

**THE ROLE OF AGRICULTURE IN THE DEVELOPMENT OF MYANMAR  
ECONOMY**

**By**

**Nyein Zin Soe**

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Professor Ju-Ho Lee

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## **Chapter 1**

### **INTRODUCTION**

The Union of Myanmar is an agricultural country, and agriculture sector is the back-bone of its economy. Its economy has traditionally been based on agriculture. That is because nature has blessed it with vast areas of fertile land and abundant success of water, which are the principal ingredients of an Agro-based economy.

Major rivers flow from the North to South of the country emptying into the sea around the Western and Southern part of Myanmar. These rivers are fed along their routes by a myriad of rivulets and creeks. On the arable land, fed by the water of rivers, rivulets and creeks, are grown various types of crops.

The seasonal Monsoons from the South-West brings rain to Myanmar for about five months every year, filling the rivers and creeks and watering the land for cultivation of rice, the principal crop of Myanmar. Nowadays however, rice is also being grown in water as well as in summer in areas, which are fed by water from the various dams, or pumped into the paddy fields from the rivers and creeks. Three other priority crops, namely Jute, Sugar Cane and Cotton are also grown in areas suitable for the cultivation of such crops. Jute is particularly grown along with rice in the deltas and rain fed areas of the southern “bugle” of the country.

In the middle part of Myanmar is the so-called “Dry Zone” because of the low amount of rainfall it receives every year. Principal crops grown in the “Dry Zone” are cotton, tobacco, groundnut, sesamum, potatoes, onions, chilly and a variety of pulses

and beans. In recent times, the “Dry Zone” is being watered by irrigation canals from the dams in and around the area. In places, water from the Ayeyarwaddy, the longest river flowing down the middle of the country past the “Dry Zone”, is being pumped into the surrounding areas. “Watering” of the “Dry Zone” has not only increased crop variety being sown there, but also crop yields thus increasing agricultural production of the area. It has also enabled massive tree planting campaigns, which contributes to the “greening” of the region.

In contrast to the “Dry Zone”, the mild climate of the hilly regions in the North-West, North and East, is conducive to the growing of such crops as coffee, tea, as well as a variety of vegetables and fruits. Staple food such as rice and wheat are grown in the valleys and by terrace cultivation on the hills in these regions. Sunflower is also extensively grown for oil seed. In many areas, where both the soil and the climate are suitable, efforts are being made to grow a variety of fruit trees on a commercial basis. Private sector investment is being encouraged as the potential exists for growing and eventually exporting fruits, such as oranges, apples, damsons etc.

Myanmar has the potential to grow food not only to feed itself but also be one of the principal food producers of the region. Since the development in agriculture sector will enhance the socio-economic development of the country, the Government has designated agriculture as the main pillar of the economy and is dedicating tremendous efforts to achieve greater progress in this sector.

As much as progress has been made in the agriculture sector, capital gained from the sector will be used in implementing basic industries needed for national development. The modern and developed nation can be built only when the forces of agriculture and

industrial sectors can be combined. All-out efforts are thus made for “development of agriculture as the base and all-round development of other sectors of the economy as well” in accord with the economic objective laid down by the State.

## **1.1. Basic Information**

### **1.1.1. Topography and Climate**

Myanmar is geographically located between 9° 58' to 28° 31' N and 92° 9' to 101° 10' E and is situated in South East Asia, sharing borders with Bangladesh, India, China, Laos and Thailand. The total area of the country is about 676,577 square kilometers, stretching for 2276 kilometers along the sea coasts. The western, northern and eastern parts of the country are hilly regions with altitudes varying from 915 to 2134 meters.

Myanmar possesses tropical and sub-tropical climates with three general seasons. The raining season during the south west monsoons from mid-May to mid-October, the dry cool season from mid-October to mid-February and the hot season from mid-February to mid-May. The average annual rainfall varies over the country, ranging from 2540 mm to 5080 mm in the coastal and hilly regions, and 762 mm to 1016 mm in the central core of Myanmar. The temperature in the southern part of the country differs a little during the different seasons. However, in central plain of the country seasonal variation of temperature lies in the magnitude of 40.6° – 43.3° Celsius in hot season and 10° – 15.6° Celsius in cold season. It is considerably cooler in the hilly regions where the average daily maximum is 29.4° Celsius and the minimum, 7.2° C.

### **1.1.2. Land**

Consequent upon the wide range of climate and soil forming parent rocks, the soil of Myanmar vary a great deal. But there are only three agriculturally important soil groups; namely, alluvial soils, black soils and red lateritic soils:-

1. Alluvial soils occupy some 50% of the total sown area and are generally deep and variable in structure, ranging from sticky clay to sandy loam. In lower Myanmar, the old alluvial soils are acidic.
2. Black soils occur in about 30% of the area and are generally found in regions with an annual rainfall ranging from 20 to 40 inches. Agriculture has to be aided by irrigation and on such soils, while at the same time driage and erosion are serious problems. These soils contain 40\_60 % clay and are plastic and sticky when wet and very hard when dry.
3. About 20% of the total sown area are of red lateritic soils which are generally associated with undulating topography and having an annual rainfall ranging from 40\_120 inches. These soils are low in lime and magnesium and deficient in nitrogen. Available phosphate and organic matter content are also relatively low.

With the exception of rich alluvial flats along the main rivers and their tributaries plus the Ayeyarwady delta area, the soil of Myanmar are generally low in organic matter and Nitrogen. Status of available Phosphate and Potash in most of the soils are found to be fairly high, but additional dosages of these nutrients are required for yield increase of the crops, especially high yielding varieties. Choice of tolerant varieties together with the use of chemical fertilizers that will bring the neutralizing effect on low pH soils (i.e. the

degree of acidity or alkalinity of the soil.) are the typical measures adopted so far to overcome this problem.

### **1.1.3. Rural Population and Farm Families**

Myanmar's population is increasing steadily with an annual growth rate of 1.84% and estimated total for 1997/98 is approximately 46.40 million. Out of this total about 75% are living in rural area where farming is the main occupation. Total labor force is estimated to be 18 million out of which 63% are engaged in agriculture sector<sup>1</sup>.

### **1.1.4. Policies and Objectives**

Policies conducive to the improvement of agricultural sector leading to the uplift of the national economy are laid down as below:

- production of food crops and industrial crops with no restrictions;
- to permit commercially viable production of industrial and plantation crops;
- to allow private investors and farmers to expand culturable waste land for agriculture production;
- to encourage participation of private sector in the distribution of farm machineries and other farm inputs;
- to utilize agriculturally unproductive land for other production programs

Underlying the agricultural development policies, the three objectives are being prioritized without jeopardizing the production of other crops in the country. The three main objectives are :

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<sup>1</sup> Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

- (1) to achieve surplus in paddy production
- (2) to achieve self-sufficiency in edible oil and
- (3) to step up the production of exportable pulses and industrial crops

## **1.2. National Economic Situation and the Role of Agriculture**

Myanmar had pursued its economy development by means of socialist economic planning system for about a quarter of a century. In the later years of 1980s the country experienced a negative growth rate for three consecutive years. This was mainly due to low productivity in key productive sectors which effected foreign trade and creating unfavorable balance of payments and position of foreign exchange. The investment level also declined due to decline of loans and aids from bilateral and multilateral sources. These situations called for the need to restructure the economy, and hence the Socialist Planning System was replaced by market-oriented system with the emergence of New Government in 1988.

### **1.2.1. Policy Reform in Myanmar Economy**

Prior to 1988 the economy of the country was suffered severe decline, and hence the government has decided to take urgent reform measures to restore the economy, it was recovered and stabilized during the first three years from 1989/90 to 1991/92. With a view to developing proper market-oriented economic system, economic reforms: trade liberalization, privatization and monetary reforms were undertaken.

#### **Reform Measures Undertaken\_**

- (1) decentralizing central control

- (2) encouraging private sector development
- (3) abolishing price controls and reducing subsidies
- (4) allowing foreign direct investment
- (5) initiating institutional changes
- (6) initiating the new financial management system
- (7) streamlining taxes and duties
- (8) promoting exports by streamlining export and import procedure
- (9) diversifying exports through introduction of new products
- (10) improving infrastructure support
- (11) restructuring wages and prices
- (12) allowing farmers to cultivate crops of their choice

### **1.2.2. Reform Measures in Agriculture Sector**

With a view to accelerating the growth of the agriculture sector, the key sector of the national economy, a number of reform measures have been undertaken in line with the developments in the country's socio-political conditions. Principal crops including paddy, formerly controlled by the State, had been decontrolled giving the farmers a freedom of choice and flexibility in production and marketing of agricultural crops, stabilizing farm income and to enable free flow of commodities. It has enabled the farmers to cultivate crops most suitable to their local agro-ecological conditions and to market their produce freely. Land revenue, which was assessed in terms of scheduled crops and collected in kind in 1987-88, was re-scheduled and collected in cash in 1988-89 in order to facilitate easier payment by the farmers and to ease tax administration.

There was an improvement in farm income with the liberalization of farm production and marketing. The sales price of chemical fertilizers have been adjusted in 1988-89 in line with the increase in production cost and purchase price. The Agricultural Mechanization Department also adjusted its service charges in 1988-89 to partly cover the increase in its operating costs.

### **1.2.3. Macroeconomic Performance**

Then a short term Four Year Plan (1992/93\_ 1995/96) was formulated with priority given to the enhancement of production and export promotion. The average annual growth rate realized during the Short Term Plan was 7.5% against the targeted rate of 5.1%.

