

WORKPLAN OF JAPANESE WORKING GROUP  
ON  
AGRICULTURE AND RURAL DEVELOPMENT

December 4, 2000

## 1. Introduction

Myanma economy is highly dependent on agriculture: the agricultural sector occupies approximately a half of Myanma GDP, as many as 60% of her labor force, and a major part of exports from Myanmar (rice, pulses; timber). Agriculture is also the most dominant economic activity in rural Myanmar. Considering this importance, we the Working Group (WG) members firmly believe that accelerating agricultural development with improved rural lives is key to the success of the policy support programme on "Economic Structural Adjustment in Myanmar."

To put our belief into concrete shape, we sent one of our WG members (Koichi Fujita) to Myanmar in early November, where he discussed the components of workplans with Myanma WG on Agriculture and Rural Development. Incorporating points discussed in his visit, "Activity Plans and Perspectives of the Agriculture and Rural Development Working Group" were revised and shown in Table 1 and Figure 1 below.

The objective of this note is to present preliminary workplans of Japanese WG for more detailed discussion. The workplans materialize ideas in "Activity Plans and Perspectives ..." in a concrete and practical way. To illustrate the potential fruits of this project, we try to list expected results and action plans that can be implemented through Japanese ODA. Considering the initial phase of this project, some of them could be too speculative or too optimistic.\* Nevertheless, we include them to initiate a lively discussion for fruitful and long lasting cooperation between Japanese and Myanma WGs.

In the followings, the workplans are presented separately for each member in each section, to make them more accountable. They also address in "Survey Methodology" subsection the role we expect the Myanma side to play. Appendix gives a tentative schedule of Japanese WG, a proposal for micro surveys in villages, a proposal for sample surveys of agro-based industries, and a request for secondary information on Myanma agriculture and national economy.

[Insert Table 1 and Figure 1 here]

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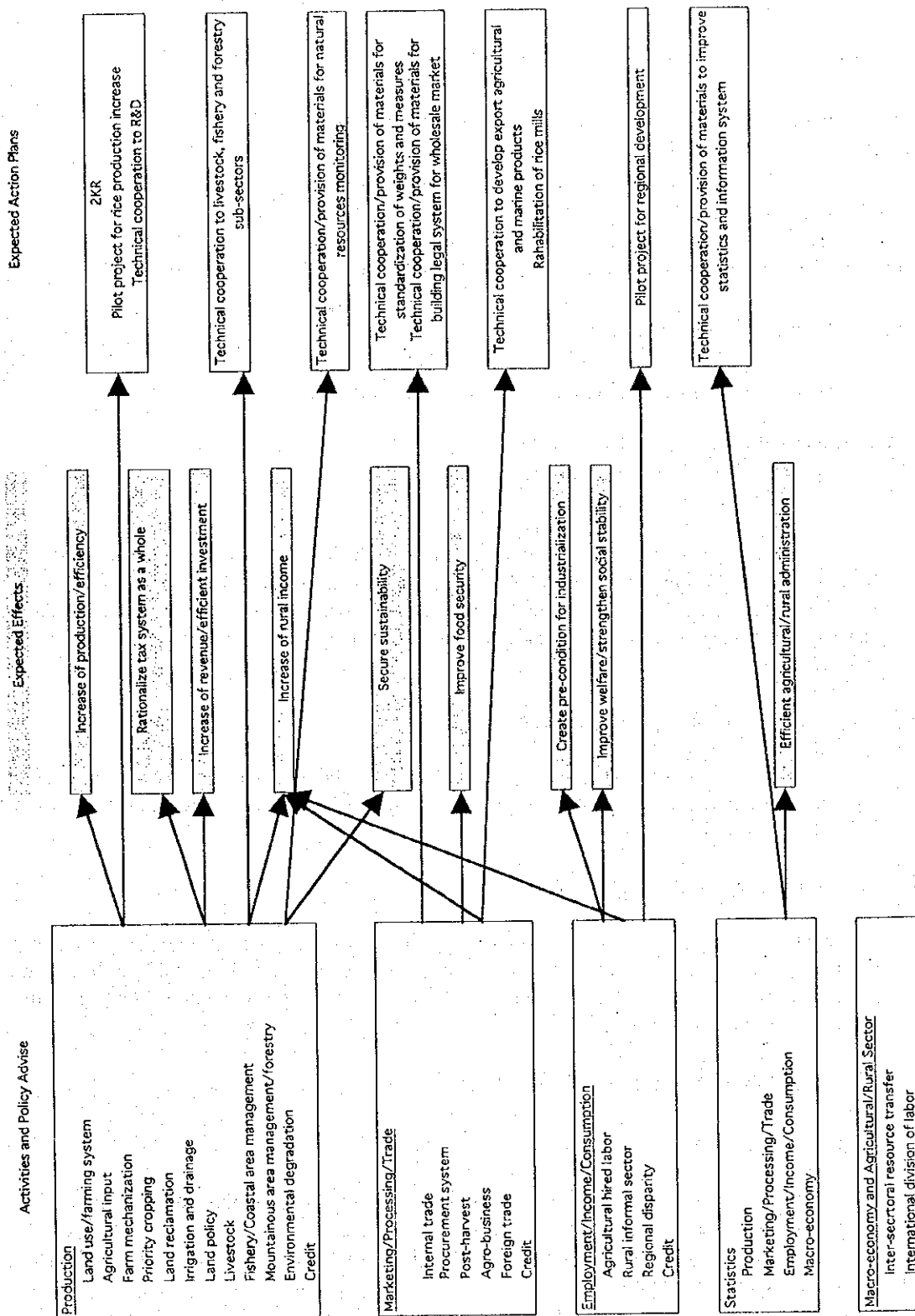
Note: # These "action plans" reflect the individual opinions of each WG member, and should not be attributed to the Government of Japan or JICA.

Table 1: Activity Plans and Perspectives of the Agriculture and Rural Development Working Group

Topic	Sub-topic(1)	Sub-topic(2)	Policy recommendation	Expected effects	Expected action plan
Producti on	Land Use/Farming System	Present situation	Policy advice for improvement	Increase of production/efficiency	
		Marketing of fertilizers/chemicals	Advice for crop diversification		
	Agricultural Inputs	Production of fertilizers/chemicals	Policy advice to MAS	Increase of production/efficiency	2 KR Pilot project for rice production increase Technical cooperation/Provision of materials for R&D
		Seed development and dissemination	Policy advice on import substitution		
		Present situation, especially power tillers	Policy advice		
	Farm Mechanization	Use of draft animals	Policy advice	Increase of production/efficiency	
		Present situation/effects/background	Policy advice for reform	Increase of production/efficiency	
	Priority Cropping	Present situation	Policy advice	Increase of production/efficiency	
	Land Reclamation	Development policy (incl. dam construction)	Policy advice	Efficient investment	
		Water tax	Rationalize tax	Increase of revenue/O&M improvement	
	Irrigation/Drainage	Land tax	Rationalize tax	Increase of revenue/Rationalize tax system as a whole	
		Land tenure	Policy advice for improvement	Increase of production/efficiency	
	Land Policy	Present situation	Advice for development/health	Increase of rural income	Technical cooperation/Provision of materials
		Present situation of fisheries	Advice for development	Increase of rural income/Secure sustainability	Technical cooperation/Provision of materials Technical cooperation for coastal area development such as shrimp cultivation
	Inland & Marine Fishery/Coastal Area Management	Present situation of coastal area use	Advice for development/protection	Increase of rural income/Secure sustainability	
		Present situation of forestry products	Advice for development	Increase of rural income/Secure sustainability	Technical cooperation for forest management
	Mountainous Area Management/Forestry	Present situation of soil degradation	Advice for protection	Secure sustainability	Technical cooperation/Provision of materials for natural resources monitoring
		Present situation of deterioration of water quality	Policy advice (incl. establishment of new banks)	Increase of production/efficiency	
	Environmental Degradation	Present situation and problems		Efficient agricultural/rural administration	Technical cooperation/Provision of materials
	Credit	Present situation and problems			
Statistics	Present situation and problems				

Topic	Sub-topic(1)	Sub-topic(2)	Policy recommendation	Expected effects	Expected action plan	
Marketin g/Proce ssing/Tr ade	Internal Trade	Standardization of weights and measures	Policy advice		Technical cooperation/Provision of materials	
		Present situation of domestic marketing	Policy advice		Technical cooperation for building legal system for wholesale market	
		Market information system	Policy advice			Technical cooperation/Provision of materials
		Infrastructure (road, railway, inlandwater, port, etc.)	Advice for development		Efficient marketing	
		Present situation/effects/background	Policy advice for reform		Efficient marketing/Remove disincentive	
		Management of public/private rice mills	Policy advice		Reduce loss/Remove disincentive	Rehabilitation of rice mills
		Buffer stock of food	Policy advice		Improve national food security	
		Present situation and problems	Advice for development		Increase of rural income	Technical cooperation for export agricultural & marine products
		Impact of deregulation of rice export	Policy advice			
		Export policy for agricultural products				
		Import policy for agricultural products	Policy advice for improvement		Increase of production/efficiency	
		Foreign Trade	Policy advice		Increase of production/efficiency	
Employ ment/In come/C onsump tion	Statistics	Present situation and problems	Policy advice		Technical cooperation/Provision of materials	
		Present situation and problems	Policy advice	Efficient agricultural/rural administration		
		Economy of Landless households	Policy advice	Improve welfare/Strengthen social stability		
		Necessity/Suitability of mechanization	Policy advice	Creates pre-condition for industrialization		
		Present situation and problems	Advice for development	Increase of rural income		
		Present situation of rural poverty	Advice to trade and price policy	Welfare improvement/Social stability		Pilot project for regional development
		Present situation and problems	Policy advice	Increase of production/efficiency		
		Present situation and problems		Efficient agricultural/rural administration		Technical cooperation/Provision of materials
		Present situation of inter-sectoral resource transfer	Policy advice			
		Fiscal policy for agriculture and rural sector	Policy advice		Implication to long-term economic development	
		Identify comparative advantage	Policy advice		Implication to trade policy	
		Present situation and problems			Efficient agricultural/rural administration	Technical cooperation/Provision of materials
Macro- Econom y and Agricul tural/Rur al Sector	Statistics	Present situation and problems	Policy advice			
		Present situation of inter-sectoral resource transfer	Policy advice			
		Fiscal policy for agriculture and rural sector	Policy advice		Implication to long-term economic development	
		Identify comparative advantage	Policy advice		Implication to trade policy	
		Present situation and problems			Efficient agricultural/rural administration	Technical cooperation/Provision of materials

Figure 1: Activity Plans and Perspectives of the Agriculture and Rural Development Working Group



## 2. Workplan by Koichi Fujita

### 2.1. Major Topics and Issues Covered

- (1) Administration and fiscal policies for agricultural/rural sector
- (2) Agricultural hired labor: current situation of landless households
- (3) Rural informal sector: current situation of rural households
- (4) Regional disparity: present situation of regional economy and disparity
- (5) Rural credit: present situation of debt and credit in rural areas
- (6) Overall commitment to all the other topics of Agricultural and Rural Development WG.

