

Chapter 8

Agricultural Development

8

AGRICULTURAL DEVELOPMENT

I. INTRODUCTION

8.01 Development of the agriculture sector during the Sixth Malaysia Plan period continued to be guided by the National Agricultural Policy. The sector grew slightly lower than the revised target set out in the Mid-Term Review of the Sixth Malaysia Plan. During the period, the sector faced several constraints, particularly shortage of labour and suitable land as well as low price levels for some commodities and relatively low level of capital investment. All these constraints hindered the development of the sector although efforts in implementing various programmes were intensified and adequate resources provided.

8.02 In view of the rapid economic transformation towards an industrialized nation and the structural weaknesses that exist within the agriculture sector, more strategic approaches will be adopted to sustain agricultural growth during the Seventh Malaysia Plan period and beyond. The focus of development will be in areas which have the competitive edge and offer higher economic returns. In this regard, the cultivation of high-value crops as well as the expansion of aquaculture activities will be given greater emphasis, as these have considerable potential for further growth. Concerted efforts will be taken to increase the participation of the private sector in agricultural development, with the public sector providing the necessary support, largely through technical and advisory services. The strategies and programmes outlined in the National Agricultural Policy, including the land use policy, will be reviewed. In order to increase the competitiveness and sustainability of the agriculture sector, the Government will, among others, examine the possibility of withdrawing subsidies, particularly in areas where production costs are on the increase. Research and Development (R&D) efforts in downstream activities will be intensified to develop more end-products, thereby increasing the utilization of agricultural commodities.

II. PROGRESS, 1991-95

8.03 Agricultural development during the Sixth Plan period was guided by the National Agricultural Policy which aims at maximizing income, enhancing linkages between agriculture and the other sectors, achieving balanced development and promoting a dynamic food-based industry. The policy also aims at enhancing the participation of Bumiputera in modern and commercial agriculture as well as in agribusiness.

Growth Performance

8.04 During the Sixth Plan period, the agriculture sector grew at 2.0 per cent per annum, lower than the revised target of 2.1 per cent, as shown in *Table 8-1*. This was mainly due to constraints such as labour shortage, depletion of agricultural resources, lack of suitable land and low prices of certain commodities, particularly cocoa and pepper, that continued to hamper the sector.

8.05 The sector's share to Gross Domestic Product (GDP) declined from 18.7 per cent in 1990 to 13.6 per cent in 1995, as shown in *Chart 8-1*. This trend was similar to that experienced by most developed countries which underwent similar economic transformation. Nevertheless, in absolute terms, the total value added of the sector continued to increase significantly from RM14,827 million in 1990 to RM16,406 million in 1995. At the same time, the sector's contribution to total export earnings and employment declined from 22.2 per cent and 26 per cent to 13.1 per cent and 18 per cent, respectively.

8.06 The share of agricultural industrial commodities to total agricultural value-added, declined from 73.5 per cent in 1990 to 68.5 per cent in 1995. On the other hand, the better performance of food commodities, mainly fisheries and livestock, resulted in an increase in their contribution to total agricultural value-added from 18.4 per cent to 21.4 per cent during the same period.

8.07 The palm oil subsector remained the major contributor to the sector's growth, accounting for 41.5 per cent of the overall agricultural value added in 1995. Although the shares of the livestock and fisheries subsectors to total agricultural value-added were only 5.1 per cent and 12.2 per cent, respectively, these subsectors contributed substantially to the overall growth of the sector. On the contrary, rubber, cocoa and sawlogs experienced negative growth during this period.

TABLE 8-1

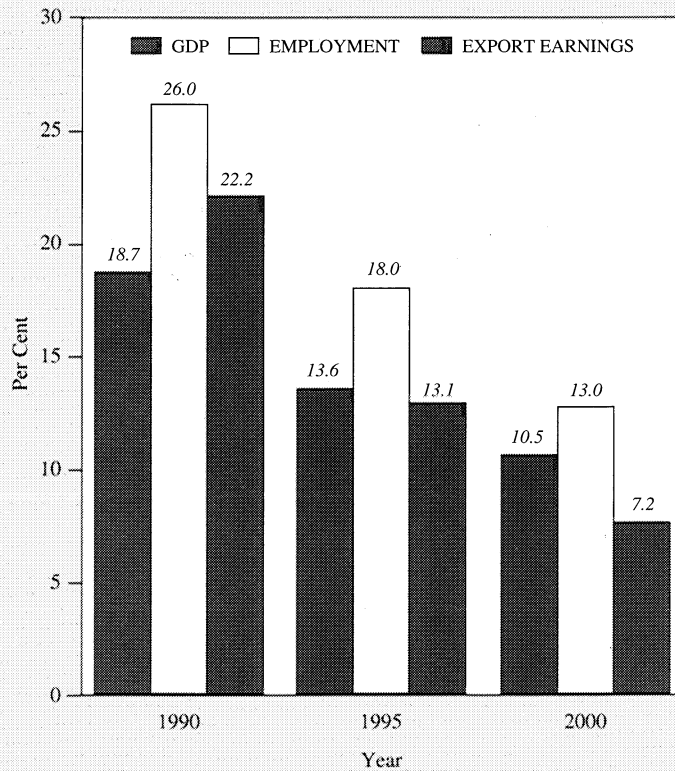
AGRICULTURAL VALUE-ADDED, 1990-2000
(RM million in 1978 prices)

Item	1990	%	1995	%	2000	%	Average Annual Growth Rate (%)		
							6MP		7MP
							Target	Achieved	Target
Agricultural Industrial Commodities	10,900	73.5	11,241	68.5	11,958	64.8			
Rubber	2,043	13.8	1,745	10.6	1,601	8.7	-1.0	-3.1	-1.7
Palm Oil	5,312	35.8	6,801	41.5	7,948	43.1	4.0	5.1	3.2
Sawlogs	2,315	15.6	1,876	11.4	1,569	8.5	-3.6	-4.1	-3.5
Cocoa	1,230	8.3	819	5.0	840	4.5	-1.4	-7.8	0.5
Food Commodities	2,738	18.4	3,502	21.4	4,004	21.7			
Padi	600	4.0	666	4.1	599	3.2	-1.4	2.1	-2.1
Livestock	604	4.1	838	5.1	1,011	5.5	10.5	6.8	3.8
Fisheries	1,534	10.3	1,998	12.2	2,394	13.0	5.2	5.4	3.7
Miscellaneous	1,189	8.1	1,663	10.1	2,498	13.5			
Total	14,827	100.0	16,406	100.0	18,460	100.0	2.1¹	2.0	2.4

Note: ¹ Original 6MP target was 3.5 per cent per annum.

CHART 8-1

AGRICULTURAL CONTRIBUTION TO GDP, EMPLOYMENT AND EXPORT EARNINGS, 1990-2000



Private Investment

8.08 Private investment was further encouraged during the Plan period to enhance agricultural growth, particularly in the production of food commodities and agricultural produce such as flowers, fruits, vegetables as well as aquaculture and livestock products. The level of private investment increased by 44 per cent from RM6.6 billion in the Fifth Plan period to RM9.5 billion during the Sixth Plan period. However, its share to total investment declined from 8.4 per cent to 4.6 per cent, reflecting a greater increase of private investment in other sectors of the economy. In addition, several of the large plantation companies in the country diversified into non-agricultural activities as well as ventured into agricultural reverse investment in countries such as Cambodia, Indonesia, Papua New Guinea and Vietnam, which are endowed with abundant natural resources and labour.

Employment

8.09 Employment in the agriculture sector declined by 3.8 per cent per annum from 1.7 million in 1990 to 1.4 million in 1995, as shown in *Table 8-2*, while labour productivity increased by 6.1 per cent per annum from RM8,531 in 1990 to RM11,483 per worker in 1995. The increase was mainly attributed to the high labour productivity in the palm oil and fisheries subsectors, which were RM18,920 and RM26,110 per worker, respectively, in 1995. The land-labour ratio increased from 3.4:1 in 1990 to 4.2:1 in 1995, mainly due to farm mechanization and the implementation of land consolidation programmes and group farming. High labour mobility to non-agricultural activities, which offered better wages and working environment, and the reluctance of younger members of the labour force to work in agriculture, resulted in the shortage of labour in the sector. In view of this, foreign labour continued to be employed to address this shortage. In 1995, about 432,000 immigrant workers were employed in the sector, accounting for 41 per cent of total immigrant labour in the country. However, the plantation sector was still short of about 45,000 workers, particularly tappers, harvesters and weeders.

