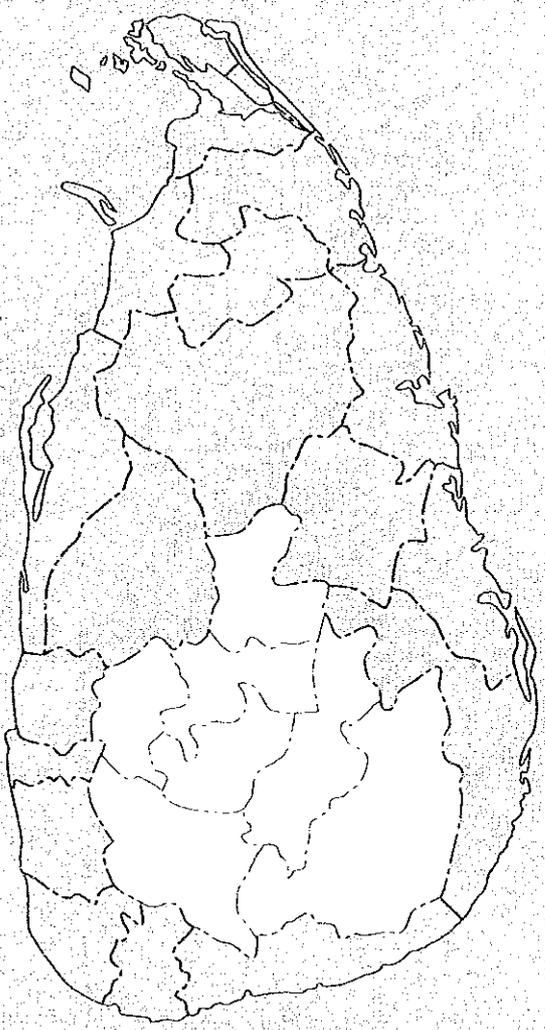


**MASTER PLAN STUDY ON
THE AGRICULTURAL AND RURAL DEVELOPMENT
FOR
UP-COUNTRY PEASANTRY REHABILITATION PROGRAMME**

**VOLUME II
ANNEX I.
MASTER PLAN STUDY**



AUGUST, 1994

MINISTRY OF UP-COUNTRY PEASANTRY REHABILITATION
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MASTER PLAN STUDY ON
THE AGRICULTURAL AND RURAL DEVELOPMENT
FOR UP-COUNTRY PEASANTRY REHABILITATION PROGRAMME

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**MASTER PLAN STUDY ON
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FOR
UP-COUNTRY PEASANTRY REHABILITATION PROGRAMME**

VOLUME II

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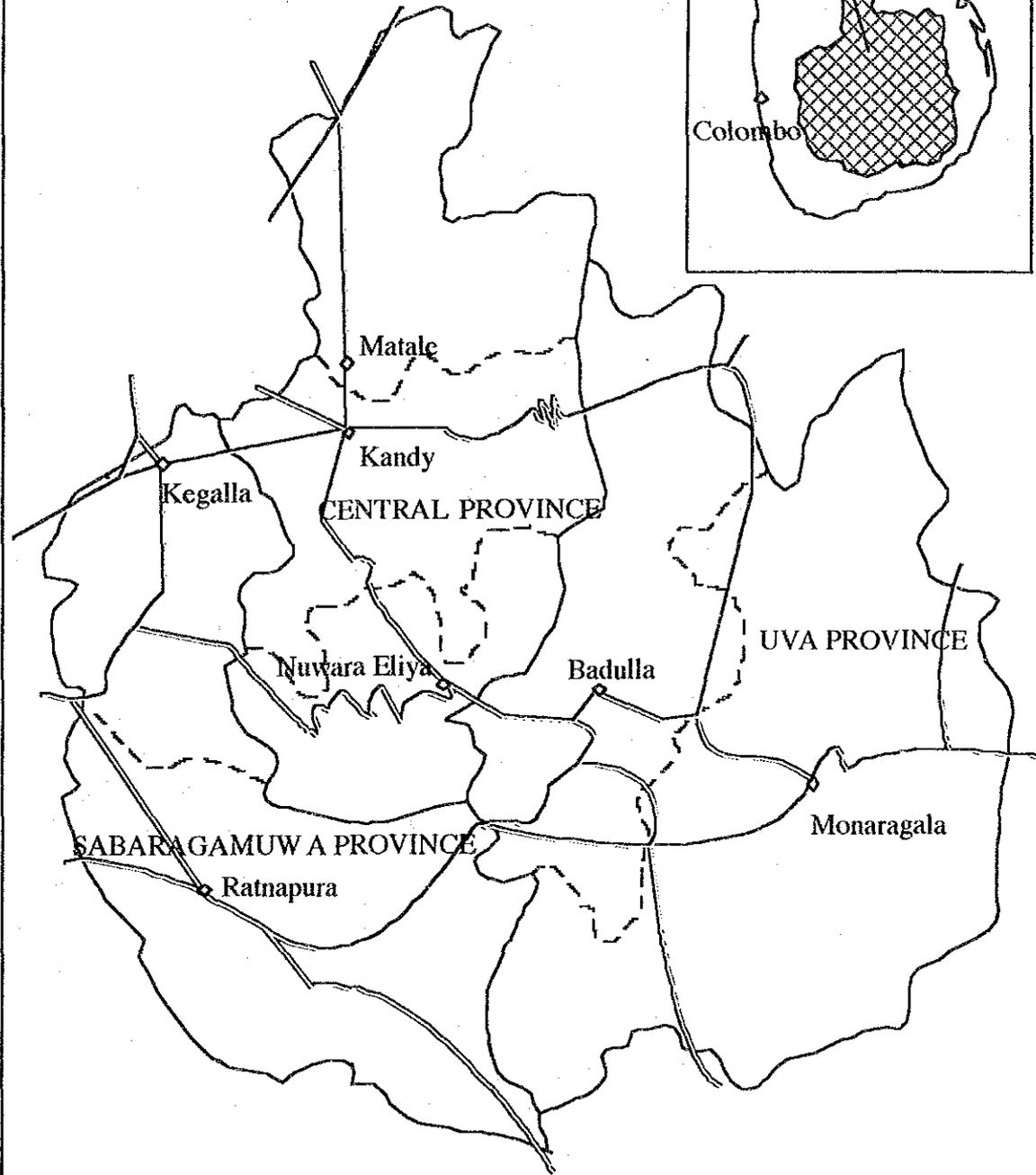
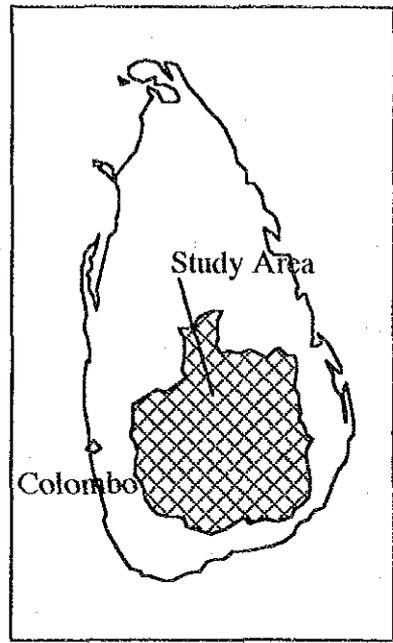
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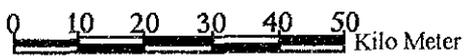
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Legend

- Province Boundary
- - - District Boundary
- Main Road



SCALE



LOCATION MAP

MASTER PLAN STUDY ON THE AGRICULTURAL AND RURAL DEVELOPMENT FOR
UP-COUNTRY PEASANTRY REHABILITATION PROGRAMME

VOLUME II

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GLOSSARY OF TERMS AND ABBREVIATIONS

ADB	Asian Developing Bank
AEP	Agricultural Extension Project
AGA	Assistant Government Agents
ARS	Agricultural Research Station
ARTI	Agricultural Research and Training Institute
CEA	Central Environment Authority
CEB	Ceylon Electricity Board
CECB	Central Engineering Consultancy Bureau
CFC	Ceylon Fertilizer Corporation
Chena	Burning, slashing and shifting cultivation
CIDA	Canadian International Development Agency
CWE	Cooperative Wholesale Establishment
DA&DDP	Draught Animal and Dairy Development Project
DANIDA	Danish International Development Agency
DAPH	Department of Animal Production and Health
DAS	Department of Agrarian Services
DATC	District Agricultural Training Centre
DM	Department of Meteorology
DOA	Department of Agriculture
DUPR	Department of Up-country Peasantry Rehabilitation
DWC	Department of Wildlife Conservation
EC	Electric Conductivity
EIRR	Economic Internal rate of return
EIRR	Economic Internal Rate of Return
FAO	Food and Agriculture Organization of United Nations
FINNIDA	Finish International Development Agency
GA	Government Agent
GDP	Gross Domestic Product
GN	Grama Nalidari Sub-division of Assistant Government Division
GOSL	Government of Sri Lanka
GRDP	Gross Regional Domestic Product
HD	Health Department
IBRD	International Bank for Reconstruction and Development
ID	Irrigation Department
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IRDP	Integrated Rural Development Programme
IUCN	International Union for Conservation of Nature and Natural Resources
JICA	Japan International Cooperation Agency
LUPPD	Land Use Policy Planning Division
MAD&R	Ministry of Agriculture Development and Research
Maha	North-east monsoon season (approx. Oct.-Mar.)
MASL	Mahaweli Authority of Sri Lanka
MCM	Million cubic meters
MICDP	Moneragala Irrigation and Community Development Project
MIFMD	Ministry of Irrigation, Forestry and Mahaweli Development
ML	Ministry of Lands
MUPR	Ministry of Up-country Peasantry Rehabilitation
NADSA	National Agricultural Diversification and Settlement Authority
NGO	Non Government Organization
NIRP	National Irrigation Rehabilitation Project

NLDB	National Livestock Development Board
NORAD	Norwegian Agency for International Development
NWS&DB	National Water Supply and Drainage Board
O&M	Operation and Maintenance
OECD	The Overseas Economic Cooperation Fund
OFCs	Other Field Crops, meaning all field crops other than paddy rice
PMB	Paddy Marketing Board
RARS	Regional Agricultural Research Station
RDA	Road Development Authority
RRS	Rice Research Stations
SAEP	Second Agricultural Extension Project
UNDP	United Nations Development Programme
WB	World Bank
WHO	World Health Organization
Yala	South-west monsoon season (approx. Apr.-Aug.)

CONVERSION FACTORS

	<u>Form Metric System</u>	<u>To Metric System</u>
Length	1 cm = 0.394 inch	1 inch = 2.54 cm
	1 cm = 3.28 ft = 1.094 yd	1 ft = 30.48 cm
	1 km = 0.621 mile	1 yd = 91.44 cm
		1 mile = 1.609 km
Area	1 cm ² = 0.155 sq.in	1 sq.ft = 0.0929 m ²
	1 m ² = 10.76 sq.ft	1 sq.yd = 0.835 m ²
	1 ha = 2.471 acres	1 acre = 0.4047 ha
	1 km ² = 0.386 sq.mile	1 sq.mile = 2.59 km ²
Volume	1 cm ³ = 0.0610 cu.in	1 cu.ft = 28.32 lit
	1 lit = 0.220 gal.(imp)	1 cu.yd = 0.765 m ³
	1 kl = 6.29 barrels	1 gal.(imp.) = 4.55 lit
	1 m ³ = 35.3 cu.ft	1 gal.(US) = 3.79 lit
	10 ⁶ m ³ = 811 acre-ft	1 acre-ft = 1,233.5 m ³
Energy	1 kWh = 3,413 BTU	1 BTU = 0.293 Wh
Temperature	°C = (°F-32) 5/9	°F = 1.8°C + 32
Derived measures		
	1 m ³ /s = 35.3 cusec	1 cusec = 0.0283 m ³ /s
	1 kg/cm ² = 14.2 psi	1 psi = 0.703 kg/cm ²
	1 ton/ha = 891 lb/acre	1 lb/acre = 1.12 kg/ha
	10 ⁶ m ³ = 810.7 acre-ft	1 acre-ft = 1,233.5 m ³
	1 m ³ /s = 19.0 mgd	1 mgd = 0.0526 m ³ /s

EXCHANGE RATE

US\$ 1.0 = J.Yen 115.0 = RS. 46.73 (as end of May 1993)

CHAPTER 1 INTRODUCTION

1.1 Authority

This Report is prepared by JICA Study Team in accordance with the Scope of Work for the Master Plan Study on the Agricultural and Rural Development for Up-Country Peasantry Rehabilitation Programme agreed upon in November 1992 between the Ministry of Lands, Irrigation and Mahaweli Authority of the Democratic Socialist Republic of Sri Lanka and the Japan International Cooperation Agency (hereinafter referred to as JICA). This Report presents the Master Plan Study on the agricultural and rural development for up-country peasantry rehabilitation programme and comprises a study of the present conditions of the Study area and the development plans on land and water resources, agriculture and rural infrastructure, agricultural promotion, and, environment preservation and control.

1.2 Background of the Study

Up-Country peasantry area comprising the Central, Uva and Sabaragamuwa Provinces, and the Ampara District of the Eastern Province, is located largely in the central hilly area of Sri Lanka. These areas are basically characterized by numerous mountains and deep valleys as well as its high altitude.

Up-Country areas have suffered a great deal as a result of the colonial rule. After the British occupation of the Kandyan Kingdom in 1815, there came the impact of new rules of political organization, of society, of land utilization and of commerce. In particular, land use in these areas were forced to change dramatically because the tremendous expanse of Crown lands were sold to planters at a nominal rate for establishing plantations, and the the enactment of Ordinances, the Crown Lands (Encroachments) Ordinance, No. 12 of 1840 and the Waste Lands Ordinance, No. 1 of 1987, deprived the people much of their chena lands and land available for village expansion. In addition to this, the number of estate labourers of Indian origin increased remarkably due to the large scale expatriation from South India, a practice resorted to by the planters.

By the end of 1850s most of the land resources in the Up-Country region, with the exception of Moneragala district and part of the Ampara district, had been utilized for the commercial agricultural sector leaving behind very little room for the expansion of the traditional agricultural sector.

As a consequence of the serious problem created by inadequacy of agricultural lands, the Up-Country has been one of the worst effected regions of Sri Lanka by chronic problems of high unemployment, landlessness, malnutrition and slow growth.

As a result of this situation the Government of Sri Lanka has given special attention to rehabilitate this region.

The statements of policies and programmes of the Government identifies the following as the plan of action for Up-Country Peasantry Rehabilitation:

1. Provide the basic infrastructure needs of the impoverished peasantry;
2. Implement specific regional strategies to respond to the felt needs of the people of the hill country; and

3. Implement a unified land and human settlements development policy for landless villagers and plantation workers in the plantation areas, through a single instead of a dual-process of development for both these target groups.

The Government of Sri Lanka established the Ministry of Up-Country Peasantry Rehabilitation (MUPR) under Ministry of Lands, Irrigation and Mahaweli Authority in March 1989 and requested the Government of Japan to extend technical cooperation for a Master Plan Study on the Agricultural and Rural Development for Up-Country Peasantry Rehabilitation Programme (hereinafter referred to as Study). In response to the request of the Government of Sri Lanka, the Government of Japan accepted the Project and dispatched the preparatory study team in November 1992 to conclude the Scope of Work for the Programme (Appendix 1)

1.3 Objective of the Study

The objectives of the Study as agreed upon MLIMD and JICA are as follow:

- 1) To formulate the Master Plan of the Agricultural and Rural Development for the Up-Country Peasantry Rehabilitation Programme,
- 2) To carry out case study in selected areas based on a guideline formulated through the Study, and
- 3) To carry out technology transfer to the Sri Lanka counter part personnel in the course of the Study.

1.4 Study Area

The Study area consists of Central Province, Uva Province, and Sabaragamuwa Province covering 18,970 km² as shown on the Location Map.

CHAPTER 2 BACKGROUND OF THE STUDY

2.1 National Economy

Sri Lanka is a small island country, located in the Indian Ocean, with an area of 65,610 km². Population as of 1991 is estimated at 17.2 million, with a relatively high population density of 262/km². The annual population growth rate during the past decade was 1.5%. Population is composed of a number of ethnic groups: Sinhalese (74.0% of the total population in 1981 Census), Tamil (18.2 %), Moor.(7.0%), and others (0.8%).

In Sri Lanka, there have been a number of administrations since independence in 1948, with transition in all instances by democratic election. The Government has historically emphasised social welfare programmes, and social indicators of literacy, school enrolment, infant mortality, child birth mortality and average life expectancy are at relatively superior levels compared to nearby countries. Nevertheless, GDP per capita at current prices is low at US\$ 475 in 1991.

Sri Lanka has been experiencing considerable disruption of social and political life since 1983. This disruption, coupled with a prolonged drought and a decline in the terms of trade, has significantly hampered economic progress. The fiscal position of the government deteriorated as a result of increased expenditures on defence, internal security and wage concessions on the one hand and stagnant revenues on the other hand. Other serious socio-economic problems included inflation and unemployment which both had risen sharply.

The situation has continued to worsen until June 1989, when a series of more effective measures were introduced. In order to strengthen the national economy, the Government agreed with the International Monetary Fund (IMF) to an overall framework for structural adjustment in 1988, and has directed efforts at market liberalisation policy, fiscal reform, restructuring in the public sector and expanded job opportunities. For instance, the bank lending rates were increased; the controlled and subsidised price of wheat was increased by 20 %; the subsidy on fertiliser were withdrawn; and a 30 % cut was made in non-wage, non-interest current expenditures in the Government budget, among others.