**Table (1) Macroeconomic Performance of Myanmar for the Decade 1985/86-1995/96**

Fiscal Year	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
<b>(I) Changes in GDP and its main components (Kyat million in 1985/86 prices)</b>											
GDP	55,989.6	55,396.8	53,177.8	47,141.1	48,883.1	50,259.5	49,933.3	54,756.6	58,063.9	62,406.1	66,741.6
Agriculture	22,243.5	22,343.3	20,906.8	18,137.6	19,088.8	19,470.6	18,708.3	21,028.6	22,008.7	23,483.3	24,764.7
Processing and Manufacturing	5,561.4	5,123.3	4,869.5	4,094.3	4,555.0	4,560.3	4,376.4	4,850.0	5,305.9	5,756.9	6,191.6
Trade	13,388.7	12,819.8	11,992.6	10,558.2	11,117.8	11,384.6	11,104.0	12,087.2	12,648.9	13,540.6	14,306.6
<b>(II) Growth rates, increase over previous year (Percentage)</b>											
GDP	2.9	-1.1	-4	-11.4	3.7	2.8	-0.6	9.7	6	7.5	6.9
Agriculture	2.2	0.4	-6.4	-13.2	5.2	2	-3.9	12.4	4.7	6.7	5.5
Processing and Manufacturing	2.9	-7.9	-5	-15.9	11.3	0.1	-4	10.8	9.4	8.5	7.6
Trade	3.7	-4.2	-6.5	-12	5.3	2.4	-2.5	8.9	4.6	7	5.7
<b>(III) Indices of value of production (1985/86=100)</b>											
GDP	100	98.9	95	84.2	87.3	89.8	89.2	97.8	103.7	111.5	119.2
Agriculture	100	100.4	94	81.5	85.8	87.5	84.1	94.5	98.9	105.6	111.3
Processing and Manufacturing	100	92.1	87.6	73.6	81.9	82	78.7	87.2	95.4	103.5	111.3
Trade	100	95.8	89.6	78.9	83	85	82.9	90.3	94.5	101.1	106.9
<b>(IV) Population (in millions) and per capita GDP (in Kyats at 1985/86 prices) (index: 1985/86=100)</b>											
Population	37.07	37.8	38.54	39.29	40.03	40.79	41.55	42.33	43.12	43.92	44.74
Per capita GDP	1,510.40	1,465.50	1,379.80	1,199.80	1,221.20	1,232.20	1,201.80	1,293.60	1,346.60	1,421.30	1,492.00
Index: Per capita GDP	100	97	91.4	79.4	80.9	81.6	79.6	85.6	89.2	94.1	98.8
Index: Population	100	102	104	106	108	110	112.1	114.2	116.3	118.5	120.7

Source: Ministry of National Planning and Economic Development, *Review of the Financial, Economic and Social conditions for 1997-98*.

Table (1) gives official GDP statistics of Myanmar for the decade 1985/86 to 1995/96. Section (I) sets out the data on GDP and its three largest components. The figures are in constant 1985-86 prices, and the three major components include agriculture with a contribution of 37.1% to GDP, processing and manufacturing with a contribution of 9.3% and domestic trade with a contribution of 21.4% to GDP<sup>2</sup>. Hence, these three sectors together are responsible for 67.8% to GDP.

Section (II) shows the growth rate of GDP and its major components for each year over its previous year and thus indicates year to year variations (in percentage) for these variables over the decade. Section (III) gives indices for changes in GDP and its major components by taking 1985-86 as base. This section shows at a glance, when or how many years it has taken for a particular variable, such as GDP, to reach or exceed the level it attained a decade ago in 1985-86. Changes in population and per capita GDP are presented in section (IV).

The year 1985-86 has been chosen as base because it is the last “normal” year under the previous regime, as the years following it were marked by negative growth in GDP and its main components until the political disturbances led to the demise of the Burmese Way in 1988. In looking at performance over the past decade, it may be observed in section (I) of table (1) that GDP in 1985-86 amounted to about Kyat 56 billion. It may then be noted that GDP in constant prices attained (and exceeded) this level only in the year 1993-94 when it reached Kyat 58 billion. A similar exercise for the main components of GDP (agriculture, processing and manufacturing, and trade) illustrates that the value of output produced in these sectors in 1985-86 was achieved only

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<sup>2</sup> “Agriculture” does not include livestock, fishery and forestry. The percentage contributions are for the fiscal year 1995-96.

in 1994-95. The same information can be more easily discerned in section (III) where the changes are presented in the form of indices. The implication of this is that of eight years of policy reform, six years (1988/89 to 1993/94) had been required to get the GDP, in real terms, back to the level it stood a decade ago in 1985-86. For the main components of GDP, the recovery period was slightly longer\_ 7 years to regain the levels attained in 1985-86.

#### **1.2.4. The Role of Agriculture in Economic Development**

The satisfactory rate of growth of the economy achieved in recent years was primarily attributable to the very good performance of agriculture sector, the predominant sector of the economy and which has been given top priority. Numerous innovative approaches and devices were made to procure inputs for distribution to the farmers, while the government had also heavily invested in building up dams and irrigation system not only to enable successful harvest but also double and in some cases triple cropping. Farmers have also been greatly enticed to work hard by price incentive following liberalization of price controls and regulations.

Agriculture sector is the basic one in the national economy of Myanmar, 75% of total populations residing in rural area and basically engaged in agriculture and animal husbandry for their earning. Recently, agriculture sector contributes 36% of GDP; 35% of total export earnings and employs 63% of the labor force. And the progressive achievement in agriculture sector such as production, services and trade, are being shared to national development.

### **1.3. Objectives of the Study**

The objectives of my study is to present the recent achievement of agriculture sector which plays a vital role in development of Myanmar economy and all-out efforts for the development of agriculture in our country in accordance with one of the national economic objectives “Development of Agriculture as the base and all-round development of other sectors of the economy as well”. In addition, I would like to present the requirements for the successful agriculture development in the long run in Myanmar.

## **Chapter 2**

### **ORGANIZATIONS AND POLICY MEASURES OF THE MINISTRY OF AGRICULTURE AND IRRIGATION**

#### **2.1. Organizations of Ministry of Agriculture and Irrigation**

Since 1948, Myanmar had stood as a full-fledged independent nation, two ministries, namely, Ministry of Agriculture and Ministry of Land Nationalization had been formed for the development of agriculture of the country. In 1962, these Ministries were merged and reformed as one Ministry called Ministry of Agriculture and Forests in order to fully concentrate in agricultural development works. The Ministry of Agriculture and Forests was responsible to accelerate the development of agriculture sector, forestry sector and fishery sector. Then in 1983, fishery sector was established as a new Ministry called Ministry of Livestock Breeding and Fisheries. Again in 1992, Ministry of Agriculture and Forests was reformed into two ministries as Ministry of Agriculture and Ministry of Forestry.

In 1996, Ministry of Agriculture was renamed as Ministry of Agriculture and Irrigation in order to mention the important role of irrigation in agriculture. Ministry of Agriculture and irrigation laid down policies and objectives for agriculture development and has committed continuous efforts for its achievement. There are (13) institutions under the Ministry of Agriculture and Irrigation. They are listed below combined with the Minister's Office.

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

#### **2.1.1. Department of Agricultural Planning**

The major tasks of the department are as follows.

1. Preparation and formulation for short, medium and long term agricultural plans and projects
2. Monitoring and evaluation on project implementations and submission of findings to the Minister and different levels of authorities
3. Analysis, preparation and presentation of special projects in line with the state's objectives and policies
4. Discussion, negotiations and evaluations of completed, on-going and pipeline agricultural projects granted or loaned by United Nations' Organizations, international organizations and foreign governments
5. Data collection, data compilation, data analysis of agricultural statistics and reporting, publishing and distribution of agricultural information

6. Cooperation with international organizations, governments, United Nations organizations and arranging technical cooperation programmes for agricultural activities
7. Recommendation and submission of proposals for new projects to authorities concerned
8. Looking for and inviting donor countries or organizations for the agricultural projects
9. Arrangements for further study, delegations, study tour, scholarships, and selection of qualified personnel
10. Communication, encouraging and negotiation with local and foreign entrepreneurs, companies for the development of private sector in agriculture to invest and establish mutually beneficial trade and business in the form of Joint-Venture, 100% investment and profit sharing basis
11. Making arrangement and invitation for foreign investment
12. Management of trade and business activities for the promotion of agri-export system cooperated with related institutions under the ministry
13. Participation, cooperation in organizations formed by State and other ministries for the implementation of agri-related services.

### **2.1.2. Myanma Agriculture Service**

The main functions of the Myanma Agriculture Service constitute agricultural research and extension developments, with objectives directed towards

1. the increased production of major crops

2. the development of improved production technology through proper researches on management of soil, crops and pest
3. development of suitable high-yielding crop varieties
4. the transfer of appropriate crop production technology through agricultural extension programme
5. distribution of certified seeds through seed program
6. the provision of agricultural inputs
7. classification of soils and advising on soil conservation techniques and
8. the exploration of export market on some agricultural produce.

### **2.1.3. Myanma Farms Enterprise**

This enterprise is undertaking agriculture, livestock and aquaculture production on commercial basis. At present, 22 seasonal crop farms and 6 coffee estates have been established in various States and Divisions all over the country. Cultivable area of these firms are about 35,000 acres and crops cultivated include as follows:-

- |                      |   |
|----------------------|---|
| (a) Cereals          | paddy, wheat, maize, sorghum  |
| (b) Oil crops        | sesame, sunflower, niger, mustard   |
| (c) Pulses           | chick pea, black gram, green gram, pigeon pea,<br>soyabean, lab bean castor |
| (d) Industrial crops | coffee  |
| (e) Vegetables       | various types   |
| (f) Mushrooms        | straw, ovster, Jew' s ear, shitakii   |

Being a commercial organization, Myanma Farms Enterprise is also undertaking trading of inputs and outputs of agriculture, livestock, and aquaculture farms. Current

commercial practices used by Myanmar Farms Enterprise are buy-back arrangements, border trade and simultaneous counter trade.