	1990	1995	2000	Average Annual Growth Rate (%)	
				6MP	7MP
Employment in Agriculture ('000)	1,738.0	1,428.7	1,187.7	-3.8	-3.6
Percentage of Agricultural Employment to Total Employment	26	18	13		
Productivity (RM per worker, 1978 prices)	8,531	11,483	15,543	6.1	6.2

Agricultural Production

8.10 During the Sixth Plan period, the thrust of agricultural production programmes was to improve the competitiveness of agricultural industrial commodities, expand the production of food commodities and promote the cultivation of agricultural produce such as flowers, fruits and vegetables as well as aquaculture and livestock products. These programmes resulted in the mixed performance of agricultural commodities, as shown in *Table 8-3*.

Item	1990	1995	2000	Average Annual Growth Rate (%)		
				6MP		7MP
				Target	Achieved	Target
Agricultural Industrial Commodities						
Rubber	1,291.0	1,106.1	1,014.0	-0.1	-3.0	-1.7
Crude Palm Oil	6,094.6	7,813.6	9,134.0	4.0	5.1	3.2
Palm Kernel	1,844.7	2,395.6	2,800.0	3.4	5.4	3.2
Sawlogs ¹	40,099.0	32,200.0	26,922.0	-4.4	-4.3	-3.5
Cocoa	247.0	151.9	156.0	-3.2	-9.3	0.5
Pepper	31.0	16.5	15.6	-3.5	-11.8	-1.1
Pineapple	168.3	178.0	191.0	6.4	1.1	1.4
Tobacco	10.2	10.3	13.0	3.2	0.3	5.6
Flowers ²	56,474.8	112,869.3	238,903.0	14.9	14.9	16.2
Food Commodities						
Padi	2,016.3	2,159.2	1,940.0	0.8	1.4	-2.1
Fruits	1,530.8	2,190.5	3,300.0	7.2	7.4	8.5
Vegetables	693.9	793.8	1,050.0	2.7	2.7	5.8
Coconut ³	1,257.0	1,136.0	1,027.0	-2.0	-2.0	-2.0
Fisheries						
Marine	951.3	1,181.2	1,254.0	1.0	4.4	1.2
Aquaculture	52.3	125.0	312.0	12.8	19.0	20.1
Livestock						
Beef	12.8	15.6	18.7	1.3	4.1	3.6
Mutton	0.8	1.1	1.3	6.8	6.5	4.2
Poultry	385.9	647.0	840.0	24.1	10.9	5.4
Pork	227.9	305.0	320.0	4.5	6.0	1.0
Eggs ³	5,505.0	7,750.0	9,150.0	5.9	7.1	3.4
Milk ⁴	28.9	33.8	37.5	3.2	3.2	2.1

Notes:

- ¹ Measured in thousand cubic metres.
- ² Measured in thousand stalks.
- ³ Measured in million units.
- ⁴ Measured in million litres.

Agricultural Industrial Commodities

8.11 *Palm oil* continued to lead the development of agricultural industrial commodities. Crude palm oil and palm kernel production increased at 5.1 per cent and 5.4 per cent per annum, surpassing the targeted rate of 4.0 per cent and 3.4 per cent per annum, respectively. This was largely due to the increase in yield as well as favourable prices in the international market. The yield of crude palm oil increased from 3.5 tonnes per hectare in 1990 to 3.9 tonnes per hectare in 1995, while the average price increased from RM796 to RM1,472 per tonne. In addition, the increase in production was also attributed to the expansion of planted hectarage by 4.1 per cent per annum, as shown in *Table 8-4*. The increase in hectarage was the result of new land development and conversion of rubber and cocoa plantations into oil palm cultivation.

TABLE 8-4
AGRICULTURAL LAND USE, 1990-2000
(hectares)

Item	1990	1995	2000	Average Annual Growth Rate (%)	
				6MP	7MP
Agricultural Industrial Commodities					
Rubber	1,823,100	1,696,000	1,400,000	-1.4	-3.8
Oil Palm	2,029,464	2,479,000	2,622,240	4.1	1.1
Cocoa	419,793	275,000	250,000	-8.1	-1.9
Pepper	11,467	8,600	8,137	-5.6	-1.1
Pineapple	9,302	11,835	14,742	4.9	4.5
Tobacco	10,168	10,539	10,045	0.7	-1.0
Food Commodities					
Padi ¹	662,617	666,321	400,000	0.1	-9.7
Coconut	314,136	283,954	219,688	-2.0	-5.0
Vegetables	31,447	36,325	42,110	2.9	3.0
Fruits	177,311	244,471	345,126	6.6	7.1
Others	57,475	57,144	56,292	-0.1	-0.3
Total	5,546,280	5,769,189	5,368,380	0.8	-1.4

Note: ¹ Based on harvested area.

8.12 Other agricultural industrial commodities, particularly rubber, cocoa and sawlogs, continued to show a declining trend in production. Despite the high prices of *rubber* towards the second half of the Plan period, rubber production declined by 3.0 per cent per annum, mainly due to untapped trees arising from the shortage of labour as well as declining hectarage. Similarly, the production of *cocoa* declined at 9.3 per cent per annum due to the prolonged low prices which in turn resulted in cocoa trees being left unattended and the planted hectarage reduced from 419,790 hectares in 1990 to 275,000 hectares in 1995.

8.13 During the Plan period, *forestry resources* continued to be developed and managed with emphasis on the conservation of biodiversity and protection of environment. In line with this, the National Forestry Policy was updated and forestry resources continued to be managed on a sustainable basis, where all states had to comply with an annual felling rate. As a result, the production of sawlogs declined by 4.3 per cent per annum. In 1995, the total national land area covered with forest was 59 per cent. However, if plantation tree crops were also taken into account, the total national land area under forest and tree cover was higher at 72 per cent. The introduction of heavier penalties under the National Forestry Act, 1984 (Amended 1993) acted as a deterrent and further reduced illegal logging activities. In addition, indicators and activities for sustainable forest management were formulated by the National Committee on Sustainable Forest Management, which was established in 1994. At the same time, forest conservation activities resulted in 2.1 million hectares of forest being silviculturally treated, while 117,000 hectares of degraded forest land were reafforested, mainly by State Governments. In addition, about 27,000 hectares of forest land were enriched with rattan planting.

8.14 The production of *cut-flowers* doubled from 56.5 million stalks in 1990 to 112.9 million stalks in 1995, reflecting a growth of 14.9 per cent per annum. This high growth was due to the growing of flowers on new areas in highlands, improvement in the quality of cut-flowers through the introduction of grades and standards, effective fumigation services as well as greater efforts in marketing and promotion.

Food Commodities

8.15 The expansion of food commodities contributed significantly to the development of the agriculture sector during the Plan period. The self-sufficiency level improved for several products, as shown in *Table 8-5*.

TABLE 8-5
SELF-SUFFICIENCY LEVEL OF FOOD COMMODITIES, 1990-95
 (%)

<i>Item</i>	<i>1990</i>	<i>1995</i>
Rice	80	75
Fruits	94	103
Vegetables	93	87
Fisheries Products	91	91
Beef	30	22
Mutton	10	6
Poultry	115	114
Pork	117	101
Eggs	109	114
Milk	4	4

8.16 The production of *marine fisheries* increased at 4.4 per cent per annum, attributed largely to the increase in the landings of deep-sea catches. The existing landing facilities for deep-sea fishing, however, were not sufficient to attract more deep-sea fishing vessels to land locally. In addition, the subsector continued to face the problem of depletion of in-shore resources. Aquaculture production expanded significantly at 19 per cent per annum due to greater participation of foreign and state enterprises. The export earnings of fisheries products increased from RM607 million in 1990 to RM848 million in 1995, reflecting an increase of 6.9 per cent per annum, as shown in *Table 8-6*.

8.17 The production of livestock products such as *beef, mutton, poultry, pork, eggs* and *milk* grew at various rates ranging from 3.2 per cent to 10.9 per cent per annum. Livestock products, particularly beef, pork and eggs, grew at rates higher than those targeted in the Sixth Plan period. The increase in the production of beef and mutton was due to increased participation by land development agencies in cattle and sheep rearing as well as effective veterinary and extension services. Another factor which boosted the production of livestock products was the gradual abolishment of import duty on animal feeds, commencing in 1991. The nation maintained self-sufficiency in poultry, pork and eggs due to the active participation of private companies. Singapore continued to be the major export market for poultry, pork and eggs.