### 2.2. Survey Methodology

#### 2.2.1. Construction of geographic information system (GIS)

- (1) Township-level GIS of the selected districts
- (2) Township-level GIS of the whole country
- (3) Village-level GIS of the selected districts

This work aims at drawing the overall features of the selected districts and the whole country. The source of (1) and (2) is secondary information such as statistics and maps, whereas source of (3) is first-hand information collected by questionnaire survey with village headmen. Most of the works will be done by the Academy, including collection and processing of the data and construction of GIS.

#### 2.2.2 Case studies at the selected villages/townships

To address the issues (1), (2), (3), and (5) of 2.1. above, micro surveys of rural households will be conducted (see Appendix 2). The Japanese WG will be responsible for this, with the help of Myanmar counterparts.

#### 2.2.3. Administration and fiscal policies

This work aims at clarifying the present structure of administration and review fiscal policies (both revenue and expenditure) for constructing more efficient and equitable policy framework. Data and information with the help of DAP, etc will be collected and combined with information in 2.2.1. and 2.2.2. above.

### 2.3. Expected Results and Action Plans

#### 2.3.1. Short term

- (1) Problem identification for rural landless household economy and regional disparity. Provide some policy recommendations.
- (2) Problem identification for agri./rural administration and fiscal policies. Provide some policy recommendations.
- (3) Problem identification for rural credit. Provide some policy recommendations.

#### 2.3.2. Medium and long term

- (1) Technical cooperation for planning/implementation of some pilot projects for regional development.
- (2) Technical cooperation for establishment/expansion of rural financial institutions.

## 3. Workplan by Yasuyuki Kono and Associates

### 3.1. Major Topics and Issues Covered

- (1) Landuse and farming system: present situation and possibility to improve farming systems
- (2) Cultivation technology:
  - Present situation of use of seeds, fertilizer, chemicals and farm machinery
  - Present situation of labor input
  - Possibility of technical development
- (3) Irrigation and drainage:
  - Present situation of irrigation and drainage projects, water management and irrigated agriculture
  - Possibility to improve water management system
- (4) Livestock and inland fishery: present situation and problem identification
- (5) Coastal area management: present situation and problem identification
- (6) Mountainous area management: present situation and problem identification
- (7) Environmental degradation: present situation and problem identification

### 3.2. Survey Methodology

#### 3.2.1. Construction of geographic information system (GIS)

See Workplan by Fujita (section 2.2.1.).

#### 3.2.2 Case studies at the selected districts

See Appendix 2.

### 3.3 Expected Results and Action Plans

#### 3.3.1. Short term

- (1) Problem identification of landuse, agriculture, livestock, fishery and environmental conservation
- (2) Policy advise about technology development

#### 3.3.2. Medium and long term

- (1) Technical cooperation for intensive rice production and integrated farming system
- (2) Technical cooperation for fishery development and swamp area management
- (3) Technical cooperation for slopeland management and forest resources conservation
- (4) Technical cooperation for natural resources monitoring

## 4. Workplan by Takashi Kurosaki

### 4.1. Major Topics and Issues Covered

#### (1) Agricultural Production (Economic side)

- Economic use and marketing of inputs (fertilizer, pesticides)
- Mechanization and bullock use at the farm level
- Irrigation and water tax
- Use of financial services (both formal and informal)
- Analysis of the effects of priority cropping
- Land tenure and land revenue

#### (2) Marketing and Trade

- Procurement system: Present situation/effects/background
- Impact of trade regimes on agricultural production

#### (3) Employment/Income/Consumption

- Welfare of rural households including agricultural hired labor households

#### (4) Macro-Economy and Agricultural/Rural Sector

- Potential impacts of free domestic/international trade of rice
- Comparative advantages of Myanmar agriculture by crop and by region

### 4.2. Survey Methodology

#### 4.2.1. Macro level analysis of Myanmar agriculture, with emphasis on rice economy

This work stylizes the situation of Myanmar agriculture, with emphasis on rice economy during the later 1990s, using secondary data on the cost of production of major agricultural products, household expenditure surveys, wholesale prices, and on rice balance sheets.

In the next phase, a village SAM (social accounting matrix) and a multi market model for agricultural sector will be constructed to quantify regional comparative advantages and the impacts of free domestic/international trade of rice.

#### 4.2.2. Micro level analysis of rural households in Myanmar

This work stylizes the production environment of Myanmar farmers including economic conditions they face, institutional constraints imposed on them, characteristics of household behavior, etc. The analysis is based on case studies at the selected villages (see Appendix 2).

The budget analysis and a household model combining consumption and production choices will be used to simulate household response to policy changes.

### 4.3 Expected Results and Action Plans

#### 4.3.1. Short term

- (1) Problem identification of farm management
- (2) Policy recommendation on priority cropping, agricultural pricing, procurement system
- (3) Policy recommendation on agricultural taxation including land revenue, irrigation tax, and direct income tax
- (4) Assessment of distributional impacts of free domestic/international trade of rice with or without public procurement/rationing

#### 4.3.2. Medium and long term

- (1) 2KR cooperation for agricultural inputs
- (2) Technical cooperation for intensive rice production and integrated farming system
- (3) Technical cooperation for rationalizing agricultural taxes, tariffs, public procurement, and quantitative restrictions on agricultural trade (domestic/international)

## 5. Workplan by Ikuko Okamoto

### 5.1. Major Topics and Issues Covered

- (1) Market for major commodities: Identification of market structure and its efficiency
- (2) Marketing activities of farm households: Present situation of the marketing activities and problem finding
- (3) Marketing & processing activities of various intermediaries: Identification of marketing channels, their management, pricing mechanism and problem finding
- (4) Procurement system: Impact on marketing & processing sector at both local and national levels
- (5) Trade policies: Impact on marketing & processing sector at both local and national levels
- (6) Market Institutions and infrastructure:
  - Standardization of weights and measures
  - Market information system
  - Physical infrastructure (road, railway, inland water, port, etc.)
- (7) Buffer stock of food: Present situation and possibility to improve national food security

### 5.2. Survey Methodology

#### 5.2.1. Case studies at the selected townships

- (1) Surveys of agricultural households (see Appendix 2)
  - (2) Surveys of marketing agents in the selected townships
  - (3) Collection of the secondary information on marketing & processing in the selected townships
- Micro surveys (1) and (2) will provide detailed information that would help to identify the real situation and constraints faced by farmers and marketing agents (see Appendix 2). Secondary information (3) will be collected in order to grasp the broader picture of the marketing & processing activities of the selected townships.

#### 5.2.2. Studies on marketing & processing sector at the national level

During the second phase of the project, nation-wide agricultural marketing and processing will be investigated based on results obtained from 5.2.1. Direct interviews and sample surveys of wholesalers and export/import companies will be conducted in important markets and cities.

#### 5.2.3. Sample surveys of agro-based industries (see Appendix 3)

Investigation of the processing sector (especially rice mills and oil mills) will be conducted in line with Kiryu's survey on agro-based industries.

### 5.3. Expected Results and Action Plans

#### 5.3.1. Short term

- (1) Identification of the problems and constraints of agricultural marketing and processing
- (2) Policy advice for improvement of the private marketing and processing industry
- (3) Policy advice for the role of the government in the marketing, processing and trade.

#### 5.3.2. Medium and long term

- (1) Technical cooperation for the post-harvest technology
- (2) Technical cooperation for improving legal and administrative system in agricultural marketing & processing
- (3) Technical cooperation for expansion of the marketing information system, standardization of weights and measures, and physical infrastructure



## 6. Workplan by Minoru Kiryu

### 6.1. Major topics and issues covered

- (1) Current situation of agro-based industries #
- (2) Development possibility of agro-based industries
- (3) Selection of promising industries among agro-based industries

### 6.2. Survey methodology

#### 6.2.1. Analysis of existing data and information

This will be conducted in cooperation with UMFC CI and other organizations.

#### 6.2.2. Sample surveys for agro-based industries

The survey will be conducted by region and types of industry (see Appendix 3 for details).

#### 6.2.3. Direct interview

Information is collected by direct interviews of foreign enterprises which have invested and are operating in Myanmar to find the problem they face and the comparative advantages they have.

### 6.3. Expected Results and Action Plans

#### 6.3.1. Short-term

- (1) Problem identification for agro-based industries
- (2) Analysis of constraints that hinder the development of agro-based industries
- (3) Selection of promising industries
- (4) Policy advice for the development of agro-based industries

#### 6.3.2. Medium and long term

- (1) JICA development survey to execute a development program for the promising industries by region
- (2) JICA development survey to improve/strengthen the supply sector for the promising industries
- (3) Technical cooperation to support the establishment and renovation of agro-based industries
- (4) Technical cooperation to accelerate varietal development (new breeds and/or improved quality) of agricultural products, with the establishment of experiment/extension centers

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Note: # "Agro-based industries" in this section include processing industries of marine products and woods. When the focus is on employment, cottage industries located in rural areas are also included in the analysis.

Appendix 1: Schedule (Draft Plan)

	2001												2002					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Construction of GIS																		
Selected districts																		
The whole country																		
Construction of Economic Model of Myanmar Agriculture																		
Rural micro surveys																		
Selection of townships and villages																		
Main survey by the Technological Group (T)																		
Main survey by the Economic Group (E)																		
Survey of marketing agents																		
Sample survey of agro-based industries																		
Workshop s																		
Reports																		

Notes: (1) Only selected activities of the workplans are listed in the figure.

(2) ● shows activities mainly conducted by Myanmar WG/CP.

(3) ← shows activities conducted in Myanmar by Japanese WG in cooperation with Myanmar WG/CP. "w" denotes the number of weeks Japanese WG spend in Myanmar.

(4) ← shows activities mainly conducted in Japan by Japanese WG.

## Appendix 2: Micro-level Surveys in Rural Areas

### A.2.1. Selection of Survey Areas

Six areas will be selected from different agro-ecological zones in Myanmar. The survey area might be revised from the second year of the project.

- (1) Canal irrigated area in Upper Myanmar (rice double cropping)
- (2) Upland area in/adjacent Upper Myanmar (Magway or Sagaing?)
- (3) Rainfed delta area in Lower Myanmar (rice + pulses)
- (4) Newly irrigated area by dam construction in Lower Myanmar (Bago?)
- (5) Vegetable producing-area in Shan State
- (6) Coastal area in Tanintaryi Division (fruit + fishery)

### A.2.2. Basic Strategy: Technological Group and Economic Group

Japanese WG will be divided into two groups; Technological Group (Kono, Takeda,<sup>5</sup> Iwata,<sup>5</sup> and Yanagisawa<sup>5</sup>) and Economic Group (Kurosaki, Kiryu, and Okamoto). Fujita will take care of both groups.