The growth of GDP between 1985 and 1989 was estimated at about 2.7 %, the figure indicating that the economic growth during the period was stagnant. However, the Sri Lankan economy has begun to show a sharp recovery in economic performance since 1990 due mainly to a recovery of commodity production both agricultural and industrial, and a substantial improvement in the external trade and payment position. Furthermore, ethnic strife between Sinhalese and Tamils has also been less intense since 1990. The GDP in real terms grew by 6.2% and 4.8 % in 1990 and 1991, respectively, after the average growth rate of 2.7% in 1985-89. In 1991, GDP of Sri Lanka was estimated at Rs. 339,048 million (Tables 2.1-1 and 2). The per capita GDP in 1991 was estimated at Rs. 19,655 or US\$ 475 at current market price (adopted exchange rate US\$ 1.00 = Rs. 41.37). Its growth between 1989 and 1991 was estimated at about 5.5% in real terms.

The sectoral percent GDP is shown in Table 2.1-3, indicates that the agricultural sector plays a very important role in the Sri Lankan economy. It accounted for about 26.9 % of the total GDP and with paddy and plantation crops such as tea occupying the greater part of it. Furthermore, the agricultural sector accounted for about 39.6 % of export earnings in the recent years. About 47.8 % of the labour force depends on

agriculture and the sector will continue to play a vital role in the Sri Lankan economy. Contribution of the industry and services sectors averaged at 26% and 48 % of the total GDP, respectively.

In 1991 the Sri Lankan foreign trade recorded export earnings of Rs. 84,378 million and import expenditure of Rs. 126,643 million, producing a trade deficit of Rs. 42,265 million, and is summarised below. Textiles and garments earned Rs. 33,261 million or 39.4% of total export value in 1991 and followed by Tea of Rs. 17,867 million as shown in Table 2.1-4.

Balance of Trade

Item	1987	1988	1989	1990	1991
Export value	41,132	46,926	56,175	79,481	84,378
Imports value	60,530	71,030	80,224	107,728	126,643
Total balance	-19,398	-24,104	-24,049	-28,247	-42,265

Source: Central Bank of Sri Lanka

The import outlay on food and drink in consumer goods rose by 13.9 % (Rs. 32,357 million) in 1991. In the food and drink category, the value of rice, sugar and milk and milk products accounted for 29.5 % or Rs. 9,525 million.

2.2 National Development Planning

2.2.1 General

The Government of Sri Lanka, in consultation with the IMF and the World Bank, has pursued market liberalisation and tightened fiscal policies under the former Jayawardena administration till the present administration.

Until 1985, serious efforts at economic restructuring were not pursued due to the relative ease of capital procurement on the international money market, as well as the high export prices. However, economic conditions took a sharp turn for the worse in 1985, forcing attention to be focused on immediate urgent measures and long term reform policies.

The Government announced a stabilisation programme in November 1986, comprising cuts in public expenditure and a flexible exchange rate. A Policy Framework Paper (PFP) was submitted in 1988, based on the above programme. The PFP stressed: (i) public administrative reforms, (ii) public enterprises reforms, (iii) restructuring of public expenditure, and (iv) industrial and trade reforms.

Escalating civil disturbance and inflation in 1989 forced recognition of urgent measures to alleviate unemployment and poverty as essential components for social stability. The PFP formulated against this background emphasized (i) economic restructuring and (ii) alleviation of unemployment and poverty, in order to ease the social cost for structural reform.

The economic restructuring carried out by the Government in consultation with the IMF and the World Bank is based on the PFP, and comprises the following specific components:

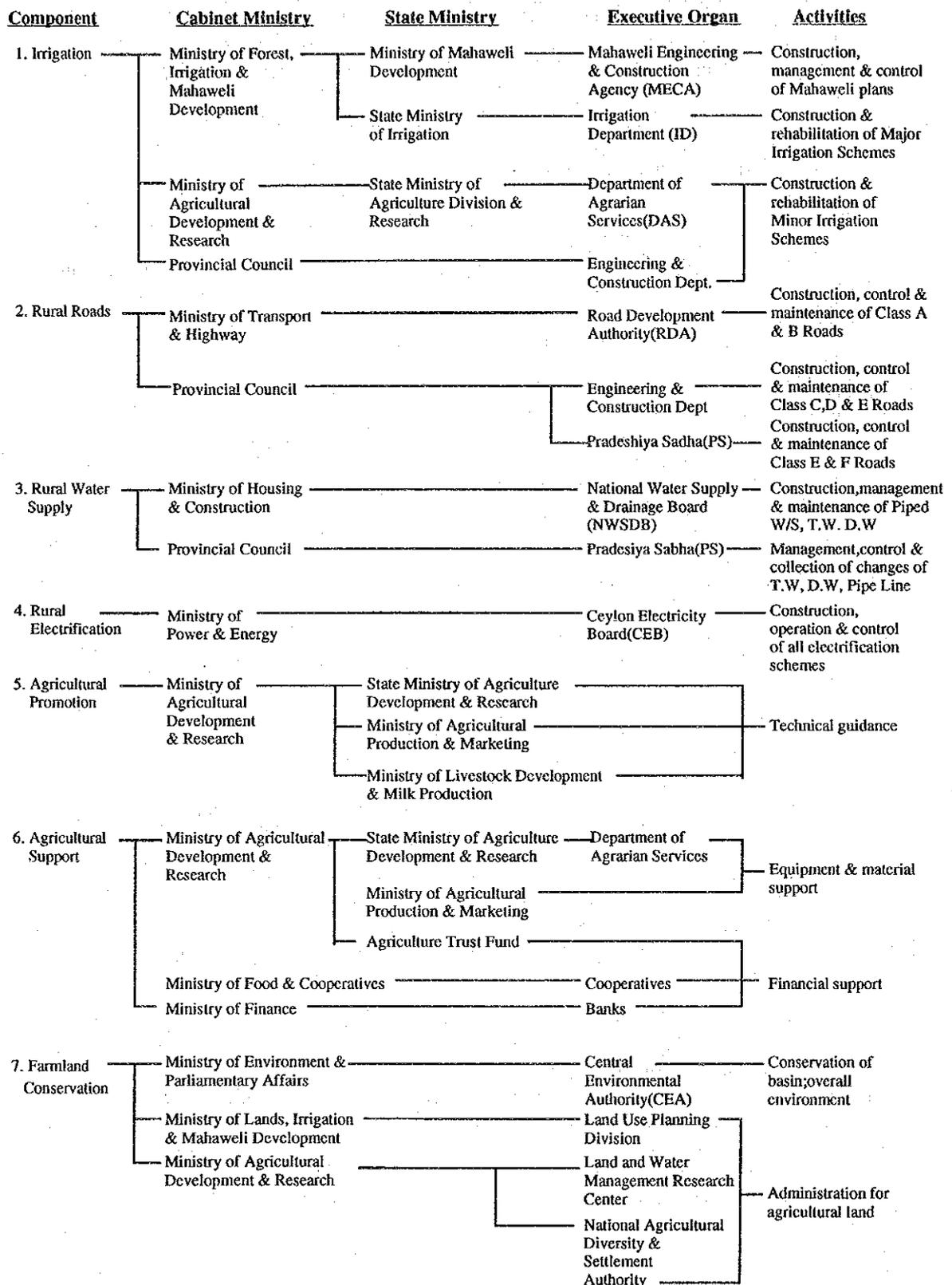
- (i) Stabilization of the Macro-Economy
 - 1) Reduction of budget deficit and international payments deficit;
 - 2) Raising of public utility rates (electricity, transportation, water);
 - 3) Reduction/suspension of subsidies (wheat, railway, rice, etc.);
 - 4) Tax reform (introduction of value added tax, expansion of taxable base); and
 - 5) Maintenance of competitive exchange rate.
- (ii) Rationalization of Public Sector
 - 1) Administrative reform (reduction of personnel over 3-4 year period by 80,000-90,000);
 - 2) Rationalization of public expenditure (welfare related expenditure, public investment planning)
- (iii) Private Sector Stimulation
 - 1) Easing of controls and incentive system reforms
 - 2) Lowering of customs duties
 - 3) Expansion of private sector role in distribution of rice, fertilizer, wheat, etc.
 - 4) Reform of national enterprises (transport, plantation)
- (iv) Counter-measures for poverty
 - 1) Revaluation of food stamp system (reduction of recipients);
 - 2) Shift to production oriented Janasaviya;
 - 3) Reassessment of free lunch programme (shift to programme directed at pre-school children and under-nourished mother).

2.2.2 Administrative Organizations

The President is the head of State and chief executive of the administrative apparatus of the Government of Sri Lanka and the cabinet is elected by the people to serve a 6 year term. The cabinet consists of the Prime Minister and 28 Cabinet Ministers. Each Cabinet Ministry has one or more State and Project Ministries as shown in Fig. 2.2-1. The provinces are governed by 9 Provincial Councils each consisting of a Provincial Governor, Chief Minister and the provincial Ministries in line with the Cabinet Ministries of the Central Government. Under the Provincial Governments are 12 Municipal Councils, 39 Urban Councils and 254 Pradeshiya Sabhas responsible for local government administration..

Under the 13th Amendment to the Constitution, administrative authority of virtually all Government services were devolved to the Provinces, and within the Provinces the administration was decentralized to the Divisions. The Central Government is basically responsible for the national policy, fund allocation and the execution of large scale interprovincial projects.

The present plan covers diverse fields involving many cabinet ministries and governmental agencies, and the major components of the Master Plan and administrative bodies are shown below:



The executing agency for this Master plan is the Department of Up-Country Peasantry Rehabilitation (DUPR) of the Ministry of Up-Country Peasantry Rehabilitation (MUPR), under the Ministry of Lands (Before 23, August, 1993 DUPR and MUPR were under the Ministry of Land, Irrigation & Mahaweli Development (MLIMD)). The MUPR, as shown in Fig. 2.2-2, has no executive divisions for project implementation.

Since investments in the Up-Country region had been largely on the development of the plantations sector, the economic conditions and living standard of the inhabitants of the area has remained at a lower level than that of other regions. The region has problems of landlessness, intensifying unemployment and inferior agricultural and social infrastructures such as transport, communication, irrigation, etc. The MUPR was established to solve these problems. Its basic policies are as follows:

1. To provide basic infrastructures for inhabitants in lower income brackets
2. Implementation of regional policy that satisfies the needs of inhabitants
3. Introduction of a comprehensive land system for landless peasants and plantation workers and implementation of rehabilitation programs to help them settle.

The MUPR, in implementing the project in line with the basic policies above, performs the functions of securing the budget, coordinating the project with existing programmes and projects, and executing small supplementary projects. The MUPR allocates budgets to ministries and agencies for project execution. Projects implemented by the MUPR over the past 3 years consist of those for improvement of the social infrastructure including roads, water supply, education, electrification, etc. It has an annual budget of Rs.10-20 million, and special emphasis has been placed on educational projects. The number of projects by category and annual budget allocations for 1989-1993 are as follows:

Project category	1989	1990	1991	1992	1993
Roads	8	16	39	33	1
Water supply	3	9	7	4	
Dug well(D.W.)	1	0	6	2	
Electrification	1	8	10	9	
Education	22	19	32	9	2
Markets	1			1	
Others	7	13	13	4	
TOTAL	43	65	108	61	6
Project budget (in million RS)	10.4	9.2	18.7	11.2	0.9

Since the MUPR, as described before, has no executive divisions, implementation of projects requires coordination with the relevant ministries and agencies. The relation between the MUPR and the agencies concerned for the project implementation is shown in Fig. 2.2-3.

2.2.3 Public Investment Plan

Public Investment, 1992 - 1996 provides the latest national economic development policy for the coming five years. The rolling plan concept in Public Investment followed by the Government has enabled the programme to be reviewed and revised every year taking into account changes in the national priorities and objectives and the availability of resources. Sectoral investment allocation for the 1992-1996 period has been guided basically by the priorities laid down in the sector strategies such as the National Agricultural Food and Nutrition Strategy, the Medium Term Investment

Programme for the Plantation Sector, the Power and Telecommunication Master Plan, and the Road Rehabilitation Programme .

The major policies for the irrigation, infrastructure and human settlement sectors are as follows:

Irrigation

Government policy in the irrigation sector is to continue to focus on investment on rehabilitation and improved O & M to reap maximum benefit from existing major/minor schemes. It is also the policy of the irrigation sector that the management of irrigation systems below the distributory canal level are to be handed over to farmer organizations who will be charged for the services rendered by the center in cash or labour.

Road Transportation

The greater part of the road network was built many years ago designed to carry neither the numbers nor the weight of vehicles now imposed on the system. In addition, road maintenance has not been adequately funded and, therefore, the periodic and routine maintenance has been neglected. Hence, the highest priority should be accorded to the rehabilitation of roads rather than to the construction of new roads.

Rural Electrification

Rural electrification should be given high priority in the infrastructural sector because of its socio-economic impact. Up to end of 1991, more than 9,300 rural electrification schemes, including projects under IRDP & DCB, have been completed. The Government's overall goal is in providing electricity to all villages by the year 2000.

Water Supply

The Government's overall goal is to achieve 100 % coverage by the year 2000 under an Investment Programme prepared by the National Water Supply and Drainage Board. The goal would be achieved in the rural sector through the provision of wells installed with hand pumps.

Sector wise allocation plan for Government development budget is shown in Table 2.2-1. During period 1987-1991, the share of the current expenditure of the Government to the GDP fluctuated between 20 % and 23 %, showing an average of 21.5 % per year for the five (5) year period. Budget for development projects fluctuated greatly from year to year, ranging from 40 % to 66 %, with an estimated average of 48.8 % per year. The Government economic adjustment policy was initiated in 1989, and for the three year period from 1989 to 1991, the average annual share is estimated at 42.5 %. This figure is substantially lower than the average of 64.2 % during the preceding two years. Economic infrastructure is targeted for largest allocation at about 35 %, in an effort to establish infrastructural base for efficient functioning of private sector activities. The next largest sector allocation is for human settlement at 21 %. Agriculture is third at 19 %, and followed by social infrastructure of 10 %.

Budget allocation pattern well reflects the development policy of (i) stimulation of the private sector through the improvement of economic and social infrastructure, and (ii) alleviation of poverty.

2.2.4 Government Agricultural Policies

The last comprehensive agricultural strategy of the "National Agriculture Food and Nutrition Strategy" was made in June 1984 in order to help achieve a better regional and sectoral balance in resources allocation.

The major objectives for the agriculture sector which still apply today are:

- (1) moving towards a higher degree of self-reliance in basic food commodities namely rice, fish, sugar, pulses and milk;
- (2) increasing the productivity of the tree crop sector to expand export earnings;
- (3) enhancing the incomes and creation of new employment opportunities in the rural sector; and
- (4) improving the nutritional status of the people.

In a more recent review of agricultural and rural development policy, considerable emphasis was placed on poverty alleviation. In 1989, the Ministry of Agriculture, Food and Cooperatives announced a scheme to work in parallel with the Janasaviya Programme by encouraging the development of commercially oriented agricultural production villages. The scheme proposes linking commercial agricultural production at the village level through guaranteed markets to agro-based industries and export markets, with the provision of subsidies, tax incentives and technical support at all stages in the process.

The Ministry of Agricultural Development and Reserch is in the process of formulating the new agricultural development strategy for issue in 1994, titled "Agricultural Growth and Restructuring Strategy (AgGro Strategy)". According to this strategy, the Ministry will set up the mid-term investment plan to accelerate the agricultural sector growth.

2.2.5 Related Development Planning

Related major development planning include the Janasaviya Programme and Integrated Rural Development Plan (IRDP).

(1) Janasaviya Programme

Sri Lanka confronts problems of high unemployment and poverty, with serious impact on both political and socio-economic stability. The Government has vigorously promoted measures to alleviate poverty including food stamps, school mid-day meals and the Janasaviya Programme since 1989.

The programme is being implemented under a loan from the World Bank. Executing agencies are the newly established Janasaviya Trust Fund in collaboration with the Employment and Poverty Policy Planning Unit of the MPPI.

The Janasaviya Programme began with its first round in 1989, targeted at 29 divisions. A second round is now underway aimed at 30 divisions. A total of 11 rounds are ultimately planned for the programme .

The following funding is provided to achieve the objectives:

- (a) **Credit Fund**
Credit to assist the poor and unemployed to achieve occupational independence.
- (b) **Community Projects Fund**
Funding extended to projects which contribute to expanded employment opportunity for the poor, and projects to construct infrastructure.
- (c) **Human Resources Development Fund**
 - Strengthening of Provincial Officer capability (project planning, implementation and evaluation)
 - Technical training to Janasaviya Programme beneficiaries
- (d) **Nutrition Fund**
Funding for nutritional supplement to pregnant women, nursing mothers, and children under 3 years old.

The most recent Janasaviya programme guidelines set out the following procedure:

- (a) On the basis of detailed survey of food stamp recipients, poor households are classified according to income into 3 groups: under Ps. 700/month, Rs. 700-1,000/month, and over 1,000/month. Households with income level under Rs 700/month are targeted as programme beneficiaries.
- (b) Beneficiaries choose either paid employment or technical training as a means of achieving occupational independence.
- (c) Beneficiaries provide 20 days of labour during the month prior to receiving benefits under the programme.
- (d) Provision of funds to beneficiaries.
- (e) Divisional planning units carry out vocational training of beneficiaries.

(2) Integrated Rural Development Programme (IRDP)

The IRDP has emerged as means of benefiting the poor population in areas outside the Mahaweli basin and the immediate environs of Colombo where the major thrust of development fastened to be focused over the years. Since the latter 1970's, the need for development aimed at this poor segment of society in rural areas has been sharply realized.