TABLE 8-6
EXPORTS AND IMPORTS OF FOOD, 1990-95
 (RM million)

Item	1990	%	1995	%	Average Annual Growth Rate (%)
					6MP
Exports	3,991.5	100.0	4,484.5	100.0	2.4
Live Animal	385.0	9.7	545.9	12.2	7.2
Meat & Meat Preparations	44.4	1.1	64.5	1.4	7.6
Dairy Products	157.4	3.9	239.3	5.3	8.7
Fruits & Vegetables	379.2	9.5	532.3	11.9	7.0
Rice	0.1	0.0	0.9	0.0	51.2
Fish, Crustaceans, Molluscs & Preparations thereof	606.8	15.2	848.2	18.9	6.9
Feeding Stuffs for Animals	280.5	7.0	322.5	7.2	2.8
Others	2,138.1	53.6	1,930.9	43.1	-2.0
Imports	4,551.2	100.0	6,677.8	100.0	8.0
Live Animals	67.0	1.5	101.1	1.5	8.6
Meat & Meat Preparations	248.4	5.5	340.2	5.1	6.5
Dairy Products	538.7	11.8	727.6	10.9	6.2
Fruits & Vegetables	609.0	13.4	987.2	14.8	10.1
Rice	270.0	5.9	295.0	4.4	1.8
Fish, Crustaceans, Molluscs & Preparations thereof	361.7	7.9	762.0	11.4	16.0
Feeding Stuffs for Animals ¹	300.2	6.6	541.8	8.1	12.5
Others	2,156.2	47.4	2,922.9	43.8	6.3

Note: ¹ Excluding importation of whole grain maize and soya bean.

8.18 The production of *padi* experienced a marginal growth of 1.4 per cent per annum, despite the continuation of price support and fertilizer subsidy. The self-sufficiency level of rice declined from 80 per cent in 1990 to 75 per cent in 1995 due to a growing population.

8.19 Intensification of efforts in the production and marketing of *fruits* succeeded in increasing the output by 7.4 per cent per annum. The active participation of plantation companies and state enterprises also contributed to this growth. However, the production of *vegetables* recorded a moderate growth of 2.7 per cent per annum, mainly due to the slow expansion of the cultivated area and low utilization of new production techniques. Consequently, the production of vegetables was only able to meet 87 per cent of the domestic demand.

8.20 During the Plan period, the export value of food commodities remained stable at RM4 billion, as shown in *Table 8-6*. However, the import of food increased by 8.0 per cent per annum, from RM4.5 billion in 1990 to RM6.7 billion in 1995. The increase in food imports was mainly due to the increase in the import of animal feeds, fisheries products, live animals as well as fruits and vegetables.

Local Processing

8.21 During the Sixth Plan period, the important role of the agriculture sector as a supplier of raw materials for the agro-based industry was further emphasized. The rapid development of the agro-based industry led to an increase in its value added and further strengthened the linkages between the agriculture and manufacturing sectors. The volume of agricultural commodities utilized for producing end-products increased at rates ranging from 7.4 to 12.5 per cent per annum, as shown in *Table 8-7*. The rapid growth of the agro-based industry reduced, to some extent, the country's dependence on foreign markets to export agricultural produce.

8.22 A total of 7.6 million tonnes of processed palm oil (PPO) was produced in 1995, of which 16 per cent was utilized for producing end-products. The local processing of natural rubber into Ribbed Smoked Sheet (RSS), Standard Malaysian Rubber (SMR) and other grades declined from 1.3 million tonnes in 1990 to 1.1 million tonnes in 1995 due to the decline in production. However, the utilization of natural rubber for producing final products such as footwear, gloves, tyres and other rubber goods increased substantially by 11.2 per cent per annum, from 188,000 tonnes to 320,000 tonnes during the same period. The local processing of sawlogs into sawn timber, veneer and plywood increased from 11 million cubic metres in 1990 to 15 million cubic metres in 1995. Similarly, the local wood-based industry experienced rapid expansion in which the utilization of sawn timber for the production of wood moulding and furniture increased from 720,000 cubic metres in 1990 to 1.3 million cubic metres in 1995. This represented 13.7 per cent of the total sawn timber produced.

TABLE 8-7

**LOCAL PROCESSING AND UTILIZATION OF AGRICULTURAL
INDUSTRIAL COMMODITIES, 1990-2000**

('000 tonnes)

Item	1990	1995	2000	Average Annual Growth Rate (%)	
				6MP	7MP
Processed Palm Oil (PPO)	6,001	7,554	8,884	4.7	3.3
PPO used for End-products ¹	900	1,284	3,998	7.4	25.5
% of PPO used for End-products to Total Production	14.8	16.4	45.0		
Rubber ²	1,291	1,106	1,138	-3.0	0.6
Rubber used for End-products	188	320	626	11.2	14.4
% of Rubber used for End-products to Total Production	14.6	28.9	50.0		
Sawlogs ³ ('000 cubic metres)	11,127	15,000	18,000	6.2	3.7
Sawn Timber used for End-products ⁴	720	1,300	9,000	12.5	47.3
% of Sawn timber used for End-products to Total Production	7.9	13.7	50.0		
Cocoa ⁵	84	64	105	-5.3	10.4
Cocoa used for End-products	13	23	64	12.1	22.7
% of Cocoa used for End-products to Total Production	5.3	14.9	40.0		

Notes:

- ¹ Refers to volume of PPO used to produce soaps, margarine and cooking oil.
- ² Refers to volume of natural rubber used to produce RSS, SMR and other grades.
- ³ Refers to volume of sawlogs to produce sawn timber, veneer and plywood.
- ⁴ Refers to volume of sawn timber used to produce wood moulding and furniture.
- ⁵ Refers to volume of cocoa beans ground to produce cocoa butter, cocoa powder and cocoa paste.

8.23 The volume of cocoa beans used for end-products, mainly chocolate, increased from 13,000 tonnes in 1990 to 23,000 tonnes in 1995. This was in line with the objective of making Malaysia the cocoa processing and trading centre for the Asia-Pacific Region. However, the grinding of cocoa declined from 84,000 tonnes in 1990 to 64,000 tonnes in 1995. Local processing of pepper berries into white and black pepper declined due to the low level of production during the Plan period.

8.24 The utilization of fish for end-products increased by 26 per cent, from 67,630 tonnes in 1990 to 85,000 tonnes in 1995, as a result of greater support services and infrastructural development. Most of the end-products were in the form of fish powder, fertilizer, canned food and surimi.

Agricultural Programmes

8.25 During the Sixth Plan period, the *in-situ* land development strategy continued to be given emphasis. In view of the limited availability of suitable land in Peninsular Malaysia, the opening up of new land was concentrated in Sabah and Sarawak. Agricultural support services, which included R&D, marketing services, provision of credit facilities as well as training and extension services, were further extended with a view to increasing the production and quality of agricultural produce.

In-situ Development

8.26 Under the *replanting programme*, about 305,420 hectares of land were replanted during the Plan period, exceeding its target, as shown in *Table 8-8*. The Rubber Industry Smallholder Development Authority (RISDA) achieved encouraging results in its replanting programme, whereby 204,870 hectares of land or almost 100 per cent of the targeted area were replanted, benefitting 118,900 rubber smallholders. As a result, the average monthly income of rubber smallholders increased from RM456 in 1990 to RM769 in 1995. Under this programme, greater focus continued to be given to group farming and estate replanting projects. FELDA replanted about 43,280 hectares of rubber and oil palm, while the Malaysian Pineapple Industry Board (MPIB) replanted 4,450 hectares of smallholder land. In addition, about 11,900 hectares of oil palm, rubber and cocoa were replanted by State Economic Development Corporations (SEDCs), in collaboration with the private sector.