Deep water areas throughout Myanmar are now reclaimed a paddy-fish cum integrated farming system. In these systems, appropriate rice varieties are cultivated as the first crops and then followed by oil crops, jute or pulses as the second crops. Aquaculture farming is also carried out in the water area, whereas pig, duck and poultry farming are undertaken on the embankment of the ponds.

#### **2.1.4. Myanmar Cotton and Sericulture Enterprise**

The main functions of Myanmar Cotton and Sericulture Enterprise are as follows: -

Cotton : To provide adequate raw material for national textile industries

To export lint and by-products to earn foreign exchange

To promote living standard of farmers by increasing income from cotton cultivation

To set up allied industries of by-products of cotton within the country

Sericulture: To provide raw material for national silk industries

To develop the national silk reeling and weaving industries

To create more job and job opportunities

To export surplus cocoon and silk fabrics

#### **2.1.5. Myanmar Sugarcane Enterprise**

The main functions of Myanmar Sugarcane Enterprise are as follows:-

- To increase per capita consumption of sugar
- To fulfill the raw sugar requirement of inland sugar-based industries

- To promote the export of the surplus sugar

#### **2.1.6. Myanmar Perennial Crops Enterprise**

The main functions of Myanmar Perennial Crops Enterprise are as follows;-

1. Planting of rubber, oil palm, cashew
2. Production of rubber, oil palm, cashew
3. Processing of rubber, palm oil
4. Extension services and supplies of planting material and other inputs for the development of crops in private sector
5. Research and Training
6. Marketing

#### **2.1.7. Myanmar Jute Industries**

The functions of Myanmar Jute Industries are as follows:-

1. To provide all the necessary assistance to jute farmers in order to boost crop production
2. To purchase all available crops for export and local mills consumption
3. To sort out, grade and bales into 180 kg. weight each at Jute Grading and Baling Factories
4. To produce jute products at two Jute Mills and Jute Carpets Products Factory and distribute to local and foreign markets

### **2.1.8. Irrigation Department**

Irrigation department is responsible for the operation and maintenance of irrigation works, construction of new projects and investigation and design of proposed projects. To keep pace with the increasing population of the country, stress has been put on increase of food production. Strategies are to improve agriculture production by putting more land under cultivation and by crop diversification through greater cropping intensities through the development of irrigation, drainage and flood protection works.

### **2.1.9. Water Resources Utilization Department**

The main functions of the Water Resources Utilization Department are as follows:-

- To increase the agriculture production in Myanmar by pumping water from rivers and streams and also utilization of ground water from feasible potentials
- To promote the socio-economic of rural population by supplying potable water from tube wells and piped water reticulations
- To supply crop water and drinking water from spring sources by gravity flow systems in the mountainous region of the border area and remote areas
- To introduce sprinklers and drip irrigation systems to farmers

### **2.1.10. Settlement and Land Records Department**

The Settlement and Land Records Department's predominant activities are as follows:-

1. Settlement work dealing with the operation for fixation of land revenue rate
2. Collection of Agricultural Statistics

3. Annual assessment of land revenue and land rent
4. Registration of deeds
5. Agricultural land administration

#### **2.1.11. Agricultural Mechanization Department**

The main functions of the Agricultural Mechanization Department are:

1. to provide tractor hire services to farmers
2. to reclaim lands for cultivation
3. to produce small farm machineries and equipment
4. to import power tillers and farm implements for resale to farmers
5. to research, develop and utilize small farm machineries applicable to the prevailing general conditions of the agricultural sector of the country
6. to propagate the use and technical know-how of small farm machineries among the farmers

#### **2.1.12. Myanmar Agricultural and Rural Development Bank**

The Myanmar Agricultural and Rural Development Bank (MARDB) is a State owned bank and successor to the State Agricultural Bank (SAB) established in 1953 which later became the Myanmar Agricultural Bank (MAB) in 1976. It has a countrywide network of 14 regional offices, 169 branches and 44 agency offices with 3357 staff providing short term and long term credit to over 2 million farmers.

The MARDB Law enacted in July 1990 grants the Bank a broad mandate to effectively support the development of agricultural, livestock and rural socio-economic

enterprises in the country by providing banking services. The Law also raised the authorized capital of the Bank from Kyat 40 million to Kyat 1000 million.

MARDB is authorized to make loans to state owned agricultural organizations, livestock organizations, corporations, private entrepreneurs, village banks, farmers and labourers.

Loans are classified as:

1. annul loans (up to 12 months) which are mainly for crop cultivation
2. short term loans (2 to 4 years) and
3. long term loans (5 years and above) which are mainly for purchase of farm implements, draft cattle, bullock carts, pump sets, power tillers, etc., as well as for integrated farming projects.

### **2.1.13. Institute of Agriculture**

The Institute of Agriculture is the only centre of higher learning in Agriculture in the Union of Myanmar. The main objective of the Institute is to train the students in a way that would enable them to attain high standard in agricultural science as well as to produce well qualified agriculturists for the country. According to the Undergraduate Programme, the required period for graduation is 5 years. According to the Postgraduate Programme, the required period for graduation of M.Agr.Sc. degree is a minimum and maximum resident of 4 to 10 semester respectively, and normally 50 credit hours (34 credits for course work and 16 credits for thesis ) may be required. The Institute of

Agriculture has turned out over 5424 agricultural graduates for the period from 1948-49 to 1994-95 academic year<sup>3</sup>.

#### **2.1.14. Educational Institutions in Agriculture Sector**

There are many In-Service Trainings Institutions for agricultural services, subject-matter-specialization training for individual major crops of economic importance, irrigation technology, agricultural mechanization, and land records and crop survey subjects. Major Institutions are:

- (a) Central Agricultural Development Training Centre
- (b) Vegetable and Fruits Research and Development Centre
- (c) Irrigation Technology Centre
- (d) Central Agricultural Research Institute
- (e) Regional Experiment Stations and Seed Farms in States and Divisions
- (f) Central Farm Mechanization Training Centre
- (g) Land Records and Settlement Training Centre

All organizations under the Ministry of Agriculture and Irrigation are responsible to strive their efforts with the strategic measures to meet the sector objectives. The Ministry of Agriculture and Irrigation in line with the market-oriented economy is taking measures to maximize private domestic participation, attract foreign investment and accelerate growth and development.

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<sup>3</sup> Ministry of Agriculture and Irrigation, *Information on Myanmar Agriculture, 1996*.

## **2.2. Policy Measures for Agricultural Development**

For the development of agriculture sector, following strategic measures are being undertaken by Ministry of Agriculture and Irrigation.

- (1) Development of new agricultural land
- (2) Provision of sufficient irrigation water
- (3) Provision and support for agricultural mechanization
- (4) Application of modern agro-technologies
- (5) Development and utilization of modern varieties

### **2.2.1. Development of New Agricultural Land**

For expansion of cultivated area, the following measures are being undertaken.

- reclamation of fallow land and culturable waste land
- development of farmers' embankment and paddy-fish integrated farming in deep water areas
- protection of soil erosion and development of terrace farming in highland and slope land areas
- land consolidation in existing agricultural land with proper drainage, irrigation and farm roads to enable full utilization of mechanical power.

**Table (2) Land Cultivation**  
(Thousand acres)

Year	Sown area under Various crops	Net area sown	Mixed and multiple Cropping Area	Cropping intensity
1987-88	23,870	19,731	4,139	121
1988-89	23,802	19,903	3,899	119.6
1989-90	24,344	20,285	4,059	120
1990-91	25,024	20,568	4,456	121.7
1991-92	25,426	20,605	4,821	123.4
1992-93	27,200	21,533	5,667	126.3
1993-94	28,134	21,592	6,542	130.3
1994-95	30,005	22,119	7,886	135.7
1995-96	31,837	22,654	9,183	140.5
1996-97	30,422	22,924	7,498	132.7
1997-98	30,890	23,036	7,854	134.1

Source: Ministry of National Planning and Economic Development, *Review of The Financial, Economic and Social Conditions for 1997-98*.

From the traditional style of small scale crop cultivation, modernized large scale agricultural business is being granted by Ministry of Agriculture and Irrigation with participation of private sector. Main objective of this scheme is a hope for the emergence of new agricultural land in flooded area, deep water area and existing fallow, waste and virgin land at which cost of land preparation is too high. According to this circumstance, national business companies and associations in private sector have been encouraged and granted rights for those land with the maximum amount of ten thousand acres for the cultivation of paddy, pulses, oilseeds, rubber and oil palm.

In Myanmar, land is owned by the State and the farmers have the right to cultivate the land as long as they are cultivating the land. Absentee land-lordism is not allowed. Land can not be sold or mortgaged, but it can be inherited or transferred. The size of holding of agriculture land per family in 1997-98 is; 25% of farm families owns less than 5 acre: 32% of farm families owns 5-10 acre: 27% of farm families owns 10-20 acre:

11% of farm families owns 20-50 acre: 0.5% of farm families owns 50-100 acre and 2% of farm families owns 100 acre and above.

Foreign investors can only lease the land from the State. They can not own the land. There is a land revenue collection system in Myanmar but the amount of revenue is negligible. There is no Taxation on agricultural produces.

### **2.2.2. Provision of Sufficient Irrigation Water**

Irrigation has a crucial role in assuring food security and stability. At present, only 6% of the total water resources of 870 million acre feet per annum are being utilized.