Features of the IRDP are:

- small scale investment;
- prompt realization of benefits;
- labour intensive investment;
- maximum utilization of existing infrastructure and resources;
- emphasis on regional needs and priorities.

The IRDP programme was conceived in 1978 with the District as the administrative unit, and implemented by the former Ministry of Plan Implementation. Today the implementation of IRDP is devolved to the Provincial Councils and ways and means of devolving implementation further down to the Divisional level are being examined.

The IRDP projects being implemented in the Study area are stated in the foregoing Chapter 3.

TABLES

Table 2.1-1 ESTIMATE OF GDP AT CURRENT FACTOR COST PRICES

Sector	Amount (Rs. Million)										Percentage Distribution (%)				
	1982	1987	1988	1989	1990	1991	1985	1987	1988	1989	1990	1991			
1. Agriculture, Forestry and Fishing	24,964	47,923	53,600	58,462	76,504	91,148	26.4	27.0	26.3	25.6	26.3	26.9			
1) Agriculture	20,771	40,579	45,557	48,797	65,157	76,000	21.9	22.8	22.4	21.4	22.4	22.4			
2) Forestry	1,710	3,642	4,006	4,578	5,547	7,266	1.8	2.0	2.0	2.0	1.9	2.1			
3) Fishing	2,483	3,702	4,037	5,087	5,800	7,882	2.6	2.1	2.0	2.2	2.0	2.3			
Industry	23,795	46,417	51,808	58,253	71,767	79,941	25.1	26.1	25.5	25.5	24.6	23.6			
1) Mining and Quarrying	2,238	4,927	5,567	5,980	7,098	7,204	2.4	2.8	2.7	2.6	2.4	2.1			
2) Manufacturing	13,601	28,470	31,298	34,941	43,128	48,361	14.4	16.0	15.4	15.3	14.8	14.3			
3) Construction	7,956	13,020	14,943	17,332	21,541	24,376	8.4	7.3	7.3	7.6	7.4	7.2			
3. Services	45,917	83,391	98,108	111,423	142,224	167,960	48.5	46.9	48.2	48.8	49.0	49.5			
1) Electricity, Gas, Water and Sanitary	1,089	2,346	2,492	2,788	3,652	4,930	1.2	1.3	1.2	1.2	1.3	1.5			
2) Transport Storage and Communication	10,666	18,663	21,988	23,109	28,655	34,870	11.3	10.5	10.8	10.1	9.9	10.3			
3) Trade	19,694	34,520	40,578	46,625	61,812	71,616	20.8	19.4	19.9	20.4	21.3	21.1			
4) Finance	3,715	7,455	9,002	10,496	13,225	16,178	3.9	4.2	4.4	4.6	4.6	4.8			
5) Others	10,753	20,407	24,048	28,405	34,880	40,366	11.4	11.5	11.8	12.5	12.0	11.9			
Constant Factor Cost															
Total	94,676	177,731	203,516	228,138	290,495	339,049	100.0	100.0	100.0	100.0	100.0	100.0			
GDP per Capita (Rs.)	6,231	10,863	12,270	13,575	16,840	19,655									
(US\$)	385.8	353.2	385.7	376.6	420.4	475.1									
Average Exchange Rate (Rs./US\$)	16.15	30.76	31.81	36.05	40.06	41.37									

Source: Annual Report, Central Bank of Sri Lanka

Table 2.1-2 ESTIMATE OF GDP, AT CONSTANT 1982 FACTOR COST PRICES

Sector	Amount (Rs. Million)										Annual Growth Rate (%)					Average Growth Rate(1982-91)
	1982	1987	1988	1989	1990	1991	1982	1988	1989	1990	1991	1990	1991	1991		
1. Agriculture, Forestry and Fishing	24,964	27,409	27,984	27,666	30,011	30,869	-	2.1	-1.1	8.5	2.9	8.5	2.9	2.4		
1) Agriculture	20,771	23,003	23,762	23,311	25,729	26,240	-	3.3	-1.9	10.4	2.0	10.4	2.0	2.6		
2) Forestry	1,710	2,215	1,943	1,985	2,030	2,107	-	-12.3	2.2	2.3	3.8	2.3	3.8	2.3		
3) Fishing	2,483	2,191	2,279	2,370	2,252	2,522	-	4.0	4.0	-5.0	12.0	-5.0	12.0	0.2		
2. Industry	23,798	30,198	31,477	32,578	35,089	36,453	-	4.2	3.5	7.7	3.9	7.7	3.9	4.9		
1) Mining and Quarrying	2,238	3,112	3,392	3,576	3,901	3,511	-	9.0	5.4	9.1	-10.0	9.1	-10.0	5.1		
2) Manufacturing	13,601	18,748	19,622	20,488	22,427	23,979	-	4.7	4.4	9.5	6.9	4.4	9.5	6.5		
3) Construction	7,959	8,338	8,463	8,514	8,761	8,963	-	1.5	0.6	2.9	2.3	0.6	2.9	1.3		
3. Services	45,917	58,315	59,589	61,485	64,144	68,067	-	2.2	3.2	4.3	6.1	3.2	4.3	4.5		
1) Electricity, Gas, Water and Sanitary	1,089	1,448	1,499	1,526	1,681	1,812	-	3.5	1.8	10.2	7.8	1.8	10.2	5.8		
2) Transport Storage and Communication	10,666	13,538	13,619	13,883	14,410	15,260	-	0.6	1.9	3.8	5.9	0.6	3.8	4.1		
3) Trade	19,694	24,496	25,164	25,588	26,497	28,423	-	2.7	1.7	3.6	7.3	2.7	3.6	4.2		
4) Finance	3,715	5,490	5,819	6,168	6,556	6,989	-	6.0	6.0	6.3	6.6	6.0	6.3	7.3		
5) Others	10,753	13,343	13,488	14,320	15,000	15,583	-	1.1	6.2	4.7	3.9	1.1	6.2	4.2		
Constant Factor Cost																
Total	94,679	115,922	119,050	121,729	129,244	135,389	-	2.7	2.3	6.2	4.8	2.7	6.2	4.1		
GDP per Capita (Rs.)	6,233	13,318	7,178	7,243	7,606	7,967										

Source: Annual Report, Central Bank of Sri Lanka

Table 2.1-3 SECTRAL COMPOSITION OF AGRICULTURE IN GDP

Sector	Constant 1982 Price											
	Amount (Rs. Million)					Annual Growth Rate (%)					Average Growth Rate(1982-91)	
	1982	1987	1988	1989	1990	1991	1982	1987	1988	1989		1990
Agriculture, Forestry and Fishing	20,771	23,003	23,762	23,311	25,818	26,240	2.1	3.3	-1.9	10.8	1.6	2.4
1) Tea	2,418	2,750	2,926	2,668	3,004	3,100	2.7	6.4	-8.8	12.6	3.2	2.5
2) Rubber	770	765	770	697	718	655	-0.1	0.7	-9.5	3.0	-8.8	-1.6
3) Coconut	3,263	2,967	2,501	3,210	3,261	2,827	-1.8	-15.7	28.3	1.6	-13.3	-1.4
4) Paddy	5,484	5,423	6,312	5,258	6,467	6,301	-0.2	16.4	-16.7	23.0	-2.6	1.4
5) Other	8,836	11,098	11,253	11,478	12,368	13,357	5.1	1.4	2.0	7.8	8.0	4.2
2. Forestry	1,710	2,215	1,943	1,985	2,030	2,107	5.9	-12.3	2.2	2.3	3.8	2.1
3. Fishery	2,483	2,191	2,279	2,370	2,252	2,522	-2.4	4.0	4.0	-5.0	12.0	0.2
Total	24,964	27,409	27,984	27,666	30,100	30,869	2.0	2.1	-1.1	8.8	2.6	2.1
Sector	Current Price											
	Amount (Rs. Million)					Percentage Distribution (%)						
	1982	1987	1988	1989	1990	1991	1982	1987	1988	1989	1990	1991
Agriculture, Forestry and Fishing	20,771	40,579	45,557	48,797	65,157	65,157	83.2	84.7	84.7	85.0	83.5	85.2
1) Tea	2,418	5,889	6,478	6,697	8,939	8,939	9.7	12.3	12.3	12.1	11.5	11.7
2) Rubber	770	1,215	1,619	1,446	1,483	1,483	3.1	2.5	2.5	3.0	2.5	1.9
3) Coconut	3,263	3,475	5,021	4,917	4,852	4,852	13.1	7.3	7.3	9.4	8.4	6.3
4) Paddy	5,484	8,393	9,420	9,495	15,088	15,088	22.0	17.5	17.5	17.6	16.2	19.7
5) Other	8,836	21,607	23,019	26,242	34,795	34,795	35.4	45.1	45.1	42.9	44.9	45.5
2. Forestry	1,710	3,642	4,006	4,578	5,547	5,547	0.0	0.0	6.8	7.6	7.5	7.3
3. Fishery	2,483	3,702	4,037	5,087	5,800	5,800	9.9	7.7	7.7	7.5	8.7	7.6
Total	24,964	47,923	53,600	58,462	76,504	76,504	100.0	100.0	100.0	100.0	100.0	100.0

Source: Annual Report, Central Bank of Sri Lanka

Table 2.1-4 BALANCE OF TRADE

Commodity	(unit: Rs. million)						
	1985	1986	1987	1988	1989	1990	1991 (Prov.)
I. Export							
1. Agricultural Exports	19,027	15,764	17,437	20,104	22,049	28,851	26,536
1) Tea	12,003	9,253	10,654	12,299	13,664	19,823	17,867
2) Rubber	2,566	2,622	2,929	3,706	3,112	3,080	2,641
3) Coconut	3,093	2,389	2,140	1,538	2,865	2,783	1,769
4) Others	1,365	1,500	1,714	2,561	2,408	3,165	4,259
2. Industrial Exports	14,296	15,878	20,004	22,673	28,470	41,511	50,736
1) Textiles and Garments	7,960	9,629	12,897	14,260	17,631	25,163	33,261
2) Petroleum Products	3,877	2,358	2,592	2,265	2,242	3,974	3,289
3) Othes	2,459	3,891	4,515	6,148	8,597	12,374	14,186
3. Mineral Exports	864	1,182	1,805	2,613	2,693	3,484	2,562
1) Gems	561	755	1,447	2,070	2,204	2,933	2,358
2) Others	303	427	358	543	489	551	204
4. Unclassified	2,021	1,249	1,886	1,536	2,963	5,635	4,544
Total	36,208	34,073	41,132	46,926	56,175	79,481	84,378
II. Import							
1. Consumer Goods	10,462	12,256	13,815	17,439	20,961	28,420	32,357
1) Rice	1,089	1,052	687	1,808	3,396	1,758	1,589
2) Flower	206	90	96	303	175	1,387	1
3) Sugar	1,985	1,764	2,389	2,927	4,326	5,173	5,139
4) Milk and Milk Products	751	922	1,276	1,931	2,298	2,367	2,796
5) Other Food and Drinks	1,875	2,918	3,014	3,245	2,940	4,939	7,225
2) Other Consumer Goods	4,556	5,510	6,353	7,225	7,826	12,796	15,607
2. Intermediate Goods	29,330	28,618	34,620	40,324	45,255	55,757	64,265
1) Fertilizer	1,579	1,282	1,299	2,476	1,755	2,958	2,430
2) Petroleum	10,986	6,293	8,716	7,839	8,376	14,372	12,887
3) Chemicals	902	1,587	1,559	1,887	2,117	4,754	3,643
4) Wheat and Meslin	2,765	2,371	1,923	2,800	4,964	3,791	3,303
5) Textile and Clothing	3,799	6,353	8,086	8,796	9,981	13,454	20,611
6) Others	9,299	10,732	13,037	16,526	18,062	16,428	21,391
3. Investment Goods	10,387	10,556	11,334	12,081	12,018	23,412	29,792
4. Unclassified	3,868	3,129	761	1,186	1,990	139	229
Total	54,047	54,559	60,530	71,030	80,224	107,728	126,643
Total Balance	-17,839	-20,486	-19,398	-24,104	-24,049	-28,247	-42,265

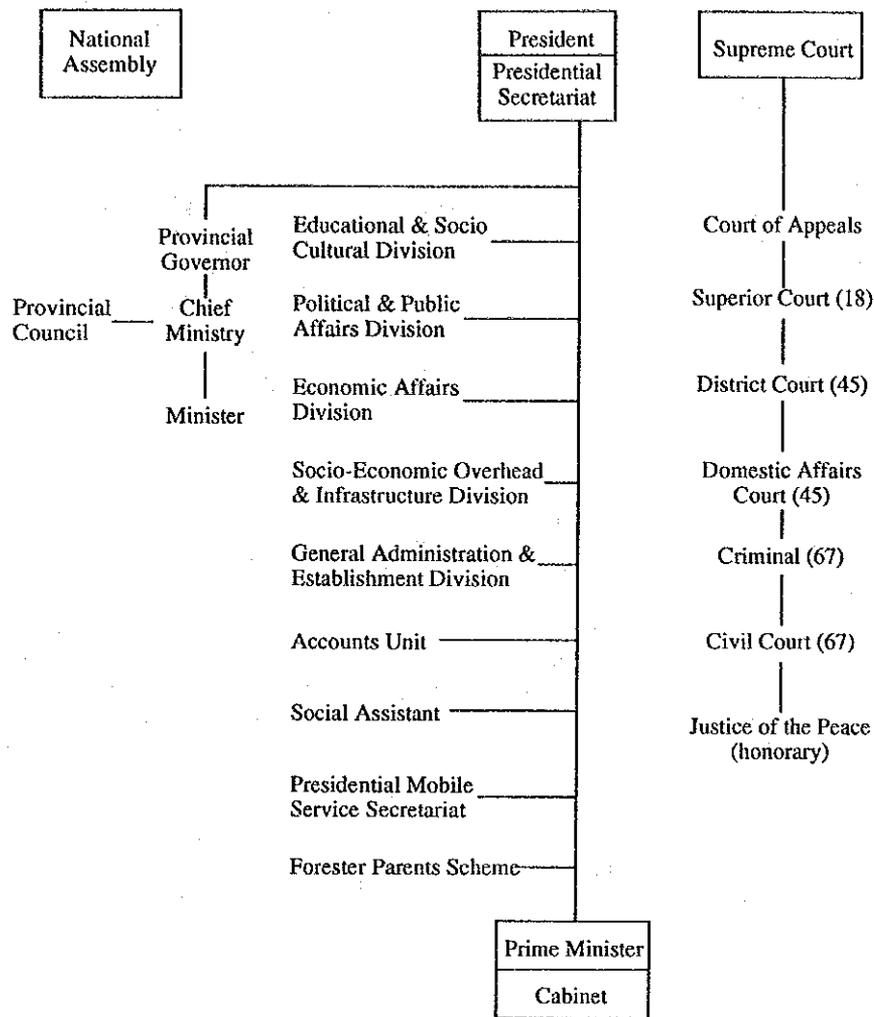
Source: Central Bank of Sri Lanka Annual Report, 1989, 1990 and 1991

Table 2.2-1 PUBLIC INVESTMENT PROGRAMME 1992-1996 SECTOR SUMMARY (Rs. Mn)

Sector	1992	1993	1994	1995	1996	1992-1996 Total	
						Total	Percents
1. Agriculture							
a. Mahaweli	2,712	2,676	4,836	6,830	5,992	23,046	9%
b. Other irrigation	1,140	1,211	1,448	1,207	891	5,897	2%
c. Other	3,395	3,462	4,275	4,221	3,120	18,473	7%
Sub total	7,247	7,349	10,559	12,258	10,003	47,416	19%
2. Industries, tourism & Trade	929	1,048	818	900	999	4,694	2%
3. Human Settlements							
a. Environmental Management	188	143	142	103	59	635	0%
b. Water Supply & Sanitation	2,517	3,469	11,629	8,316	250	26,181	10%
c. Provincial Development	2,696	2,420	2,258	2,220	2,120	11,714	5%
d. IRDP	662	958	1,092	1,104	1,194	5,010	2%
e. Other	1,163	1,568	-5,366	3,444	10,096	10,905	4%
Sub Total	7,226	8,558	9,755	15,187	13,719	54,445	22%
4. Economic Infrastructure							
a. Transport	5,063	6,349	6,171	7,177	5,799	30,559	12%
-Highways	2,803	2,932	3,452	4,790	3,506	16,771	7%
-Other	2,260	3,417	2,719	2,387	2,293	13,788	5%
b. Power & Energy	4,285	5,030	2,794	1,166	261	13,536	5%
c. Other	9,824	8,967	11,439	8,467	6,153	44,850	18%
Sub Total	19,172	20,346	20,404	16,810	12,213	88,945	35%
5. Social Infrastructure	4,707	5,304	5,108	5,700	5,267	26,089	10%
6. Other	4,458	2,856	2,000	1,800	2,000	13,114	5%
Grand Total	43,739	47,526	54,185	57,724	48,127	251,301	100%

Source: Public Investment 1992-1996, Department of National Planning, MPPI

FIGURES



Cabinet Ministers	State & Project Ministers
1. Minister of Buddhism	State Minister of Buddhism
2. Minister of Policy Planning & Implementation	State Minister of Policy Planning & Implementation
3. Minister of Defense	State Minister of Defense
4. Minister of Finance	State Minister of Finance
5. Minister of Transport & Highways	State Minister of Transport
	State Minister of Highways
6. Minister of Justice	Minister of legal & Prisons Reform
7. Minister of Environment & Parliamentary Affairs	Minister of Environment
	State Ministry of Parliamentary Affairs
8. Minister of Education & Higher Education	State Minister of Education
	Minister of Educational Services
	Minister of Higher Education