### A.2.3. Survey Methodology of Technological Group

The Technological Group will be responsible for mainly technological aspects. This work aims at deepening the understanding of the present situation and potentiality of development, and helps the interpretation of the overall features drawn by GIS. Field observation and interviews with district and township authorities including MAS managers, village headmen, and villagers will be carried out, starting from the selected villages by the Economic Group. This implies that surveys will cover a fairly wide area to collect information at village, village tract, and township levels.

Surveys will be conducted by Japanese WG with the cooperation of Myanmar counterparts. Myanmar counterparts will help data collection and data processing also.

### A.2.4. Survey Methodology of Economic Group

The Economic Group will be responsible for mainly socio-economic aspects. Survey villages will be selected from the above six areas, where intensive household surveys will be conducted on a sampling basis, for both farm households and landless non-farm households. Both village questionnaire and household questionnaire will be used.

In addition, surveys will be conducted for merchants and agro-processing entrepreneurs in some appropriate cities/towns near the sample villages. Questionnaire will be used.

Surveys will be conducted by Japanese WG with the cooperation of Myanmar counterparts. Myanmar counterparts will help data collection and data processing also.

### A.2.5. Rural Household Expenditure Survey

After examining the availability of existing data, rural household expenditure surveys will be designed and conducted, if necessary. Arrangements for well-designed institutional set-up and well-prepared logistical support are needed to obtain reliable data systematically, because information on debt and credit, investment, income, etc., are required at the same time.

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Note: <sup>5</sup> Graduate School of Asian and African Area Studies (ASAFAS) [Takeda & Iwata] and Center for Southeast Asian Studies (CSEAS) [Yanagisawa], University of Kyoto. Currently, they are not the official members of Japanese WG on Agriculture and Rural Development.

## Appendix 3: Sample Surveys of Agro-based Industries

### A.3.1. Region and Types of Industry

Region	Types of industry
Ayeyarwady delta	rice mill, flour mill, oil mill, fishery processing, jute processing
Central dry zone	oil mill, coconut processing, charcoal maker, lacquer ware, ceramic
Upper Myanmar	rice mill, oil mill, tobacco and cheroots, confectionery, beverages, fruits and vegetables processing, textile processing, metal
Hill region (Northern and Southern Shan State)	rice mill, vegetable processing, beverages, wood processing, sugar mill, weaving and textile mill, brewery
South Tanintharyi	fishery processing, oil mill, wood processing

### A.3.2. Major Items to Be Included in the Questionnaire

General information:	Ownership, size of capital, number of employees, location, year of establishment
Production:	Main products, machinery and equipment, annual production
Management:	Main market, linkages (subcontracting) with others, business conditions, financial source, managerial problems
Procurement:	Procurement measure of agro-products, quantity and quality of materials, price and price fluctuation

### A.3.3. Methodology of sample survey

- Conducted as a joint study with suitable organizations of Myanmar, such as MBA Institute of Economics, Yangon University, and private consultants.
- Surveys should be based on direct interviews of each unit (company).
- Number of samples: total 300-500 units, classified by industry type and by region.

## Appendix 4: Request for Secondary Information on Myanmar Agriculture and National Economy

### A.4.1. Information Required by the Technological Group

#### A.4.1.1. Statistics

Spatial unit: state/division and township

Period: as long as possible

Items:

1. General —population, number of households, out- and in-migration (population and households), number of villages, names of villages with major ethnic information.
2. Landuse —areas of paddy fields, upland fields, forestland, public land, water body and housing.
3. Land holding —number of farm households, owner farmers and tenant farmers.
4. Agricultural production by crop and by season —planted areas, harvested areas, yield, production, area damaged by floods, production reduction caused by floods, area damaged by droughts and production reduction caused by droughts.
5. Irrigation —area irrigated in the rainy season and in the dry seasons, sources of irrigation water and methods of irrigation.
6. Agricultural input —rice varieties, chemical fertilizer, agricultural chemicals, agricultural machinery and pumps.
7. Fishery —number of fishing households, annual production, annual sale of fish by variety.
8. Livestock (cattle, buffaloes, swine, chicken, and duck, by variety) —number of households engaged in livestock activities, number of animals, annual production, and annual sales.

#### A.4.1.2. Climatic Data

Time unit: daily

Station: all

Period: as long as possible

Items: precipitation, temperature (maximum, minimum, average), solar radiation, sunshine hours and cloud cover.

#### A.4.1.3. Maps of the Whole Country

Coverage: whole country

Scale: 1 : 500,000 or 1 : 1,000,000

Kinds: topography, soil, geology, landuse, state/division and township boundaries, irrigation and drainage system

#### A.4.1.4. Maps of the Selected Districts

Coverage: selected districts

Scale: 1 : 50,000 or 1 : 100,000

Kinds: topography, soil, geology, landuse, township and village boundaries, irrigation and drainage system

## A.4.2. Information Required by the Economic Group

(# "AS" stands for Agricultural Statistics (CSO), "SY" for Statistical Yearbook" (CSO))

### A.4.2.1. Livestock population

- 1.1. Estimation procedure
- 1.2. More detailed data than AS: by division/state; by animal categories, especially the number of bullocks

### A.4.2.2. Cost of production of important crops estimated by MAS

- 2.1. Estimation procedure including assumptions
- 2.2. More detailed data than AS: by more detailed input classification with quantity information
- 2.3. More detailed data than AS: by major producing regions, preferably at township level

### A.4.2.3. Balance sheet of rice

- 3.1. National balance sheet that is consistent between net production surplus estimated by MAS and net trade reported in SY.
- 3.2. Annual paddy procurement by division/state
- 3.3. Annual paddy transportation among divisions/states
- 3.4. Annual rice offtake from the rationing system by division/state

### A.4.2.4. Balance sheets of MAPT

- 4.1. MAPT as a whole (period: as long as possible, at least to cover 20 years)
- 4.2. Balance sheets of rice mills run by MAPT
- 4.3. Procurement quantity of agricultural commodities by MAPT other than rice (period: as long as possible, at least to cover 20 years), state/division wise

### A.4.2.5. Agricultural prices in free markets (1987/88 to present, in Kyats)

- 5.1. Rice: monthly wholesale and retail prices by major market and by variety
- 5.2. Pulses and oilseeds: monthly wholesale prices by major market and by variety

### A.4.2.6. Agricultural prices of MAPT and MAS

- 6.1. Average monthly procurement prices of pulses/beans and oilseeds of MAPT and MAS (1987/88 to present)
- 6.2. Average monthly prices of MAPT and MAS for major agricultural commodities (1987/88 to present), in Kyats and in US\$.

### A.4.2.7. Household consumption expenditure

- 7.1. Details of 1997 survey: sample distribution, questionnaire used, survey manuals
- 7.2. More detailed data than AS and SY: by expenditure group (at least 10 strata) for each division and state with rural and urban separated
- 7.3. Access to micro data on experimental basis: to randomly take a small sample from the whole 1997 samples for some region (urban and rural) and allow the analysis of micro information
- 7.4. Estimation procedure of food prices in calculating CPI

### A.4.2.8. Import and export of agricultural commodities

- Period: last 15 years
- Variety wise and by-products, if any
- Country wise
- Amount and value of each commodity in Kyats and US\$

Myanmar-Japan Joint Cooperation for the Structural Adjustment  
of Myanmar Economy

**AGRICULTURE AND RURAL DEVELOPMENT IN MYANMAR:  
CURRENT SITUATION AND PRIORITY NEEDS FOR ITS SUSTAINABLE DEVELOPMENT**

Prepared by  
Myanmar Task Force Group  
(Agriculture, Livestock and Fisheries, and Forestry)

November, 2000

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# AGRICULTURE AND RURAL DEVELOPMENT IN MYANMAR: CURRENT SITUATION AND PRIORITY NEEDS FOR ITS SUSTAINABLE DEVELOPMENT

## I. INTRODUCTION

The agriculture sector, as a dominant force in Myanmar's national economic development, plays a significant role in providing overall domestic food self sufficiency, promoting external trade and availing raw materials to meet the domestic agro-based industries. Agriculture, livestock and fisheries and forestry at present contribute to 43% of Myanmar's GDP, and to 51% of export earnings and remain as the principal pillars in the national economy.

At the same time, about 66% of the total population remain locative to the rural areas and dependent on the sectors for their livelihood; and the government is highly aware that there is still a strong need for balanced growth, and in particular, the establishment of an infrastructure that would accrue the benefits of prosperity also to the major rural populace in all the state and divisions.

The government has accordingly, since 1988, accorded strong development support to all these sectors. The agriculture, livestock and fisheries, and forestry sectors, though formerly under a single Ministry, have since 1992, been placed the domain of separate ministries, with a view to pay more close attention to the respective sectors.

In tandem, the Ministry of Border Areas and National Races Development was established in 1992, and dually remains engaged in the development of the border areas, that constitutes a major undertaking in rural up-lift. It embraces (20) different border locative regions, covering 74905 square miles and a population of 5.06 million. A complete package of overall infrastructure development remains apace- and apart from progress made in agriculture, livestock and fisheries, forestry, health and opium poppy eradication, 366 primary schools, 48 middle schools and 19 High Schools have been established; and about 3612 miles of new roads laid, while funds totaling 19.404 billion kyats have been expended.

## II. NATIONAL AND SECTORAL DEVELOPMENT OBJECTIVES

As at the turn of the 21<sup>st</sup> Century, agriculture in Myanmar has undergone only a little over a decade of restructuring under its new economic, social and development strategies, in shifting towards a market-oriented economy. The salient liberalization thrusts for enhanced agricultural development and production have been:-

- a) freedom of choice of crops and trade;
- b) decontrolling of prices;
- c) appropriate legislation for private investment
- d) private sector engagement in domestic and external trade; and
- e) enhanced opportunities for private sector participation in opening up of new tracts of land.

Myanmar has since 1988 set in motion many portent economic changes. The most significant changes in the agriculture sector have been the removal of former restrictions on choice of crops, price control, movement, milling and marketing and trading of agricultural products.

Compulsory delivery quotas for paddy were also drastically scaled down and official procurements prices increased. The measure have favoured farmers with enhanced farm-gate prices, while providing them with complete freedom in their livelihood. The export of all agricultural produce, with the exception of the country's staple food - rice , has also been opened to the private sector.