Major activities for irrigation and water resource development are

- (1) the construction of new reservoirs and dams
- (2) the proper management for the storage and utilization of run-off water from the watershed areas
- (3) the renovation of existing reservoirs for raising storage capacity and efficient delivery of irrigation
- (4) the diversion of water from streams and rivulets during high water levels into adjacent ponds or depressions and for storage with sluice gates
- (5) the lifting of water from rivers and streams through pump irrigation and
- (6) the efficient utilization of ground water

Construction of irrigation works for crop cultivation historically started since the days of Myanmar kings. After 1988, the Government put forward continuous efforts in the construction of dams and reservoirs throughout the country by utilizing large capital investment, man power and machineries and with the available domestic resources and

expertise. As the result of these efforts, irrigation facilities now exist in groups in localized zones throughout the country.

**Table (3) Irrigation Project I**

<b>Period</b>	<b>No. of Reservoir/Dam Constructed</b>	<b>Effective Area (million acres)</b>
1988-89	98	1.35
On-going	20	0.68

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

In parallel to irrigation reservoir projects, (8) pump irrigation projects from major rivers; (23) electric- pump irrigation projects; (228) diesel-pump irrigation works; and ground water resources utilization projects are undertaken.

**Table (4) Irrigation Project II**

<b>Project</b>	<b>Quantity</b>	<b>Effective Area (acres)</b>
Pumping irrigation (by machine)	8	32,303
Pumping irrigation (by electricity)	23	15,655
Pumping irrigation (by diesel engine)	228	91,201
Underground water pumping irrigation	2,361	41,657

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

**Table(5) Irrigated Area and Multiple Cropping Irrigated Area**  
(Thousand acre, percentage)

Year	Net area sown	Irrigated area	Multiple cropping Irrigated Area	Percentage of irrigated area	Percentage of multiple Cropping Irrigated area
1940-41	17,560	1,562	81	8.9	5.2
1961-62	17,698	1,324	83	7.5	6.3
1969-70	19,219	2,020	270	10.5	13.4
1971-72	19,674	2,199	300	11.2	13.6
1973-74	19,928	2,400	313	12	13
1977-78	20,041	2,422	336	12.1	13.9
1981-82	20,789	2,579	347	12.4	13.5
1982-83	20,337	2,497	361	12.3	14.5
1983-84	20,435	2,630	355	12.9	13.5
1984-85	20,656	2,682	480	13	17.9
1985-86	20,687	2,616	432	12.6	16.5
1986-87	20,338	2,665	408	13.1	15.3
1987-88	19,731	2,463	379	12.5	15.4
1988-89	19,903	2,516	372	12.6	14.8
1989-90	20,285	2,483	388	12.2	15.6
1990-91	20,568	2,479	392	12.1	15.8
1991-92	20,605	2,467	407	12	16.5
1992-93	21,533	2,743	488	12.7	17.8
1993-94	21,592	3,303	703	15.3	21.3
1994-95	22,119	3,843	879	17.4	22.9
1995-96	22,654	4,341	951	19.2	21.9
1996-97	22,924	3,846	764	16.8	19.9
1997-98	23,036	4,035	790	17.5	19.6

Source: Ministry of National Planning and Economic Development, *Review of The Financial, Economic and Social Conditions for 1997-98*.

Irrigated area increased from 12.5% of the sown area in 1987-88 to 17.5% in 1998-99. Lists of irrigation works completed between before 1948 to 1998 are given in table (6).

**Table (6) Irrigation Works**

Particulars	Before 1948		1948-1962/63		1963/64-1973/74		1973/74-1983/84		1983/84-1988/89		1989/90-1998/99	
	No. of Structure	Beneficial Area (acres)										
Weir	21	480,842	20	36,458	43	48,666	1	-	1	-	15	52,979
Tank	13	132,891	16	39,464	16	21,031	2	1,718	-	-	1	200
Sluice gate	4	2,244	2	870	4	3,940	-	-	-	-	4	75,000
Pump	-	-	-	-	2	1,972	1	1,500	1	10,400	5	47,335
Flume	-	-	-	-	2	1,350	-	-	-	-	-	-
Dam	-	-	1	20,708	7	73,272	5	142,292	6	157,454	68	867,925
Others	5	141,263	-	-	7	11,958	1	25,000	-	-	3	309,121
<b>Total</b>	<b>43</b>	<b>757,240</b>	<b>39</b>	<b>97,527</b>	<b>81</b>	<b>162,189</b>	<b>10</b>	<b>170,510</b>	<b>8</b>	<b>167,854</b>	<b>96</b>	<b>1,352,560</b>

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

In Myanmar, there is no specific Water Resource Policy at present. Irrigation and water resource development programs are included in five year development plan of the country. There is no water tax, but land revenue rate per acre of paddy land under irrigated tracts are about five times higher than rain fed areas. There is no irrigation law at present in Myanmar.

### 2.2.3. Provision and Support for Agricultural Mechanization

Increased cropping intensity has expanded the use of machineries in agriculture from land preparation to harvesting and drying. Required machineries are being produced and assembled locally or imported for distribution to farmer. Under the market economic system, in addition to the State sector, private sector participation is increasing in utilizing the farm machineries and equipments for various activities of agricultural production.

**Table (7) Utilization of Farm Machineries and Equipment**

Farm Machineries	Quantity
Tractor	8,528
Power Tiller	33,488
Water Pump	64,613
Threshing machine	3,217
Thresher	7,579
Dryer	1,079
Inter-cultivator	25,293
Seeder	1,889

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

There are three factories under Agriculture Mechanization Department, Ministry of Agriculture and Irrigation and many small-scale private factories producing

agricultural machineries and implements. Yearly distribution of farm machineries and implements produced by Agriculture Mechanization Department factories are as follows:

**Table (8) Distribution of Farm Machineries and Implements**

Farm Machineries	Distribution(Quantity)			
	1994-95	1995-96	1996-97	1997-98
Power Tiller	5,167	2,112	5,567	3,349
Threshing Machine	1,481	1,119	382	235
Thresher	1,411	5,500	491	177
Paddy dryer	135	840	100	3
Inter-row Cultivator	8,190	14,650	1,843	610

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

In order to mechanize the whole cultivation process of paddy, “transplanters” are being introduced in suitable areas. Efforts are being made to totally eliminate the traditional way of threshing paddy on the threshing floor. 23 model mechanized villages are being established to demonstrate the farmers on benefits of farm mechanization. Farm mechanization has benefited the farmers in terms of time saving, labor saving and human energy saving. In addition, it has contributed to increased cropping intensity of the country. Cropping intensity was increased from 126% in 1992-93 to 134% in 1997-98.

#### **2.2.4. Application of Modern Agro-Technology**

- Transfer of technology to farmers through agricultural extension regarding crop cultivation practices, appropriate cropping patterns, provision and proper utilization of agricultural inputs, and systematic plant protection practices.
- Farmers education activities include-use of mass media (newspaper, radio, television, journals) ; producing education pamphlets; training and visit by extension workers in groups and individually.

### 2.2.5. Development and Utilization of Modern Varieties

- Breeding of high- yielding varieties and upgrading the quality through research and development
- Production of hybrid varieties through bilateral and commercial cooperation
- Introduction of new improved varieties of field crops, fruits and vegetables from abroad to upgrade the quality and increase the yield.

In order to increase the foreign exchange earning from agricultural sector which basically supports the national economy, concerted efforts are being made for increased production of four major crops, namely – paddy, pulses, cotton and sugarcane, recognizing as main pillars.

#### (a) Paddy

In accordance with National Planning Targets, cultivation of paddy is being implemented, aiming to meet total area of 16 million acres comprising 12 million acres under monsoon paddy and 4 million acres under summer paddy. Yield per acre is also targeted to reach 100 baskets.

To generate increasing production of paddy measures are also undertaken in growing high yielding varieties, including introduction of hybrid rice varieties.

#### Grain Size

#### Varieties

long grain

- Shwe War Tun, Kyawzaye-ya, Shwe-thwe-tun, Sin-aye-kary-3, Hmawbi-2, Nant-tha-mwe, Lone-thwe-mwe, Ayarmin, Shwe-war-lay, Shwe-thwe-yin, Thee-htut-yin, Sein-ka-lay, Sin-thiri, Yadana-aung, China variety,

	Yebaw- latt, Yebaw-sein, Yebaw-yoe-sein, Shwe-din- gar, li-kayin-kwa.
medium grain	- Ma-naw-thu-ka, Sinn-thein-gi, Hmawbi-1, IR-747, Ma- naw-hari, BG-1203, Shwe-bo-kun-ni.
short grain	- Pale-thwe, Nga-kwae, Paw-sann-mwe, Mann-nga-sein.

### **(b) Pulses**

Cultivation of pulses, with relatively less expenses in cost of cultivation and due to the increasing demand for domestic consumption and export, has increased substantially from 1.8 million acres in 1988-89 to 5.3 million acres in 1997-98.

Major exportable varieties of pulses are Mung bean, green gram, pigeon pea, soy bean, cow bean and kidney bean.

### **(c) Cotton**

Among the industrial crops, cotton with the best export market prospect is planned to expand up to 1.5 million acres. Local varieties of cotton under cultivation are Lungyaw-3, as long staple cotton, Ma-hlaing-5 and 8 as short staple cotton and Wargyi.

Imported varieties such as LA-887 and Stonevile-907 and new varieties from India and Thailand are also being cultivated.

