanmar Farms Enterprise
- (5) Myanmar Cotton and Sericulture Enterprise
- (6) Myanmar Sugarcane Enterprise
- (7) Myanmar Jute Enterprise

- (8) Myanmar Perennial Crops Enterprise
- (9) Irrigation Department
- (10) Settlement and Land record Department
- (11) Agricultural Mechanization Department
- (12) Water Resources Utilization Department
- (13) Myanmar Agriculture and Rural Development Bank , and
- (14) Institute of Agriculture

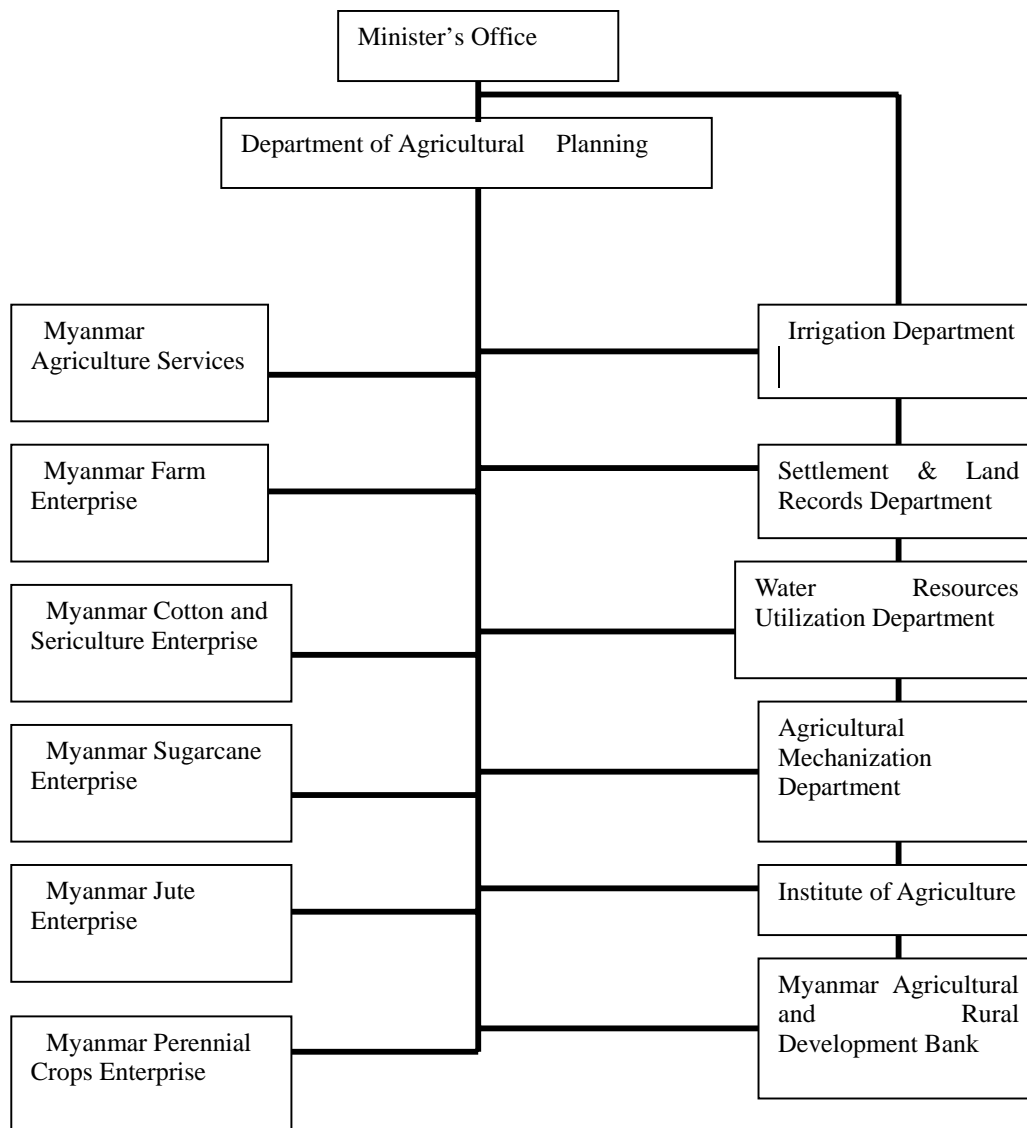
Besides, the cooperative societies, the Joint Ventures, the Chamber of Commerce, Trade Chambers of Commerce and other associations such as Myanmar Millers Association, Myanmar Edibles Oil Merchants Association and Millers Association, etc., appeared under the agricultural reforms.

Figure (3) Newly-organized Ministry of Agriculture and Irrigation



Note: existing institutions Newly-formed institutions
 Organizations transferred from other ministries

Figure (4) Structure of Ministry of Agriculture and Irrigation



4.2.2 Reforms on Factors Determining to Growth of Rice Production

Although the successive governments since 1948 implemented various program on agricultural **land use**, Myanmar land policy stipulated by the former constitution (1947) hitherto remains unchanged with the ownership of all land by the State. In the period of the SLORC, with a view to develop agricultural activities in the country, Central Committee for the Management of Cultivable land, Fallow land Waste land and Waste Land has been formed under Ministry of Agriculture and Irrigation in 1991. The central committee grants approval to both local and foreign investors with exercises, technology and capital that desire to invest in agricultural activities, entering Myanmar's foremost market-oriented economic system after independence. The committee's offers are summarized as below;

1. Organization; the State economic enterprises, co-operative societies, joint-ventures, other organizations and private individual (both local and abroad)
2. Activities; agriculture (plantation crop, orchard and seasonable crops) livestock and poultry farming and aquaculture
3. Period; 30 years leases for cultivation of crops, plantation, livestock and poultry farming and aquaculture. The period is extendable for further suitable duration
4. Exemption; land revenue exemption 2 to 8 years, income tax exemption at least 3 years from the years of commencement, until commercial production or servicing stage is attained and if the enterprise is beneficial tom the State, suitable tax exemption for further period may be extended.¹

¹ Tin Htut Oo , Myanmar Agriculture under the Economic Transition : Present Situation and Emerging Trend , VRS Series No. 265 . Institute of Developing Economies, Tokyo, Japan.