The agricultural, livestock, fisheries and forestry sector development, while being accorded the highest priority, have the following national and sectoral objectives : -

#### **A. NATIONAL ECONOMIC OBJECTIVES**

The overall national objectives have been: -

1. for the agriculture sector to serve as the basis for other sectors' development;
2. for a progressive move towards a market-oriented economy;
3. for the establishment of appropriate settings for increasing domestic and foreign participation in terms of technical know-how and investments, and
4. for the retention of national economic development initiatives within the framework of the state and its peoples.

#### **B. SECTORAL OBJECTIVES - AGRICULTURE**

1. to generate surplus paddy production
2. to generate self-sufficiency in edible oil, and
3. to generate increasing production and export of pulses and industrial crops

#### **C. SECTORAL OBJECTIVES - LIVESTOCK and FISHERIES**

1. to accelerate production of meat, fish, milk products and number of livestock and poultry
2. to improve the quality of livestock and fisheries
3. to provide increasing preventive and curative veterinary services, and
4. to generate livestock and fishery exports and value added products.
5. to upgrade the socio-economic status of livestock and fisheries community.

#### **D. SECTORAL OBJECTIVES - FORESTRY**

1. the protection of land, water, vegetation and wild life,
2. the sustainability of forest resources and environment,
3. the provision of basic needs of urban and rural populace,
4. the increasing export of value added wood products,
5. the stepping up of reforestation programmes, and
6. the establishment of programmes, pertaining to rural community development.

### **III. PRESENT PRODUCTION SITUATION IN AGRICULTURE**

In pursuance of the development objectives, the Government accorded full support to the

- a) development of new agriculture land;
- b) provision of increased irrigation water supply;
- c) availability of increasing farm mechanization;
- d) transfer of modern technology, including high yielding planting materials ; and
- e) development of agro-based industries.

Agriculture, including the livestock and fisheries and forestry sectors, still play a highly extensive role in the national economy, having accounted for about 47% of GDP and 40% of export earnings in 1988-89 against 43% and 51% respectively in 1999-2000.

**Table-1 Gross Domestic Product**

(kyats million)

Sr.	Particulars	1988-89		1999-2000(p)	
		Value	% of Total GDP	Value	% of Total GDP
1	Goods	28004.2	59.40	52936.6	60.29
1	1 Agriculture	18137.6	38.48	30131.6	34.31
2	2 Livestock & Fishery	3780.2	8.02	6973.3	7.94
3	3 Forestry	677.4	1.44	820.3	0.93
4	4 Processing & Manufacturing	4094.3	8.68	8351.3	9.51
5	5 Power & Mining & construction	1314.7	2.78	6660.1	7.58
2	Services	8578.7	18.20	16535.5	18.83
3	Trade	10558.2	22.40	18338.2	20.88
4	Gross Domestic Product (1+2+3)	47141.1	100.00	87810.3	100.00

**Table-2 Export Earnings**

(Kyats million)

Sector	1988-89		1999-2000(p)	
	Value	%	Value	%
Total Export	2168.9	100.00	9394	100.00
(a) Agriculture	127.6	5.88	2176	23.16
(b) Livestock and Fisheries	66.5	3.07	954	10.16
(c) Forestry	701.5	32.34	1671	17.79

#### A. Agriculture

The year 1988-89 witnessed the lowest period in growth, during the past decade. Growth in that year was (-13.2%). Next in 1989-90 and 1990-91, it recovered to 5.2% and 2.0% respectively. Thereafter it took a strong turn during the Short Term Four Year Plan (1992-93 to 1995-96), registering an average annual growth rate of (7.3%). It, however, slid again to 3.2% in the first four years of the current Five Year Short Term Plan (1996-97 to 2000-2001).

Nonetheless, the net sown area, irrigation, value of net out and production of some major crops did move forward and performance as at 1988-89 and the end 1999-2000 were:

Table-3 Performance in 1988-89 and 1999-2000

Sr.	Particular	1988-89	1999-2000 Provisional	Increase	
				Between 1988- 2000	Average Annual Increase
1	Net sown area(000 ha)	8055	10104	2049	171
2	Cropping intensity	119.6	145.0	25.4	2.1
3	Irrigated area %	12.6	17.3	4.7	0.4
4	Value of net output- at constant producers' prices- (kyats in million)	18137.6	30131.6	11994	999.5
5	Crop Production (000'MT)				
1	paddy	13165	19887	6722	560
2	other cereals (wheat, maize, millet)	436	611	175	15
3	oil crops (groundnut and sesamum)	737	1309	572	48
4	peas and beans	409	1921	1512	126
5	industrial crops (cotton, jute, sugarcane, rubber, virginia tobacco)	2329	5414	3085	257
6	food crops (chillies, onion, garlic, potatoes)	389	893	504	42

However, the yields per hectare over the decade were not impressive in comparison to world and Asian averages- and the following (Table-4) relates to the performance of some major crops in 1999-2000. There is still immense potential for further intensification, and improvement in yields, and is a clear indication for the need of addressing the issues appropriately, both from policy as well as technical aspects.

Table-4 Yield performance of some major crops in 1999-2000

(Kilograms per hectare)

Sr.	Crop	Myanmar	World	Asia
1	Paddy	3128	3845	3913
2	Wheat	973	2711	2836
3	Maize	1650	4313	3773
4	Peas and beans	865	839	791
5	Groundnut	1145	1336	1546
6	Sugarcane	44210	65690	66206
7	Cotton	545	1573	1464
8	Jute	897	1708	1716

### Crop Production Development

The prevalence of different agro-ecological zones within the country has enabled the growing of over more than 60 different crops. In Myanmar's agriculture, cereal crops remain the most important group with its area constituting 47.6% of the total crop sown area of 14.660 million hectares. It is followed by oilseed crops as the second most important next to cereals and with pulses and industrial crops ranking third and fourth respectively. Union data pertaining to the sown area and production of different crop groups for crop year 1999-2000 are given in Table 5.

Table-5 Crop Production by Group (1999-2000)

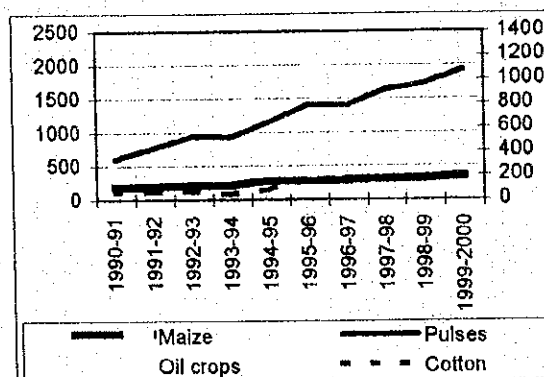
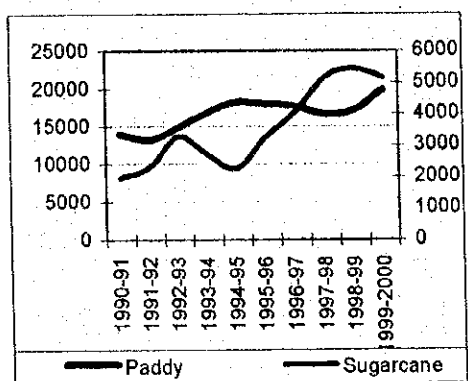
Crop Group	Area(000' ha)	per cent
Cereals	6982	47.6
Oilseeds	2546	17.4
Industrial crops	813	5.5
Peas and beans	2680	18.3
Culinary crops	223	1.5
Others	1416	9.7
Total	14660	100.00

Agricultural development has been accorded strong support through horizontal as well as vertical expansion, while the deregulation of choice of crops, pricing and marketing has given it further impetus. And the measures on the whole led to an increasing trend of major crops production as shown in Table-6.

Table-6 Major Crop Production Trend

(Thousand MT)

Year	Paddy	Maize	Pulses	Oil crops	Sugarcane	Cotton
1990-91	13969	187	602	812	1962	62
1991-92	13202	191	770	662	2308	63
1992-93	14837	208	940	787	3281	68
1993-94	16760	205	923	768	2719	43
1994-95	18195	284	1161	956	2254	86
1995-96	17953	275	1403	1099	3250	165
1996-97	17676	286	1398	1034	4042	168
1997-98	16654	308	1631	969	5137	164
1998-99(p.a)	17078	303	1720	1042	5429	158
1999-2000(p)	19887	349	1921	1309	5147	176



The dividends for prioritizing support for some major crops for specific development has led to remarkable improvements ; and as a result, the value of net output of the agriculture sector at 1985-86 constant prices increased to 30.132 billion kyats in comparison to 19.741 billion kyats in 1991-92, registering an increment of 154.75% during the decade.

Table-7 Performance of Agricultural Sector(Value in 1985-86 constant prices)

Year	Value of Total Net	Contribution of	Percent	Growth Rate of
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	Out Put (mil. ks)	Agri-sector (mil. ks)	Contribution of Agri-sector	Agri-sector
1990-91	50260	19471	38.7	2.0
1991-92	49933	18708	37.5	-3.9
1992-93	54757	21029	38.4	12.4
1993-94	58064	22009	37.9	4.7
1994-95	62406	23483	37.6	6.7
1995-96	66742	24765	37.1	5.5
1996-97	71042	25698	36.2	3.8
1997-98	75057	26480	35.3	3.0
1998-99(p.a)	79460	27417	34.5	3.5
1999-2000(p)	87810	30132	34.3	9.9

However, population growth has negated the increase in production, and led to lesser substantial surpluses for export. There accordingly is a clear need to further expand the cultivated area and also increase the productivity substantially.

The scenario of Myanmar's sown area and production of major crops as at the end of the 20<sup>th</sup> century remain as follows: ( Table-8)

**Table-8 Sown Area and Production of Some Major Crops**

Sr.	Crops	Sown Acreage		Production (MT)	
		1998-99	1999-2000	1998-99(p.a)	1999-2000(p)
1	Paddy	5759	6245	17078	19987
2	Maize	188	209	303	349
3	Groundnut	503	1351	562	640
4	Sesame	1199	1351	210	302
5	Pulses (Total)	2459	2680	1720	1921
(1)	Matpe (Black gram)	529	555	444	483
(2)	Pedisein (Green gram)	707	744	464	488
(3)	Pesingon (Pigeon pea)	270	308	160	189
(4)	Gram (Chick pea)	113	131	68	86
(5)	Other pulses	840	942	584	675
6	Cotton	325	341	158	176
7	Jute	40	38	33	33
8	Sugarcane	126	134	5430	5147
9	Rubber	149	169	23	24
10	Potato	23	25	245	248
11	Onion	46	65	476	507
12	Vegetables	214	244	-	-
13	Fruits	292	311	-	-
14	Others	1984	2281	-	-
	<b>Total</b>	<b>13307</b>	<b>14660</b>		

## B. Livestock and Fisheries

Growth relative to the sector remained negative at -4.0% and -0.6% for the years 1989-90 and 1990-91. It climbed again to 5.7% in 1991-92, while the annual average growth rate during the Four Year Short Term Plan (1992-93 to 1995-96) was 4.6%. There were further improvements during the first (1996-97) and second (1997-98) years of the Five Year Short Term Plan, and the achievements in growth were 11.8% and 6.4%, respectively.