Fig. 2.2-1 Organization of the Government of Sri Lanka (1/2)

Cabinet Ministers	State & Project Ministers
9. Minister of Public Administration Provincial Councils & Home Affairs	Minister of Home Affairs Minister of Provincial Councils
10. Minister Tourism & Rural Industrial Development	Minister of Rural Industrial Development Minister of Tourism
11. Minister of Industries, Science & Technology	Minister of Mineral & Mineral Based Industries Minister of Science & Technology State Minister of Industries
12. Minister of Lands	Minister of Mahaweli Development State Minister of Irrigation
13. Minister of Forest, Irrigation & Mahaweli Development	Minister of Lands Land Alienation Minister of Upcountry Peasantry Rehabilitation
14. Minister of Fisheries & Aquatic Resources	State Minister of Fisheries & Aquatic Resources
15. Minister of Cultural Affairs & Information	Pro. Minister of Socio-cultural Integration State Minister of Information State Minister of Hindu Religious & Cultural Aff. State Minister of Muslim Religious & Cultural Aff.
16. Minister of Posts & Telecommunications	Minister of Telecommunication Development
17. Minister of Youth Affairs & Sports	Minister of Human Resource Mobilization Sports Minister of Youth Affairs & Sports
18. Minister of Trade & Commerce	Minister of Export Development State Minister of Trade & Commerce
19. Minister of Handlooms & Textile Industries	Minister of Handlooms Industries State Minister of Textile Industries
20. Minister of Health & Women's Affairs	State Minister of Health Minister of Indigenous Medicine State Minister of Women's Affairs
21. Minister of Reconstruction, Rehabilitation & Social Welfare	State Minister of Reconstruction, Rehabilitation & Social Welfare
22. Minister of Housing & Construction	Minister of Construction & Building Materials State Minister of Housing
23. Minister of Plantation Industries	Minister of Plantation Services Minister of Coconut Industries & Group Diversification
24. Minister of Power & Energy	Minister of Energy Conservation State Minister of Power & Energy
25. Minister of Foreign Affairs	State Minister of Foreign Affairs
26. Minister of Food & Co-operatives	State Minister of Food & Co-operatives
27. Minister of Ports & Shipping	State Minister of Ports & Shipping
28. Minister of Labours & Vocational Training	State Minister of Labour & Vocational
29. Minister of Agricultural Development & Research	State Minister of Agricultural Development & Research Minister of Agricultural Production & Marketing Minister of Livestock Development & Milk Production

Fig. 2.2-1 Organization of the Government of Sri Lanka (2/2)

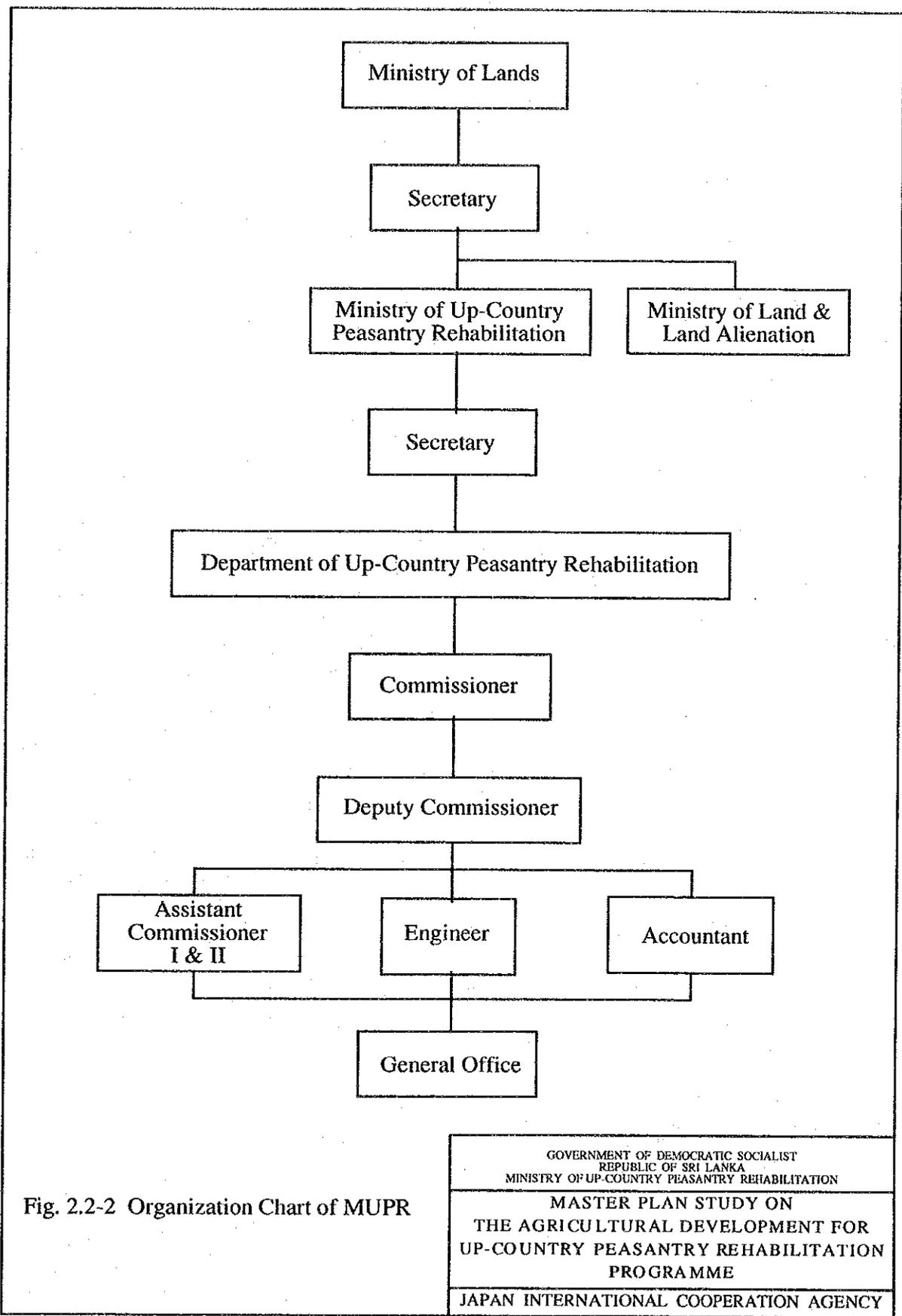


Fig. 2.2-2 Organization Chart of MUPR

GOVERNMENT OF DEMOCRATIC SOCIALIST
 REPUBLIC OF SRI LANKA
 MINISTRY OF UP-COUNTRY PEASANTRY REHABILITATION

MASTER PLAN STUDY ON
 THE AGRICULTURAL DEVELOPMENT FOR
 UP-COUNTRY PEASANTRY REHABILITATION
 PROGRAMME

JAPAN INTERNATIONAL COOPERATION AGENCY

CHAPTER 3 REVIEW OF PREVIOUS AND ON-GOING MAJOR DEVELOPMENT PROGRAMMES

3.1 Integrated Rural Development Project (IRDP)

The Integrated Rural Development Projects have been undertaken in undeveloped rural areas not benefited by the Mahaweli Project and other major development projects. In 1979, the first integrated rural development project was implemented in Kurunegala district under financial assistance from the World Bank. Such schemes have been carried out in 16 districts to date and 10 IRDPs are on-going at present.

Focal points of IRDPs implemented in Sri Lanka may be enumerated as follows:

- Direct investment on production,
- Active participation of project beneficiaries,
- Rectification of regional imbalances in development,
- Extension of benefits to maximum number of beneficiaries,
- Restoration and rehabilitation of existing facilities included as priorities,
- Schemes which are labour intensive, and
- Schemes which are readily implementable for rapid realisation of benefits.

Emphasis has been placed on low cost, labour intensive schemes which yield prompt benefits. Projects have incorporated rehabilitation and restoration of existing agricultural related facilities and have been aimed at improvement of farm management, amelioration of the rural living environment, as well as identification of latent development potentials in rural area.

In the Study area, the IRDPs are implemented in six of the seven districts excluding Matale. The performance of these IRDPs as at end December, 1992 is shown in Table 3.1-1.

The Ministry of Policy, Planning & Implementation (MPPI) is the executing agency for IRDPs which are being carried out on a district wise basis.

3.2 Project for Acquisition of Equipment to Strengthen the Divisional Secretaries' Offices (AGA project)

The divisional offices have on hand none of the equipment necessary to implement their envisaged project programmes at present. Also, the private construction sector in the targeted divisions lacks equipment to support planned programmes of infrastructure works.

Under the AGA project, equipment will be deployed to strengthen the divisional offices which function as centres for exercising local authority. This equipment will support the divisions in the implementation of their work programmes to establish social and economic infrastructure. Equipment for training will also be deployed for development of identified vocational skills of rural population under the Janasaviya Programme.

The project objectives are as follows:

- (1) to stabilise the infrastructures of targeted divisions by providing appropriate equipment enabling implementation of scheduled work programmes of the divisional offices;
- (2) to upgrade the capacity of the divisional office as an executing agency for infrastructure projects (this will require preparation of necessary staff and budget allocation for operation and maintenance of deployed equipment); and
- (3) to provide vocational training opportunity (using deployed equipment) to beneficiaries under the Janasaviya Programme in each targeted division to promote economic independence.

The equipment deployed to the provincial and divisional offices in the Up-Country region under the Project are shown in Tables 3.2-1 and 3.2-2. These Equipment were procured through the Japanese Grant Aid and were distributed to targeted provincial and divisional offices in April, 1993.

3.3 Project for Rural Infrastructure Development in the Up-Country Region (PRIDU)

The Up-Country area is one of the regions which had been worst effected by the chronic problems of high unemployment, landlessness, malnutrition and slow growth which had characterised the Sri Lankan economy in general.

The Government of Sri Lanka has given special attention to rehabilitate this region. and the Ministry of Up-Country Peasantry Rehabilitation was established for this purpose under the Ministry of Lands, Irrigation and Mahaweli Development, in March, 1989.

The Government Policies and Programmes identify the following as the plan of action for Up-Country Peasantry Rehabilitation:

1. Provide the basic infrastructure needs of the impoverished peasantry.
2. Implement specific regional strategies to respond to the felt needs of the people of the hill country.
3. Implement a unified land and human settlements development policy for landless villagers and plantation workers in the plantation areas, through a single instead of a dual-process of development for both these target groups

The Department of Up-Country Peasantry Rehabilitation formulated this project on the basis of the above policies in 1990.

The objectives of the project are as follows:

1. Increase the income and employment opportunities, and general living standards of the landless/near landless and the small land holders in the region.
2. Solve the identified problems of more backward and disadvantaged areas of the region, which have not been benefited from the earlier programmes. Several new and innovative programmes also to be introduced on a modest pilot scale.

The project components are as follows:

1. Irrigation development project activity
 - rehabilitation and improvement of micro irrigation schemes 100 nos.
 - rehabilitation of minor irrigation schemes 250 nos.
 - construction of major irrigation schemes 2 nos.
 - farmer training in water management
 - provision of survey and equipment needed for water management
 - organisation of farmer groups to manage O/M of those schemes
2. Rural water supply project activity
 - construction of dug well 200 nos.
 - rehabilitation of rural water supply schemes 100 nos.
 - construction of tube wells 100 nos
 - introduction of facilities for O/M of these schemes
- 3 Development of marketing centre
 - marketing centres suitable for development as rural service centre
 - large 15 nos.
 - small 40 nos.
 - establish a co-ordination and communication mechanism
 - construction of permanent stalls and basic facilities
 - large fairs 10 nos.
 - small fairs 40 nos.
 - identify self-employment and small business opportunities in relation to market centre activities
 - construction of access roads and internal roads in village fairs
4. Education activities
5. Credit activities
6. Agricultural feeder roads project activities
 - construction, rehabilitation and improvement of rural roads 250 km.
 - construction of culverts, causeway and small bridges
 - maintenance of roads constructed under the project
7. Development of women's activities
8. Entrepreneur ship development programme
 - foundry training centre
 - school leavers training programme
9. Backward area development programme

Total project cost would be Rs. 334 million.

The project area consist of Central, Uva, and Sabaragamuwa provinces, and three A.G.A. division in Amparai district of Eastern province.

3.4 Moneragala Irrigation and Community Development Project (MICDP)

The project will raise living standards and the quality of life of people in about one half of the disadvantaged district of Moneragala. By rehabilitation of eight medium scale irrigation schemes the project will enhance the productive capacity in one fifth of the irrigated paddy lands of Moneragala. Supplementary programmes will ensure the adoption of improved and diversified agriculture, increase employment, improve rural, social and physical infrastructure and protect the environment. About 6,000 poor households will be the core beneficiaries, with up to 200,000 persons benefiting on the periphery to the project.

The project was just getting under way as the Moneragala Agricultural Resources Project in 1987, when security was broken down, and the donor suspended first and withdrew support later.

As the security and political situation improved in the district, the European Communities(EC) dispatched the study missions to identify and appraise the project in May/July 1991. The Financing Proposal Report was prepared in October 1992.

The Department of Up-country Peasantry Rehabilitation of the Ministry of Lands, Irrigation and Mahaweli Development is the executing agency of this project.

The objectives of the Project are as follows:

(1) Wider Goals

- raise incomes and hence living standards
- increase security, both by reducing dependence on climatic variations and by reducing the probability of civil unrest.

(2) Specific Objectives

The principal objective is to restore and improve eight (8) medium scale irrigation systems. This will help increase yields and income levels, and ensure reliability and sustainability of the system. Associated objectives are to link the same issues with supplementary strategies, by diversification of agriculture and employment generation projects. The executive agencies will be strengthened and emphasis will be placed on beneficiary participation for sustainable development, which is both a means and a specific objective of the project. Specific employment and income generating projects will be targeted on youth groups and women. Improvements are proposed in the rural infrastructure necessary to support the main development, and to maintain motivation in the community.

(3) Target Groups

Moneragala district as a whole qualifies as a target group on the basis of the general level of poverty. However, the project is targeted primarily at the farmers of the eight irrigation schemes where the general level of poverty is lower than the district average. The employment generation schemes will extend to the large group. Part of the labour for construction, and the additional demands for seasonal agricultural labour will be drawn from the project area and the increased wealth generated in the project area will raise the general level of economic activity.

The component of the Project are as follows:

- | | |
|---|-----------|
| (1) Rehabilitation of irrigation scheme | |
| - members of schemes | 8 nos. |
| - command areas | 2,362 ha. |
| (2) Agro-well scheme (dug well) | 50 nos. |
| (3) Rural water supply scheme | |
| - dug wells | 30 nos. |
| - piped water supply | 1 no. |
| (4) Rural feeder roads | 153 km. |
| (5) Market centre | 1 no. |
| (6) Community centre | 7 nos. |
| (7) Forestry & Environment | |
| (8) Education and etc. | |

The names of eight (8) irrigation schemes are as follows:

Name	Division	Command Area
1. Dehiattawela	Bibile	284 ha
2. Monerawana	Bibile	89 ha
3. Handapanagala	Wellawaya	392 ha
4. Yudaganawa	Wellawaya	164 ha
5. Kumbukkan	Wellawaya	765 ha
6. Ethimole	Moneragala	396 ha
7. Kotiyuagala	Moneragala	183 ha
8. Dambewewa	Wellawaya	89 ha
Total		2,362 ha

The total project cost is Rs. 422 million. EEC will contribute 81% of total cost, the Government of Sri Lanka will contribute 16% and the beneficiaries will contribute in free labour the equivalent of 3% of total cost. The implementation period is scheduled five years.

3.5 National Agricultural Research and Extension Projects

IDA supported Agricultural Research Project (ARP) became effective from 1988, and has made progress towards integration of research efforts of the many involved institutions. The priority that was given to paddy has shifted to cover other crops as well and documentation of the research based recommendations have progressed. The Agricultural Extension and Adaptive Research Project (AEARP) funded by IDA was implemented from 1979 to 1986 which introduced the Training and Visit extension system. To overcome some of the problems of AEARP, arising mainly from its high operational costs and the change in extension needs, the Second Agricultural Extension Project (SAEP), also funded by the IDA, has been implemented on a 8 year project period from 1993 to 2000. The main components of SAEP are: (a) strengthening of agricultural extension services (excluding tree crops); and (b) developing a national seed policy. An allocation of US \$ 15.59 million has been made for the extension services which consists of: (a) integration of services; (b) mass media; (c) plant protection; (d) pesticide control; (e) training and (f) a private sector pilot extension programme.

3.6 National Irrigation Rehabilitation Project (NIRP)

National Irrigation Rehabilitation Project (NIRP) has commenced from 1992, to stabilise and increase agricultural production and incomes and to raise the standards of living through the rehabilitation and improved O/M of existing irrigation schemes. The component of the Project are as follows:

- (1) rehabilitation and improvement of about 1,000 minor and 60 medium/major irrigation schemes covering About 37,500 ha;
- (2) establishment of farmers organizations and introduction of improved O/M practices in all rehabilitation schemes;
- (3) training of farmers and staff of implementing agencies;
- (4) environmental protection studies and works;
- (5) establishment of three new support units in Irrigation Department and execution of socio-economic and hydrological studies;
- (6) consultant services for project planning, implementation, and impact assessment; and
- (7) procurement of vehicles and equipment.

As seen in the following table, through this project, 19 major/medium schemes with command area of 4,554 ha and 7,700 ha commanded by minor schemes are/will be rehabilitated and improved in the study area.