Regarding water **utilization**, the government has given top priority to implementation of different types of irrigation projects under the economic reforms to fully enjoy vast potential of utilization water resources for agriculture. The government concerted efforts to construct large-scale irrigation systems and the construction of medium and small-scale irrigation works were coordinated and cooperated through mass participation and the government 's supports. Five strategic measures adopted in order to raise coverage of irrigated net sown area are;

1. The construction of new reservoirs, dams, and weirs with little implication on environment
2. The renovation and repairing existing irrigation systems for raising storage capacity and effective distribution of water.
3. The diversion of water from streams and rivulets during high water level into adjacent ponds or certain depression for storage
4. The lifting of water from rivers and streams through pumping for irrigation and
5. The utilization underground water if the above measures are not feasible.¹

In providing agricultural infrastructures such as rural development, irrigation project, the role of private sector (local and foreign companies) is quite important. So, the domestic and foreign companies are invited to invest in implementing irrigation projects .The government also encouraged farmers to join in all activities and always revised policies, which may attract domestic and foreign businessmen to agriculture sector.

As regards **other important inputs** such as chemical fertilizer, pesticide and machineries, although Ministry of Agriculture and Irrigation was solely responsible for

¹ Tin Htut Oo , Op.cit. p.126

distribution before, the private sector also engaged in the supply of agricultural inputs with launching economic liberalization and privatization of the State's enterprises. After introducing HYVs to farmers, requirement of chemical fertilizer become higher and higher but production levels of three domestic plants, **Salay, Kyun Chaung and Kyaw Swa**, are lower than domestic requirement and it is always imported. Moreover, phosphate and potash fertilizer are totally imported because three domestic plants are nitrogenous fertilizer plants. Similarly, agro-chemicals are mostly imported with exception of some pesticides locally produced, using imported raw materials. After 1988-89, registered private enterprises also imported and distributed agro-chemicals under the framework of the pesticide law, which was enacted in 1990. Farmers can purchase them at prevailing market price either from organization under Ministry of Agriculture and Irrigation or from other private enterprises. Quality seed is also vital for production level and Myanmar Agriculture Services distributed tested-local seeds and imported high quality seeds.

Targeting towards **modern agriculture** sector, moreover, Agricultural Mechanization Department and Myanmar Heavy Industry locally assembled power tillers, using imported engines and gearboxes, and they were distributed to peasants at relatively cheaper prices. Model mechanized farming villages were also set up to perform agricultural objectives more effectively. With regard to technologies, farmers need new improved technologies more than before as they concentrate on the level of their production and of their product quality rather than increase in sown acreage .So, the government provided new technologies through local extension works and international agricultural co-operations. The government also initiated intensification of existing

crops and diversification of new crops depending on regional ecological condition. These types of strategies are energetically being promoted in order to achieve higher standard living of rural people.

In order to encourage smooth flow of capital to agriculture sector and to provide **banking services** among farmers, the State Agriculture Bank established in 1976 was recognized as Myanmar Agriculture and Rural Development Bank (MARDB) in 1993, with the enactment of the Central Bank of Myanmar Law in 1990. Then MARDB under Ministry of Finance and Revenue was transferred to Ministry of Agriculture and Irrigation. MARDB has the responsibility for providing necessary agricultural credit fully. MARDB issues annual loans (one year), short-term loans (up to 4 years) and long-term loans (up to 20 years).

Loans provided by MARDB can be classified as following;

1. Annual loan which are mainly for crop cultivation
2. Short term loan, and
3. Long term loans, which are mainly for purchase of farms machineries, farms animals as well as for integrated projects.

In order to cope with increasing cultivation cost, MARDB reviewed per acre lending rate annually. Then per acre lending rates were raised in 1995-96 noticeably. Moreover, it slowly raised the amount of total agricultural loans. MARDB also introduced a rural saving deposit program to farmers.

With the first economic objectives “Development of agriculture as the base and all around development of other sectors of the economy as well”, the government undertook sending local farmers and young agricultural technicians abroad to study

modern techniques relating to agricultural development, employing foreign experts and consultants to train local farmers and asking for advice from agriculturalists in other advanced countries. The government also tried to get assistances from non-government organizations such as International Rice Research (IRRI), World Food and Agricultural Organization (FAO), Japan International Cooperation Agency (JICA), United Nation Development Program (UNDP), Asia Development Bank (ADB), and World Bank. Technical cooperation programs for research, training and consultancies are being extended among neighboring countries such as Thailand, Vietnam, Laos and China.