The livestock sub-sector witnessed a steady increase in the number of livestock as shown in Table-9.

**Table-9 Animal Population**

Year	No. in million				
	Cattle	Buffalo	Sheep/Goat	Pig	Poultry
1990-91	9.4	2.1	1.3	2.4	28.6
1991-92	9.5	2.1	1.4	2.6	31.2
1992-93	9.6	2.1	1.4	2.6	31.4
1993-94	9.7	2.1	1.4	2.7	31.6
1994-95	9.9	2.2	1.5	3.0	34.4
1995-96	10.1	2.3	1.6	3.3	38.1
1996-97	10.3	2.3	1.6	3.5	39.8
1997-98	10.3	2.3	1.6	3.5	38.7
1998-99(p.a)	10.1	2.3	1.7	3.5	42.0
1999-2000(p)	10.7	2.4	1.7	3.9	49.6

Consequently, meat productions rose from 243.8 thousand metric tons in 1995-96 to 378.9 thousand metric tons in 1999-2000, as shown in Table-10.

**Table-10 Production of meat**

Particulars	Unit	1995-96	1996-97	1997-98	1998-99 (p.a.)	1999-2000 (p)
Meat Production	M.T (000)	243.8	265.4	295.9	313.8	378.9
Beef	"	50.0	51.3	52.3	53.9	61.2
Pork	"	66.5	72.7	76.2	82.5	101.7
Mutton	"	7.7	7.8	8.3	8.8	10.1
Fowl meat	"	101.2	113.8	138.6	147.1	180.2
Duck meat	"	16.6	18.0	18.7	19.7	23.7
Turkey, geese & others	/	1.8	1.8	1.8	1.8	2.0

The livestock sub-sector will continue to take concerted efforts in stepping up further meat production, as having potential; and in being aware that current productions in comparison to some neighbouring countries- Malaysia (0.95 million MT), Thailand (1.35 million MT) and Vietnam (1.43 million MT), remain low and still need further development.

The government had maximized fisheries development, over the past decade, with appropriate settings for increasing private participation, and dividends contingent to the new policies have been highly substantial. Production of fish increased from 0.82 million tons in 1994-95 to 1.2 million tons in 1999-2000 as shown in Table-11.

**Table-11 Production of fish**

Category	Metric tons in million			
	94-95	96-97	98-99(p.a.)	99-2000(p)
Fresh water fisheries	0.220	0.224	0.251	0.291
Marine fisheries	0.603	0.628	0.760	0.880
<b>Total</b>	<b>0.823</b>	<b>0.852</b>	<b>1.011</b>	<b>1.171</b>

Source: Ministry of Livestock and Fisheries, Oct, 2000

Contributions from aquaculture increased from 65 thousand tons (1994), to 85 thousand tons (1998-99). Future expansions, however, will have to place focus on marine captures (current sustainability is 719 thousand tons), and aquaculture, for which there is ample scope. And with research and development and appropriate inputs, the fisheries sub-sector should be able to catch up neighbouring regional productions, and provide further to enhanced food security and the national economy.

**Table-12 Fish production in the region, 1998**

(000MT)

Sr.	Particulars	Myanmar	Indonesia	Malaysia	Philippines	Thailand	Vietnam
1	Inland	153.6	315.7	4.6	146.5	191.3	70.0
2	Off-shore	719.3	3383.1	1149.1	1681.5	2709.0	1060.7
3	Acquaculture	85.3	696.9	129.0	311.9	569.6	521.9

The livestock and fisheries contributed to the export earnings have been: -

**Table-13 Fishery Export**

In Tons / Million US\$

Year	Fish	Shrimp	Other	Volume of Export/value	
				Tons	US\$
1990-91	11621.1	1273.0	1033.5	13927.6	13.0
1991-92	11032.0	2672.9	554.1	14259.0	22.5
1992-93	21053.0	5827.1	1607.5	28487.6	51.0
1993-94	12884.1	6195.0	4136.7	23215.8	68.4
1994-95	78590.0	7940.0	10210.0	96740.0	120.6
1995-96	34740.9	8814.5	10805.4	54360.8	113.7
1996-97	41068.3	12827.8	13504.7	67400.8	163.0
1997-98	45853.7	13467.2	14859.0	74179.9	167.1
1998-99(p.a.)	70906.4	13746.5	42202.9	126873.8	201.3
1999-2000(p)	72210.1	15536.0	28863.1	116609.2	183.7

### C. Forestry

Growth rates in the forestry sector for the years 1996-97 and 1997-98, as the first and second years of the Five Year Short Term Plan were 2.7% and 1.3% as against the plans target of 2.6% and 0.9%.



Timber extraction, in particular teak, has been scaled down, and the annual allowable cut (AAC) restricted to 226,924 cu-tons for teak and 2,879,560 cu-tons for other hardwoods. As against it, the extraction of teak and hardwoods, in 1997-98, were 200,000 cu-tons and 1383000 cu-tons, respectively.

The "Myanmar Forest Policy" brought into force in 1995, in compliance to the principles adopted at UNCED, 1992, have placed high emphasis on the conservation and sustainability of Myanmar's forest resources. Consequently, more areas have been increasingly brought under reservation. Reforestation has been stepped up- and the urgent needs of watersheds, dry zone areas and mangroves are being addressed, in cooperation with and assistance of UN agencies.

Areas under reservation increased from 10.31 million ha in 1994-95 to 11.87 million ha in 1999. And forest plantations, including commercial, industrial village supply and watershed forests increased from 510,850 ha (1994-95) to 674,458 ha in 1999. Production of fuelwood has remained around 18 million cu-tons annually, but charcoal output dropped from 0.761 million cu-tons (1988-89) to 0.174 cu-tons (1997-98). The forest sector continues to make available non-wood forest products to the private sector under licensing. Annual draws from the forest come to about 992.6 million and 75 million numbers of bamboos and canes, respectively.

The forestry sector's contribution to the net value of output in 1997-98 was 1.64% and 13.56% to export earnings.

#### IV. PRIORITY NEEDS FOR FUTURE DEVELOPMENT

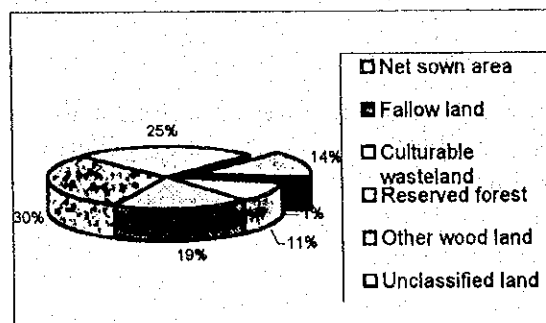
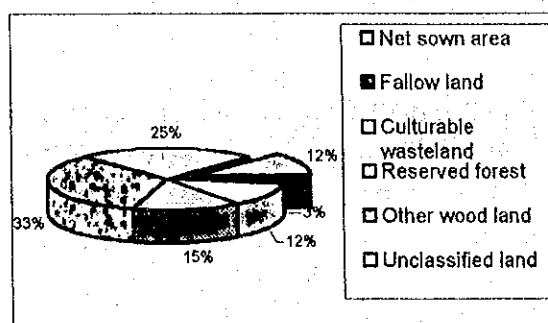
##### A. Agriculture

##### (a) Land Utilization

Myanmar has a total land area of 67.66 million hectares, and currently only about 9.66 million hectares, (13 per cent) is being utilized for farming, which is roughly half of the total cultivable land area. The land utilization status in 1999-2000 is shown in Table-14.

Table-14 Land Utilization in Myanmar (million hectares)

Categories	1989-90	1999-2000
Net sown area	8.04	9.66
Fallow land	2.03	0.78
Culturable wasteland	18.5	17.7
Reserved forest	10.15	12.57
Other wood land	22.25	20.24
Unclassified land	16.76	17.15
Total	67.66	67.66



With a view to accelerate land development, the government has on one hand, taken corrective measures to reclaim fallow and waste land; and on the other with increasing grants for the right to private entrepreneurs and organizations for participation in agriculture, livestock and rice-fish farming on the other. Under the programme, land in deepwater areas of delta regions, agricultural waste lands in dryzone and hilly regions are being reclaimed and developed with careful consideration on environmental effect. The main objective of this programme is to introduce private-owned large-scale commercial farming systems. Private sector response has been satisfactory and since 1998, has gradually gathered increasing momentum. The government has accorded strong administrative support and other incentives such as fuel for land preparation, technology, extension services, etc. In bringing inundated areas into productivity, 94 national companies and associations have been participating in this development scheme for the cultivation of seasonal as well as estate crops as shown in Table-15.

**Table-15 Land Utilization by Private Sector**

Region	No. of Co./Association	Area(acre)
Kayin	1	1000
Ayeyarwady	27	240130
Yangon	7	61316
Magway	11	244733
Tanintharyi	16	287743
Bago	20	166709
Shan	7	25893
Mandalay	2	1608
Kachin	3	31800
<b>Total</b>	<b>94</b>	<b>1060932</b>

However, besides of being well endowed with land and water resources and the strong encouragement by the state, objectives as to the full utilization of potential land will only be achieved if the following drawbacks can be addressed :-

- (a) that many of the underutilized land are located in remote areas with poor access,
- (b) the lack of capital investment and heavy machineries for land development,
- (c) the lack of physical infrastructure such as irrigation facilities and farm roads, and
- (d) the need for mobilization of human resources in land development areas.

#### **(b) Irrigation and Water Resources Utilization Development**

As an important thrust to the development of the crop production, irrigation works have been undertaken throughout the country in accordance with the planned strategic measures for irrigation development as:-

- the construction of new reservoirs and dams;
- the proper management for the storage and utilization of run-off water from the watershed areas;
- the renovation of existing reservoirs, for raising storage capacity and efficient delivery of irrigation water;

- the diversion of water from streams and rivulets, during high water levels into adjacent depressions and for storage with sluice gates;
- the lifting of water from rivers and streams through pump irrigation; and
- the efficient utilization of ground water.

Prior 1988-89, around 1 million hectares of the cultivated area was under irrigation. However, irrigation projects numbering 114, and completed between 1988-89 to 2000-2001 (October), further brought an additional area of 0.64 million hectares under irrigation, so that the total irrigated area at present, stands a 1.7 million hectares, covering 18% of the total sown area.