8.27 A total of 48,310 hectares of land or 43 per cent of the targeted area, under the *land consolidation and rehabilitation programme*, was developed for various crops. The Federal Land Consolidation and Rehabilitation Authority (FELCRA) was able to develop only 24,490 hectares of land due to the reluctance of land owners to participate in the programmes as well as difficulties associated with absentee landlords. The settlers under the FELCRA schemes earned monthly incomes ranging from RM390 to RM770. The Sarawak Land

TABLE 8-8

**REPLANTING, LAND CONSOLIDATION AND REHABILITATION
PROGRAMMES BY AGENCY, 1991-2000**
(hectares)

<i>Programme/Agency</i>	<i>6MP</i>		<i>7MP</i>
	<i>Target</i>	<i>Achieved</i>	<i>Target</i>
Replanting	296,070	305,420	245,870¹
South Kelantan Development Authority	7,000	5,600	10,000
Rubber Industry Smallholder Development Authority	205,000	204,870	60,000
Federal Land Development Authority	27,290	43,280	97,060
Sabah Rubber Fund Board	3,000	3,320	6,000
Sabah Land Development Board	600	3,040	12,410
Department of Agriculture, Sabah	-	590	2,500
Department of Agriculture, Sarawak	30,000	27,450	40,000
Malaysian Pineapple Industry Board	4,450	4,450	4,850
Sarawak Land Development Board	-	920	8,250
State Economic Development Corporations	18,730	11,900	4,800
Land Consolidation & Rehabilitation	111,860	48,310	29,490²
Federal Land Consolidation and Rehabilitation Authority	60,000	24,490	15,000
South Kelantan Development Authority	2,310	1,800	-
Sarawak Land Consolidation and Rehabilitation Authority	24,550	14,270	9,000
Ministry of Agriculture	25,000	5,250	-
Department of Agriculture, Sabah	-	2,000	3,000
Rural Development Corporation, Sabah/Joint ventures	-	500	2,490
Total	407,930	353,730	275,360

Notes:

¹ This programme will mostly be implemented and funded through joint ventures with the private sector on a large-scale basis.

² This programme will be funded mostly by the agency's own internally generated funds.

Consolidation and Rehabilitation Authority (SALCRA) rehabilitated 14,270 hectares of land for oil palm cultivation, while the Ministry of Agriculture rehabilitated 5,250 hectares, particularly padi land.

8.28 During the plan period, a total of 1.8 million hectares of agricultural land in various states was managed under the Integrated Agricultural Development Projects (IADPs). Three new phases of IADPs, totalling 644,400 hectares of agricultural land, were implemented, while five others were in the planning stage. These projects improved the quality of agricultural land as well as increased the intensity of land use. Commercialization was further emphasized through the implementation of 141 mini-estate and 261 group farming projects. These projects benefitted 354,300 farm families, whose monthly incomes ranged from RM450 to RM780 and also succeeded in promoting a higher level of mechanization, particularly in the padi subsector, and eased the problem of labour shortage.

New Land Development

8.29 *New land development* programme undertaken by both the private and public sectors during the Plan period, succeeded in developing a total of 290,450 hectares of new land or 91 per cent of the target, as shown in *Table 8-9*. The state enterprises such as SEDCs, State Agriculture Development Corporations (SADCs), the State Land Development Agencies of Sabah and Sarawak as well as the private companies developed 85 per cent or 247,330 hectares of new land. In view of land constraints in Peninsular Malaysia, FELDA developed 14,930 hectares of new land in Sabah under the plantation scheme. FELDA settlers earned monthly incomes ranging from RM491 to RM1,374, depending on the type and age of crops. This organization concentrated its efforts in managing existing schemes with emphasis given to replanting, settler development, farm management, entrepreneurship and skills training, and the provision of social amenities. In addition, FELDA managed 13 subsidiary companies which were involved in various activities such as the processing, transporting and marketing of agricultural produce. These companies contributed to the socio-economic development of the settlers' community. In line with the increasing demand for land for non-agricultural activities, the Government permitted potential FELDA schemes to be converted for such purposes.

TABLE 8-9
NEW LAND DEVELOPMENT, 1991-2000
 (hectares)

<i>Institution</i>	<i>6MP</i>		<i>7MP</i>
	<i>Target</i>	<i>Achieved</i>	<i>Target</i>
Federal Agency			
Federal Land Development Authority	15,027	14,930	-
State Agency			
State Economic Development Corporations/Joint Ventures	135,000	80,880	-
State Agriculture Development Corporations	23,990	16,120	46,230 ¹
Forestry Department	-	1,380	-
Sabah/Sarawak Land Development Agencies	13,950	27,240	37,090 ¹
Regional Development Authorities/Joint Ventures	57,463	26,810	8,540
Private Companies	73,460	123,090	88,890
Total	318,890	290,450	180,750

Note: ¹ To be undertaken jointly with the private sector.

Agricultural Support Services

8.30 During the Plan period, *R&D* activities focused on propagating high-yielding varieties and clones as well as improving agronomic practices, developing more efficient farm management methods, promoting better processing technology and diversifying end-products. A total of RM273.8 million or 47 per cent of the allocation approved under the Intensification of Research in Priority Areas (IRPA) programme, was allocated for *R&D* activities in the agriculture sector.

8.31 The Palm Oil Research Institute of Malaysia (PORIM) intensified its *R&D* activities, particularly in breeding new high-yielding varieties such as PORIM Series 1 and 2, enhancing and diversifying palm oil utilization, improving production efficiency and promoting non-food applications of palm oil. PORIM also commissioned a number of research projects on nutritional aspects of palm oil which were carried out by established local and foreign universities and institutions. In addition, *R&D* activities on mechanization,

especially in the usage of infield transporters and fresh fruit bunch cutters, were also undertaken. In order to improve its downstream R&D activities, PORIM established the Oleochemical Technology Centre. To complement the efforts of the public sector R&D institutions, several plantation companies also increased their R&D activities. In this regard, a breakthrough was made by the private sector in the development and proper application of a potassium nitrate complex compound fertilizer, which resulted in higher yield of oil palm fruits.

8.32 With respect to natural rubber, the Rubber Research Institute of Malaysia (RRIM) concentrated its efforts on the production of new forms of natural rubber and new applications of rubber. R&D activities were also directed towards increasing productivity through the improvement of labour-saving techniques such as the low-intensity tapping system, REACTORRIM and RRIMFLOW. New high-yielding clones of rubber from the RRIM 900 and RRIM 2000 series, which have shorter maturity periods and higher quality latex and rubber wood, were propagated. In addition, through genetic engineering technology, new types of rubber, namely Deproteinized Natural Rubber (DPNR), Liquid Natural Rubber (LNR) and Liquid Epoxidized Natural Rubber (LENR), which were suitable for specific uses, were introduced and patented. Tyre research was also intensified with a view to increasing the utilization of natural rubber.

8.33 R&D activities undertaken by the Malaysian Cocoa Board (MCB) focused on cocoa processing, post-harvest technology and end-product development. In this regard, herb-flavoured chocolates were introduced in the market and received favourable response from the public. In diversifying the use of cocoa powder, research showed that the use of cocoa powder in traditional cakes was suitable. In the case of pepper, R&D efforts by the Department of Agriculture (DOA), Sarawak succeeded in identifying high-yielding pepper vines, cost-saving production technology, integrated pest management and better agronomic practices. The Pepper Marketing Board (PMB) developed alternative end-uses for pepper in non-traditional forms and new methods of packaging pepper as well as produced higher value added products with low microbial levels for export.

8.34 The Malaysian Agricultural Research and Development Institute (MARDI) continued to focus its R&D activities towards propagating new varieties, and developing efficient farm management and processing technologies for the food sector. During the Plan period, MARDI developed various high-yielding and disease-resistant varieties of padi, namely MR123, MR127, MR159, MR167 and mutant mahsuri. In addition, new varieties of durian were propagated, namely MDUR 78, MDUR 79 and MDUR 88 as well as new varieties of pineapple

which include A20-3, A24-34, A52-47 and A54-47. A new variety of tobacco, namely TAPM 26 was released, and an improved tobacco-curing technology, using warm air-jackets system and Liquidified Petroleum Gas (LPG) as fuel, was introduced. MARDI also promoted more efficient and modern processing technologies, improved diversification and commercialization of the agro-based industry and intensified the transfer of technology as well as developed new methods of packaging. A subsidiary company was established in 1992 to accelerate the commercialization of research findings through joint ventures with the private sector. By the end of 1995, the subsidiary had invested RM1.6 million of venture capital in four companies.

8.35 The Forest Research Institute of Malaysia (FRIM) concentrated its R&D activities on forest plantations, energy from biomass, wood processing technology, new forest end-products, genetic diversity and breeding system of different tree species for conservation purposes. These activities resulted in a number of breakthroughs, in particular the development of fast-growing local species that produce quality timber, namely *jelutong*, *meranti*, *merawan* and *sesenduk*. Other breakthroughs included the efficient utilization of small diameter log and wood residues as well as the production of activated carbon and wood briquettes. In addition, FRIM commercialized its R&D findings and facilitated the transfer of technology to the private sector.