4.2.3 Reform on Trade and Marketing

The government's control since 1962-63 affected on agriculture sector until 1987. In 1987 the Socialist government had taken steps to liberalize agricultural marketing policy by lifting the 21-year old government's monopoly on agricultural marketing. However, the reforms could not catch the rapid economic deterioration. After 1988, the S LORC, following the enactment of the State-Owned economic Enterprises Law in 1989, tried to liberalize activities of procurement and marketing, milling, storage and transportation of agricultural products. Many previous restrictions and constraints imposed on agricultural activities were removed and allowed the private sector to domestically engage in all agricultural activities. The private sector can domestically engage in procurement, transporting, milling and storage. But export of farm products, particularly rice, has still been under the government's monopoly. In spite of decontrol of agriculture sector, the official procurement policy objectives since 1988-89 were noted to

be substantially the same as before ¹. They can be summarized as follows.

- (1) To assure stable prices for both the producers and consumers
- (2) To raise government revenues by enhancing export of rice, pulses and beans and other agricultural products
- (3) To maintain domestic stability and by keeping food grain prices low, and
- (4) To achieve economic growth through expansion of agricultural production and export, and by initiation of agro-based industrial growth.

As regards compulsory delivery system on agricultural products which was used before, the amount of rice quota to be delivered to the government depots was reduced to a fixed rate of ranging from 6 baskets to 12 baskets per acre and the quota is determined by the Paddy Purchase Supervising Committees (PPSCs). These committees have been formed at three levels; village-tract, Township and states/divisions. The compulsory delivery quota system is officially justified on the following grounds². First, all the lands in Myanmar are officially owned by the State so that farmers have no right land ownership but only tilling rights. Moreover, the government supplied most of necessary inputs at subsidized prices, provides agricultural extension services almost free, and disbursed credit at very low interest rate. So the farmers, in turn, are obliged to deliver to the government fixed amount of quota. Secondly, the government needs enough supplies of rice to support the low-income level government employees and other target groups. The only source of getting the supply is purchasing a fixed amount from the farmers at fixed price. Thirdly, promotion of rice export become important for the government not only to earn more foreign earnings to pay for imports but also to

¹ Tin Soe , Op. cit. p. 5

² Tin Soe , Op. cit. p. 5

finance development projects. Moreover, it is important to maintain stock for emergence use, to stabilize domestic market prices and to honor certain commitments (such as the compulsory reserve to be kept for ASEAN). All these factors necessitated the government to procure paddy from the farmers compulsorily.

In 1991, the government dissolved the previous pricing committees. Myanmar Agriculture Produce Trading was also given more liberalization in procurement and marketing of grains with the package of other reform measures and the government procurement prices were considerably raised. As a result of liberalization on marketing of agricultural products, private businessmen had favorable chance in marketing of agricultural products in the first some years as well. When foreign investment laws were enacted and Myanmar Foreign Investment Commission was formed, it was also noticed that foreign direct investment and investment from local companies began to flow into agricultural sector.

4.2.4 Attraction of Agriculture Sector under Newly-formulated Investment Law

Since independence in 1948, the role of foreign investment was not popular in Myanmar economy. In 1988-89, the State Law and Order Restoration Council (SLORC) took a significant step by promulgating the Union of Myanmar Foreign Investment Law. Then Foreign Investment Commission (FIC) was also formed for the management of the foreign investment law and to act as initial approving authority. The Myanmar Citizens Investment Law was also enacted under the management of the same commission.

The emphasis of foreign investment law is to enhance development to the primary sectors such as agriculture and forestry and to give priority to that investment that will

develop primary product-based industries. The current situation of Myanmar agriculture sector is still under lack of capital investment and the need of modern technology. So, the newly formulated investment laws play a very important role for the development of agriculture sector. The Ministry of Agriculture and Irrigation created different kinds of incentives to attract investors (local and foreign) to the agriculture sector. Foreign investors in agriculture sector are eligible to obtain incentives related to agricultural business as followings¹;

- Exemption from income taxes for up to three years
- Accelerated depreciation of assets
- Income tax relief on reinvested profits
- A reduction of up to 50% on income taxes due on products exported for Myanmar
- Exemption from custom duty on machinery and other capital goods imported as part of operations
- Government guarantees against nationalization
- Repatriation of profits and invested capitals
- Carry forward losses for up to three years and
- Exemption from customs duty on raw materials imported for the first three years of operations.

Ministry of Agriculture and Irrigation invited local and foreign entrepreneurs and companies to establish mutually beneficial trade and business in the form of Joint Venture or full- percentage investment in the areas: land utilization, establishment of agro-based industries, assembling and manufacturing of light agricultural machinery

¹ “Development of Agriculture Sector in Myanmar”, p.31

and farm implements, manufacturing of agricultural inputs and related support products and trading of agricultural commodities, input supplies and machineries. The central committee for management of cultural land, fallow land and waste land also granted approvals to both local and foreign investors with the expertise, technology and capital who desire to invest in agriculture sector and offered other incentives in utilization such as exemption from payment of land revenue from 2 years to 8 years), depending on the type of crops and nature of business. Moreover, at least three years of income –tax exemption was arranged to grant for businessmen from the year of commencement of commercial run of the business carried out on land developed and invested. Businesses (establishment of recreation center and resorts, golf club, motel, etc., around the dams with beautiful landscape) other than agricultural production, trade or agro-based industries were also permitted to investors.