Parallely 253 small, medium and large scale pump irrigation projects comprising 69 electric-pump and 184 diesel-pump irrigation works with water resources from major rivers, were undertaken and together with the development of ground water resources, has contributed to the rural water needs of about 14.9 million from among the total populace of 32.5 million within the project areas.

Insufficient capital investment in foreign exchange and machineries, however, remain major hindrances for further expansion of irrigation development. Apart from this, more trained personnel in advanced technology, particularly in relation to irrigation water distribution, drainage and water management, need to be strengthened in the support of agricultural development. At present capital outlay for irrigation projects are bore by the Government in totality.

In these aspects there will be a need to explore the possible participation of the beneficiary groups in terms of cost sharing and water distribution, water supply and maintenance of the irrigation projects through the formation of water user groups. Similarly, present revenue systems and rates for irrigated land should also be reviewed and reconsidered, to be in line with the changing economic systems.

### (c) Agricultural Mechanization Development

Increased cropping intensity has in turn, led to an increasing reliance of machineries in agriculture, from land preparation to harvesting and drying. The farm machinery factories under the Ministry of Agriculture and Irrigation, Ministry of Industry and many small-scale private factories, established since the early 90s, continue producing and are striving to meet the expanding demands of farm machinery. Agricultural machineries in use are shown in Table-16.

**Table-16 Utilization of Machineries**

<u>Machinery</u>	<u>Nos.</u>
Tractor	8692
Power tiller	36784
Thresher	7297
Threshing machine	3268
Dryer	900
Inter-cultivator	15765
Seeder	2655
Paddy Reaper	2728
Water pump	58242

As a major government's familiarization initiative, 23 model-mechanized villages have been established in various states and divisions to with a view to acquaint farmers with the benefits of farm mechanization.

Presently land preparation and threshing of paddy constitute major usages in farm mechanization, but machineries for transplanting and harvesting are being gradually introduced. Increasing private sector participation needs to be further encouraged through appropriate incentive schemes, while foreign investment in this very important area is a necessity to enhance the technology.

#### (d) Agricultural Inputs Development

Input supplies such as fertilizers, agro-chemicals and diesel oil for farm machineries are being procured domestically or imported to fulfill the needs of the farmers. In 1999-2000, the total utility of fertilizers amounted to 0.627 million metric tons, comprising 0.517 million metric tons of urea, 67 thousand metric tons of TSP, 8.85 thousand metric tons of MOP and 35.79 metric tons of compound and other fertilizers. Fertilizer imports by the private sector has been on the increase annually, and accounted for 60% of total import volume in 1999-2000 and indications are that private sector supply and distribution is bound to increase in future.

On one hand, there is a need to support and encourage active private sector participation in this large potential business, while on the other hand to ensure that such inputs are easily accessible and affordable by farmers.

At the same time, the government's initiatives in promoting the use of EM, green manure, rizobium, by products of sugar mills, and organic waste from cities should be commercialized.

Availability of "improved varieties " also constitute an important input in Agriculture. Towards this end, a Seed Development Project, under World Bank financing, was implemented during 1978-79 to 1994-95. The project has and continues to avail farmers with improved varieties of paddy, groundnut, long staple cotton, green gram, butter bean, mung bean, chick pea and pigeon pea. Private sector interest still remains minimal and with the exception of engaging in some corn varieties and vegetables, participation has been negligible and needs further promotion. At the same time there is an urgent need to enact appropriate legislation to encourage and enable private participation and investment in the vital field.

For further development of the seed industry, following points merit consideration:-

- (1) Strengthening of the advisory of National Seed Committee and its technical sub-committee
- (2) Establishing more seed farms under private sector investment
- (3) Technical Trainings, seminar and workshop for seed development
- (4) Coordination with International Seed Associations, and
- (5) Enacting a Seed Law

### (e) Rural Employment

Currently more than 70% of Myanmar's total population and 51% of the total labour force reside in rural areas while depending on the agriculture, fisheries, livestock and forestry sectors for their livelihood. However, existing land and potential for further development remain compatible to the population, so that land man ratio in Myanmar can still be considered favourable.

Development trends in industry and construction have not outpaced agriculture, so that urban migration has not posed problems as yet. Nevertheless, there is some seasonal migration of rural labour in relation to agriculture and construction and movement of labour from Central to the North East of Shan States, during the harvesting of tea is a case in front.

There is no denying that there is a need to address the problems of an increasing rural labour force and of the landless farmers and shrinking land holdings. Myanmar has the land and water resources, for expansion, irrigation and intensification. However, it will be necessary to implement a comprehensive master-plan-study and prepare medium and long term development programmes that will strengthen existing agriculture infrastructure, provide towards meaningful further expansions, and bring prosperity to an exploding rural labour force.

### (f) Agricultural Credit and Finance Development

The Myanmar Agricultural Development Bank (MADB) annually grants various types of seasonal loans to farmers based on the type of crops but which only partly covers the cultivation cost due to the increasing prices in agricultural inputs. New credit schemes which emphasize more on small farmers and with medium and long-term nature rather than only on seasonal nature should be considered. Small farmers are in need of credit that covers not only the cost of inputs such as seeds, fertilizer and hired labour for cropping but also for land development, machineries and implements. Appropriate credit policies need to be prepared and submitted to the government for its consideration based on wider surveys and studies on present credit schemes of MADB. It should also cover the needed credit facilities for agricultural commodity traders, millers and related agro-businesses.

### (g) Agricultural Research and Extension Development

Development of agricultural research; improvement of the agricultural technology and technical skill of extension personnel; and dissemination of the technical know-how to farmers remain essential for sustainable development of agriculture.

The Central Agricultural Research Institute (CARI) located at Yezin is the core research institute which constitutes ten disciplinary divisions and seven crop divisions. The research work at the institute is fully oriented to increase crop production. Scientists in crop divisions are assisted by specialists from different disciplines so that agricultural research as a whole is integrated in multidisciplinary approach. Collaborative research activities for agricultural development are being carried out between CARI and various research institutions such as IRRI, ICRISAT (International Crop Research Institute for Semi-Arid Tropics), CYMMIT, CGPRT and among others. Varietal improvement of rice, cropping systems research and research on small-scale farm machineries and implements are important research activities, being undertaken in collaboration with IRRI.

Technology dissemination from research to field level is channeled through agricultural extension agents under MAS, MCSE, MSE, MJI, MPCE for their respective crops. Extension methods in practice are: (a) launching demonstration programmes in selected areas for selected crops; (b) establishing efficient contacts between farmers and extension agents; (c) training and visit programmes based on production camps established at village levels.

In these aspects, Myanmar needs to strengthen its level of efficiency in post harvest technology and biotechnology so as to remain competitive with other developing countries, in productivity and quality of agricultural commodities.

#### (h) Agricultural Marketing and Trade Development

It will be necessary to streamline and strengthen Myanmar's internal as well as external trade as it attempts to expand into world markets, in its shift towards a market economy. To remain vibrant, up to date information on crop prices, consumers choices, world demand, import/export prices, transport facilities, etc. need to be available. Currently, access to information is not as yet easily available, while farmers in remote areas lack the means and as competition intensifies, it will be essential for such information to be easily available.

Currently, well-developed crop exchange centres are situated in urban areas like Yangon and Mandalay while other townships are playing as the transit points of commodities. Current market information including price, demand and supply is exchanged by telephone among traders, primary collector and wholesalers which means that market information is only shared within the small group. Updated market information are not assessable to farmers who are out of the trader's community.

By disseminating market information, it can support farmers to

- decide whether harvested crop should be sold immediately or not;
- know what market should be chosen, what standards are demanded, and when is the best for selling;
- change their cropping pattern;
- make decision about several options in selling stages (i.e., farm gate, nearest town, or wholesaler); and
- study the price trend for a certain period.

MOAI started a project, named, "Market Information Service Project", in 1999 with a view to provide the necessary market information within the country. The project has made market surveys in 8 States and Divisions to study the daily price collection of agricultural produce and trend of commodity flow from one place to another. At present, market information is being disseminated through the weekly Agri-business News published by MAOI. Monthly market analysis is distributed through Monthly Bulletins to government agencies concerned and traders' Association in Yangon and Mandalay. Efforts are now being made to disseminate it via television and daily newspapers in the near future.

#### (i) Agro-based Industry Development

The share of food product industries contribute to more than half of the total small and medium enterprises of the industry sector of Myanmar. The industries are scattered all over the country but the majority are situated in big cities with higher concentration around

Yangon and Mandalay. The present situation of private sector food industries are listed in Table-17.

**Table-17 Type and Number of Food Industries**

Sr. No	Product type	No. of Food business
1	Rice milling	12397
2	Oil milling	3434
3	Powder processing	1723
4	Confectionary	496
5	Pulses & beans processing	492
6	ice factory	474
7	sugar	819
8	Popsicle factory	441
9	Monghingar factory	437
11	wheat	328
12	Processed food(others)	287
13	Noodle factory	259
14	Tapioca	187
15	Alcoholic products	125
16	Tea(dried)	114
17	Vermicelli	114
18	Salt	109
19	Soft drinks	107
20	Refrigeration	42
21	Toffee	42
22	Purified water	41
23	Meat products	29
24	Condensed milk	27
25	candy	27
26	Sauces	19
27	Cheroot	16
28	Tea(fresh)	11
29	Cigarettes	9
30	Pulses and beans processing	8
32	ginger	6
33	agri-product cleaning	5
34	canned food	4
35	dried shrimp	3
36	wine	1
37	marine products	1
38	sausage	1

Undeniably, agro-based industries have developed encouragingly, but still remain weak in technology, marketing, capital and government support policies, and so far most commodities have room for domestic markets only. Most products are below international standards for the competition in global market and is a hindrance for the development of viable agro-based industries in future. The development of viable agro-industries remain essential in providing employment and raising the living standards of the rural populace. There is strong potential for it in Myanmar, and the Government has been encouraging further participation from both local as well external sources. Agro-products from within the Asian region has had favourable response in international super-markets globally. Their

basis form the same raw materials plentifully available in Myanmar. The field remains lucrative and should be explored further.

## **B. Livestock and Fisheries**

### **(a) Quality of feed**

The availability of sufficient qualities of good and safe feed is one of the most important factors for successful livestock production. The needed raw material is available sufficiently within the country but the lack of adequate processing facilities such as feed mills, fish meal plants etc. has rendered proper animal feed production difficult. Feed additives are imported and production of quality feed in pellet form is nearly non-assistance.

### **(b) Disease control**

For prevention and control of infectious diseases, the National Vaccine Production Laboratory, under the Livestock Breeding and Veterinary Department produces (11) kinds of vaccines. Vaccines produced are not sufficient to cover the whole animal population. Foot and mouth disease, haemorrhage septicemia, black leg and anthrax are the four major diseases occurring in cattle and buffalo. FMD is the only infectious disease of high incidence, which has never been brought under proper control in Myanmar. However, with some assistance from international organizations such as OIE and FAO, the government has assigned over 1200 veterinarians to contain disease outbreaks. Privately operated G.Ps also participate in disease eradication programmes.