#### **India**

#### **Thai**

#### Open Pollunated

(1) Surabi (Long Staple)

(1) Sri-samrong

(2) Supriya (Long Staple)

(3) MCU-5 VT (Long Staple)

Hybrid

(1) Gowri

(2) Sanju

**Table (9) Factory for Gining, Baling and Processing of Cotton Lint  
(Ministry of Agriculture and Irrigation)**

Type of Machine	Numbers	Total Consumption of Cotton (Metric Ton / Year)
Roller Gin	36	93,960
Saw Gin	1	16,930
Baling Factory	1	46,580
Lintar Factory	3	7,050
Seed Oil Factory	5	15,520

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

**(d) Sugarcane**

Sugarcane, one of the major industrial crop is being cultivated to fulfill the raw material needs domestic sugar mills and sugar requirement for domestic consumption and to promote the export of the sugar. Main varieties of sugarcane being cultivated are Yezin-1,2,3, Pyinmana-1,2 and Kyauksane. Annual crushing capacity of 8 sugar mills including 2 joint venture and private mills owned by State are 1.4 million tons of raw sugar cane, producing (90,000) tons of sugar.

**Table (10) Daily Crushing Capacity of Sugarcane**

Daily Crushing Capacity of Sugarcane (Metric Ton)	No. of Sugar Mills
1,500	5
1,000	1
300	2*

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

Note: \* Joint Venture/ Private

Moreover, 9 new sugar mills are under construction.

**Table (11) Daily Crushing Capacity of Sugarcane of New Sugar Mills**

Daily Crushing Capacity of Sugarcane (Metric Ton)	No. of Sugar Mills
2,000	7
1,500	2

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

**(e) Jute**

Jute cultivation is being carried out, with the aim to achieve the cultivation of (1.25) million acres and the yield of (300) viss per acre and to promote the export. Main varieties of jute cultivated are white jute BC-99, Yezin Capsularis-3, BC-23 and Yezin Olitorius-1. Jute products such as jute bag, jute twines, jute carpets and sacking cloth are produced in (9) grading and baling factories, (2) jute mills, jute carpet products factory and paper mill and jute yarn factory.

**Table (12) Production of Jute and Jute Products**

<b>Jute Products</b>	<b>Unit</b>	<b>Quantity</b>
Jute Bale	Metric Ton	53,000
Jute Carpet	Metric Ton	325
Carpet packing Cloth	Metric Ton	825
Jute Twine	Million lbs	1.57
Jute Bag	Million bags	33.12
Sacking cloth	Million yards	3.11

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

Efforts are also being made to promote the export earning from rubber, coffee and sericulture.

**Table (13) Production of Rubber**

<b>Name of Rubber Factory</b>	<b>Capacity(Daily)</b>
Crump rubber Factory	4 tons
Natural rubber factory	2 tons
Rubber glove factory	3,000 pairs

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

#### **2.2.6. Provision of Other Agricultural Inputs**

Provisional seasonal crop loans for different cultivation seasons i.e. pre- monsoon and winter season crops. Similarly medium and long-term loan for the procurement of draught cattle, farm implements and machineries and farm development programs are available for agricultural sector development. Input supplies such as fertilizers, agro-chemicals and diesel for farm machineries are being procured domestically or imported to fulfill the needs of the farmers.

**Table (14) Agricultural Loans**  
(Kyat in million, Percentage)

<b>Particulars</b>	<b>Loans</b>	<b>Repayments</b>	<b>Outstanding</b>	<b>Percentage of Repayment</b>
1964-70	854.8	843.1	11.7	98.6
1970-88	11,700.90	11,661.50	39.4	99.7
1988-89	1,286.70	1,286.00	0.7	99.9
1989-90	1,616.60	1,616.60	-	100
1990-91	1,524.40	1,524.40	-	100
1991-92	1,532.90	1,532.90	-	100
1992-93	1,758.80	1,758.80	*	100
1993-94	2,609.70	2,609.70	*	100
1994-95	2,781.10	2,781.10	-	100
1995-96	9,013.80	9,008.10	5.7	99.7
1996-97	9,919.50	9,798.70	120.8	83.4
1997-98	10,500	9,275.00	1,225.00	88.3
<b>Total</b>	<b>55,099.20</b>	<b>53,695.90</b>	<b>1,403.30</b>	<b>97.5</b>

Source: Ministry of National Planning and Economic Development, *Review of The Financial, Economic and Social Conditions for 1997-98*.

Agricultural loans are being disbursed to farmers by the Myanma Agricultural Bank to enable them to cover the cost cultivation for high yield crops and other essential crops and to encourage the private sector to produce the farm machineries locally.

**Chapter 3**  
**PRODUCTION, CONSUMPTION AND EXPORT IN MYANMAR**  
**AGRICULTURE**

Paddy is mainly grown in two seasons. In 1998-99, 11.93 million acres is grown for monsoon paddy and about 2.31 million acres is grown as summer paddy. The average yield per acre is about 59 baskets in monsoon and about 70 baskets in summer. Up to 3 crops can be grown under irrigation and 2 crops under rain fed conditions. The most common rice based cropping pattern under rain fed condition is rice followed by peas and beans or oil-seeds. The average cropping intensity in Myanmar is about 134% in 1997-98.

**3.1. Production and Consumption**

The present rice production is about 12 million tons per year out of which (10) million metric tons is consumed domestically, including used of seeds and losses. Therefore, there is surplus of about (2) million metric tons. Improvement in adopting appropriate technology for crop production is the result of various research programs, collaborating with international research institutions.

One of the achievements in generating rice production is the introduction of summer paddy in a large scale. The program was launched in 1992-93 and continuing in progress. Extended effort on summer paddy programs delineate significant impacts on substantial increase of paddy production as well as socio-economic situation of the most farmers who adopt this program.

**3.2. Net Output of Agriculture Sector**

The value of net output of the agriculture sector at 1985-86 constant prices for 1996-97 was recorded Kyat 25,697.6 million, contributing 36.2 percent of total GDP and registering a growth rate of 3.8 percent over the previous year's level. The value of net output of this sector calculated at 1985-86 for last decade can be depicted as follows:

**Table (15) Net Output of Agricultural Sector\***

Year	Value of total Net output (million Kyats)	Contribution of Agri:Sector (million Kyats)	% Contribution Of Agri: Sector	Growth Rate of Agri:Sector
1985-86	55,989.30	22,243.50	39.7	2.2
1986-87	55,396.80	22,343.30	40	0.4
1987-88	53,177.80	20,906.80	39.3	(-)6.4
1988-89	47,141.10	18,137.60	38.5	(-)13.2
1989-90	48,883.10	19,088.80	39	5.2
1990-91	50,259.50	19,470.30	38.7	2.0
1991-92	49,933.30	18,708.30	37.5	(-)3.9
1992-93	54,756.60	21,028.60	38.4	12.4
1993-94	58,063.90	22,008.70	37.9	4.7
1994-95	62,406.10	23,483.30	37.6	6.7
1995-96	66,741.60	24,764.70	37.1	5.5
1996-97	71,042.00	25,697.60	36.2	3.8

Source: Ministry of Agriculture and Irrigation, *Agriculture, Food and Nutrition Situation in Myanmar, 1998*.

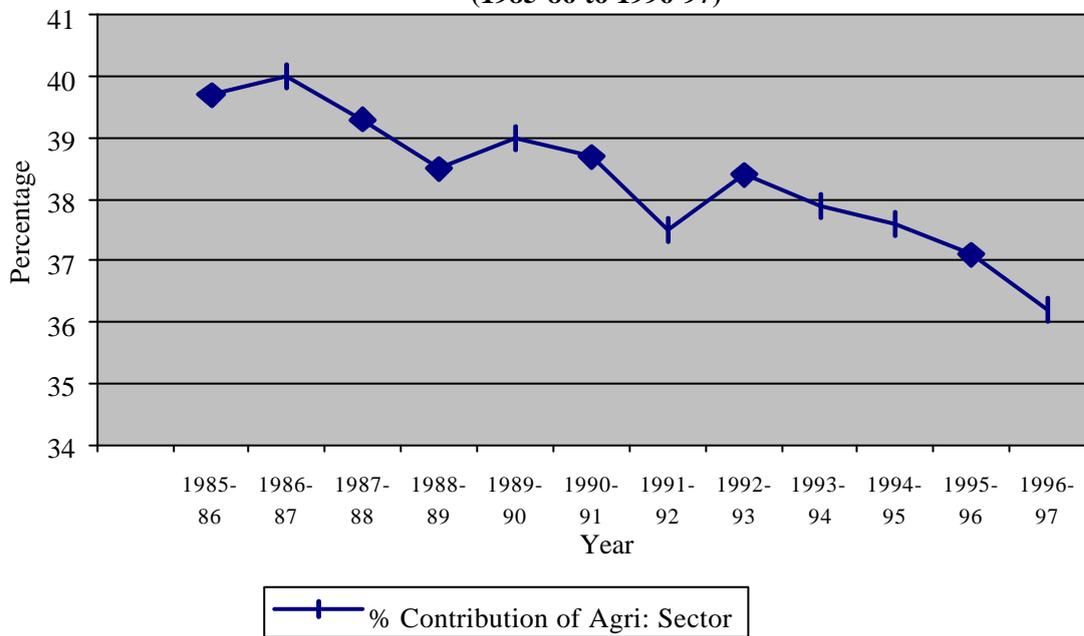
Note: \* Calculated at 1985-86 constant prices.

According to the data for 1988-89, despite favorable weather condition and expansion in cultivated area, there has been a decline in yield per acre of some crops including paddy, due to the short supply of fertilizer and weak supervision of agro practices during the year. Production of paddy and some crops decreased compared to the preceding years.