4.3 The Impact of Agricultural reforms on Rice Production

4.3.1 Growth of New Rice Sown Acreage

The development of new agricultural land is one of significant strategies under agricultural reforms. In implementing these strategic measures, the government conducted as follow;

- Reclamation of fallow land and cultivable wasteland
- Development of farmers' embankment and paddy-fish integrated farming in deep water area
- Protection of soil erosion and development of terrace farming in highland and

slope land area, and

- Land consolidation in existing agricultural land with proper drainage, irrigation and farm roads to enable full utilization of mechanical power

So, the government tried to emphasize on development of new cultivable land and increase in sown acreage in various ways. The Ministry of Agriculture and Irrigation government encourages domestic companies and attracted foreign companies, with management of Myanmar Investment Commission (MIC) by providing incentives to them for emergence of new cultivable land in flooded area, deep water area and existing fallow, waste and virgin land. In the table (9), sown acreage under various crops and net sown acres continuously increased from year to year and in general, rice sown acreage also increased during ten years from 1989-90 to 1999-2000. But increase in rice-sown acreage substantially began only when Summer Paddy Program was launched in 1992-93. So, there was increase in rice sown acreage because of result of new technology, irrigated summer paddy acreage not because sequence of implementation of new agricultural land.

**Table (9) Growth of Total Sown Acreage and Rice Sown Acreage
under the reforms after 1988-89**

Year	Sown Acreage under Various crops	Net Sown Acreage	Rice Sown Acreage
1988-89	23,802	19,903	11,087
1989-90	24,344	20,285	12,057
1990-91	25,024	20,568	12,220
1991-92	25,426	20,605	11,935
1992-93	27,200	21,533	12,684
1993-94	28,134	21,592	14,021
1994-95	30,005	22,119	14,643
1995-96	31,837	22,654	15,166
1996-97	30,422	22,924	14,518
1997-98	30,336	22,926	14,295
1998-99	32,882	23,902	14,230
1999-2000	36582	25,044	15,528 (p)

Source: Ministry of National Planning and Economic development, Review of the Financial, Economic and Social Condition for 1997-98 and Settlement and land Record Department
(p)= prediction of production

4.3.2 Irrigated Rice Sown Acreage and New Method of Cultivation

Development program in Irrigation and utilization of water resources is one of important projects under agricultural reforms .Under the reforms , various types of irrigation works have been completed and there are still on-going projects in the whole country .

Table (10) Increase in Irrigated Rice Sown Acreage under the Agricultural Reforms

(thousand Acres)

Year	Total Rice Sown Acreage	Irrigated Rice Sown Acreage	Percentage of total rice cultivated area %
1988-89	11,087	2062	19
1989-90	12,057	2105	17
1990-91	12,220	2147	18
1991-92	11,935	2062	17
1992-93	12,684	2365	19
1993-94	14,021	3307	24
1994-95	14,643	3933	27
1995-96	15,166	4356	29
1996-97	14,518	3793	26
1997-98	14,295	3847	27
1998-99	14,230	n.a *	-
1999-2000	15,528	n.a	-

Source: Ministry of Agriculture and Irrigation

*not available

Irrigated rice sown acreage did not increase substantially at the beginning of the SLORC's regime till 1992-93. But there was a sharp increase in irrigated area from 1993-94 to 1995-96, when summer paddy program had been implemented. In the following

years, Total irrigated area did not increase and led to a downtrend. But rice irrigated area continued to increase, if compared to the beginning years of the SLORC.

To increase foreign earnings and to secure food grains, rice is one of the major crops. So, rice production was vigorously emphasized from 1992-93 after designating rice as a national crop. In 1992-93, the government introduced new method of rice cultivation, “Summer Paddy Program” to farmers. “Summer Paddy Program” could be noted as a successful one for rice growth of rice sector.

In the table (11), sown acreage under the program gradually increased from year to year and yields per acre also increased. Actually, yield of paddy sown under the program is more than of regular monsoon paddy because of sufficient sunshine, good water maintenance, use of high quality fertilizer-response seeds, and utilization of chemical fertilizer. Sown acreage slightly decreased after 1995-96 because of many constraints such as use of chemical fertilizers, price incentives and etc.,

Table (11) Growth of Rice Production under New Cultivation Program (Summer Paddy Program)

Year	Rice Sown Acreage under Program	Yield per Acre (Basket)	Total Output (Thousand tons)
1992-93	821	55.78	938
1993-94	2150	68.21	2879
1994-95	2662	70.26	3797
1995-96	3017	65.92	4103
1996-97	2015	70.58	3082
1997-98	2562	n.a *	n.a

Source: Myanmar Agriculture Service

* not available

4.3.3 Free Market Price

In spite of liberalized policies on agricultural marketing, the partial liberalization under agricultural reforms could not make a strong impact on rice production because there still existed compulsory delivery system to sell to the government. The rice farmers had the chance to sell their produce at high price in the market only after selling their quota to the government depots. But the remains, which can be sold in the free market p, were minimal. The government tried to raise the procurement price with a view to benefit the farmers as well as the government.

**Table (12) Price of Rice under Decontrol of Agricultural Marketing
(From 1988 to 1998-99)**

(Kyat * per ton)

Year	Government Procurement Price (average quality)	Free Market Price (average quality)
1988-89	862	3082
1989-90	1246	4341
1990-91	2348	2397
1991-92	2348	4208
1992-93	3593	8652
1993-94	3593	11482
1994-95	4072	10518
1995-96	7186	15842
1996-97	n.a	19799
1997-98	n.a	33812
1998-99		

Source: Review of financial , Economic and Social condition (various issues) ,
Ministry of National Planning and Economic Development
and Office of Strategies Studies , Ministry of Defense , Yangon
* Kyat is the name of Myanmar local currency unit.

In the table (12), the government procurement of kyat 1246 per ton in 1989-90 was a great increase during a decade after 1980. After an increase in 1989-90, the government procurement price almost doubled from kyat 1248 per ton to kyat 2348 per ton in 1990-91 and in the subsequent years. Since then, the government procurement price remained stable up to 1992-93. The free market price sharply increased (except for 1990-91) for year to year since the government allowed the private sector for domestic marketing of rice freely.