8.36 During the Plan period, *marketing programmes* of various agencies were directed at consolidating traditional markets, penetrating new markets and promoting new products. The palm oil export promotion programmes led to an increase in palm oil exports from 5.7 million tonnes in 1990 to 6.7 million tonnes in 1995. About RM22.3 billion was disbursed through the Export Credit Refinancing (ECR) scheme to facilitate palm oil exports. New markets for palm oil were established in Algeria, Brazil, Cuba, Cyprus, El Salvador, Ethiopia, Sierra Leone and Vietnam. To promote palm oil exports to developing countries, the Palm Oil Credit and Payment Arrangement (POCPA) was established in 1992. Under this arrangement, about RM443 million was disbursed which succeeded in increasing exports of palm oil to countries such as Algeria, Iran, Iraq, Myanmar and Pakistan. The participation of the private sector in market promotion programmes was increased through the Malaysian Palm Oil Promotion Council (MPOPC).

8.37 The markets for rubber in the Asia-Pacific Region were further diversified, while traditional markets such as the United States and the European Union were consolidated through export promotion programmes. However,

rubber exports declined from 1.3 million tonnes in 1990 to 1 million tonnes in 1995, due to increased local utilization and declining production. Promotional efforts were also carried out by the Malaysian Timber Industry Board (MTIB) to encourage greater use of timber products. This resulted in an increase in the export value of timber products, such as logs, sawn timber, plywood, veneer, mouldings and furniture, from RM8.9 billion in 1990 to RM16 billion in 1995. However, the export of sawlogs declined by 18 per cent per annum from 20.4 million cubic metres in 1990 to 7.7 million cubic metres in 1995 due to a reduction in production.

8.38 With regard to cocoa, MCB continued to promote cocoa in overseas markets, strengthen traditional markets such as France, Germany and Netherlands as well as penetrate new markets, particularly the People's Republic of China. During the Plan period, PMB not only intensified its promotion programmes in overseas markets but also initiated sales direct to end-users in consuming countries as part of its programme to produce and market special pepper products. PMB also monitored the pepper market and took appropriate measures to ensure that farmers received fair prices. Although the export volume of pepper declined from 29,210 tonnes in 1990 to 20,000 tonnes in 1995, export earnings increased from RM118 million to RM119 million in the same period, on account of higher prices for its value added products. Singapore, Japan and Germany continued to be the major markets for Malaysian pepper.

8.39 The Federal Agricultural Marketing Authority (FAMA) promoted horticulture products, particularly fruits and flowers, to East Asia, Europe, the Middle East and South Africa, through its participation in international exhibitions, trade missions and in-store promotions. The export value of cut-flowers increased by 8.0 per cent annually from RM33 million in 1990 to RM49 million in 1995. In addition, the participation of farmers in direct marketing of horticulture products increased through the establishment of 166 *pasar tani*. The total sales from these *pasar tani* increased from RM155 million in the Fifth Plan period to RM396 million in the Sixth Plan period. To further strengthen the commercial activities of FAMA, a subsidiary corporation was set up in 1993 to undertake these activities. This corporation established retail outlets in strategic locations to market farm and processed products at reasonable prices.

8.40 *Padi Beras Nasional Berhad* (BERNAS) was established in 1994, as a result of the corporatization of the National Padi and Rice Board (LPN). The establishment of BERNAS was to improve efficiency in the processing and marketing of rice in the country. In this regard, the introduction

of the bulk system, the establishment of purchasing centres and rice godowns as well as the installation of additional rice polishing and packaging machines in various rice complexes further improved post-harvest handling of padi.

8.41 Agricultural *credit* was provided by *Bank Pertanian Malaysia* (BPM), commercial banks and finance companies. BPM continued to be the main source of credit for farmers and fishermen. BPM approved 254,300 applications which involved the disbursement of RM1.6 billion through various loan schemes. Of this, RM52 million was loaned to 4,370 small-scale farmers to expand existing agricultural activities as well as venture into new areas. Agricultural loans by the commercial banks and finance companies during the Plan period were provided mainly to plantation companies. In 1995, total outstanding loans to the agriculture sector was RM4.3 billion.

8.42 The Fund For Food scheme was launched in 1993 to promote investment in primary food production and encourage the efficient distribution of food and food products. For this purpose, the Government allocated RM300 million which was channelled through commercial banks and BPM. However, only about RM60 million was disbursed for the period 1993-94 due to the poor response from farmers and entrepreneurs. In view of this, the criteria to access the Fund were revised in 1995. Following this revision, the interest rate was reduced from 7.75 per cent to 4.0 per cent per annum, the repayment period extended from five years to eight years and the minimum project cost reduced from RM50,000 to RM10,000. In addition, the Fund was raised to RM600 million. At the end of 1995, the cumulative disbursement of the Fund increased to RM260 million, involving the financing of 758 projects.

8.43 Various *training programmes and extension services* continued to be provided by agricultural agencies. The training programmes covered several areas such as agronomic practices, farm management, marketing, post-harvest handling, processing and agribusiness. During the Plan period, about 838,200 farmers, fishermen and agricultural staff were trained. To meet the need for additional training facilities, *Lembaga Kemajuan Ikan Malaysia* (LKIM), Farmers Organization Authority (FOA), FAMA and RRIM established new training centres. Extension services, which included new agricultural techniques and technologies, were made available to farmers with the aim to promoting a more commercialized and efficient farming system. Through these training and extension services, an increasing number of farmers and fishermen adopted new techniques and technologies which improved their productivity.

8.44 The *institutional development programme* for agriculture continued to be emphasized to further modernize the smallholder subsector, through the active participation of farmers and fishermen in the development process. By the end of 1995, 278 farmers' organizations, 79 fishermen's associations and 470 farmers' cooperatives were established at national, state and local levels. These institutions had a total membership of 935,800, with share subscriptions totalling RM105 million. The Area Farmers Organizations implemented about 1,000 projects during the Plan period, which included activities in agribusiness, agro-based industry and contract farming. The trading turnover of these institutions increased from RM433.3 million in 1990 to RM654.9 million in 1995.

III. PROSPECTS, 1996-2000

8.45 During the Seventh Plan period, the agriculture sector is projected to grow at 2.4 per cent per annum, as shown in *Table 8.1*. However, the share of the sector to total GDP is expected to decline further from 13.6 per cent in 1995 to 10.5 per cent by the year 2000 in line with the continued structural transformation of the national economy. Nevertheless, in real terms, the total value-added of the sector will increase from RM16,406 million in 1995 to RM18,460 million in the year 2000.

Policy Directions

8.46 In view of rapid economic transformation and global competition, it is imperative that the National Agricultural Policy be reviewed. During the Plan period, agricultural development will focus on productivity improvements through more efficient and greater utilization of agricultural resources by adopting the following approaches:

- o encouraging increased private sector participation in agriculture on a large-scale basis, particularly in the production of food commodities and high-value produce, with the Government providing the requisite support services;*
- o re-orientating production methods to improve competitiveness in the context of a more liberal market environment;*
- o consolidating the planted areas of rubber, oil palm and cocoa with the view to re-orientating production to meet mainly the needs of the local agro-based industry;*

- o accelerating the adoption of labour-saving techniques, mechanization and automation with the aim to reducing dependence on foreign labour;*
- o encouraging joint ventures for deep-sea fishing and developing more integrated fish landing and processing complexes as well as accelerating the expansion of aquaculture and cage-rearing of marine fish;*
- o promoting reverse investment in the production of agricultural commodities and phasing out low value-added activities;*
- o intensifying R&D efforts, particularly in downstream activities to enhance the agro-based industry and to produce more end-products;*
- o reviewing the remaining tariffs imposed on agricultural inputs, while withdrawing gradually the element of subsidy and encouraging greater market efficiency; and*
- o revamping all agricultural agencies with the view to streamlining their functions to increase efficiency and effectiveness.*

Agricultural Production

8.47 During the Seventh Plan period, agricultural production programmes will be directed towards improving the competitiveness of agricultural commodities. The development of agricultural industrial commodities will be market-driven with emphasis on cost reduction. On the other hand, for food commodities, the focus will be to expand production in order to increase food supply and relieve pressure on prices. The production of high-value agricultural produce, such as horticulture and aquaculture products, will be further increased to meet local and export demands.