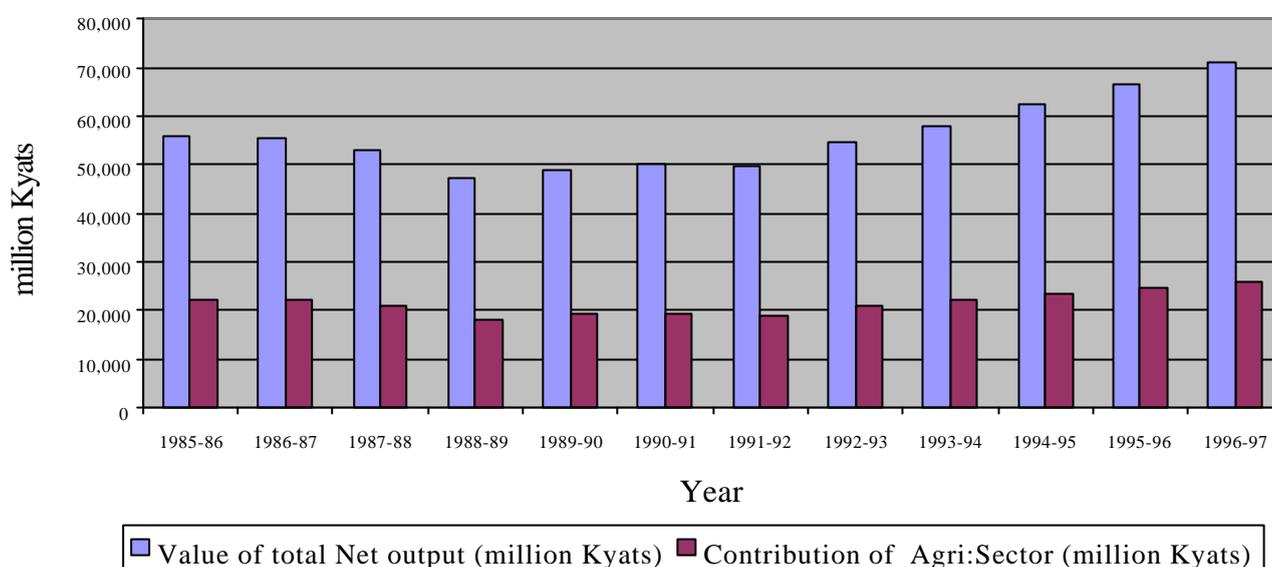
In the cultivation season of 1991-92, there had been unfavorable weather conditions with insufficient rainfall in central parts of the country at the beginning as well as during the mid monsoon which resulted in inadequate water supply of the canals and

tanks and in lower Myanmar unprecedented floods occurred; consequently, effecting the cultivation of major crops such as paddy and jute. These factors are attributable to the minimal rate growth in the net output of the agriculture sector.

**Figure (1) Net Output of Agriculture Sector  
(1985-86 to 1996-97)**



**Figure (2) Net Output of Agriculture Sector (1985/86 to 1996/97)**



### 3.3. Export

As a developing nation, the economy of Myanmar still relies heavily on agriculture products, forest products and marine products; and these products predominate the total export value of the nation. Agricultural crops were being exported not only by the State, but also by co-operatives and private entrepreneurs. The domestic paddy and rice trading can be freely done by the private sector while Ministry of Commerce only is allowed to export rice.

Domestic market, either for paddy of rice, is a free market. Government agency (Myanmar Farm Produce Trade) under the Ministry of Commerce is procuring about 10 baskets per acre at a little lower than the market price for rice distribution to Government employees at a subsidized price. The farmers are paid by Myanmar Farm Produce Trade 50% of total procurement money as an advance purchase payment during the cultivation period. There is no ceiling price or floor price system procurement of paddy in Myanmar.

### **3.4. Production and Uses of Selected Agricultural Crops**

The government is implementing a comprehensive plan to develop the agriculture sector to the point where the nation's agricultural production will be sufficient to sustain the population and hopefully increase its export earnings. The government is making serious efforts to leave a firm foundation for future generations. With this aim, the government is engaged in implementing a multi-sectoral nation-building program.

The data on production and uses of selected agricultural crops as reported in table (16), confirmed the fact that food security was given priority over export for rice and export promotion over domestic consumption for pulses and for which a huge "exportable surplus" existed (Table 16).



**Table (16) Production and Uses of Selected Agricultural Crops**  
(Metric Ton)

Crops	1994-95				1995-96				1996-97			
	Production	Exports	Imports	Domestic Use*	Production	Exports	Imports	Domestic Use*	Production	Exports	Imports	Domestic Use*
Paddy	18,195,030	1,643,958 <sup>+</sup>		16,551,072	17,953,107	581,232 <sup>+</sup>		17,371,875	17,676,129	151,484		17,524,645
Wheat	89,101		87,910 <sup>++</sup>	177,011	77,892		60,476 <sup>++</sup>	138,368	86,776		40,011 <sup>++</sup>	126,787
Maize	284,354	70,352		214,002	274,740	61,998		212,742	285,891	102,540		183,351
Pulses	1,109,769	424,880		684,889	1,337,268	609,558		727,710	1,328,966	594,756		734,210
Groundnut	500,687	36		500,651	592,773			592,773	559,328			559,328
Sesamum	304,163	80,462		223,701	303,598	50,280		253,318	344,104	52,541		291,563
Baled Jute	29,100			29,100	30,170			30,170	26,860			26,860

Source: Ministry of National Planning and Economic Development, *Review of the Financial, Economic and Social Conditions for 1997-98*.

Note: \* Domestic Consumption, various uses and wastage are included.

+ Rice being converted in terms of paddy.

++ Flour being converted in terms of wheat.

According to the data for 1996-97, the production of paddy, cotton and jute decreased due to insufficient availability of diesel oil and chemical fertilizer. The output of the various crops such as wheat, maize and sesamum cultivated for self-sufficiency and pulses for export promotion increased over the previous year.

Pulses can be grown in different agro-ecological conditions in the country with high potential to expand the area as a second crop. Area on pulses kept on expanding and about 600,000 metric tons were exported in 1996-97. It is anticipated that exportation of pulses will reach one million metric tons within few years.

Total export value of Myanmar in 1995-96 fiscal year is recorded as Kyats 5.02 billion increasing 2 times from last decade about Kyats 2.5 billion in 1986-87 fiscal year. This is mainly due to the significant increased value of exports of agricultural products livestock and marine products and other commodities. Agriculture sector contributed 46.3% of total export earnings<sup>4</sup>.

However, Myanmar still lags behind in modern agriculture production. Agriculture production is more or less traditional in Myanmar. Modern agriculture technology, generating and using most viable hybrid, using agriculture machineries for more effective tillage and waste reduction, and optimum use of fertilizer has made little inroads into the agriculture cultivation in Myanmar.

Greater use of machineries to extend cultivated acreages and increase cropping intensity, greater use of fertilizers to increase yield per acre, and Research and Development works to produce and use most viable hybrids is needed to increase production for export. Increased mechanization is important not only to extend cultivated areas and increase cropping intensity but also to prepare for the coming labor shortage in

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<sup>4</sup> Ministry of Agriculture and Irrigation, *Agriculture, Food and Nutrition Situation in Myanmar, 1998*.

the agriculture sector as Myanmar opens up to foreign investments in labor intensive industries. With development and modernization and GDP growth, sectoral share percentage of GDP will decrease in the case of agriculture and increase in the case of industries and services.

Modernization and expansion of agriculture require large capital requirement and modern technology. In the early days, most nations acquire this through capital accumulation from surplus agriculture production, since surplus investment capital was rather scarce in the early days. These days with so much surplus investment capital around the world the prudent and quick way is to get foreign capital into the agriculture sector.

It is necessary to provide incentives, relax regulations, reform agriculture policies, to attract such investments, so long as these do not infringe on the concept that the nation is the ultimate owner of the land. Under this concept foreigner can only lease land. However, the lease term should be long enough to make such investments viable, especially for yet uncultivated land. Unlike investments in industries, real estate and hotels, the turnover time in agriculture is much longer.

A good investment climate is mandatory, viable natural and human resources, and good infrastructure are conducive to the inflow of such capital. Peace, political stability, business oriented institutions, transparent legal frame work, streamlined regulations and procedures and efficient administrative machinery with reduced bureaucracy are significant elements for a good investment climate.

## **Chapter 4**

### **PRIVATE SECTOR PARTICIPATION AND MYANMAR AGRICULTURE**

Development of natural resources and moving towards industrialization needs capital and technology. In earlier times capital for industrialization comes from accumulated domestic surplus of agricultural production. At Independence (1948) and the end of the colonial period Myanmar had little accumulated capital for investment. After Independence a good portion of the country was under armed conflict so that agriculture production was constrained and there was little capital accumulation from surplus agriculture production. Investment capital and with it technology from the rich developed countries that took sides in the ideological rivalry that developed after the second world war. Myanmar remained neutral and thus did not receive such capital and technology inflow.

Until 1988 Myanmar has followed a policy of strong nationalism, self reliance and nationalistic socialism and later State monopoly socialism. Thus since independence and up to 1988 there were little foreign investment accepted. Even during the earlier times when the market economic system was practiced little new foreign investments were allowed. In the middle of the sixties legislation was passed to allow foreign investment. However, there was little foreign investment under this law up to the time when Myanmar adopted a socialist central planned economic system. Without such foreign capital investment and with little accumulated capital the country acquired little technological know-how except the little that came along with a few multinational and national aid programs. The country lagged in technological advance. Thus in general the mode of production is outdated, low tech and more or less traditional. In addition to lack

of capital and technology the armed conflicts in a good portion of the country has been obstacles to development.

Since 1988 the country has adopted an open market economic system and the Foreign Investment Law enacted to allow and encourage foreign investment. On the other hand, armed conflicts have subsided with truce agreements signed with 15 out of the 16 armed ethnic uprisings. With these historical changes the economic development can be expected to leap with great strides under more peaceful conditions and with large inflow of capital and with it, technology.