### **(c) Utilization of land**

Priority is given to agriculture farmers, and if it is not suitable for agriculture, livestock farmers and fish farmers are prevailed to use the land. When granting a request for the use of land, a non-degradation of the land guaranteed, by the user is usually sought by the authority.

### **(d) Resources of seed stock**

Facilities for multispecies seed production and sustainable aquaculture production using new technology has been introduced or expanded. Seed and fry producing farms for prawns and fish are established in areas with good potential for aquaculture, and existing spawning and nursery areas such as estauries and mangroves are protected.

At present no accurate information (breed wise) exists in Myanmar. Hence it has not been possible to record the production of each breed systematically. Hence, the usefulness of breeds have not been fully understood.

Urgent measure should be taken for conservation of some domestic breeds of poultry like Inbyinwa chicken in Meiktila township, which is capable of growing up to 2.5 to 3.0 viss of live weight, under scavenging condition. Genetic breeds of cattle like Shweni in Magwe division and Pyar Zein in Mandalay and Sagaing division have been developed into distinctive breeds prevalent in its own breeding traits.



### (e) Limitation in financing

As financing is a major constraint to livestock and fishery development, the Myanmar Livestock and Fisheries Development Bank and its branches were established at strategically important areas and are making available short term and long term loans to livestock and fisheries entrepreneurs. Financing by a single bank is limited and external assistance investment is warmly welcomed by the livestock and fishery industries.

Due to the above mentioned weakness in the livestock and fisheries sector, the following points merit consideration for the further development of the sector.

- **Establishment of Livestock Research Centre/ Institute**

The main objective to establish this centre is :

- to strengthen and improve the genetic performance of livestock, small ruminants and poultry.
- to upgrade and increase the animal population for domestic consumption and for possible export.
- to study the health, status and performance of local breeds
- to establish disease free zones where appropriate
- to train personnel.

- **Establishment of Fisheries Research Centre/ Institute**

Myanmar has identified over 460 species of marine fish and some 100 or so of freshwater fish. For the sustainable exploitation and maximum utilization of the resources there is a need for proper investigation, identification, monitoring, evaluation and good management. Therefore, a research unit is a necessity.

Marine fisheries, coastal fisheries, inland fisheries and aquaculture development, on an environmentally friendly basis, leads to sustainable development. Under present conditions, the Ministry has to be cautious in determining the maximum sustainable yield and the total allowable catch for lack of proper research.

The government needs assistance to determine the above factors and, the degradation of the environment and natural resources. Therefore, establishment of a Research Institute is urgently needed.

The Institute should cover research programs both for freshwater and marine fisheries, including aquatic plants.

- **Establishment of model farms**

To improve the performance of the livestock sector model livestock farming villages have been established with the provision of technical assistance, extension services. Extensive efforts have been made to improve the quality of livestock through artificial insemination, detection of oestrus by RIA technique vaccination programme and distribution of livestock breeds from the State's breeding farms.

- **Improvement of technical know-how**

Livestock farmers education is well covered in the portion of technology transfer through the extension agents. Improvement in technical skill of extension staff and exchange of technical information is an important issue. In- country trainings are being conducted in research and training centres to upgrade the capability of technical skill of the staff. In- country courses, seminars, and workshops are also held in training centres collaborating with international organization. Oversea training, workshops and seminars are arranged for development of technical skill and capability of staff with the assistance of various organizations.

- **Upgrading of Quality Control Laboratories equipment, processing equipment, etc.**

The livestock and fisheries sector, similarly is of vital importance to the economy of Myanmar. Its contribution to the nation's protein requirements remain highly substantial and of late, export earnings from fish and prawns have been on the ascent.

Equipment/instruments used for inspection are in adequate and quite substantial. Exporters, processors, producers in livestock and fisheries are mostly from the private sector, and there is a need to upgrade their food preparation skills, upgrade their existing equipment, and instruments used in the Quality Control laboratories and processing plants.

## V. CONCLUSION

The current situation and performance of the agriculture, and fisheries and livestock sectors have been reviewed in the paper; indicating the constraints, hindrances, financial and human resources restraints and potential for further development and the essential needs necessary for overall national uplift. It is a summarized version intended to serve as a basis for dialogue and cooperative interaction between Myanmar and Japan.

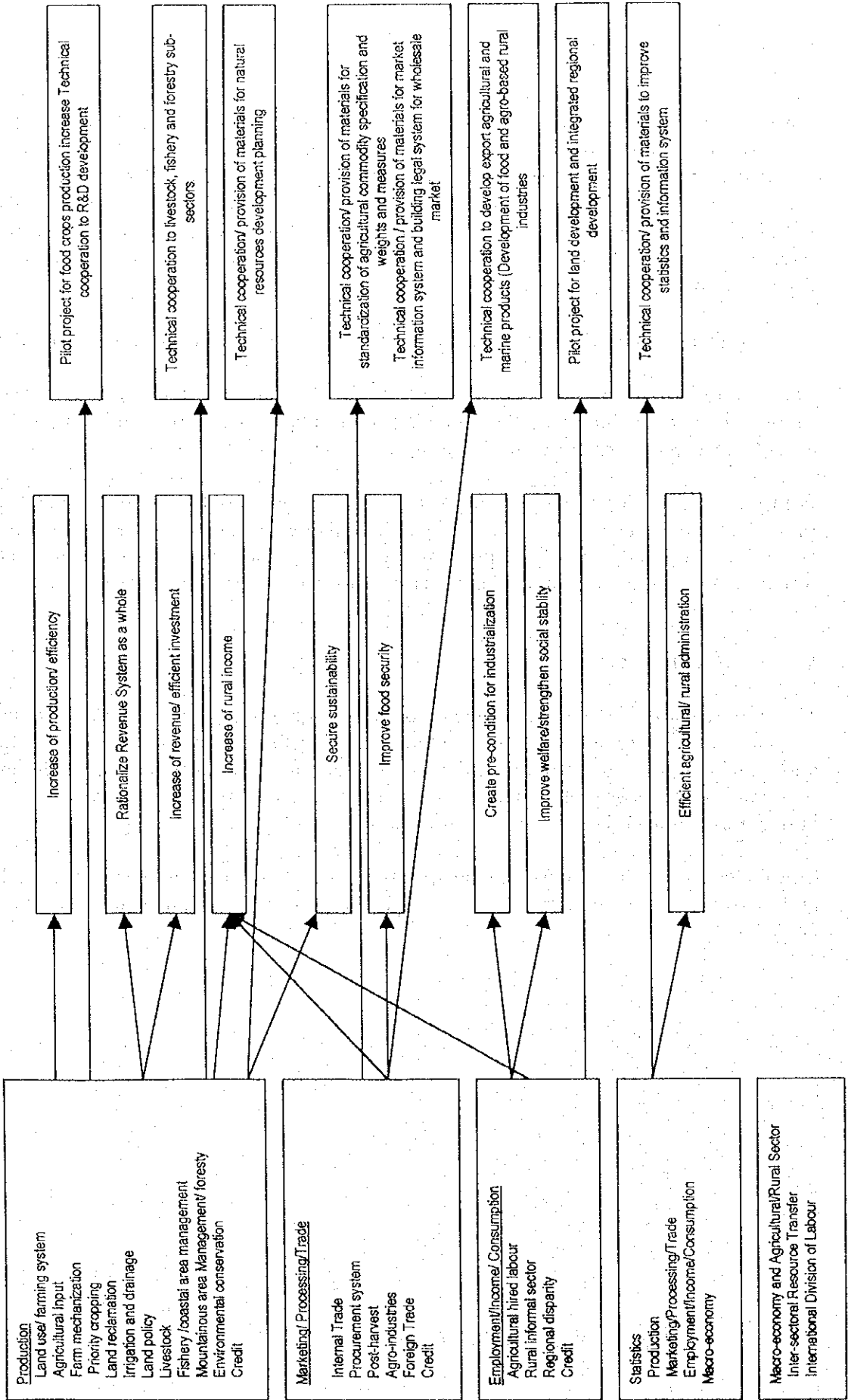
Consequent to reaching consensus on specific issues, it is hoped more detailed work plans and schedules could be formulated through the joint cooperation of the respective Task Force Groups.

# Activity Plans and Perspectives of the Agriculture and Rural Development Working Group

## Expected Action Plans

## Expected effects

## Activities and Policy Advice



## Activity Plans and Perspectives of Agriculture and Rural Development by Myanmar Task Force Group

Topic	Sub-topic(1)	sub-topic(2)	policy recommendation	expected effects	Expected Action Plan
Production	Land use farming system Agricultural Inputs	Present situation Marketing of fertilizers/chemicals Production of fertilizers/chemicals	Policy advice for improvement Advice for crop diversification	Increase of production/ efficiency	2KR Pilot project for food crops production increase for regional food self-sufficiency
			Policy advice to MAS Policy advice on import substitution Policy advice		
	Farm Mechanization	Seed development and dissemination Present situation, especially power tillers Use of draft animals	Policy advice	Increase of production/ efficiency Increase of production/ efficiency Efficient investment	Land Development Planning
			Policy advice for reform Policy advice Policy advice		
	Priority cropping Land reclamation	Present situation/ effects/ background Development policy (including dam construction)	Rationalize revenue Rationalize revenue	Increase of revenue/ O&M improvement Increase of revenue/ Rationalize revenue system as a whole Increase of production/efficiency Increase of rural income	
			Policy advice for improvement/health Advice for development Advice for development		
	Irrigation/drainage	Water revenue Land Revenue	Advice for development/ protection	Increase of rural income/ Secure sustainability	
			Advice for development/ protection		
	Land policy Livestock In land & marine fishery/ Coastal Area Management	Present situation Present situation of fisheries	Advice for development/ protection	Increase of rural income/ Secure sustainability	
			Advice for development/ protection		
Mountainous Area Management/ forestry	Present situation of coastal area use	Advice for development/ protection	Increase of rural income/ Secure sustainability		
		Advice for development/ protection			
Environmental Conservation	Present situation of forestry Present situation of non-timber forestry products	Advice for development/ protection	Increase of rural income/ Secure sustainability		
		Advice for development/ protection			
Credit	Present situation of soil improvement/ conservation Present situation of conservation of water quality Present situation and needs	Advice for protection	Secure sustainability		
		Policy advice (including establishment of new credit scheme)			
Statistics	Present situation and needs Standardization of weights and measures Present situation of specification domestic marketing	Policy advice	Increase of production/ efficiency		
		Policy advice			
Marketing/ Processing/ Trade	Market information system Infrastructure (road, railway, inland water, port etc) Present situation / effects / background	Policy advice Advice for development	Efficient agricultural/ rural administration		
		Policy advice for reform			