Province	Nos of schemes	Area(ha)
Major / Medium Scheme		
Central	4	1,412
Uva	11	2,516
Sabaragamuwa	4	581
Sub-total	19	4,553
Total NIRP	69	21,905
Minor Scheme		
Central	n.a.	3,500
Uva	n.a.	2,200
Sabaragamuwa	n.a.	2,000
Sub-total	n.a.	7,700
Total NIRP	n.a.	25,000

3.7 Janasaviya Programme (JSP)

The Government of Sri Lanka has vigorously promoted poverty alleviate measures which included food stamps, school mid-day meals, and the Janasaviya Programme since 1989. Janasaviya is a sinhala word meaning 'strength of the people'.

The criterion to become eligible to receive benefits under the Janasaviya Programme has been that one's monthly family income at the time of selection must not exceed Rs. 700. Those who are selected to benefit from the Programme will be entitled to a monthly income of Rs. 2,500 for a period of two years. The Rs. 2,500 is itself divided into two portions, one for saving (Rs. 1,042 per month) and the other for consumption (Rs. 1,482 per month).

The main objective of the JSP is to enable the beneficiary households to increase their own income and earn a livelihood which raises them above the poverty level, sustains their capacity to continue improving their living standards, and makes them self-reliant so that they would no longer need to depend on state welfare.

The JSP is operated in 63 out of 290 divisions spread over the 25 districts in the country. The recipient families of JSP in the Study area for the latest five years are shown in Tables 3.7-1 to 3.7-3. The recipient families of food stamp in the Study area of 1991 are shown in Tables 3.7-4 to 3.7-6.

TABLES

Table 3.1-1 PERFORMANCE OF THE INTEGRATED RURAL DEVELOPMENT PROJECTS (1/2)

District	Maiale	Kandy	Nuwara Eliya
External Agency	IDA/World Bank	Germany	Netherlands
Implementation Period	1981-1991	1987-1990 1st Phase 1991-1993 2nd Phase	1979-1986 Phase I 1987-1990 Phase II 1991-1993 Phase III
Project Works Completed	<p>1.R. of Major Irrigation</p> <p>no. of schemes 9 nos command areas 2,900 ha</p> <p>2.R. of Minor Irrigation</p> <p>no. of schemes 92 nos command areas 2,466 ha</p> <p>3.Rural Water Supply</p> <p>dug wells 100 nos</p> <p>4.Rural Electrification</p> <p>no. of schemes 15nos no. of consumers 2,349 nos</p> <p>5.Agricultural Feeder Road</p> <p>no. of schemes 30 nos length of roads 195 km</p> <p>6.Rural Road</p> <p>no. of schemes 73 nos length of roads 136 km</p> <p>7.Maintenance of Road</p> <p>no. of roads 167 nos length of roads 715 km</p> <p>8.R. of Agrarian Service Center 40 nos</p> <p>9.Minor Export Crop Development</p> <p>10.Land Settlement Scheme</p> <p>11.Health</p> <p>12.Education</p> <p>13.Credit</p>	<p>1.R. of Minor Irrigation</p> <p>no. of schemes 11 nos command areas 403 ha</p> <p>2.Rural Water Supply</p> <p>piped w/s schemes 10 nos tube wells 14 nos dug wells 27 nos</p> <p>3.Rural Road</p> <p>no. of schemes 9 nos length of roads 17.6 km</p> <p>4.R. of Agrarian Service Center</p> <p>5.Export Agriculture Crop Development 2 projects</p> <p>6.Small Holder Tea Development 2 projects</p> <p>7.Education 3 bldg.</p> <p>8.Reforestation 40 ha</p> <p>9.Industries training</p> <p>skill development 4 nos Participation of science units 4 nos</p> <p>10 Partician of science units 7 nos</p> <p>11 Minitlab kits 13 nos</p>	<p>1.R. of Major Irrigation</p> <p>nos of schemes 56 nos command areas 6,441 ha</p> <p>2.R. of Minor Irrigation</p> <p>nos of schemes 183 nos command areas 2,392 ha</p> <p>3.Rural Water Supply</p> <p>piped w/s schemes 307 nos tube wells 4 nos dug well s(common wells) 152 nos</p> <p>4.Footpath 316 nos</p> <p>5.Foot Bridge & Culvert 69 nos</p> <p>6.Forestry</p> <p>7.Soil Conservation</p> <p>8.Minor Export Crops Development</p> <p>9.Tea Small Holdings Development</p> <p>10.Animal Husbandry</p> <p>11.Health</p> <p>12.Sanitation</p> <p>13.Credit</p> <p>14.Education</p> <p>15.Estate Community Services (End of 1992)</p>
Total Expenditure	446.3 M.Rs (end of dec.,1991)	<p>1st Phase 3.5 M.Rs</p> <p>2nd Phase 3.5 M.Rs (1991&1992)</p> <p>1992 17.4 M.Rs</p> <p>*Expenditure incurred for village development projects only.</p>	<p>Phase I</p> <p>Phase II</p> <p>Phase III 8.7 DFL</p>
1993 or Future Programme	non		<p>Phase III Programme</p> <p>1.Footpath and Bridges 10 nos</p> <p>2.Piped W/S Scheme 15 nos</p> <p>3.Common Well 150 nos</p>

Source : Inventory survey from IRDP Offices

**Table 3.2-1 PROPOSED WORKS AND EQUIPMENT SUPPLIED TO THE PROVINCIAL COUNCILS
BY THE PROJECT FOR ACQUISITION OF EQUIPMENT TO STRENGTHEN THE
DIVISIONAL SECRETARIES' OFFICES**

Province	Number of Proposed works				Supplied Equipment
	Irrigation	Road	Water Supply	Other Works	
Central	42 schemes	11 schemes	66schemes	92 schemes	1--Loader with backhoe 1--Rock drill 1--Portable crusher 1--Road roller 1--Concrete Mixer 1--Lowbed trailer 1--Facsimile 1--Pickup truck
Uva	53 schemes	4 schemes	5 schemes	45 schemes	1--Bulldozer 2--Dump trucks 1--Cargo truck 1-- Loader with backhoe 1--Concrete mixer 1--Diesel generator 1--Maintenance tools (Welder) 1--Pickup truck
Sabaragamuwa	18 schemes	16 schemes	20 schemes	51 schemes	2--Dump trucks 1--Handguided roller 1--Road roller
Total	113 schemes	31 schemes	91 schemes	188 schemes	

Source: Basic Design Study Report on the Project for Acquisition of Equipment to strengthen the Divisional Secretaries' Offices

Table 3.2-2 PROPOSED WORKS AND EQUIPMENT SUPPLIED BY THE PROJECT FOR ACQUISITION OF STRENGTHEN THE DIVISIONAL SECRETARIES' OFFICES

Province	District	Division	Number of Proposed Works		Number of Supplied Equipment														
			Others	Water Supply	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14	
Central	Matale	Gallewala	5	7	4	1	1	1	1	1	2	1	1	0	1	1	1	0	
		Wilgamuwa	6	16	25	1	1	1	1	2	1	1	1	0	1	1	1	1	0
		Laggala	1	5	0	1	1	1	1	2	1	1	1	0	1	1	1	1	0
	Kandy	Ududumbara	5	13	6	1	1	1	2	1	2	1	1	0	1	1	1	1	0
		Akurana	1	11	3	1	1	1	1	2	1	1	1	0	1	1	1	1	0
		Pujapitiya	9	21	23	1	1	1	1	2	1	1	1	0	1	1	1	1	0
	N.Eliya	Walapane	8	8	3	1	1	1	1	2	1	1	1	0	1	1	1	1	0
		Udahewaheta	7	10	2	1	1	1	1	2	1	1	1	0	1	1	1	1	0
		sub-total	42	81	66	8	8	8	9	8	16	8	8	0	8	8	8	8	0
	Uva	Badulla	Ridimalyade	4	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Kandekeniya			3	2	4	1	0	0	1	1	0	1	0	0	0	0	1	1	1
Moneragala		Madulla	1	5	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		Siyamba-duwa	49	19	1	33	1	1	1	1	1	1	1	1	1	1	1	1	1
sub-total		57	33	6	55	4	3	3	4	4	3	4	3	3	3	4	4	4	
Sabaragamuwa	Kegalle	Aranayake	0	14	5	1	1	1	1	1	1	1	1	1	1	1	1	1	
		Galigamuwa	9	41	12	30	1	1	1	1	1	1	1	1	1	1	1	1	
	Embilipitiya	Kolonne	3	7	3	8	1	1	1	1	1	1	1	1	1	1	1	1	
		sub-total	18	63	20	51	4	4	4	4	4	4	4	4	4	4	4	4	
Total		117	177	92	199	16	15	15	17	16	23	16	15	7	15	15	16	16	

- Notes: B-1: Pickup truck
 B-2: Farm tractor (50 HP, 4W)
 B-3: 2W tractor (8 HP)
 B-4: Centrifugal Pump (2")
 B-5: Trailer bowser (600 gal)
 B-6: Sprayer (17-19 l)
 B-7: Diesel Generator (15KVA)
 B-8: Workshop tool
 B-9: Hand tools for wood work
 B-10: Power hacksaw
 B-11: Mason's tool set
 B-12: Motor cycle
 B-13: Duplicating machine with scanner
 B-14: Survey equipment

Source: Basic Design Study Report on the Project for Acquisition of Equipment to Strengthen the Divisional Secretaries' Offices (JICA, Feb. 1992)

Table 3.7-1 RECIPIENT FAMILIES OF JANASAVIYA PROJECT OF CENTRAL PROVINCE

District	Divisional Secretaries	Total Families	Recipient Families						Recipient Ratio	
			1989	1990	1991	1992	1993	Total		
Kandy	Pujapitiya	10,375				4,643		4,643	0.45	
	Akurana	9,329	3,996					3,996	0.43	
	Pata Dumbara	13,470			8,342			8,342	0.62	
	Panwila	6,039						0	0.00	
	Uda Dumbara	5,964			3,211	3,609	3,009	9,829	1.65	
	Minipe	11,117				5,236	6,038	11,274	1.01	
	Meda Dumbara	13,533						0	0.00	
	Kundasale	19,078				5,987	6,072	12,059	0.63	
	Kandy	26,960			8,184			8,184	0.30	
	Harispattuwa	13,698					4,256	4,256	0.31	
	Tumpane	14,898						0	0.00	
	Yatinuwara	17,661						0	0.00	
	Udunuwara	18,716	12,333					12,333	0.66	
	Pata Hewaheta	16,735			11,060			11,060	0.66	
	Udawalpata	25,327			7,872			7,872	0.31	
	Ganga Ihala Korale	11,233					2,635	2,635	0.23	
	Pasbage Korale	10,617		4,377				4,377	0.41	
	Sub-total	244,750	16,329	4,377	38,669	19,475	22,010	100,860	0.41	
	Nuwara Eliya	Kotmaie	23,219				5,180		5,180	0.22
		Uda Hewaheta	19,790			7,260			7,260	0.37
Walapane		20,523		9,751				9,751	0.48	
Nuwara Eliya		37,703						0	0.00	
Ambagamuwa Korale		38,336					3,828	3,828	0.10	
Sub-total		139,571	0	9,751	7,260	5,180	3,828	26,019	0.19	
Matale	Galewela	13,952		7,835	7,748			15,583	1.12	
	Dambulla	12,071						0	0.00	
	Naula	5,582					3,321	3,321	0.59	
	Pallepola	6,557				3,485	3,524	7,009	1.07	
	Yatawatta	6,837			3,259			3,259	0.48	
	Matale	13,192				7,035		7,035	0.53	
	Ambanganga Korale	3,815				2,872		2,872	0.75	
	Laggala	3,338		1,182	951	2,133		4,266	1.28	
	Wilgamuwa	6,437		2,915	1,634			4,549	0.71	
	Rattota	11,931			5,370			5,370	0.45	
	Ukuwela	12,704			8,007			8,007	0.63	
	Sub-total	96,416	0	11,932	26,969	15,525	6,845	61,271	0.64	
Sub-total	480,737	16,329	26,060	72,898	40,180	32,683	188,150	0.39		

Source: Inventory survey from Divisional Secretaries'Office, April 1993

Table 3.7-2 RECIPIENT FAMILIES OF JANASAVIYA PROJECT OF SABARAGAMUWA PROVINCE

District	Divisional Secretaries	Total Families	Recipient Families					Total	Recipient Ratio
			1989	1990	1991	1992	1993		
Ratnapura	Eheliyagoda	14,225			7,877			7,877	0.55
	Kuruwita	21,832				14,419		14,419	0.66
	Ratnapura	20,162				9,888		9,888	0.49
	Imbulpe	11,284						0	0.00
	Balangoda	16,958						0	0.00
	Pelmadulla	15,095			5,770			5,770	0.38
	Nivitigala	10,276					3,211	3,211	0.31
	Kahawatta	7,297			4,664			4,664	0.64
	Elapatha	7,509					4,042	4,042	0.54
	Ayagama	6,237				4,577		4,577	0.73
	Kalawana	7,971						0	0.00
	Godakawela	12,639			6,477			6,477	0.51
	Opanayaka	4,245				2,387		2,387	0.56
	Weligepola	5,967				3,786		3,786	0.63
	Embilipitiya	22,020		9,938		10,951		20,889	0.95
	Kolonna	8,844		2,151	2,240	309		4,700	0.53
	Sub-total	192,561	0	12,089	27,028	46,317	7,253	92,687	0.48
Kegalla	Rambukkana	15,900						0	0.00
	Mawanella	22,200			6,890			6,890	0.31
	Aranayaka	16,083		7,265	7,165			14,430	0.90
	Galiganuwa	17,847		3,519	5,569	5,406		14,494	0.81
	Kegalla	17,101						0	0.00
	Warakapola	23,518					6,601	6,601	0.28
	Ruwanwella	13,513			7,551			7,551	0.56
	Yatiantota	20,730						0	0.00
	Deraniyagala	9,562						0	0.00
	Dehiowita	15,190						0	0.00
	Sub-total	171,644	0	10,784	27,175	5,406	6,601	49,966	0.29
Sub-total	364,205	0	22,873	54,203	51,723	13,854	142,653	0.39	

Source: Inventory survey from Divisional Secretaries' Offices, April 1993

Table 3.7-3 RECIPIENT FAMILIES OF JANASABIYA PROJECT OF UVA PROVINCE

District	Divisional Secretaries	Total Families	No. of Recipient Families					Total	Recipient Ratio
			1989	1990	1991	1992	1993		
Badulla	Mahiyanganaya	14,296						0	0.00
	Ridimaliyadda	9,700	5,241			5,153	5,149	15,543	1.60
	Migahakivula	4,048					1,419	1,419	0.35
	Kandaketiya	5,140		1,051	1,729	164		2,944	0.57
	Uva paranagama	16,989	9,016					9,016	0.53
	Halicla	16,116						0	0.00
	Soranatota	4,968				1,908		1,908	0.38
	Passara	15,957						0	0.00
	Badulla	14,889		4,415				4,415	0.30
	Ella	8,531			4,224			4,224	0.50
	Bandarawela	12,900						0	0.00
	Haputale	7,589			3,270			3,270	0.43
	Welimada	18,865			6,456			6,456	0.34
	Haldummulla	6,266						0	0.00
	Sub-total	156,254	14,257	5,466	15,679	7,225	6,568	49,195	0.31
Monaragala	Madulla	5,663		3,770	3,766			7,536	1.33
	Bibila	6,932				3,562		3,562	0.51
	Medagama	6,641					3,041	3,041	0.46
	Badalkumbura	6,942			4,401			4,401	0.63
	Monaragala	7,857				4,528		4,528	0.58
	Siyambalanduwa	9,013			1,778	3,515	3,515	8,808	0.98
	Buttala	9,116				5,049		5,049	0.55
	Wellawaya	10,656			7,445			7,445	0.70
	Tanamalwila	13,012						0	0.00
	Sub-total	75,832	0	3,770	17,390	16,654	6,556	44,370	0.59
Sub-total	232,086	14,257	9,236	33,069	23,879	13,124	93,565	0.40	
Total							0		
Sri Lanka									

Source: Inventory survey from Divisional Secretaries' offices, April 1993

Table 3.7-4

RECIPIENT FAMILIES OF FOOD STAMP OF CENTRAL PROVINCE IN 1991

District	Divisional Secretaries	Total Families	Recipient Families in 1991	Recipient ratio
Kandy	Pujapitiya	10,375	1,228	11.8
	Akurana	9,329	3,619	38.8
	Pata Dumbara	13,470	9,525	70.7
	Panwila	6,039	2,238	37.1
	Uda Dumbara	5,964	1,533	25.7
	Minipe	11,117	6,281	56.5
	Meda Dumbara	13,533	7,078	52.3
	Kundasale	19,078	8,331	43.7
	Kandy	26,960	8,415	31.2
	Harispattuwa	13,698	9,505	69.4
	Tumpane	14,898	9,444	63.4
	Yatinuwara	17,661	7,522	42.6
	Udunuwara	18,716	7,145	38.2
	Pata Hewaheta	16,735	12,031	71.9
	Udawalpala	25,327	10,981	43.4
	Ganga Ihala Korale	11,233	6,811	60.6
	Pasbage Korale	10,617	4,525	42.6
	Sub-total	244,750	116,212	47.5
	Nuwara Eliya	Kotmale	23,219	3,975
Uda Hewaheta		19,790	3,459	17.5
Walapane		20,523	3,300	16.1
Nuwara Eliya		37,703	4,300	11.4
Ambagamuwa Korale		38,336	7,017	18.3
Sub-total		139,571	22,051	15.8
Matale	Galewela	13,952	2,148	15.4
	Dambulla	12,071	8,600	71.2
	Naula	5,582	4,549	81.5
	Pallepola	6,557	852	13.0
	Yatawatta	6,837	3,792	55.5
	Matale	13,192	7,021	53.2
	Ambanganga Korale	3,815	2,912	76.3
	Laggala	3,338	450	13.5
	Wilgamuwa	6,437	687	10.7
	Rattota	11,931	7,404	62.1
	Ukuwela	12,704	8,007	63.0
	Sub-total	96,416	46,422	48.1
Sub-total		480,737	184,685	38.4