When the “Summer Paddy Program” was implemented, the government increased the price again to Kyat 3593 while free market price was Kyat 11482 per ton in 1993-94. In the following years, the government increased to Kyat 4072 in 1995-96 and to Kyat 7186 in 1996-97. Although the government increases the procurement price from year to year, the procurement price of the government was still substantially lower than the free market price. In 1995-96, the gap between two-price levels became very great.

4.3.4 Participation of Private Sector and Foreign Investment

Although the private sector could not participate in agricultural activities under the centralized economic system of the Socialist government, they had a great chance to join in agriculture activities under agricultural reforms of market-oriented system after 1988-89.

For expansion of cultivated area, 3,6277 acres were leased to 108 organizations and entrepreneurs in 1997-98 by the Central Committee of Cultivable Waste Land and Fallow Land thereby 191301 acres which were allocated to 964 private organizations and

private entrepreneurs. For integrated paddy-fish farming, 256 acres were leased during 1997-98, totaling 4210 leased acres and 118 organizations and private entrepreneurs. Construction of dykes in inundated and reclamation of hilly side area are also extensively undertaken. In supporting other important inputs and agricultural machineries, they also joined but the amount they contributed is very minimal. Foreign direct investment in agriculture is still minimal while the largest sectors receiving FDI are oil and gas , manufacturing and tourism.(Table 13 and Appendix B)

Table (13) Foreign Direct Investment in Myanmar Agriculture Sector

Year	Number of business	Value (US \$ in million)
1989-90	-	-
1990-91	-	-
1991-92	-	-
1992-93	1	2.690
1993-94	-	-
1994-95	-	-
1995-96	-	-
1996-97	1	5.991
1997-98	1	5.670
1998-99	-	-
1999-2000	-	-

Source: The Union of Myanmar Foreign Investment Commission

4.4 Growth of Rice Production under Agricultural Reforms

Rice production was feeble in the period of the second half of the 1980s. Rice sown acreage decreased and yield per acre was also stagnant. So, condition of rice production led to a negative trend and so the government took steps to remove weakness of agricultural policies by liberalizing marketing of agricultural products in 1987. But, the policy reforms had not compromised on decline in rice production due to political crisis of 1988.

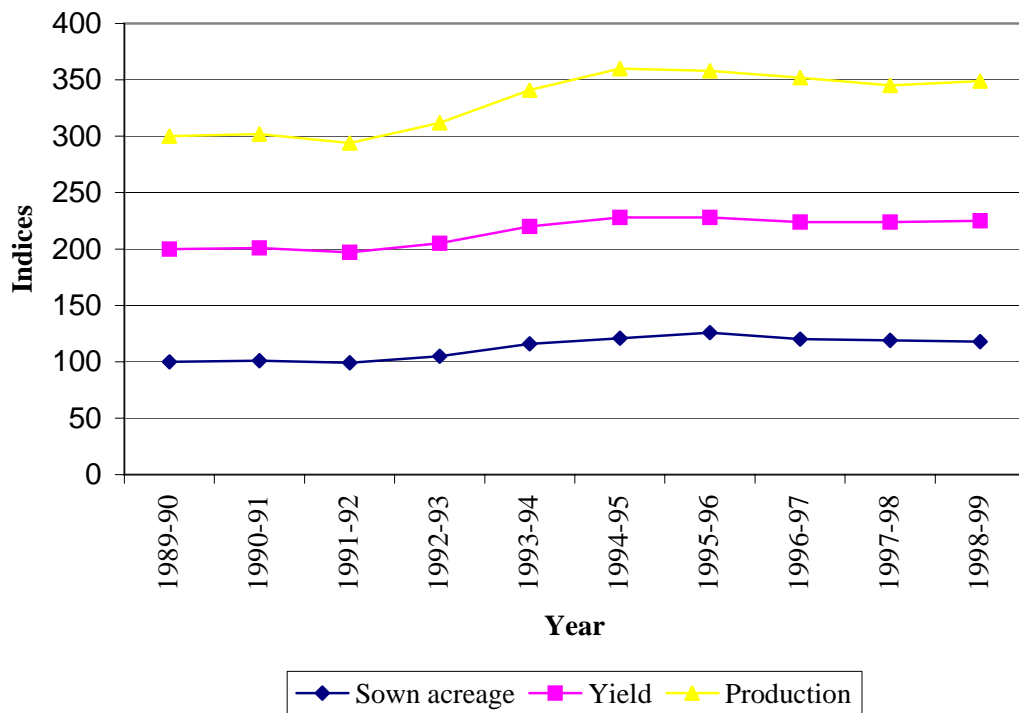
During three years from 1988-89 to 1990-91 after the SLORC took over the State's power, the growth of rice production was still sluggish. Table 9 and 14 shows that decline in both sown acreage and production continued till the late 1980s. In 1992-93, sown acreage decreased to 11,935 because of unfavorable weather condition, furthermore, yield per acre also was very feeble and stagnant. Decline in sown acreage led to decrease in production level, as yield per acre did not have strong impact on output. So, there was no substantial growth in rice production during the transitional period of The SLORC (from 1989-90 to 1992-93).