8.48 The *palm oil* subsector will continue to contribute significantly to the growth of the agriculture sector due to its sustained competitiveness. Its contribution to total agricultural value-added is projected to increase from 41.5 per cent in 1995 to 43.1 per cent by the year 2000, as shown in *Table 8-1*. The production of crude palm oil is expected to increase at 3.2 per cent per annum, as shown in *Table 8-3*, mainly through increases in productivity attributed to new high-yielding clones and improved farm management practices. During the Plan period, emphasis will be given to diversifying further the utilization of palm oil and by-products as well as oil palm trees.

8.49 *Rubber* production is expected to decline at 1.7 per cent per annum during the Plan period. Efforts will be taken to improve productivity through the consolidation of rubber smallholdings as well as the implementation of low-frequency tapping systems. In addition, the planting of timber-latex clones will be accelerated through replanting activities which are expected to be carried out jointly with the private sector. More effective extension services will be provided to transfer new and improved technology to smallholders.

8.50 The production of *cocoa* is expected to increase to 156,000 tonnes by the year 2000 in view of the better prices. The productivity of cocoa will be improved through intensification of R&D activities, while the total area under cocoa cultivation will be reduced and replanted with high-value crops. At the same time, greater emphasis will be given to diversify the use of cocoa in end-products. Continued efforts will also be made to promote Malaysia as a processing and trading centre for cocoa in the Asia-Pacific Region in order to increase value-added activities as well as expand markets.

8.51 In line with the Government's commitment to protect the environment and the ecological system, *forestry resources* will continue to be managed on a sustainable basis and enforcement against illegal logging will be intensified. Accordingly, the annual felling rate in Peninsular Malaysia is expected to be further reduced from 52,250 hectares to 46,040 hectares, while the production of sawlogs will decline correspondingly to 27 million cubic metres by the year 2000. In addition, about 1.5 million hectares of forest will be silviculturally treated, while 153,900 hectares of degraded forest land will be reforested during the Plan period. An additional 31,230 hectares of land will be enriched with rattan under natural forest conditions and in rubber plantations as an intercrop. To further enrich forestry resources, fast-growing timber species such as *meranti tembaga*, *merawan* and *sesenduk* will be planted. In addition, planting of high-value trees, particularly teak, and other trees for pulp and paper will be encouraged. In this regard, greater private sector participation in the forestry subsector will be encouraged through the provision of support services as well as land by the State Governments.

8.52 During the Plan period, emphasis will also be given to the production of *flowers*, both of the highland and lowland varieties. In particular, highland flowers such as carnations, roses and chrysanthemums and a lowland variety, namely orchids, will be promoted. Production is expected to double from 113 million stalks in 1995 to 239 million stalks in the year 2000, representing an increase of 16.2 per cent per annum. Post-harvest handling will be further improved to maintain the quality through proper packaging and the provision

of cold rooms and refrigerated transport, while cooperation from local airlines will be sought to provide additional air cargo space at competitive rates to facilitate export. R&D efforts on floriculture will be intensified to improve quality and productivity, as well as develop cost-effective technologies for the cultivation of high quality lowland flowers for export. Foreign investment will be further encouraged to bring in more advanced technology and provide access to international markets.

8.53 Production of food commodities, particularly those that have the competitive edge, will be increased through the promotion of more efficient production techniques and effective farm management systems. In this regard, more mini-estates and group farming as well as contract farming will be established. The private sector, particularly plantation companies, will be encouraged to participate in food production on a large-scale basis through greater utilization of the Fund For Food. To improve the competitiveness of food commodities, the food sector will be liberalized to allow for greater market efficiency. In this regard, the provision of various input subsidies and price support for *padi* will be studied with the view to rationalizing the programme. Padi farms in non-granary areas will be converted for the cultivation of high-value crops such as vegetables and fruits, as well as for aquaculture activities. The management of padi farms in granary areas will continue to be improved through the formation of more mini-estates and group farms. Concerted efforts will be continued to increase yield through better ground levelling, efficient water management, use of high-yielding varieties, increasing both planting and cropping intensity as well as minimizing post-harvest losses. Initially, a full scale commercial operation in the growing of rice will be implemented. Rice production is targeted to meet 65 per cent of local consumption, while the balance of the demand will be met through imports.

8.54 The prospects for *fruits* and *vegetables* are anticipated to be bright during the Plan period. Production will increase to 3.3 million and 1 million tonnes, respectively, by the year 2000, in order to meet domestic and export demand. Emphasis will be given to the promotion of large-scale fruit and vegetable cultivation, based on the zoning concept and estate management. This will facilitate the provision of better extension services, agricultural infrastructure and marketing services. Focus will also be given to the production of high quality vegetables which are safe for local consumption and exports. The rain shelter technique as well as soilless agriculture and hydroponic technologies will be used widely in the production of fruits and vegetables. Plantation companies will be encouraged to venture into large-scale fruit and vegetable cultivations. R&D efforts will be further intensified to develop advanced techniques and technologies to support the development of these food commodities.

8.55 The *fisheries* subsector is expected to grow at 3.7 per cent per annum. Aquaculture which is a significant component of the fisheries subsector, will be further intensified. In this regard, the potential of large-scale cage rearing of fish in the sea using advanced methods will be further exploited while the utilization of fish traps will be encouraged. Deep-sea fishing activities will be further developed, particularly through joint ventures with the private sector from other countries. Training in deep-sea fishing will be intensified to create more competent fishermen. The training environment provided shall be simulated to the actual situation. In addition, traditional fishermen will be encouraged to participate in deep-sea fishing as well as in non-fishing activities.

8.56 More integrated fish landing and processing complexes will be upgraded in strategic locations such as Chendering and Kuantan, while new ones will be established in locations such as Endau-Rompin, Kuala Kedah, Kuala Linggi and Labuan, in order to accelerate the development of deep-sea fishing. To attract fishermen to land their catches, these complexes will be equipped with ice factories, market halls and dealer's offices as well as slipways, vessel maintenance and repairing services. In addition, these complexes will be integrated with fish processing parks to be developed by the private sector. Efforts to conserve in-shore fishery resources, through developing more artificial reefs, will be continued. Similarly, conservation measures for better management of marine resources will be undertaken.

8.57 With rising per capita income of the population, the demand for livestock products is anticipated to increase during the Plan period. In line with this, the production of ruminant products, such as *beef* and *mutton*, is expected to increase to 18,700 tonnes and 1,300 tonnes, while their imports will increase to 73,140 tonnes and 19,833 tonnes, respectively, to meet local demand by the year 2000. However, due to the shortage of grazing land, the increase in the production of beef and mutton will be achieved mainly through feedlotting systems and the integration of livestock rearing with perennial crops. Private sector involvement in animal production will be actively encouraged, and the privatization of livestock farms and abattoirs in the public sector will be continued. The development of non-ruminant products, particularly *poultry*, will be intensified through modern approaches and contract farming on a large-scale basis to meet domestic and export demand. Government subsidies in the livestock subsector will be gradually withdrawn.

Private Investment

8.58 During the Plan period, greater private sector investment will be required to expand the capacity as well as to mechanize agricultural activities. The private sector is expected to invest RM16.8 billion in the agriculture sector, the bulk of which will be for oil palm, horticulture, aquaculture, deep-sea fishing and reforestation projects. In order to achieve this investment target, State Governments will be encouraged to provide more land to the private sector. Further liberalization of tariffs on the import of agricultural inputs will be considered with the objective of reducing the cost of production and improving competitiveness.

8.59 The private sector will be encouraged to establish joint ventures with farmers' organizations, fishermen's associations and farmers' co-operatives to produce high-value agricultural products as well as to venture into agro-tourism projects. In addition, the private sector is expected to participate actively under the umbrella concept to assist farmers in the poultry and aquaculture activities, as well as in the production of flowers, fruits and vegetables. Bumiputera companies will also be encouraged to develop idle land for agricultural activities under the concept of *landlord-in-trust*.