Source: Inventory survey, April 1993

Table 3.7-5 RECIPIENT FAMILIES OF FOOD STAMP OF SABARAGAMUWA PROVINCE IN 1991

District	Divisional Secretaries	Total Families	Recipient Families in 1991	Recipient Ratio
Ratnapura	Eheliyagoda	14,225	10,025	70.5
	Kuruwita	21,832	17,581	80.5
	Ratnapura	20,162	11,400	56.5
	Imbulpe	11,284	8,280	73.4
	Balangoda	16,958	8,278	48.8
	Pelmadulla	15,095	na	na
	Nivitigala	10,276	6,426	62.5
	Kahawatta	7,297	4,837	66.3
	Elapatha	7,509	5,910	78.7
	Ayagama	6,237	4,577	73.4
	Kalawana	7,971	5,128	64.3
	Godakawela	12,639	9,877	78.1
	Opanayaka	4,245	3,689	86.9
	Weligepola	5,967	4,868	81.6
	Embilipitiya	22,020	5,109	23.2
	Kolonna	8,844	2,099	23.7
	Sub-total	192,561	108,084	60.9
Kegalla	Rambukkana	15,900	9,810	61.7
	Mawanella	22,200	11,482	51.7
	Aranayaka	16,083	2,128	13.2
	Galigamuwa	17,847	1,729	9.7
	Kegalla	17,101	9,115	53.3
	Warakapola	23,518	15,605	66.4
	Ruwanwella	13,513	6,660	49.3
	Yatiantota	20,730	11,440	55.2
	Deraniyagala	9,562	5,481	57.3
	Dehiowita	15,190	9,616	63.3
	Sub-total	171,644	83,066	48.4
Sub-total	364,205	191,150	54.8	

Source: Inventory survey, April 1993

Table 3.7-6 RECIPIENT FAMILIES OF FOOD STAMP OF UVA PROVINCE IN 1991

District	Divisional Secretaries	Total Families	Recipient Families in 1991	Recipient Ratio
Badulla	Mahiyanganaya	14,296	5,125	35.8
	Ridimaliyadda	9,700	2,013	20.8
	Migahakivula	4,048	2,299	56.8
	Kandaketiya	5,140	na	na
	Uva paranagama	16,989	10,780	63.5
	Haliela	16,116	7,450	46.2
	Soranatota	4,968	866	17.4
	Passara	15,957	8,431	52.8
	Badulla	14,889	4,415	29.7
	Ella	8,531	4,604	54.0
	Bandarawela	12,900	4,685	36.3
	Haputale	7,589	2,060	27.1
	Welimada	18,865	6,458	34.2
	Haldummulla	6,266	3,903	62.3
	Sub-total	156,254	63,089	41.7
Monaragala	Madulla	5,663	887	15.7
	Bibila	6,932	4,764	68.7
	Medagama	6,641	5,000	75.3
	Badalkumbura	6,942	5,768	83.1
	Monaragala	7,857	5,381	68.5
	Siyambalanduwa	9,013	3,953	43.9
	Buttala	9,116	6,733	73.9
	Wellawaya	10,656	8,552	80.3
	Tanamalwila	13,012	8,505	65.4
	Sub-total	75,832	49,543	65.3
Sub-total		232,086	112,632	49.6
Total		1,077,028	488,467	46.2
Sri Lanka		17,261,000p	6,795,849p	39.4

Source: Inventory survey, April 1993

CHAPTER 4 PRESENT CONDITION OF THE STUDY AREA

4.1 Natural Condition

4.1.1 Topography and Geology

The topography of Sri Lanka is characterized by three steps of peneplains composed of high, middle and low peneplains, having altitudes of over 750 meters, 125 - 750 meters and below 125 meters, respectively. The high peneplain corresponds to the so-called central highland surrounding Nuwara Eliya. The middle and low peneplains surround the central highlands and decrease in height gradually toward the coast.

In the Study area, which consist of Central, Uva and Sabaragamuwa provinces, about 69 % of the area is in the middle peneplane, and about 13 % and 18 % are in high and low peneplanes, respectively. The Study area is given complexity and unique characteristics by rugged land form, narrow deep valleys, high mountain ranges, peaks, plateaux and broad plains. All the high peaks exceeding 2,000 meters lie in Nuwara Eliya district of Central province, and in southern part of Badulla district of Uva province.

The geology of the Study area is composed of very old, highly crystalline metamorphic rocks of the so-called Highland series and Vijayan series. These are classified into Pre-Cambrian rocks and covers all of the Study area. The Highland series is classified into three groups by its rock types; these are Khondalite group, Charnockites and Kadugannawa gneisses. The Vijayan series are Cambrian polymetamorphic rocks, formed by metamorphism of the Highland series rocks. The two series are classified by the metamorphic grade, and there is a mixed and complex transition zone between the two.

As shown in Fig. 4.1-1, the entire Study area is covered with the two series. The transition zone has developed along both banks of Mahaweli Ganga from south to north and is 16 to 19 kilometres in width. Eastern side of the transition zone lies on Highland series region and western side on the Vijayan series region.

4.1.2 Meteorology

(1) Climate

The climate of Sri Lanka is characterized by tropical monsoon seasons, i.e. Southwest monsoon from May to September and Northeast monsoon from December to February, with two intermonsoonal periods, the first from March to April and the second from October to November. The central highlands have a strong orographic influence in connection with the direction of monsoons that lead to the subdivision of Sri Lanka into three hydrological zones namely the wet zone, intermediate zone and dry zone. The dry zone is defined as the area where the annual evaporation exceeds the annual rain fall, the wet zone defined as the area where annual rainfall is exceeds 2,500 mm. The intermediate zone is a transition zone between dry zone and wet zones.

In the Southwest monsoon period, the southwest quarter of the island receives 500 mm to 4,000 mm of rain. In the Northeast monsoon period, the eastern half of the island receives 500 mm to 2,500 mm of rain. The area that receives less than 250 mm of rain during the Northeast monsoon is very much less than the area receiving a similar amount during the Southwest monsoon. In the first intermonsoonal period, the rainfall is

mainly convectional and ranges from 5 % to 30 % of the annual rainfall. In the second intermonsoonal period, the rainfall is widespread and mainly due to disturbances (low-pressure systems, depressions and cyclones) in the southwest Bay of Bengal and the southeast Arabian Sea. These disturbances generally occur in Sri Lanka during October and November. The rainfall varies from 17 % to 51 % of the annual total.

The Maha cultivation season for paddy which is reckoned from September to March, begins at the tail end of the Southwest monsoon, covers the intermonsoonal period of October, November, the full Northeast monsoon period and one month from the next intermonsoonal period. The Yala cultivation season is from April to August and thus, the season begins during an intermonsoonal month and covers the major period of the Southwest monsoon.

(2) Meteorology

There are five (5) meteorological stations in the Study area, located in Kandy, Nuwara Eliya, Badulla, Diyatalawa and Ratnapura. Table 4.1-1 shows the averages of climatic parameters, namely, temperature, relative humidity, rainfall, numbers of rainy days, wind velocity and sunshine hours, recorded at the five meteorological stations.

The temperature shows much variation depending on the elevation which ranges from 34.4 m to 1,894.6 m. The annual mean maximum temperature at the above meteorological stations ranges from 20.1 °C to 31.5 °C and minimum temperature ranges from 10.7 °C to 22.8 °C. The monthly mean maximum temperature ranges from 18.7 °C to 33.1 °C and minimum temperature ranges 7.7 °C to 23.8 °C.

The annual mean relative humidity at day time and night time shows little variation ranging from 79 % to 88 % and 70 % to 82 % respectively. However, monthly mean relative humidity shows rather much variation ranging 69 % to 92 % at day time and 57 % to 88 % night time.

Wind velocity at day time and night time are observed at 2 stations, Nuwara Eliya and Diyatalawa. The annual mean wind velocity for these stations are 9.0 km/hr and 4.2 km/hr at day time and 7.8 km/hr and 5.9 km/hr at night time.

Sunshine hours are recorded at 4 stations except Badulla as shown in Table 4.1-1. Kandy shows high annual mean sunshine hours of 6.2 hrs/day compared to other stations which recorded 4.1 hrs/day, 4.3 hrs/day and 4.6 hrs/day.

Monthly rainfall is recorded at all stations. Monthly rainfall varies 24.1 mm to 494.3 mm and annual average rainfall varies from 1,548.4 mm to 3,641.1 mm depending on the location of the station.

75 % probability rainfall values from past data available at 381 rainfall gauging stations scattered throughout the island are analysed according to the agronomic significance to form distinct patterns. These probability rainfalls are used island wide for irrigation development, cultivation etc. The characteristics of the 75 % probability rainfall having 24 patterns are shown in Table 4.1-2.

4.1.3 Water Resources

(1) River System

There are 103 river basins in Sri Lanka of which 15 river basins are found in the Study area. Description of these are as follows.

The Kelani Ganga is one of the main rivers of Sri Lanka. It has its source in the central hills near Adam's Peak, joins with its tributaries namely Kehelgamu Ganga and Maskeliya Oya, flows through the south-western part of the island, and finally entering the sea at Colombo.

The Kalu Ganga, like the neighbouring Keleni Ganga, originates at Adam's Peak in the central hills. A few kilometres downstream of Ratnapura, the river passes through a narrow constriction called Ellagawa Gap. The Gap is considered as the boundary of upper and lower Kelani Ganga basin.

The Walawe Ganga originates in the mountain range west of Balangoda and drains into the Indian Ocean near Ambantota. Major tributaries are the Weli Oya, the Timbolketiya River, the Hulanda Oya, and the Mau Ara. The northern and western parts of the Walawe basin are mountainous areas and fall in the wet zone. The eastern and southern parts are plains and are in the dry zone. The upper Walawe basin, the Weli Oya basin and the upper basins of Timbolketiya River and the Hulanda Oya are in the wet zone. The rest, including the whole Mau Ara basin, is in the dry zone.

The Kirindi Oya originates from Ella, near Bandarawela and extends through Wellawaya and Tanamalwila entering Indian Ocean at Kirinda near Tissamaharama. The Kirindi Oya is essentially a river in the dry zone and benefits the irrigation systems at Tissamaharama.

The Menik Ganga originates in the Passara hills and flows through Buttala, Kataragama, Yala National Park, and Ruhunu National Park entering the Indian Ocean at Yala. Most of the basins are covered with thick virgin jungles, except for some tea plantation near Passara, paddy field developed under Buttala anicut, and others.

The Kumbukkan Oya originates in the hills above Moneragala and flows in a southerly direction and turning to south-easterly direction at near Okkanpitiya, entering the Indian Ocean at Kumana.

The Wila Oya is a short stream about 32 kilometres long that originates near Moneragala and flows in a easterly direction, and entering the Indian Ocean at Panama.

The Heda Oya is also short stream originating in the hills of Moneragala and flowing eastwards into the eastern sea board at Arugam Bay near Pottuvil.

The Gal Oya originates around Bibile in the northern parts of Moneragala near the boundary of wet and dry zones. Many small tributaries join the river at Senayake Samdura Reservoir in the National Park, and flows east throughout near Ampara entering the Indian Ocean at Oluvil. The Gal Oya has several tributaries such as the Namal Oya, the Ekgal Oya, Irakkaman Kulam and etc.

The Magalavatavan Aru originates from Bingoda Mullegama, the northern part of Moneragala District and flows in a northern direction throughout the Magalavatavan Reservoir and the Unnichchi Tank, entering the lagoon in Batticaloa.

The Mundeni Aru, lying next to the Magalavatavan Aru Basin, originates from northern part of Bibile and north-east of the National Park. There are two major tributaries named the Gallodai Aru and the Maha Oya. The Maha Oya is joined at few kilometres downstream of Nilope and the Galladai Aru is joined near the boundary between Moneragala District and Batticaloa District. The Aru flows to north-eastern in direction and some tributaries enter the lagoon in Batticaloa and some tributaries are entering to the Vandeloos Bay.

The Maduru Oya basin is bounded by Ulhitiya basin, in the south by the Gal Oya, and in the east by Gallodai Aru and Maha Oya basin. The Maduru Oya rises in the hilly to mountainous area of Ekiriyanakumbura, Wegama and Holike. The main direction of the river is northerly through Maduru Oya National Park and turning to the east near Welikanda, and the river debauches into the Vendeloos Bay.

The Mahaweli Ganga, the longest river in Sri Lanka, originates in the Wet Zone central mountains. The Mahaweli Ganga is joined by the Kotmale Oya, before flowing North to the Kandy where it turns to flow in an easterly direction out of the central hills. After leaving the hills at Minipe, it turns North, flowing through the Dry Zone past Polonnaruwa, finally entering the Bay of Bengal South of Trincomalee. The origin of the Mahaweli Ganga in the Wet Zone yields a stream flow pattern reflecting the influence of both monsoons. The Ganga has 10,327 km² catchment area which is the largest in Sri Lanka.

The Kala Oya originates near Nalanda and flows in a north-westerly direction passing Dambulla, the Kala Wewa Tank, the Rajangana reservoir and enters the sea near Pomparippu.

The Maha Oya originates from Kandy - Nawarapitia area and flows in eastern direction generally through the Kegalle and Gampaha Districts, entering the sea north of Negombo.

(2) Hydrology

Annual run-off rates of the 15 river basins in the Study area tended to vary from 13 to 40 % when the river passed dry zone areas before flowing to the sea, and 62 to 78 % when the river passed wet zone areas before flowing to the sea. Annual average precipitation, runoff and maximum discharge at the respective gauging station in the 15 river basins are shown in Table 4.1-3.

River Basins	Catchment Area km ²	Precipitation MCM	Run-off MCM	Runoff Ratio %
Keleni Ganga	2,278	8,692	5,474	62.98%
Kalu Ganga	2,688	1,0122	7,862	77.67%
Walawe Ganga	2,442	9,843	2,165	22.00%
Kirindi Oya	1,165	1,606	476	29.64%
Menik Ganga	1,272	1,472	486	33.02%
Kumbukkan Oya	1,218	2,140	74	36.17%
Wila Oya	484	653	215	32.92%
Heda Oya	604	967	394	40.74%
Gal Oya	1,792	4,031	1,250	31.01%
Unnichchai	346	605	290	47.93%
Mundeni Aru	1,280	2,236	859	38.42%
Maduru Oya	1,541	2,476	805	32.51%
Mahaweli Ganga	10,327	26,804	11,016	41.10%
Kala Oya	2,272	4,424	587	13.27%
Maha Oya	1,510	4,132	1,608	38.92%

(3) Major Reservoirs

There are many reservoirs/tanks in the river basins of the Study area. These are used for many purposes such as for irrigation, hydro power generation and domestic water supply. Many tributaries join the main stream through the reservoirs or tanks. The number of major reservoirs/tanks, their names and main purposes are shown in Table 4.1-4.

River Basins	Numbers of Reservoir/tank
Keleni Ganga	7
Walawe Ganga	13
Kirindi Oya	8
Menik Ganga	5
Kumbukkan Oya	1
Wila Oya	3
Heda Oya	9
Gal Oya	15
Unnichchai	2
Mundeni Aru	8
Maduru Oya	6
Mahaweli Ganga	38
Kala Oya	10

(4) Ground Water

In major parts of the Study area, there are hard fractured rocks with local and limited ground water resources. Most of these areas consist of crystalline rocks which are impervious and non-porous. The depth of water table varies from 5 m to 20 m and wells generally yield 0.08 lit/sec to 1.65 lit/sec. Ground water yields from these fractures are fairly reliable. However, discharge from the wells is small for agricultural purposes and fair as drinking water. In the central hills located in Nuwara Eliya and Badulla districts, ground water resources are limited or entirely absent.

Ground water development is oriented towards the supply of drinking water in the Study area. Monthly estimated yield of water through inventory survey in respective districts are as follows:

District	Monthly Production (m ³)
Kandy	1,105,400
Nuwara Eliya	277,871
Matale	425,753
Badulla	477,173
Moneragala	285,214
Kegalle	727,516
Ratnapura	694,791

(5) Water Quality

The quality of ground water in crystalline rocks is fairly good except in a few isolated pockets where saline water is found in the deep aquifer. The presence of fluoride in ground water is noticeable in the north east while iron concentrations occur in the south west. The following Table shows the physical and chemical situation of ground water in and around Kandy, Nuwara Eliya, Badulla and Ratnapura.

Item	unit : ppm			
	Kandy	Nuwara Eliya	Badulla	Ratnapura
Total Hardness	100-250	100-250	100-250	50-100
Dissolved Solids	<200	<200	<200	<200
Chloride Ions	<100	<100	<100	<100
Total Iron	<0.75	0.75-1.75	<0.75	1.75-2.75
Fluoride Ions	0.1-0.5	<0.1	0.1-0.5	0.1-0.5
Chromium Ions	0.009-0.015	<0.009	0.009-0.015	<0.009
Zinc Ions	0.100-0.250	0.100-0.250	0.250-0.400	0.025-0.100
Copper Ions	0.03-0.09	<0.03	<0.03	0.03-0.09
Ammonium Ions	<0.2	<0.2	<0.2	<0.2
Silica	<20	<20	20-50	<20

Source : Sri Lanka Water Supply and Sanitation Rehabilitation Project, Status Report

4.1.4 Soil and Vegetation

(1) Soil

Due to the wide variation in the parent material as well as in the topographical, geological and climatological conditions, a variety of soil types can be identified within the Study area. Out of the Great Soil Groups, Reddish Brown Earth and Red Yellow Podzolic soils occupy the largest extent of land in the Study area. Most of the soils have either developed in site from residual material that are derived from the weathering of the bedrock or from weathered material that has been transported over short distance. The principal differences between soils of the Wet and Dry Zones arise from the perennial rainfall and resultant leaching that goes on in the former, and the seasonal drought experienced in the latter.