Table (14) Rice Production under Agricultural reforms since 1988-89

Year	Sown Acreage (thousand acres)	Yield Per Acre	Production (Thousand ton)
1989-90	12,057	57	13585
1990-91	12,220	57	13748
1991-92*	11,935	56	12992
1992-93	12,684	57	14603
1993-94	14,021	59	16495
1994-95	14,643	61	17907
1995-96	15,166	58	17669
1996-97	14,518	59	17397
1997-98	14,294	60	16391
1998-99	14230	61	16807
Indices			
1989-90	100	100	100
1990-91	101	100	101
1991-92*	99	98	97
1992-93	105	100	107
1993-94	116	104	121
1994-95	121	107	132
1995-96	126	102	130
1996-97	120	104	128
1997-98	119	105	121
1998-99	118	107	124

Sources: Myanmar Agriculture Services
 *1991-92 is a year of bad weather.

Figure (5) Trend of Rice Production under the Agricultural Reforms



Source: Table (14)

In 1992, rice was designated as a national crop and growth of rice production was vigorously emphasized with the government's all-around supporting. The government implemented new cultivation method known as Summer Paddy Program the same year. Only after the program, production level remarkably increased from year to year. Summer Paddy Program could obviously be noted as a successful technology for rice production in Myanmar agriculture sector. As a result of the program, there was a surge in

growth of rice production in the following years. (Yield per acre of summer paddy is more than regular monsoon paddy because of enough water maintenance, natural sunshine and chemical fertilizer.) So, some strategies under agricultural reforms generally give great impetus to boost rice production. Rice production significantly increased than before. The growth of rice production was also the combined result of both summer paddy and regular monsoon paddy. In the years after 1995-96, the growth of summer paddy program became sluggish because of insufficiency in important inputs such as fertilizer and diesel oil and more price incentive of other crops (Appendix C and D). Table (11) shows that success of program was achieved from the beginning to 1995-96 and then sown acreage and yield slightly decreased from 1996-97.

4.5 Pivotal Strategies under Agricultural Reforms for Development of Rice Sector in the Future

While carrying out reform measures, the government formulated multi-dimensional strategies overwhelming five agricultural areas; intensification, diversification, extensification, rehabilitation and Integration.

- 1) Intensification Strategies: improvement in productivity through intensive application of factors of production
- 2) Diversification Strategies: expansion of multi-crop cultivation in terms of production as well as consumption aspects
- 3) Extensive Strategies are expansion
- 4) Rehabilitation Strategies: land improvement and rural development and
- 5) Integration Strategies: improvement in concerted efforts of, various public and

private agencies involved in agricultural development.

Strategies

Priority Issues

1. Intensification
 - (a) Improvement in productivity through intensive application of factors of production ; land, irrigation and inputs
 - (b) Improvement in cropping intensity through double or multiple cropping
 - (c) Development of viable seed industry
2. Diversification
 - (a) Development of broad spectrum of agricultural through integration of food grain and cash crops, horticultural crops, bee -keeping, livestock and aquaculture and agro-forestry.
 - (b) Development of linkages among the processes, including grading, packing and storage facilities and marketing aspects
 - (c) Identification of crops and cropping system and special production zones for export crops suitable to agro-ecological condition
 - (d) Improvement of research and extension programs and activities
 - (e) Estimation of demands, identification of markets and establishment of standards for grading and quality control measures
3. Extensification
 - (a) Area expansion mainly through major land reclamation program to fully utilize fallow land and agricultural wasteland including deep-water areas

- (b) Identification of areas and evaluation of economic viability
 - (c) Encouragement of participation of private investment
- 4.Rehabilitation
- (a) land consolidation including proper drainage system and farm roads
 - (b) Improvement of soil fertility in general and improvement of marginal land in the dry zone and hilly region particularly.
 - (c) Encouragement of participation of beneficiary groups in sustainable development activities in the rural areas through self-help activities
- 5.Integration;
- (a) Development of adequate arrangements for an effective integration of concerned government agencies
 - (b) Development of government-private sector cooperation
 - (d) Undertaking demonstration projects on integrated agricultural development with participation of private sector and rural communities in the selected regions

CHAPTER FIVE

CONCLUSION

5.1 Concluding Remark and Future Prospect

Myanmar is a country, which has a total cultivable land area of 45 million acres with only current cultivated area 25 million acres. Moreover, it is naturally endowed with abundant water resources. So, Myanmar has a great potential for growth of agricultural sector. The economy has been depending agriculture sector since ancient days till the present days. In agriculture, rice sector is vital not only for daily food but also for national income. In the early years of 20th century, Myanmar under the rule of British Colonial government was the dominant rice exporting country. But, production declined during World War II.

After independence in 1948, Myanmar experienced repeated difficulties, trying to regain its status as a major rice exporting country. Most of Asian countries also developed their agro-based economies phase by phase under various reforms while focusing on industrialization. (For example, Thailand and Vietnam). Thailand rapidly emerged as the dominant rice exporter in the 1960s. Other rice-deficit countries such as Indonesia, Malaysia and Philippines could reduce their import of rice.

In 1988, the military government (The State Law and Order Restoration Council) took the State's power and conducted reform measures under new economic system. The government introduced some liberalized policies to agriculture sector. The

rice sector also had new experiences under reforms. Reform measures gave not only positive impact but also negative impact to the rice sector. After designating rice as a national crop in 1992, rice production notably increased under new cultivation method “Summer Paddy Program” which was initiated in 1992-93. Total rice sown acreage sharply increased because of sown acreage of summer paddy. Yield per acre under new program highly increased but yield of regular monsoon paddy did not increase significantly. So, summer paddy program was a successful one for rice sector during the 10-year transitional period of the SLORC. But, the 3-year continuous success became sluggish at the beginning of 1996-97.