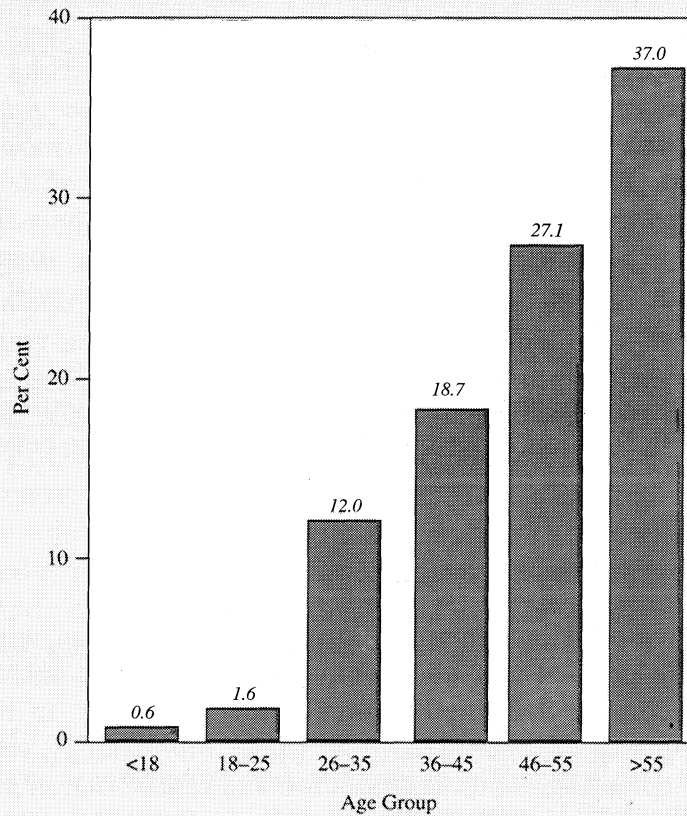
Employment

8.60 During the Plan period, employment in the agriculture sector is expected to decline by 3.6 per cent per annum from 1.4 million in 1995 to 1.2 million in the year 2000. The agriculture sector will continue to require a steady supply of labour to support its growth. However, the current labour shortage situation is expected to become more critical in view of the slow mechanization process, and perpetuated by the reluctance of the young to work in the sector. The productivity of agricultural labour is expected to increase at 6.2 per cent per annum, compared with 6.1 per cent per annum during the Sixth Plan, with land-labour ratio rising from 4.2:1 to 4.7:1. In addition, the aging problem is expected to continue with 64.1 per cent of farm household heads above 45 years old, as shown in *Chart 8-2*.

8.61 In order to supplement labour demand in the agriculture sector, the use of foreign workers will be continued on a selective basis. The number of unskilled foreign workers in the sector will be reduced gradually. In order to reduce the utilization of foreign labour in the sector, the long-term strategies will be directed towards increasing the land-labour ratio, and accelerating the process of mechanization at various levels from production to processing, largely through R&D efforts.

CHART 8-2

DISTRIBUTION OF FARM HOUSEHOLD HEADS BY AGE GROUP IN PENINSULAR MALAYSIA, 1990



Idle Land Utilization and Land Use

8.62 During the Plan period, database on idle land will be further improved and managed effectively for better utilization of resources. The implementation of *landlord-in-trust* concept will be further intensified to promote the utilization of idle land. In addition, Area Farmers Organizations will also be encouraged to play a more active role in developing idle land for economic purposes. Efforts in land consolidation and rehabilitation will be accelerated to increase productivity of idle land. State Governments will also be encouraged to enforce existing provisions of the National Land Code related to idle land. Furthermore, the land use policy will be reviewed in order to allow flexible and full utilization of land resources mainly through liberalizing the conditions and procedures required for land conversion.

Revamping of Agricultural Agencies

8.63 Agricultural agencies will be revamped to improve their efficiency and effectiveness. Through this exercise the role of a number of agencies such as BPM, FAMA and Malaysian Rubber Research and Development Board (MRRDB) will be reviewed with a view to closing down or privatizing them. In addition, this exercise will also involve the consolidation of branch offices and research stations. With the decision to dissolve *Lembaga Kemajuan Johor Tenggara* (KEJORA), *Lembaga Kemajuan Pahang Tenggara* (DARA), *Lembaga Kemajuan Terengganu Tengah* (KETENGAH), *Lembaga Kemajuan Wilayah Jengka* (LKWJ) and *Lembaga Kemajuan Wilayah Kedah* (KEDA), part of their functions will be undertaken by other public agencies, while the remaining functions will be privatized. In order to implement this decision, consultations will be held with State Governments.

8.64 Agricultural infrastructure facilities such as fishing jetties and abattoirs will be privatized. In addition, the privatization exercise will also cover agricultural support services.

Agricultural Programmes

8.65 The agricultural programmes during the Plan period will be directed towards improving productivity and competitiveness of the sector as well as modernizing and commercializing the smallholder subsector. In line with this, the *in-situ* development will be intensified. Under this strategy, the IADPs will be reorganized. Replanting, land consolidation and rehabilitation as well as new land development programmes will be implemented mainly by the private sector. In addition, agro-technology parks will be established to promote the implementation of agricultural activities using advanced technologies, while agro-based development programmes will be implemented to produce more end-products. Agricultural support services such as R&D activities, training and extension services as well as marketing activities will be restructured and refocused to enhance their effectiveness. Farmers' organizations and fishermen's associations will be consolidated to enable them to play a more effective role in agricultural development.

In-situ and New Land Development

8.66 The IADPs will be reorganized based on the concept of vertical integration of various components of agricultural development including distribution of inputs, production, processing, marketing and other related services. These

projects will specialize in the production of a single or a few specific commodities, depending on land suitability and geographical conditions. In addition, off-farm economic activities such as agro-processing as well as agro-based and cottage industries will also be incorporated as a package under these projects to provide additional income to farmers. The management of these projects will be revamped or privatized in order to improve their effectiveness. In relation to this, farmers' associations will be encouraged to participate in the privatization of these projects.

8.67 The *replanting programme* will involve a total of 245,870 hectares of agricultural land, and be financed mainly by the private sector as well as the agencies' own sources of fund, as shown in *Table 8-8*. Under this programme, group replanting and the adoption of modern technology and better agronomic practices by smallholders will be given more attention. This is with the view to modernizing and commercializing smallholdings and improving productivity. RISDA and FELDA are expected to replant 60,000 hectares and 97,060 hectares of land, respectively, with rubber and oil palm. The rubber replanting programme which will be undertaken jointly with the private sector will be re-orientated to meet the need of the domestic agro-based industry, especially in the manufacturing of furniture and paper. The loss in hectareage will be made up by encouraging the planting of rubber overseas by Malaysian companies.

8.68 *Land consolidation and rehabilitation programmes* will be carried out to improve farm management and production efficiency of smallholdings, and develop idle land. It is projected that 29,490 hectares of land will be consolidated and rehabilitated using agencies' own funds or through joint ventures with the private sector, as shown in *Table 8-8*. FELCRA, as the main agency responsible for these programmes, is expected to develop 15,000 hectares of land, while SALCRA will develop another 9,000 hectares in Sarawak. However, the implementation of these programmes will be with private sector participation on a commercial basis. In this regard, FELCRA will be corporatized to further accelerate the commercialization of the smallholder subsector. In addition, the private sector will be encouraged to participate in these programmes, particularly in managing land schemes that are already developed by land development agencies. These programmes will incorporate village restructuring activities aimed at upgrading the standard of living of farmers through increases in off-farm incomes and access to better public infrastructure and amenities. Village restructuring will be undertaken through the promotion of rural industrialization and the creation of small townships in these areas.

8.69 Under the *new land development programme*, a total of 180,750 hectares of land has been identified for development, mainly in Sabah and Sarawak, as shown in *Table 8-9*. More agriculture-related infrastructure will be provided in these states to facilitate the implementation of the programme. The private sector is expected to develop more than half of the targeted hectareage. FELDA will no longer open up new land but continue to concentrate on managing existing schemes and human resource development. Horizontal integration of perennial crops with potentially viable livestock rearing will be further promoted to optimize land utilization within land schemes.

Agro-technology Parks

8.70 Agro-technology parks will be established in several states to promote the implementation of high-technology agricultural activities by the private sector. In addition, available land belonging to agricultural agencies such as MARDI and RRIM as well as State Governments will be developed into such parks. With the establishment of these parks, plots of land will be sold or leased to the private sector to implement modern agricultural activities, including horticulture and aquaculture. To increase land use intensity, new planting techniques, mainly rain shelter and soilless agriculture, will be encouraged for the cultivation of fruits and vegetables. In addition, the production of seedlings, developed through advanced technologies such as genetic engineering technology and metabolic pathway engineering, will also be encouraged in these parks.