Major soil groups found in the wet zone areas of Nuwara Eliya, Ratnapura and Kegalle districts and the southern part of Badulla district are the Red Yellow Podzolic Soils and the associations of Red Yellow Podzolic Soils and Mountain Regosols. The semi-wet and intermediate zone consisting Kandy district and the southern part of Matale district, are widely occupied by the associations of Red Yellow Podzolic Soils and Mountain Regosols, Reddish Brown Latosolic Soils and Immature Brown Loams. The associations of Reddish Brown Earths and Low Humic Gley Soils; of Reddish Brown Earths and Solodized Solonetz; and of Reddish Brown Earths and Immature Brown

Loams are predominant and well distributed in the semi-dry and intermediate zones consisting of Moneragala district, and the northern parts of Matale and Badulla districts.

(2) Natural Vegetation

The natural vegetation of the Study area covers an extent of 429 km² or 26 percent of the land area. The major part of the natural vegetation in the Study area consists of natural forests and protected reserves. Most of the forests are evergreen, even in the Dry Zone, although, it is most luxuriant and diversified in the lowlands of the Wet Zone. The area includes natural forest communities, both dense and open. Scrubland and Grassland are mainly the outcome of forest clearance and repeated slash and burn cultivation (Chena) that has been practiced over the years.

4.2 Socio-economic Situation

4.2.1 Economic situation in the Study Area

The Study area is located in the southern central mountainous part of island covering an area of 18,970 km², corresponding to 29 % of the total territory of 65,525 km². The land extents under respective districts are shown in Table 4.2-1. Administratively, the area, as shown in Table 4.2-2, consists of three provinces, seven districts (formerly under the administration of Government Agents), 82 divisions and 12,850 villages.

The population of the area is estimated at 5.10 million as of 1991, which account for 27 % of the total population in Sri Lanka. The population density is 270 /km², ranging from 62 /km² in Moneragala district to 645 /km² in Kandy district. About 91 % of the population reside in rural villages.

As shown in Tables 4.2-3 and 4.2-4, the contribution of the Study area to the national GDP is about 22 % , which approximates to its shares of land area and population to those of the country . An estimation of Gross Regional Domestic Product (GRDP) of the Study area was made using the data of Ministry of Policy Planning and Implementation (MPPI), with some adjustment to reflect the economy of the Study area. The GRDP is shown in Table 4.2-5 and 4.2-6 and summarized below.

GRDP in the Study Area, in 1990

Sector (Rs. Mn)	Study Area		GDP	
	(%)	(Rs. Mn)	(%)	
Agriculture, Fishery and Forestry	18,851	29.9	76,504	26.9
Industry	16,011	25.4	71,767	24.7
Services	27,862	44.2	142,224	57.8
Total	63,037	100.0	290,495	100.0

Source: Department of National Planning, MPPI, Original figures were adjusted

Although the regional economy stagnated until 1989, it has recovered since 1990, as reflected in the current situation of the country. The average growth rate in the

regional GDP for the nine (9) year period of 1982-1990 was 3.4 %, which was lower than the national average of 4 %. The average growth rate in the agricultural sector for the same period, which accounted for 30 % of GRDP, was only 0.9 %, and its share in the GRDP is decreasing at an average of around 0.7 % per year. However, its contribution to employment estimates at over 70 %.

Average per capita GRDP in the Study area is estimated at US\$ 312, or about 66 % of the national average, as shown in Table 4.2-5. Furthermore, present position of the Study area as a relatively poor area is reflected in the number of food stamps beneficiaries, which amounts to about 488,000 families or 46 % of the total families in the area in 1991. This figure is somewhat higher than the national figure of 39.4 % (Table 3.7-6).

The economically active population in the Study area is estimated at around 2.66 million persons, or 54 % of the total population. About 35 % or more of the labour-force, represented by some 931,000 persons, is estimated to be unemployed. Unemployment is highest among workers seeking industrial occupation. In addition, about 25 % of the work force is under employed, being able to find work, on the average, for only about two-third of the year.

Associated with the variation in topographic, soils and climatic conditions, a range in land use forms and farming systems can be recognized in the Study area. In the upland areas, the most prevalent forms of land use are perennial cropping (such as tea, rubber, etc.), forestations and pastures, though in areas with more stable slopes and soils, potatoes and up-country vegetables are successfully grown. At intermediate elevations, perennial plantation crops such as tea and minor export crops represent a stable form of land use. In the lowland areas, both perennial tree crops and field crops are grown with paddy dominating in the valley bottoms and level areas where irrigation is available.

Agriculture in the Study area is basically dual structured and is characterized by two distinct production systems. On the one hand, the majority of the agricultural population cultivate very small mixed holdings ranging from 1.1 ha in Moneragala district to 0.6 ha in Kandy district with an average holding size of about 0.6 ha. Based on the 1982 census, the latest available data, about 90 % of smallholdings (516,000 holdings) in the study area were less than 1.6 ha and almost 40 % were less than 0.4 ha (Table 4.2-7). Over the past 10 years, the situation would definitely have deteriorated further. The 1982 census also reported that of the 517,000 agricultural operators, 13.2 % were landless and 40 % cultivated only home gardens.

On the other hand, a substantial part of the agricultural sector is taken up by plantations growing the major export crops. In value terms, the tea estates sector in particular, plays an important role in the national economy and contributes a share of 7.1 % to the GRDP, compared to 3.1 % contributed by paddy (Table 4.2-8).

Development of the non-farm sector has been slow and is constrained by a dearth of natural resources. The Study area has retained its basic agrarian structure and has developed little value-added processing of the agricultural products from the area except for the manufacture of tea, rubber and sugar. The non-agricultural sectors of the economy are largely concerned with the provision of rural consumer goods, farm sector inputs, and small intermediate goods, as well as public services. Manufacturing is chiefly limited to local market demands such as rice milling and small scale food processing as jam and pappadam making. Some enterprises exploit mineral resources from the area including: potteries, brickmaking, lime kiln, and small quarrying.

4.2.2 Social Situation

(1) General

The national census in Sri Lanka has been conducted regularly once every 10 years since 1871. The census of 1991 was, however, suspended due to the civil unrest that prevailed at the time. The Department of Census and Statistics announces the estimated national population every year, but data on most of the other items are not available.

The Study Team conducted an Inventory Survey covering the 82 Divisional Secretariats in order to grasp the present social and economic status in the Study area.

The results are attached as General Information in the Appendix. The following descriptions concerning the social and economic conditions are based on the census of 1981 and the results of the inventory survey.

(2) Population and Population Density

The population of the Study area according to the 1981 census was 4,405,000. It was estimated to be 5,103,000 in 1991. The inventory survey results, which lacked data from 3 divisions, showed the population to be 5,049,000, which is nearly equal to the estimated population if adjustment is made for missing data. The population of the Study area constitutes 27 % of the national population.

The inventory survey results show that the population is concentrated along the national roads A-1, A-5, A-9 and A-26 with the Kandy district as the core. The highest population density is in the Kandy division at 2,000/km², and 7 divisions around Kandy division had population densities exceeding 1,000/km². Districts exceeding the national average population density (268/km²) are concentrated near Colombo. The Moneragala district is extremely thinly populated showing a density of 150/km². The Madulla division of the Moneragala district had the lowest population density of less than 40/km² (Table 4.2-9).

(3) Status of Employment and Unemployment

The structure of employment in the Study area is generally determined by production resources and job opportunities. Most of the labour population (estimated at 70%) in the Study area belongs to the agricultural sector. The capacities of the industrial, commercial and service sectors are limited. Accordingly, labour has no choice but to find livelihood within the area of habitation. Since the farmland holdings are small, generation of farm employment has become increasingly difficult. It is hardly possible for the agriculture sector to provide sufficient job opportunities.

The labour population is estimated at 2,600,000, which is about 54% of the total population in the Study area. The ratio of unemployment varies from 20 - 45%, depending on the district. Unemployment level is much higher than the national average of 15.3%. The average unemployment ratio of the 3 provinces is estimated at about 35%, which represents 930,000 persons unemployed in the Study area. Based on the 1985/86 Labour Force & Socio-economic Survey of the Department of Census and Statistics and the inventory survey, the numbers unemployed and the unemployment ratios of respective districts are shown in Table 4.2-10

Most of the unemployed try to find job opportunities in the industrial sector, making the unemployment ratios in Kandy and Kegalle high. The inventory survey results show that the population has increased by about 750,000 since the national census of 1981, and this is reflected directly in the increment in the unemployment.

(4) Land holding

The numbers of landless farmers by district, based on the Agricultural Census of 1982, are shown in Table 4.2-11.

The Table shows that 13.5% of the farm households were landless, exceeding the national average of 11.0 %. The results of the 1993 inventory survey reveal that, compared to the position in 1981, the landless farmers have increased to 21.9 %, with notable increases in Kandy, Nuwara Eliya and Kegalle districts.

(5) Income Level

No reliable statistics are available for the farming income in the Study area. However, the food stamp qualification standard applied for a large area could be used to estimate the income level. The lowest level for stamps is Rs. 700 for a household with 5 family members. The 1989 statistics show that 51.8 % of the total 952,937 households in the Study area received these food stamps, which was nearly equivalent to the national average of 51.5 %. The 1993 inventory survey, (although lacking data of 2 divisions), shows that 488,467 households out of 1,077,028 households (46.2 % of the total) received the food stamps, which compare with the projected national average of 39.4 %. It can be said that households whose income level is lower than the national average have increased (Table 4.2-12).

(6) Education

The education system in Sri Lanka is shown below. The period of general education is 13 years. The higher educational institute after college level is the university.

Primary School	Year 1-5	5 Years
Junior Secondary S.	6-8	3 Years
Senior Secondary S.	9-11	3 Years(O/L)
College (high school)	12-13	2 Years(A/C)
TOTAL		13 Years

There are 3,500 schools in the Study area. The distribution is shown in Table 4.2-13. The density of schools by district is nearly identical to the national average with no large differences depending on the district. However, on the division level, the numbers of schools per 1,000 persons varies considerably from 0.3 - 1.6. The school catchment areas at the district level also vary widely with 2.4 km² in Kegalle to 22.4 km² in Moneragala.

On the division level, this difference becomes even larger with 1.2 km² in Akurana, Kandy district and 38.0 km² in Tanamalwila, Moneragala district. In general, mass educational facilities tend to be well-provided in the west and scarce in the east.

The literacy rate of people over 10 years of age by district, based on the 1981 census, is shown in Table 4.2-14. The average literacy rate for the three provinces is 81.9%. The ratio varies depending on the district, and in most of the districts it is lower than the national average.

(7) Health

A district Health Office is provided in all districts in the Study area. Hospital services are made in each district divided into several region. Provision on the division level includes medical and pharmaceutical services at hospitals and maternity homes as well as dental examination services at schools.

Numbers of hospitals and beds by district are shown in Table 4.2-15. These are slightly higher than the national level in several districts. However, those of the Matale, Moneragala and Kegalle districts are lower than the national level and in Moneragala district in particular, the number of beds per 1,000 persons is half the national average.

The nutrition condition, according to the 1988/89 statistics, is shown in Table 4.2-16. The ratio of people suffering from chronic malnutrition in all the Study area much higher than the national average. Kandy, Badulla and Moneragala districts show its high ratios. Furthermore, the mortality rates of infants, nursing mothers and newborns in the Study area are higher than the national average.

Most of the health constraint derives from insufficient health facilities, inadequate health education and low incomes. Many programmes by various organizations and NGOs have been carried out to improve the situation, but the areas covered by these programmes are limited.

(8) Habitations and Sanitary Facilities

Habitations in Sri Lanka are classified into the following three types;

- 1) Permanent structure: Constructed with permanent materials all for the walls, roof and floors.
- 2) Semi-permanent structure: Constructed with permanent materials for one of the three sections above.
- 3) Improvised structure: Constructed with perishable or easily broken materials all for the three sections above

The type of habitation, based on the 1981 statistics and 1993 inventory survey, is shown in Table 4.2-17.

Comparing the status in 1981 and in 1993, the number of permanent structures has increased. However, the improvised structures have also increased. Except for the Kandy district, 20-25 % of the people of the Study area live in inferior habitations.

The sanitary facilities, based on the 1981 statistics and 1993 inventory survey, are shown in Table 4.2-18. As a result of the sanitary facilities improvement project by IRDP and the water supply scheme, water-sealed toilets are being diffused and the number of households without toilet has decreased. However, households without toilet still accounts for nearly 20 % of all households. In particular, the situation in Moneragala district needs improvement.

(9) Diffusion of Televisions and Automobiles

Through the inventory survey on the diffusion of TV sets, radios, motorcycles and automobiles, it was found that TV sets are owned by more than 10% of households in about a half of the Study area. More than one TV set per two households is owned in

limited areas in the Matale, Kandy and Bandarawela. Radios are owned at the rate of one unit per two households in one-third of the Study area.

As regards the ownership of automobiles, including cars, jeeps, pickup trucks, etc., one out of 10 households owns an automobile in Kandy, Nuwara Eliya and Pelmadulla divisions. The diffusion of automobiles is higher in the western part of the Study area.

Motorcycles are owned at the rate of one unit per 20 households in about 40% of the Study area. The diffusion is higher in Kandy, Matale, Nuwara Eliya and Pelmadulla divisions at a rate of more than one unit per 10 households.

4.3 Agricultural Conditions

4.3.1 Present Land Use

The details of present land use by division are shown in Table 4.3-1. About 11,746 km² or 61.9 % of the total land area in the Study area (18,988 km²) is used for agricultural purposes while about 5,167 km² or 27.2% is covered with forestland and about 1,602 km² or 8.5 % of the land area is covered with grasslands at present. The others, namely, urban lands, water bodies and barren lands constitute about 472.2 km² or 4% of the total land area.

The proportion of the agricultural land held as smallholdings and the estate sector varies depending on the character of each district. Approximately 40% of the total Study area of the falls in the category where over 70% agricultural land area is held by smallholders. These districts comprise Moneragala at the eastern end of the Study area; the northern lowlands in Badulla; northern Matale district; and the north-western part of Kandy and Kegalle districts. Over 70% of the agricultural land area is held by the estate sector in the up-country regions of Nuwara Eliya and Badulla Districts, which occupy approximately 20% of the Study area. The remaining 40% consists of districts where the ratio of the agricultural area held by small holdings to the estate sector varies between 30 and 70%.

4.3.2 Cropping Patterns

(1) Cropping system

The cropping system in the Study area has three major components, namely, lowland cultivation, highland cultivation and chena cultivation.

(i) Lowlands

Lowlands are the low lying areas in the landscape such as valley floors and bottom lands and also include the terraced lower slopes of hills. The land is usually asveddumized for paddy cultivation and the source of water supply is either rainfall or gravity irrigation. In the Maha season, these areas are cultivated with paddy, but during the Yala season, the upper reaches with good surface drainage are often used for cultivation of subsidiary food crops, particularly the high value ones.

(ii) Highlands

Highlands are well drained areas where the supply of water for cultivation is rainfall or lift irrigation from sources such as wells, rivers, channels or streams. A variety crops are grown in the highlands. The tree crops consisting of plantation crops (tea, rubber and coconut), export agricultural crops (spices and condiments) and fruit crops are grown under rainfed conditions. High value crops like potato, and vegetables are cultivated in Maha and Yala, and in some areas in Meda season, both under rainfed and irrigated conditions. Growing of chilli and onion in the highlands is largely confined to the drier agro-ecological regions of the Study area during the Yala season. Highlands are also used for cultivation of sugarcane and tobacco by outgrower farmers both under rainfed and irrigated conditions.

(iii) Chenas

Chena in the traditional sense refers to a rainfed highland that has been cleared of the forest cover by simple slash and burn method for cultivation of subsidiary food crops or more recently, tobacco. Cultivation is usually for one or two seasons and the land is then abandoned to clear another land elsewhere for a new cultivation. The system has virtually ceased with the increase in population and the resulting land pressure and the farm plots now remains permanently fixed, used for seasonal cultivation by the operators. The chena differs from permanent farmlands in that it is usually a illegal holding (or an encroachment) and is operated seasonally.

(2) Agro-ecological Regions

Sri Lanka is broadly divided into three major agro-climatic zones; the dry zone, the intermediate zone and the wet zone with rainfall limits of 875-1,875 mm, 1,875-2,500 mm and 2,500-5,000 mm, respectively. These zones have been further subdivided into 24 agro-ecological regions on the basis of climate and soil. The rainfall follows a bimodal pattern, and the island is subject to the North East monsoon from November to February (Maha season) and the South West monsoon from May to September (Yala season). A wide range of soils, variations in the temperature and the local topographical features give rise to a diversity of agro-ecological regions in the Study area. All three agro-climatic zones and 15 out of the 24 agro-ecological regions are identified within the Study area.