		<p>Post - Harvest Agro - Industries</p> <p>Foreign Trade Credit Statistics</p> <p>Agricultural - Hired Labor</p> <p>Rural Informal Sector</p> <p>Regional Disparity</p> <p>Credit Statistics</p> <p>Inter-Sectoral Resource Transfer</p> <p>International Division of Labor Statistics</p>	<p>Management of public / private rice mills</p> <p>Buffer stock of food</p> <p>Present situation and problems</p> <p>Impact of deregulation of rice export</p> <p>Export policy for agricultural products</p> <p>Import policy for agricultural products</p> <p>Present situation and needs</p> <p>Economy of Landless households</p> <p>Necessity / Suitability of mechanization</p> <p>Present situation and problems</p> <p>Present situation of rural poverty</p> <p>Present situation and needs</p> <p>Present situation and needs</p> <p>Present situation of inter-sectoral resources transfer</p> <p>Fiscal policy for agriculture and rural sector</p> <p>Identify comparative advantage</p> <p>Present situation and problems</p>	<p>Policy advice</p> <p>Policy advice</p> <p>Advice for development</p> <p>Policy advice</p> <p>Policy advice for improvement</p> <p>Policy advice</p> <p>Policy advice</p> <p>Policy advice</p> <p>Policy advice</p> <p>Advice for development</p> <p>Advice to trade and price policy</p> <p>Policy advice</p> <p>Policy advice</p> <p>Policy advice</p> <p>Policy advice</p> <p>Policy advice</p>	<p>Reduce loss / Remove disincentive</p> <p>Improve national food security</p> <p>Increase of rural income</p> <p>Increase of production / efficiency</p> <p>Increase of production / efficiency</p> <p>Efficient agricultural / rural administration</p> <p>Improve welfare / Strengthen social stability</p> <p>Create pre - condition for industrialization</p> <p>Increase rural income</p> <p>Welfare improvement / Social stability</p> <p>Increase of production / efficiency</p> <p>Efficient agricultural / rural administration</p> <p>Implication to trade policy</p> <p>Implication to trade policy</p> <p>Efficient agricultural / rural administration</p>	<p>Rehabilitation of rice mills</p> <p>Technical cooperation for export agricultural &amp; marine products</p> <p>Technical cooperation for small-scale food &amp; agro-based rural industries development</p> <p>Technical co-operation / Provision of materials</p> <p>Pilot project for regional development</p> <p>Technical cooperation / Provision of materials</p> <p>Technical cooperation / Provision of materials</p>
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## Activity Plans and Perspectives of Agriculture and Rural Development by Myanmar Task Force Group

		Expected Action Plan		
Topic	Sub-topic(1)	sub-topic(2)	policy recommendation	
			expected effects	
Production	Land use farming system Agricultural Inputs	Present situation Marketing of fertilizers/chemicals Production of fertilizers/chemicals	Policy advice for improvement Advice for crop diversification Policy advice to MAS Policy advice on import substitution Policy advice	Increase of production/ efficiency
		Seed development and dissemination Present situation, especially power tillers Use of draft animals Present situation/ effects/ background	Policy advice Policy advice for reform Policy advice Policy advice	Increase of production/ efficiency Increase of production/ efficiency Efficient investment
	Farm Mechanization	Development policy (including dam construction) Water revenue Land Revenue	Rationalize revenue Rationalize revenue	Increase of revenue/ O&M improvement Increase of revenue/ Rationalize revenue system as a whole Increase of production/efficiency Increase of rural income
	Priority cropping Land reclamation	Land policy Present situation Present situation of fisheries	Policy advice for improvement Advice for development/health Advice for development	Increase of rural income/ Secure sustainability
	Irrigation/drainage	Present situation of coastal area use	Advice for development/ protection	Increase of rural income/ Secure sustainability
	Land policy Livestock In land & marine fishery/ Coastal Area Management	Present situation of forestry Present situation of non-timber forestry products	Advice for development Advice for development/ protection	Increase of rural income/ Secure sustainability
	Mountainous Area Management/ forestry	Present situation of soil improvement/ conservation Present situation of conservation of water quality Present situation and needs	Advice for protection Policy advice (including establishment of new credit scheme)	Secure sustainability Increase of production/ efficiency
	Environmental Conservation	Present situation and needs Standardization of weights and measures Present situation of specification domestic marketing	Policy advice Policy advice	Efficient agricultural/ rural administration
	Credit	Market information system Infrastructure (road, railway, inland water, port etc.) Present situation / effects / background	Policy advice Advice for development Policy advice for reform	Efficient marketing Efficient marketing / Remove disincentive
	Marketing/ Processing/ Trade	Statistics		
Internal Trade Procurement System				Technical cooperation/ Provision of materials Technical co-operation / Provision of materials Technical co-operation for building market information system and legal system for wholesale market Technical cooperation / Provision of materials Development of on-farm Post-harvest technology

					Rehabilitation of rice mills	
	Post - Harvest Agro - Industries	Management of public / private rice mills Buffer stock of food Present situation and problems	Policy advice Policy advice Advice for development	Reduce loss / Remove disincentive Improve national food security Increase of rural income	Technical cooperation for export agricultural & marine products Technical cooperation for small-scale food & agro-based rural industries development	
	Foreign Trade Credit Statistics	Impact of deregulation of rice export Export policy for agricultural products Import policy for agricultural products Present situation and needs Present situation and needs	Policy advice Policy advice for improvement Policy advice	Increase of production / efficiency Increase of production / efficiency Efficient agricultural / rural administration	Technical co-operation / Provision of materials	
Employment / Income / Consumption	Agricultural Hired Labor Rural Informal Sector Regional Disparity Credit Statistics	Economy of Landless households Necessity / Suitability of mechanization Present situation and problems Present situation of rural poverty Present situation and needs Present situation and needs	Policy advice Policy advice Advice for development Advice to trade and price policy Policy advice	Improve welfare / Strengthen social stability Create pre - condition for industrialization Increase rural income Welfare improvement / Social stability Increase of production / efficiency Efficient agricultural / rural administration	Pilot project for regional development Technical cooperation / Provision of materials	
Macro-Economy and Agricultural / Rural Sector	Inter-Sectoral Resource Transfer International Division of Labor Statistics	Present situation of inter-sectoral resources transfer Fiscal policy for agriculture and rural sector Identify comparative advantage Present situation and problems	Policy advice Policy advice Policy advice	Implication to trade policy Implication to trade policy Efficient agricultural / rural administration	Technical cooperation / Provision of materials	

# Activity Plans and Perspectives of the Agriculture and Rural Development Working Group

## Expected Action Plans

## Expected effects

## Activities and Policy Advice

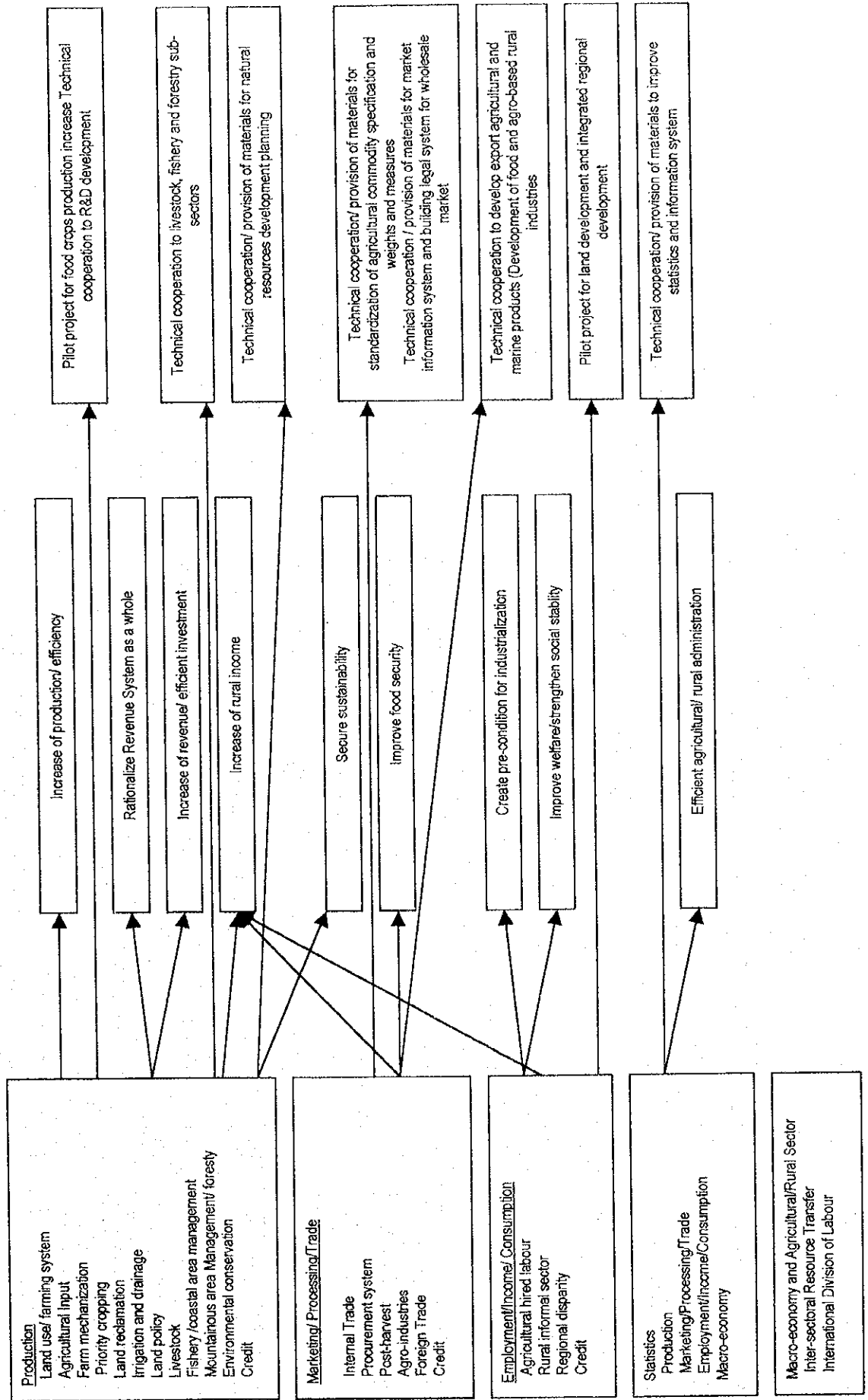








Figure 1: Activity Plans and Perspectives of the Agriculture and Rural Development Working Group