Development of Agro-based Industry

8.71 The development of the agro-based industry during the Plan period will be accelerated to increase the value added of agricultural commodities. Focus will be given to processing activities that add value, particularly those involving the production of end-products. The utilization of agricultural commodities for producing end-products is expected to increase substantially, as shown in *Table 8-7*. This is in line with the objective of the Industrial Master Plan to promote resource-based industries as well as improve intersectoral linkages.

8.72 The private sector will be encouraged to play a greater role in the development of the agro-based industry. Further expansion of the agro-based industry will be undertaken by both the large corporations and the small and medium-scale operators in rural areas. In this respect, farmers' organizations and fishermen's associations will be further encouraged to venture into the agro-based industry individually, or through joint ventures, to diversify their sources of income. Emphasis will be directed towards producing and diversifying more end-products from PPO, rubber, sawlogs, cocoa, pepper and fisheries.

8.73 Under this programme, agricultural research institutions such as FRIM, MARDI, PORIM and RRIM will provide advanced processing techniques and technologies as well as technical and consultancy services to entrepreneurs. At the same time, these R&D institutions will conduct training related to processing of agricultural produce and production of end-products. They will also provide testing facilities to improve the quality of such products. In addition, available land under MARDI and RRIM have been identified for development into agro-based industrial estates.

Agricultural Support Services

8.74 R&D activities will be directed towards the development of new end-products and greater utilization of agricultural commodities so as to sustain production as well as increase local processing. In the Seventh Plan, the application of modern techniques and technologies will be given emphasis. These will include efforts to reduce the maturity period of crops, produce varieties which simplify harvesting activities, and make farming more pleasant. Commercialization of research activities will be intensified through contract research, while joint ventures with the private sector will be established to commercialize research findings. Commercialization of R&D findings will be intensified through the provision of adequate venture capital.

8.75 R&D activities of PORIM will focus on quality improvement and product development as well as enhancing public awareness on the nutritional qualities of palm oil. PORIM will continue to conduct research on high-yielding clones that will lead to shorter maturity periods and carry out research into the fuller utilization of the oil palm tree such as its trunk, fronds, leaves and by-products. In addition, focus will be given to improve mechanization of activities pertaining to fertilizing, harvesting and weeding in the palm oil subsector. R&D efforts will also concentrate on developing more intermediate and final products such as vitamins, lubrication and engine oil as well as enhancing the downstream processing industry, particularly the oleochemical industry. For this purpose, an experimental palm oil mill will be built during the Seventh Plan period.

8.76 RRIM will give emphasis on downstream R&D activities in order to increase the applications of rubber technology in the industry as well as improve the usage of natural rubber. In the light of the phenomenal growth of the rubber wood industry, RRIM will intensify research using advanced techniques to develop new clones that have shorter maturity periods and which enable maximum wood and latex extraction. Research in labour-saving techniques as

well as new types of latex and rubber products will be expanded in order to increase productivity and diversify the utilization of rubber. RRIM will also disseminate its findings more widely through the Monitored Development Programme. Under this programme, RRIM and other implementing agencies will monitor the utilization of new findings of R&D.

8.77 FRIM will focus its R&D efforts on optimizing the utilization of forestry resources. This will include developing forest plantation models based on indigenous species, improving silvicultural and forest management practices as well as conducting research on medicinal plants, rattan cultivation and forest biodiversity. In addition, R&D on product development will be intensified through the establishment of the Timber Technology Park.

8.78 R&D on food commodities and high-value crops will be intensified, particularly through biotechnology and genetic engineering techniques. Research on vegetables will concentrate on developing better planting techniques and technologies, while research on fruits will focus on propagating high-yielding clones. Research activities will also be directed towards increasing productivity and modernizing the fisheries and livestock subsectors. MARDI will focus its R&D activities on food processing, production automation and mechanization, cultivation of lowland flowers for export as well as enhancing the effectiveness of technology transfer.

8.79 During the Seventh Plan period, *market* research and analysis of agricultural industrial commodities will be emphasized in order to strengthen demand in traditional markets as well as penetrating new markets. In addition, market promotion activities will be intensified through participation in trade fairs, trade visits and improved technical support services.

8.80 Marketing of various food commodities will be improved through an integrated marketing system and the provision of better marketing infrastructure. In addition, market information networks will be enhanced to provide up-to-date information to farmers, fishermen and traders. Four livestock trading centres will be established in land schemes to improve the marketing infrastructure for livestock. More farmers will be encouraged to participate in *pasar tani* and get involved in direct marketing. Some existing *pasar tani* will be converted into permanent ones with the requisite physical structure and support facilities. The involvement of farmers' organizations and fishermen's associations in marketing will be further encouraged through contractual sales.

8.81 During the Plan period, total investment in the agriculture sector will be generated mainly from the private sector. Commercial banks and financial companies will continue to provide sufficient *credit* facilities to investors. In addition, BPM will continue to provide credit to farmers and farmers' organizations to enable them to venture into new agricultural activities as well as expand existing operations. The concessional credit facility will continue to be provided through more focused loan schemes, particularly for mechanization and automation as well as for agribusiness and entrepreneurial development. More entrepreneurs are expected to participate in food production and processing due to higher credit limits, lower interest rates and longer repayment periods provided for under the Fund For Food scheme.

8.82 The provision of loans to the agro-based industry will be given emphasis to enable further development of the industry during the Plan period. BPM will focus its activities on extending credit for the production of high-value produce such as flowers, fruits, vegetables as well as aquaculture and livestock products.

8.83 During the Plan period, *training* and *extension services* will focus on re-orientating farmers towards greater commercialization through adoption of modern farm management as well as product processing and marketing. This programme will also help create awareness among farmers on the existence of new technologies and practices that could increase productivity and improve quality of agricultural produce. In addition, the relevant agencies will further improve the skills of the agricultural staff and extension workers to provide better services.

8.84 During the Plan period, the role of farmers' organizations and fishermen's associations will be further enhanced to complement Government efforts. These institutions are expected to participate in privatization projects. In addition, these institutions could act as the nuclei in contract farming, and provide markets for members. More farmers and fishermen will be encouraged to increase their involvement and participate actively in these institutions.

IV. ALLOCATION

8.85 The agriculture sector will be given an allocation of RM7,566.3 million to play its role effectively in the overall development of the economy, as shown in *Table 8-10*. This allocation represents 11.2 per cent of the total development

allocation for the Seventh Plan compared with 14.9 per cent for the Sixth Plan. In line with the development thrust of the sector, *in-situ* land development programme will be given the largest portion of the allocation, amounting to 22.9 per cent of the total allocation for the agriculture sector. The allocation for new land development is reduced substantially to 7.8 per cent of the total agricultural allocation to provide only basic infrastructure. The Government will also allocate 16.1 per cent to agricultural support services to further improve their effectiveness.

TABLE 8-10
DEVELOPMENT ALLOCATION FOR AGRICULTURE, 1991-2000
(RM million)

Programme/Subsector	6MP		7MP
	Allocation	Expenditure	Allocation
New Land Development	1,279.2	1,184.0	590.0
Regional Development	985.1	930.5	1,054.2
<i>In-situ</i> Land Development ¹	3,167.4	3,019.6	1,736.0
Forestry	178.9	156.4	171.8
Fishery	408.4	370.0	609.7
Livestock	208.3	191.4	242.0
Support Services ²	1,316.2	1,282.5	1,221.3
Irrigation and Flood Mitigation	889.1	844.6	1,500
Other Programmes	275.6	236.2	441.3
Total	8,708.2	8,215.2	7,566.3

Notes:

¹ Includes IADPs; Replanting; and Land Consolidation and Rehabilitation.

² Include Input Subsidies for Padi (for the Sixth Plan only); Agricultural Credit, R&D (exclude allocation under IRPA), Processing and Marketing; and Extension and Other Services.

V. CONCLUSION

8.86 The agriculture sector continued to play its role in contributing towards national development in the Sixth Plan period. Besides contributing to GDP, employment and export earnings, the sector provided raw materials to the domestic agro-based industry as well as food for the population. At the same time, the sector also contributed towards conserving the ecology and environment as well as ensuring sustainable development.

8.87 During the Seventh Plan period, relevant policies, strategies and programmes will be reviewed to adjust to the changing economic environment. The targeted growth of the sector will be realized through enhancing productivity, efficiency and modernization. The private sector is expected to play a greater role in agricultural development thereby reducing the role of the public sector in agriculture. In this regard, agricultural agencies will be revamped with the view to increasing their efficiency and effectiveness. These changes are expected to spearhead the transformation of the agriculture sector as well as release available resources to the other sectors of the economy.