There are mainly two reasons that caused decline in rice production; first, decrease in supply of important inputs such as chemical fertilizer and diesel oil, and second one, more attractive price incentive of the other commercial crops. Regarding first reason, although the government provided necessary inputs to the farmers sufficiently at the beginning of program, they could not supply them afterward. So, the farmers had problems of insufficient inputs such as diesel oil for irrigation and chemical fertilizer in the preceding years. Irrigation is very important for farmers who grow summer paddy. Chemical fertilizer is also a key input for increase in yield.¹ The import of agricultural inputs was constrained by deficit budget and slow flow of FDI to the agriculture sector. Moreover, although the government encouraged the private sector to join in supply of agricultural inputs and machineries, the participation of private sector have still been minimal.

In the second reason, the government also abolished control system of crop

¹ High yield varieties (HYVs) are used in the half of total rice sown area. HYVs are fertilizer-response seeds.

pattern. In other words, the farmers can grow any crops freely. So, some farmers changed their crop pattern from paddy to other commercial crops such as pulse and beans which have more price incentives, compared with rice. (Appendix D). Although rice has more price incentive before, it became less and less for rice-farmers because the role of importing rice was very feeble. Moreover, the quality of Myanmar export rice cannot compete with others in the world market. Even if there is demand for Myanmar rice, the price level is low ¹, comparing to others. Despite allowing the private sector for domestic marketing of agricultural products as well as export, rice is monopolized by the government for export. So, the amount of other commercial crops such as pulses and beans the private sector exports became bigger and bigger from year to year. The more export of pulses and beans, the higher the price of pulses and beans. So, the high prices of other commercial crops are very attractive to farmers to change their previous crop pattern.

Although the government's intervention in the agricultural marketing had been reduced since 1988, most still remained largely under the control of the government. The government should promote liberalization of rice export and practice price-supporting policy persistently while subsidizing inputs in the transitional period of agriculture sector. Additionally, attentions should be paid to attract FDI and current policies should politically be emphasized to achieve ODA from donor countries. In fact, the background to the current all economic and social problems in Myanmar is political instability. (Although there is no serious attack and activities against the current government inside the country, Myanmar still has intension between the current government and opposite political party. It is the most obvious barrier to inflow of FDI

¹ Export price of Myanmar rice is about half of Thailand rice price.

and ODA.)

Finally, there is no doubt that rice sector in Myanmar agriculture will remain the leading industry in the future. In order to further development rice sector, the following issues should also be considered by the upcoming government.

- Comprehension promotion program should be formulated.
- Infrastructure improvement and land reclamation should be continued.
- Capital investment should be promoted
- Capacity building should be promoted
- Distribution network should be organized.

In the near future, Asian rice exporting countries have a plan to establish an organization like Organization of Petroleum Exporting Countries (OPEC). If Myanmar becomes a member country, Myanmar farmers can have not only advantage but also disadvantage. As mentioned above, the government should reviews strength and weakness of current policies and strategies and practice more favorable policies to the sustainable development in rice sector.

APPENDIX (A)

Rice Production and Rice Export and Domestic Price (1948 to 1962)

Year	Production (Million ton)	Export (Million ton)	Domestic Price (Kyat per ton)
1948	5.16	1.05	153
1949	4.58	-	155
1950	5.40	1.18	166
1951	5.60	1.27	158
1952	5.84	1.26	150
1953	5.58	0.97	151
1954	5.65	1.46	160
1955	6.03	1.64	155
1956	6.28	1.87	155
1957	5.42	1.75	162
1958	6.88	1.41	167
1959	7.18	1.69	172
1960	7.09	1.72	183
1961	6.80	1.59	190
1962	7.56	1.74	157

Source: Khin Win , 1991 , A Century of Rice Improvement in Burma .IRRI, Manila , Philippines.

APPENDIX (B)

Foreign Investment of Permitted Enterprises as of (30-11-2001)

(BY SECTOR)

(US\$ in million)

Sr No.	Particular	Permitted Enterprises		
		No.	Approved Amount	%
1.	Oil and Gas	51	2355.92	31.80
2.	Manufacturing	148	1589.37	21.45
3.	Hotel and Tourism	43	1059.66	14.30
4.	Real Estate	18	1025.14	13.84
5.	Mining	51	523.36	7.06
6.	Livestock & Fisheries	20	283.37	3.82
7.	Transport & Communication	14	283.27	3.82
8.	Industrial Estate	3	193.113	2.61
9.	Construction	2	37.77	0.51
10.	Agriculture	4	34.35	0.46
11.	Other Services	6	23.686	0.32

Source: Myanmar Investment Commission

APPENDIX (C)

Chemical Fertilizer Utilization under Summer Paddy Program

Year	Chemical Fertilizer Utilization (metric ton)
1992-93	-
1993-94	63351
1994-94	91782
1995-96	107863
1996-97	66288