#### **4.1. National Entrepreneurs**

With thirty years under a State monopolized central planned economy with minimal private sector participation there could be little private sector capital accumulation. During this period Myanmar remained neutral in the ideological rivalry and received minimal foreign aid. As in all central planned economy the State operates with high subsidy and poor management so that there could be little accumulation of capital by the State.

Since 1988 with the change to a market economic system private sector can openly participate in the economy. In developing the agriculture sector, conventional methods and ways must be changed in order to accelerate the momentum of development. In context of developing the agriculture sector, the Government has many difficulties to fulfil all the needs of peasants in full. Hence, the national private entrepreneurs who have capital and management skills are invited to participate in agriculture works. They are encouraged to undertake agriculture works in virgin, fallow and vacant lands throughout the countries. All-out assistance are provided by the departments concerned to them.

The national entrepreneurs at first took initial steps carefully. Being rendered necessary assistance by departments concerned and welcoming hands by the local people, the national entrepreneurs are now achieving success in undertaking agriculture works. So far, altogether 35 groups of national entrepreneurs are undertaking agriculture works. Success in agriculture works will benefit the national private entrepreneurs as well as the local populace in promoting their socio-economic lives. That will surely contribute towards the national economic development of the country.

#### **4.2. Foreign Direct Investment**

Since 1988 with the change to a market economic system private sector can openly participated in the economy. However, with little accumulated capital and during a short period the capital accumulation in the private sector is minimal compared to the large capital required for development in the various sectors. With a great potential for development reliance on domestic capital alone will not be sufficient and wise.

Myanmar does not have the technology and facilities to fabricate capital goods for development in the various sectors. Domestic capital accumulated in foreign currency is minimal. Trade balance is unfavorable so that import of capital goods for development will be very minimal with foreign loans. Development of the various sectors will require large import of capital goods.

Modernization and expansion of agriculture require large capital and modern technology. In the early days most nations acquire this through capital accumulation from surplus agriculture production, since surplus investment capital was rather scarce in the early days. These days with so much surplus investment capital around the world the prudent and quick way is to get foreign capital into the agriculture sector.

Foreign Direct Investment can be made in different forms in Myanmar. Most commonly applied forms in agriculture sector are 100% investment, Joint Venture and payment in kind. Foreign investment in agriculture sector is mainly encouraged in commercial plantation, processing and marketing, and seed production. Various tax incentives such as tax holdings and lower land lease rate are provided under Myanmar Foreign Investment Law.

Total permitted Foreign Direct Investment in Myanmar up to December 1998 is over US dollar 6 billion. Since 1988, Foreign Direct Investment in the agriculture sector totaled 11.661 million US dollar<sup>5</sup>. Foreign Direct Investment in agriculture sector is still minimal.

Approved Foreign Investment Projects under implementation in agriculture sector in Myanmar are as follows:

**Table (17) Approved Foreign Investment Projects under Implementation in Agriculture Sector**

Sr. No.	Name of Project	Investor
1	Mosquito Coil Production Joint Venture Project	Sumitomo Corporation
2	Cashewnut Plantation Joint Venture Project	Myanmar Plantation Singapore Pte. Ltd.
3	Nawaday Sugar Mill Joint Venture Project	Sutech Engineering Co. Ltd.
4	Hybrid Rice Production Development Project	Beijing Shoufang Commerce Developing Co. Ltd, China
5	Rubber Glove Factory Project	Potencer International, U.S.A, Inc.
6	Development of Commercial Production of Tissue Culture cultivators Project	LK-Bio Research Pte. Ltd, Singapore
7	Eight Sugar Mill Project on Payment in kind Basis	4 Companies from People Republic of China

Source: Ministry Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

Proposed Foreign Investment Projects under consideration in Myanmar are as follow:

<sup>5</sup> Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

**Table (18) Proposed Foreign Investment Projects under Consideration**

<b>Sr. No.</b>	<b>Name of Project</b>	<b>Investor</b>
1	Rubber Plantation and Industry	Daewoo Corporation, Korea
2	Hybrid Seed Production Development	Marubeni Corporation, Japan
3	Rubber Wood Industry Joint Venture Project	Daewoo Corporation, Korea
4	Contract Farming for Maize Production Project	CP Group, Thailand
5	Vegetable Seed Production Development Project	Sein Enterprise/Known You Seed, Thailand
6	Paddy Planting and Rice Mill Project	LG International, Korea
7	Rubber belt Factory Project	Potencer International, U.S.A,Inc/ Daewoo Corporation

Source: Ministry Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999.*

### **4.3. Business Opportunities in Agriculture**

#### **4.3.1. Government's Development Priorities**

- Develop export oriented products
- Develop natural resources requiring large capital investment
- The acquisition of high technology
- Increase employment
- Regional development outside of Yangon and Mandalay

#### **4.3.2. Foreign Investment Incentives**

The following list indicates incentives for foreign investors provided by Foreign Investment Law. Foreign investors in agriculture are also eligible to obtain incentives related to agricultural business.

- 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 from Myanmar.
- Exemption from customs 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.
- Exemption from customs duty on raw materials imported for the first three years of operations.

With a view to develop agriculture, the Ministry of Agriculture, in line with the market oriented economy, is undertaking necessary measures to maximize private domestic participation, to attract foreign investment and accelerate growth and development. The local and foreign entrepreneurs are invited to invest and establish mutually beneficial trade and business in the form of Joint Venture or 100% investment in the following areas:

- Land utilization
- Establishment of Agro-based industries
- Assembling and manufacturing of light agricultural machinery and small farm implements
- Manufacturing of agricultural inputs and related support products
- Trading of agricultural commodities, input supplies and machineries

#### **4.3.3. Land Utilization**

The Central Committee for Management of Culturable Land, Fallow Land and Waste Land, which was formed in 1991, grants approvals to both local and foreign investors with the expertise, technology and capital who desire to invest in agricultural undertakings in Myanmar. The Central Committee's approval of up to the maximum of 5,000 acres, allows these investors to cultivate or utilize cultivable land, fallow land and waste land for agricultural purposes as below:

**Table (19) Land Utilization for Agriculture**

Particulars	Acres
Plantation Crops (Rubber, Palm Oil, Cashew nut, etc.)	5,000
Orchard (Citrus, Mango, Banana, etc.)	3,000
Seasonal Crops	1,000

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

**Table (20) Land Utilization for Aquaculture**

Particulars	Acres
Aquaculture	2,000
Livestock and Poultry Farming - Buffalo, cattle, horse	5,000
- Sheep, goat	1,000
- Poultry, pig	500

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

Duration has been fixed for a maximum of thirty years for cultivation and utilizing land for plantation crops and orchard, livestock and poultry farming and aquaculture purposes. The period may be extended upon negotiation depending on type of project or nature of activities.

### ***Incentives in Land Utilization***

Exemption from payment of land revenue shall be granted for a period of 2 to 8 years from the granting of the lease depending upon the type of the agricultural crops, livestock breeding and aquaculture: and at least 3 years of income-tax exemption may be granted from the year of commencement of commercial run of the business carried out on land developed and invested. Indicative rates of annual land rent are given below:

**Table (21) Rates of Annual Land Rent**

Type of Cultivation	Annual rent per acre
Perennial crop cultivation on fallow land	US \$ 8-15
Crop cultivation on deep water area	Us \$ 8-20
Crop cultivation on fallow land in dry zone	US \$ 15-40

Source: Ministry of Agriculture and Irrigation, *Development of Agricultural Sector in Myanmar, 1999*.

#### **4.3.4. Establishment of Agro-based Industries**

The policy of the Government is to promote development of agro-based industries together with increased production of agricultural commodities. Under the Ministry of Agriculture and Irrigation, several industries such as jute, sugar, cotton, sericulture, pesticide, rubber, farm machineries and implements and canning factory are being operated. At present, setting up of new industries or upgrading on-going industries are welcomed and Ministry of Agriculture and Irrigation is encouraging private investors to establish plantation and suitable agro-based industries. Types of plantation and related ventures are listed below:

##### **(a) Plantation**

Perennial and seasonal crops-rubber, oil palm, and cashewnut, horticultural crops-mango, banana, pineapple, etc. are welcomed.

##### **(b) Sugar Mills**

Ministry of Agriculture and Irrigation is currently running 8 sugar mills with the maximum crushing capacity of 90,000 MT, and exporting thousands of sugar annually. Since 1997-98, new 8 sugar mills are being constructed in different locations in the forms of Joint Venture with foreign entrepreneurs.

**(c) Cotton Industry**

Investment in renovation and modernization of cotton ginning, delinting, baling factories are welcome. Also, cotton yarn manufacturing and cotton seed oil industries, and cocoon production, silk production and weaving have great potentials to invest.

**(d) Jute Industries**

There are altogether 13 jute industries including jute mills, grading and baling factories, and jute carpet products factory under Ministry of Agriculture and Irrigation in different localities. Jute related products such as jute bags, carpet backing cloth, jute carpet, cotton carpet, polypropylene carpet, yarns, jute handicrafts, etc. are being exported. Opportunities are still available to establish jute related industries in Myanmar.

**(e) Rubber Industry**

According to the increased rubber area, improvement of crumb rubber production, other rubber products and rubber wood industries is necessary in Myanmar while suitable land for establishment of commercial estates are also available. 100% investment as well as Joint Venture with Government or private sector for those are highly welcomed.

#### **(f) Other Related Industries**

Formulation of new pesticide plants, seed processing plants, edible oil mills, food processing factories and animal feed plants are also highly considerable to investment for the fulfillment of local demand and export.

#### **4.3.5. Assembling and Manufacturing of Light Agricultural Machineries and Small Farm Implements**

The increasing sown area of main crops and cropping intensity have led to high demand for farm machineries. Assembling and manufacturing of the following machinery and farm implements are potential areas to be explored.