(3) Cropping Patterns

The cropping calendar of a particular agro-ecological region is determined by its rainfall distribution pattern and the soil conditions. The timing of crop establishment and selection of age class of crop should be in harmony with the seasonality of rainfall. Crop establishment and plant growth are timed to take best advantage of the rainy periods, while crop maturity and harvesting are timed to coincide with the dry periods. District-wise general cropping patterns for paddy in the Study area are given in Fig. 4.3-1., and cropping pattern at identified locations for selected crops are given in Fig. 4.3-2.

4.3.3 Crop Production and Yield

Agriculture in the Study area makes a significant contribution to the national economy. It leads in the area under cultivation and in the production of most of the economically important crops in Sri Lanka. These crops include tea, rubber, export

agricultural crops, potato, vegetables, sugarcane and tobacco. The area also contributes substantially to the national production of onion, subsidiary food crops, fruit crops and chilli. The cultivated area in major crops in the Study area as a percentage of the total cultivated area nationally are shown below.

Crop	Extent %	Crop	Extent %
Tea	82	Clove	82
Rubber	50	Nutmeg	92
Coconut	13	Cocoa	82
Sugarcane	82	Coffee	81
Cardamon	96	Paddy	20

(1) Paddy

The land area under paddy cultivation in the Study area accounts for about 20% of the total national extent while the yield average yield remains around the national average of 3 mt/ha. District wise paddy production and yield data for three seasons are shown in Table 4.3-2.

(2) Subsidiary Food Crops

A range of grain legumes, cereals and yams, and the cash crops chilli and onion collectively classified as subsidiary food crops are cultivated in the Study area. Production of grain legumes (greengram, blackgram, cowpea, groundnut and soybean), maize, chilli and onion are largely confined in the dry to intermediate climatic zones of Matale, Ratnapura, Badulla and Moneragala districts. The total national supply of potato is produced in the Nuwara Eliya and Badulla districts. District wise cultivated extents and production of selected subsidiary food crops are shown in Table 4.3-3.

(3) Vegetables

Kandy, Nuwara Eliya and Badulla districts supply nearly all of the so called up-country vegetables comprising leek, carrot, beetroot, cabbage and cauliflower, knolkhol and raddish. The intermediate to dry areas in the study area produce the low country vegetables which consists of bean, tomato, luffa, gourds, okra and the pumpkins. District wise distribution of cultivated areas and production are shown in the Table 4.3-4.

(3) Tobacco

Tobacco is cultivated in the Central and Uva Provinces of the Study area by farmers under contract agreement with the Ceylon Tobacco Company, a private sector organization. Extents under the crop and leaf production are shown in the Table below:

District	Extent ha	Production mt
Kandy	1200	950
Matale	1300	1200
Nuwara Eliya	1075	600
Badulla	850	600
Moneragala	100	100

Source: Ceylon Tobacco Co. Ltd.

(5) Sugarcane

Moneeragala district in the Uva Province has emerged as the major sugarcane growing area in Sri Lanka. The extent cultivated, cane produced and the average yield recorded at the two plantations of the factories located at Sevenagala and Pelwatta are shown in the Table 4.3-5. The entire sugarcane plantation at Senenagala and a major part of the Pelawatta are operated by outgrower or contract farmers. Higher cane yields at Senenagala are due to the provision of irrigation facilities as well as the higher rainfall received in the area.

(6) Export Agricultural Crops

Export agricultural crops comprising of spice, condiment and beverage crops are generally grown in small holdings mostly as mixed garden crops. Reliable data on crop production are not available. The extents cultivated under each crop is shown in Table 4.3-6 (1/2), and since the national consumption is small, the export volumes are given in Table 4.3-6 (2/2).

(7) Plantation Crops

Plantation crops consisting of tea, rubber and coconut are grown in the Study area by the estate sector and the small holdings sector. The registered extents under these crops by sector are shown in Tables 4.3-7, 4.3-8 and 4.3-9. The small holdings sector constitute a significant component contributing to the national production.

(i) Tea

Tea is classified into high, mid and low grown teas according to the elevation at which it is produced. Teas produced at elevations above 1200m are thus the high grown, at elevations below 600m, the low grown and in between the mid grown. Tea is grown in all districts except Moneragala and all three types are produced in the Study area. The average yield of tea in the small holdings sector in Study area is in the region of 800 kg/ha (TSHDA) and is below the average of 1200 kg/ha recorded for the estate sector (MPI).

(ii) Rubber

Due to its adaptability to grow in degraded hilly lands where only forest species could survive, rubber plant has been preferred by the small growers as the only crop that would bring in a steady income. It now faces competition from timber crops. The productivity of the rubber small holdings tended to decline over the years due to senility of the trees and reduction in fertilizer use. Sector wise national yield data are presented in the Table below.

(Unit: kg/ha)

Year	Small Holdings Sector	Estate Sector		National
		SLSPC	JEDB	
1986	883	936	1064	919
1987	773	887	1030	826
1988	795	894	1039	841
1989	722	768	872	752
1990	702	894	998	773

Source: Rubber Control Department

Note: SLSPC - Sri Lanka State Plantations Corporation

JEDB - Janatha Estates Development Board

(iii) Coconut

Coconut lands in the Study area are largely held by small holders growing it as a mixed garden crop. The product is consumed locally. Average yield of coconut in the Ratnapura and Kegalle districts are given in the Table below.

District	(Unit: nuts)	
	Total Production	Annual Yield/ha
Ratanapura	405,756	2,321
Kegalle	420,280	3,001

Source: Agrarian Research and Training Institute (1986)

4.3.4 Farming Practices

A great variety of economically important crops are grown in the Study area. These include plantation crops, export agricultural crops, paddy, a range of subsidiary food crops, fruit crops, tobacco and sugarcane. Coverage of all these crops is beyond the scope of the present inquiry. Some aspects of selected high value annual crops are examined briefly, because they are considered important for the small farmer in a relative sense.

(1) Paddy

In the major irrigation schemes, the cultivation sequence of paddy follows the cropping calendar agreed upon at the respective Cultivation Committee meetings held prior to each season which are statutory under the Irrigation Ordinance. In minor irrigation and rainfed areas, the dates for the commencement of field operations are either decided collectively by the farmer organizations or individually. Cultivation in both seasons begins after receiving sufficient amount of rainfall

Land preparation commences with impounding the field with water followed by first and second ploughing. The repair and plastering of bunds are completed before the puddling and levelling operation. Two wheel tractor and buffalo are the most common methods of land preparation, though a smaller percentage prepare land manually using mammoties. Broadcasting and transplanting methods are used for crop establishment, the latter being more popular among farmers. Large majority of the farmers in the Study area uses new improved paddy varieties and the 3 and 3.5 month old varieties are popular in Yala season and the 4-4.5 month varieties are planted in the Maha season. Hand weeding is the most common method of weed control. Mixed fertilizers and urea

are used, but the quantities applied are below the recommended level. Pesticides are widely used. Harvesting is done manually when 80% of the seeds in the panicles are mature and turn brown in colour. Some of the paddy cultural practices are shown in Table 4.3-10, and cultivated age classes are shown in Table 4.3-11.

(2) Vegetables and Potato

The planting area is cleared of refuse and the soil is dug using mamoty or fork. Clods are broken either with hand tools or power tiller. Liming is sometimes done. The land is then ridged and cow dung placed in the furrows. Instead, some farmers used poultry refuse or compost. 7-10 lorry loads of cow dung are used per ha. In areas that are not easily accessible by road, farmers depend on organic fertilizers. The added compost is covered with 20-40 mm of soil for potato or the area is levelled for transplanting cabbage, leeks, beets or direct seeded beans. The specific cultural practices vary with the crop. A study carried out by the Sri Lanka Council for Agricultural Research Policy (CARP) shows that the adoption rates of recommended production practices among Bandarawela vegetable growers exceeded 80%.

(3) Chilli and Onion

Cultivation of chilli and onion in the Study area is mainly confined to the dryer areas of Northern Matale, Southern Ratnapura and Western Moneragala Districts. The crops are cultivated usually in the Yala season under irrigation. The Maha season is not suitable due to the heavy rains. Nevertheless, some farmers raise late Maha crops to take advantage of the lean market.

(i) Onion

Big onion seedlings and dry-sets are raised by the farmers themselves from true seeds starting mid-March to end April and May to June for seedlings and dry sets, respectively. Seed beds incorporating organic manure, are 3 m by 900 mm by 150 mm. Soil sterilization, disinfection and mulching after sowing is generally practised. Fungicide and fertilizer applications are done in the nurseries, and the planting material is hardened before field planting. Land is prepared by ploughing and harrowing, and the planting is done on flat, sunken or raised beds depending on the method of irrigation. Fertilizing is done as basal and two top dressings at planting, three and six week stages. Chemicals are used extensively for weed, insect and disease control. Harvesting is possible 90-100 days after transplanting, depending on the variety. Poor maturing and post harvest treatment and inadequate/inappropriate storage are major problems.

(ii) Chilli

Nurseries are established one month ahead of planting in April to end May during Yala and late September to early October for rainfed Maha season. Soil sterilization and seed disinfection in the nursery is generally practised. Fungicide and fertilizer applications are also done. Seedling are planted in thoroughly prepared land, either on ridges or flat beds. In Yala season, the basin system is sometimes adopted in well-drained soils. Fertilizer is applied as basal and six top dressings at two week intervals. Chemicals are used for weed, insect and disease control. Harvesting usually commences at 75-80 days after planting and may continue for 2-3 months at 8-10 day intervals.

4.3.5 Marketing

Agricultural marketing is the performance of all activities involved in the flow of agricultural products from the point of initial production to the consumers.

(1) Markets

In the Study area, the primary market outlets for agricultural products can be identified in to periodic, institutional and privately operated markets.

(i) Periodic Markets

An important market, particularly for the locally grown fruits and vegetables, is the periodic market fair called the 'Pola'. Pola is a place where the farmers, traders and consumers gather to sell or buy merchandise and pola days are held on one or two scheduled days every week. The polas in a specific region are operated on a rotational sequence to enable outside traders to visit them conveniently, on separate days of the week. All major polas in the Study area are owned by the relevant Provincial Councils and come under the direct supervision of their local bodies. The management of the pola is awarded to private individuals through public tender on an annual basis. Polas in the Study area are listed in Table 4.3-12.

(ii) Institutional Markets

Following institutional market outlets for the small scale producers are operational in the Study area.

- Co-operatives network including Co-operative Marketing Federation (MARKFED) at the apex , Multipurpose Co-operative Societies (MPCSs) at the electoral level and Primary Societies at the village level.
- Co-operative Wholesale Establishment (CWE) which operates seasonal buying centers in selected locations, particularly for onion and chilli.
- Paddy Marketing Board (PMB) for purchasing of paddy.

Except for the CWE, the involvement of other institutional outlets in the marketing activity of the Study area is minimal. At best, their presence in the market tended to stabilize the product prices.

(iii) Private Markets

The private markets in the Study area play the most active role in marketing of agricultural products. Broadly, these markets include the following.

- Tea factories processing leaves bought from tea small holders
- Sugarcane factories processing cane bought from outgrowers (Sevenagala and Pelawatta sugar industries)
- Commission agents and wholesalers dealing in vegetables and to a lesser extent in paddy and other crops
- Registered commodity purchase centers handling a variety of products such as export agricultural crops, RSS rubber and subsidiary food crops.

- Government sponsored purchasing units at divisional level

(2) Marketing Channels and Flows

- (i) Production of surplus paddy in the Study area is largely confined to major irrigation schemes. Purchase of paddy by the PMB has declined during the past decade and in 1991, its purchases accounted for less than 2% of the national production. Local collectors, millers and wholesalers have been the principle buyers of paddy in the production areas. The MPCSSs too purchased paddy through their primaries for processing at own mills and the rice channelled to consumers through primaries in non-producing areas.
- (ii) The marketing channels of tea, rubber and export agricultural crops are well established in the area. The products eventually find their way to Colombo Auctions for sale through brokers on behalf of the large scale suppliers.
- (iii) Coconut production in the Study area is largely consumed locally leaving little surplus. Sugarcane and tobacco have their own markets provided by the private sector factories.
- (iv) Principle operators in the marketing of vegetables are the commission agents and the buy and sell wholesalers. The organization of these trading networks are more flexible than the institutional outlets and provides for more personalized exchange relationships between the trader and the farmer.
 - Commission selling is characterized by large scale trade involving high turnover which necessitates securing of assured supply lines as well as sales contacts. In order to ensure steady supply of commodities, the agents often provide farmers with production credit thus binding the farmers to market their crop through the agent. The farmers often send their produce to the commission agent directly, through a transport agent, by prior arrangement.
 - Buy and sell marketing is relatively a small scale operation and consist of independent dealers exchanging goods at various levels in the marketing chain. The farm produce is bought from the farmers directly or through brokers for resale to market retailers.

The main wholesale market is the Pettah market situated in Colombo which also serves as the terminal market for agricultural produce grown in the country. Products ,mainly vegetables and fruits from all the growing areas are brought to the market by assemblers/whole sale traders or directly to the commission agents for sale through commission agents who are the main market operators. Wholesaling also takes place in all other principle cities in the Study area such as Kandy, Ratnapura, Badulla, etc.

- (iv) Chilli, onion, grain legumes and maize, which are grown in abundance in the drier areas of the Study area, particularly in Matale and Moneragala districts, are marketed partly through seasonal purchasing centers operated by the MARKFED and CWE and also by the MPCSSs and its primaries. Purchasing points are also run by private individuals

including those sponsored by the Government at the divisional level. These collectors resell the commodities either to institutional markets or to wholesalers.

(3) Prices

(i) Paddy

Prior to 1980, the PMB played the key role in stabilizing the paddy price through administration of the Guaranteed Price Scheme (GPS). Its activities started to decline from early 1980s and in 1991, paddy purchased by the PMB accounted for less than 2% of the total national production. In 1988, the monopoly held by the CWE on rice imports was broken and private sector imports were authorized under Government licensing, subject to a quota system. A system of bonded warehouse storage was initiated in 1990, where the rice imported by the private sector is stored in the Food Commissioners bonded warehouses as buffer stock for later use. Monthly stock requirements are computed based on the estimated production during the season and any stock excesses are sold at prices above the GPS price. Competitive purchasing of paddy by MPCSS and PMB, and the Government imposed import restrictions as a domestic price protection mechanism have together contributed in maintaining the prices at satisfactory level. The GPS prices and the producer prices are given in Table below.

Year	GPS Price (Rs/kg)	Av. Producer Price (Rs/kg)	PMB Purchase as National %
1988	4.00	4.61	4.2
1989	4.00	6.24	0.2
1990	5.50	7.96	1.2
1991	6.80	8.10	1.7

Source: Central Bank Annual Reports Agrarian Research and Training Institute

(ii) Vegetables

There are no Government supported price protection mechanisms for fruits and vegetables. The seasonal nature in the production of vegetables and fruits is reflected in the price variation seen through the year. Wholesale and retail prices of some selected vegetables and fruits are given in Table 4.3-13.

The producer prices of vegetables are subject to influences other than that determined by the local supply level. These arise mainly from the exchange relationships between the producer and the trader as well as the supply situation in the Colombo wholesale market. Between the farmgate and the retail point there is very little transparency in the cost structure. These cost centers include: (a) collection and assembly of products from small farmers; (b) transportation to the wholesale market; (c) loading/unloading and handling; (d) transport agents commission/margin; (e) wholesale margin of 10%; (f) transportation to retail market; (g) unloading/handling; (h) wastage and weight loss from sorting and drying; and (i) retailers margin. Producer prices of some selected vegetables are shown in Table 4.3-14.

(iii) Subsidiary Food Crops

Floor Price Scheme (FPS) for selected food crops was implemented in 1979/80, and at present covers nine crops, namely, maize, kurakkan, groundnut, soybean, chilli, cowpea, greengram and blackgram. The seasonal floor prices are set by the National Food Policy Committee based on factors such as cost of production, profit and losses, open market and import prices, etc. In 1985, the Salvage Price Scheme was introduced to calculate the basic floor prices. The scheme sought to set annual buying prices that would protect the farmer from a collapse in the open market conditions. Operating prices under the FPS are far below the farmgate prices that it has no relevance in the present context.

4.3.6 Farmers Organizations

Village based farmer organizations in a variety of forms have existed from the very early times. These were largely informal and varied in function ranging from subject oriented single purpose organizations such as those for water management, agriculture, marketing, etc., to multipurpose organizations. Under the Agrarian Services (Amendment) Act No. 4 of 1991, the farmer organizations became a legal entity with a properly constituted mandate. The institution of formal farmer organizations is foreseen as to give practical effect to the government policy of devolving greater management responsibilities to the farmers and thereby promote self reliance within the communities. In terms of the Act, the farmer organizations are empowered to undertake a wide range of activities which include the following:

- (a) prepare and implement the seasonal and annual agricultural work plan for the area;
- (b) undertake village level construction works and repair and maintenance of minor irrigation works;
- (c) distribution of agricultural inputs such as planting materials, fertilizers and agrochemicals, and marketing of agro-products;
- (d) foster close co-operation between relevant institutions and the farming community for greater efficiency in implementing the plans and programmes; and
- (e) with prior approval from the Commissioner of Agrarian Services, carry out other related projects which are deemed beneficial to the community.

It is envisaged that the farmer organizations will be instituted at three levels, namely, the village, divisional and the district levels for federation as a final apex organization at the Provincial and/or National level.

In the major irrigation schemes, these farmer organizations will be required to play a decisive role in its long-term sustainability. The farmer organizations will take over the responsibility of operation and maintenance of the irrigation network at the distributory canal level and below. Establishment and providing operational guidance for the proper functioning of farmer organizations (in areas outside major irrigation schemes) is the responsibility of the Department of Agrarian Services. Farmer organizations in the Study area are in the process of being instituted at the village level.