Sources: Myanmar Agriculture Service





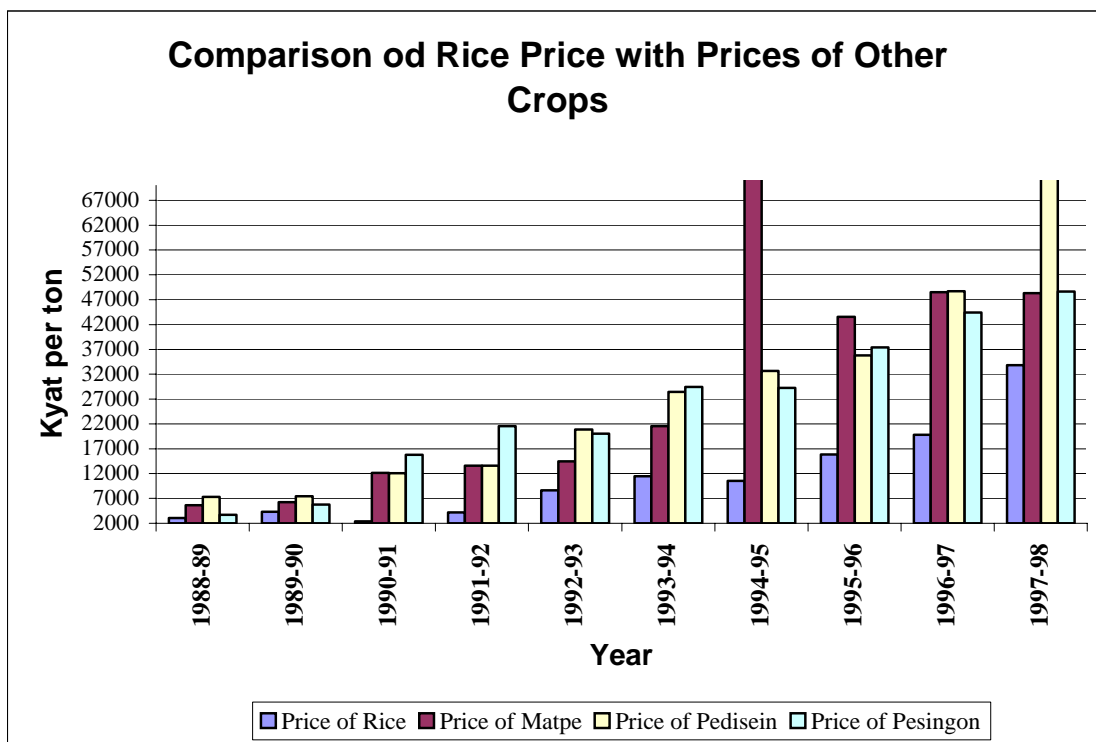
APPENDIX (D)

Comparison of Free Market Prices

(Kyat per ton)

Year	Price of Rice (Average quality)	Price of Matpe	Price of Pedisein	Price of Pesingon
1988-89	3082	5608	7357	3679
1989-90	4341	6271	7422	5782
1990-91	2397	12138	12064	15771
1991-92	4208	13569	13592	21572
1992-93	8652	14490	20881	20072
1993-94	11482	21574	28453	29480
1994-94	10518	28721	32635	29265
1995-96	15842	43556	35778	37402
1996-97	19799	48506	48680	44454
1997-98	33812	48344	71653	46813

Source: Office of Strategic Studies ,Yangon Myanmar



REFERENCES

LIST OF REFERENCES

1. ASEAN Economic Research Unit, Institute of Southeast Asia Studies, "**Myanmar Dilemmas & Options the Challenges of Economic Transition in the 1990s**", 1990.
2. Kenneth B.Young, Gail L. Cramer and Eric J.Wailes , "**An Economic Assessment Of the Myanmar Rice Sector: Current Developments and Prospect**", ARKANSAS AGRICULTURAL EXPERIMENT STATION, University of Arkansas, Research Bulletin 958, 1998.
3. Khin Win & Nyi Nyi, "**Factors contributing to increase Rice Production in Burma**", Paper presented at the cropping System conference, Philippine, 1980.
4. Mya Than,"**Development Strategies, Agricultural Policies and Agricultural Development in Southeast Asia**", Indochina Roundtable II 1995, Paper presented at workshop on Economic Reforms and Their Impacts on Agricultural Development in Emerging Transitional Economies of Main Land and Southeast Asia. 14-15 December 1995, Singapore.
5. Myat Thein and Maung Maung Soe, "**Economic Reforms and Agricultural Development in Myanmar**", Paper presented to a workshop on Economic Reforms and their impacts on Agricultural Development in Emerging Transitional Economies of Mainland Southeast Asia, Singapore.
6. Tin Htut Oo, "**Myanmar Agriculture under the economic Transition: Present Situation and Emerging Trend;**"V.R.S Series No. 265, Institute of Developing Economies, Japan, 1996
7. Tin Soe," **Union of Myanmar Economic Reforms**", Paper presented to the Fourth Meeting Of Europe /East Asia Economic Summit, 1995.
8. Tin Soe & KO Ko Lay, "**Institutional Arrangement for Marketing Extension Services**", Agenda paper presented at the FAO/AFMA/Myanmar Regional Workshop on "Agricultural Training and Extension", 2000, Yangon, Myanmar.
9. Central Statistical Organization, "**Agricultural Statistics**" (1988/89- 1999-2000)
10. Department of Agriculture, Market Section Survey No.9 "**Rice**", 1958.

11. Ministry of Agriculture and Irrigation, "***Configurative Development and Perspective Of Myanmar Agriculture*** , 1996.
12. Ministry of Agriculture and Irrigation(1996), "***Agricultural Development in Myanmar***"
13. Ministry of National planning and Economic Development, "***Review of the Financial Economic and Social Conditions***" (various series)
14. Technical Center for Agricultural, "***Agriculture +Rural Development***", Vol.5, NO. 1.2, 199And Rural Cooperation
15. Bo Lay, "***Growth of Developing Economies in Asia***". (In Myanmar Language)
16. Myanmar Agriculture Service, "***Condition of Rice Production in State and Divisions From 1962-63 to 1994-95***", (In Myanmar Language)
17. Central Committee of Myanmar Socialist Program Party (1987), "***Production and Trade of Rice***".(In Myanmar Language)