- Power Tiller, 3-10 HP, and 12 HP,
- Walking Tractor 5-6 HP,
- Water Pumps (high lifts & low lifts),
- Sprinklers and Drip Irrigation Sets,
- Transplanters, Threshers, Seeders, Weeders, Dryers and Farm Storage Facilities

#### **4.3.6. Trading of Agricultural Commodities, Input Supplies and Machineries**

Agricultural commodities can be purchased both from Ministry of Agriculture and Irrigation and private companies for export. Similarly, agricultural inputs, seeds, farm machineries and construction materials for irrigation works can be imported. For those who are interested in this area, purchase of farm machinery on credit and repayment in kind or cash are available. The list of commodities and import items are given below:

**Export Items**

Rice, Maize, Black gram,  
Green gram, Mung bean,  
Pigeon pea, Chick pea,  
Sesamum, Niger, Rubber,  
Cashew nut, Coffee,  
Caster seed, Vegetable &  
Fruits, Sugar, Cotton

**Import Items**

Power tiller, Hand Tractor,  
Fertilizers, Pesticides,  
Herbicides, Diesel oil,  
Dumper, Loader and Spare  
parts, Water pumps,  
Hydraulic excavators,  
Gear box assembly for hand  
tractor, MS rods & mild  
Steel, Hybrid and quality  
Seed

**4.4. Appraisal on Incentives for Private Sector Participation and Foreign Direct Investment**

According to the present situation in Myanmar, these incentives would not be enough to draw Foreign Direct Investment and private sector participation. Other factors such as infrastructure development, efficient administrative procedures and political stability are also required within the country to maximize private domestic participation and attract foreign investment.

Considering the land and water potential of the country, increased investment and modernization in agriculture can be expected. To attract foreign direct investment, it is necessary to develop infrastructure such as roads, ports, telecommunication, power and energy. To invest in the various kinds of industries, there must be assurance of reliable power and energy supply. At present, power and energy supply are constraints for the establishment of industries. Investment in these sectors needs to be given priority. For

these industries technical institutions to turn out skilled technical personnel is also an important requirement.

A good investment climate must be established to get a good inflow of foreign direct investment. Investors look for peace and political stability within the country. Regulations, rules and procedures which have accumulated from the colonial days and socialist period need to be streamlined to reduce delays in administrative procedures. Efficiency in the administrative machinery must be established to avoid delays. There must be sufficient and qualified personnel.

Regular training and exposure to international business practices must be given to cope with changing system and situation. The personnel must be dedicated and for this must be provided with sufficient amenities to have a comfortable life so that its time can be fully devoted to his work. Business oriented institutional framework need to be established. Statistics and data for economic evaluation of projects is scarce in Myanmar. Investors need to have access to such data.

## **Chapter 5**

### **CONCLUSION**

Agriculture provides both food and raw materials to the rest of the economy; a growing agricultural sector provides an enlarged market as it expands aggregate demand; it also provides labor for employment in the industrial sector; and agriculture is often a principal source of capital for investment elsewhere in the economy. Exports from the agricultural sector are important to earn foreign exchange which is critical for imports of capital goods and other equipment for rapid industrialization and economic growth.

Up to now , a key element in the growth strategy of Myanmar has been strengthening of its agricultural base that would foster growth of other sectors as well. This objective was adopted in the early 1970s. There are many reasons why a country like Myanmar should give priority to agriculture. As the majority of the people in the country are in the agricultural sector, raising farm productivity means raising the incomes of the majority of the people. Increasing farm incomes also means improving the well-being of the poorer segments of society as poverty tends to be more prevalent in the rural areas.

Moreover, agriculture is the main source of export earnings. It has strong links with the rest of the economy by providing raw materials to industry and a market for goods and services produced by other sectors. As the largest contributor to GDP, it is the key sector on which reliance has to be placed to mobilize resources for capital formation and economic development.

Rise in agricultural productivity will release workers from food production for employment in other sectors. Building infrastructure for rural development such as dams, roads and railways, especially in remote areas, brings benefits to geographically disadvantaged groups and thus meet the country's social concerns. Hence, there are

strong economic and social imperatives for Myanmar to build up its agricultural base. A sound agricultural base will provide a good foundation for the development of agro, wood, marine, and other traditional resource-based industries.

But the world, on the threshold of the twenty-first century, has been moving away from such industries. The new age does not rely on raw materials but is service-oriented and is based on technology, information, knowledge, organizational and entrepreneurial skills and human resources development. According to the nature and present situation of Myanmar, as a developing nation, the economy still relies heavily on agriculture products. The economic growth of Thailand, Malaysia and Indonesia started with agriculture and later with the discovery of oil and gas in the case of Malaysia and Indonesia. Beginning from the early 1980's there was a rapid economic growth in the economy of Thailand through a very successful agriculture development. These countries are moving away from labor intensive industries towards capital intensive and technology intensive industries.

Myanmar is now on a steady growth path. Although the government's ongoing economic reforms have changed many facets of economy, the pace of economic growth is still not rapid enough to compensate for the economic stagnation of the preceding quarter century. The satisfactory growth rate of the economy achieved in recent years was primarily attributable to the very good performance of agriculture sector, the predominant sector of the economy and which has been given top priority. Therefore, Myanmar intends to start the economic growth with agriculture like Malaysia, Indonesia and Thailand.

Most Asian countries have come to their limits for production of agriculture food products. In almost all the countries in Asia, almost all the culturable land has been used

up, little is left for cultivation out of the other land. Other ASEAN (Association of South East Asian Nations) countries and China, India and Bangladesh not only has come to their limits in the acreage of land available for cultivation but also in the water available for cultivation. After Indonesia, Myanmar has the highest renewable water resources amongst ASEAN.

At the same time with population growth and economic growth, the demand is increasing. Myanmar has the highest potential for increased agriculture production in Asia. With this potential and with a big market potential, Myanmar must plan for the development of its agriculture food production resources. Considering the population growth and industrialization of previously agrarian economies like China, Thailand and Indonesia and the limits to the green revolution, the land resource potential provide Myanmar unparalleled opportunity to become the food bowl of Asia as it was once known as the rice bowl of Asia.

However, Myanmar still lags behind in modern agriculture production. The use of machinery in agriculture will raise productivity, cut processing time and bring about economies of scale. Technological and scientific inputs are also important in boosting agricultural production. At present, agriculture production is more or less traditional in Myanmar. Modernization and expansion of agriculture require large capital requirement and modern technology. For these requirements, private sector participation, Foreign Direct Investment and assistance from international agencies are needed.

In addition, other factors such as infrastructure development both social and physical, efficient administrative procedures and political stability within the country are required to attract foreign investment and maximize private domestic participation. Consequently, the success of agricultural development tasks as well as the acceleration of

growth and development can occur. As much as progress has been made in the agriculture sector, capital gained from the sector will be used in implementing basic industries needed for national development.

The modern and developed nation can be built only when the forces of agriculture and industrial sectors can be combined. As the base of agricultural sector is getting firmer the industrial sector is being started to be development. In fact, with the injection of more capital and advanced Agro-technology, Myanmar can become one of the principal exporters of agricultural produce in the region.

As for the work force available for agriculture at the present time, a labor force, almost two thirds, are in agriculture. With such a large labor force in agriculture, there is no uncertainty of the availability of labor for all types of agricultural activities. A labor force survey conducted by the Department of Labor in 1990, under a project implemented in cooperation with United Nations Development Program and International Labor Organization, indicated that, at that time the total labor force was around 16 million. Almost 10 million were in the agriculture, livestock and fishery sectors.

In the agriculture sector, besides the farmers who work the land themselves, there are laborers who work for the farmers for payment in cash or kind. However, the survey revealed that of the 10 million engaged in agriculture, livestock and fishery, about 4.5 million were mostly 'family workers'. They were persons who worked without of any kind in farming, or a business operated by any member of the household, excluding housekeeping.

This scenario may have changed somewhat now due to the intensification of agriculture since then. However, it is safe to say that a considerable proportion of the agricultural work force is still made up of 'family workers'. Hence the potential exists for

availability of agricultural labor for wage employment in the event that investment in various areas of agriculture are made.

It goes without saying that increased investment in agriculture, particularly in areas such as increasing sown average, introducing new crops or advanced agro-technology, will yield benefits for the investor, as well as increase wage employment in the agricultural sector. This will result in improved income distribution in the rural areas and hence uplift the quality of life of the rural populace as well.

Having natural endowment with abundance of natural resources and favorable agro-climatic conditions, food insecurity is not an issue for Myanmar at present. However, measures for increased production of food is being undertaken to meet the food demand along with the growing population of the nation to supplement the other food deficit nation. The Government of Myanmar has pledged heavily in its development and inter alia, food security. Due to the effort on infrastructure development, availability of irrigation facilities and among others, impressive progress on food production was achieved during the past decade. However, it still remains below-complacence.

There are more rooms to harness food, agriculture and forestry sector. To this context the necessary assistance from international agencies are needed to pay attention on research on promising genetic varieties of crops and low input technology. Similarly, since expansion in irrigation remains the major medium for increasing production in future, existing irrigation technology is needed to improve with full efficacy.

The demand for food grows not only with the growth in population but also with the increasing number of more affordable people, which increase with the GDP of the country. In Myanmar, the success of agricultural production is highly important in view

of the fact that it plays a vital role to achieve food sufficiency for the mass of people and national economic progress.

In sum, Myanmar is on the path of a progressive trend in food, agriculture and forestry sector and is fully committed to contribute its utmost towards global efforts on food for all. All-out efforts are thus made in the direction of developing the agriculture sector in Myanmar in accordance with one of the national economic objectives “ Development of Agriculture as the base and all-round development of other sectors of the economy as well”

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