(b) Related structures:

Description	Number
Construction of new structures	
Parshall flume 3 ft type	1
Field outlet	46
Regulator	13
Foot bridge	21
Bridge	3
Syphon	1
Washing step	12
Culvert	2
Side spillway	10
Spillway cum wasteway	11
Cross drain	2
Improvement of structures	
Anicut and intake	1
Field outlet	16
Drop structure	1
Culvert	1
Pipe aqueduct	1

(c) Inspection roads:

rehabilitation and improvement of the roads on the main and LB branch canal by widening to 2.4 m in minimum metaling.

(7) Operation and Maintenance

Operation and maintenance works of the structures on the main canal will be undertaken by the ID Ratnapura Office, and the structures below field outlets by the 3 farmers' organizations under the Scheme. It is proposed to establish a project committee for the smooth and effective operation of the scheme. The committee is composed of the Irrigation Department, 3 farmers' organizations, Department of Agrarian Service, Department of Agriculture, and banks. A project manager, representative of the committee, is responsible for the operation of the Scheme.

3.3.3 Rural Infrastructures

(1) Agricultural Feeder Roads

(a) Objective

The present conditions of the proposed agricultural feeder roads selected for the Case Study Area-II are shown in Table 3.3-1. These conditions prevent smooth transport of agricultural products by farmers. The objective of the road projects is to improve the present poor condition and increase efficiency of transport.

(b) Design Policies

For the 67.0 km (of 6 routes in 8 divisions) of the priority project roads, rerouting will not be feasible. The design policy was established as follows:

(i) Condition of subgrade :

Design CBR 6 is adopted as the feasible subgrade.

(ii) Road cross-sections :

The standard cross-section of the roads comprises a traffic lane (pavement width 3.5m), 2 shoulders (1.2m for each side), and a side drain on the mountain side. Passing places will be provided at intervals of about 300 m..

(iii) Vertical gradient :

The sections with a gradient exceeding 15% will be limited to a length of 100m and connected to sections of over 30m a gradient below 2.5%.

(iv) Pavement :

The following types are classified depending on the present conditions.

-Type A : Rehabilitation of all layers of pavement by concrete pavement
-Type B : Rehabilitation of all layers of pavement by tarred pavement
-Type C :Rehabilitation of the base course and surface course by tarred pavement
-Type D : Rehabilitation of the surface only

(v) Side drains :

The side drains of road sections with a gradient of over 8% will be lined with concrete (type-I), and those of sections with a gradient below 8% will be constructed by simple excavation (type-II).

(vi) Retaining walls :

Retaining walls will be provided at the valley side on steep slopes and at sections requiring widening. The classified Type-A (wall height = 5 m) and Type-B (wall height =3m) will be applied.

(vii) Improvement of sharp Bends :

Sharp bends of the roads will be widened to avoid sharp turning.

(viii) Crossing structures over river/streams :

For the existing bridges, only the surface layer will be sections rehabilitated. However, three new bridges are required at one point on a proposed road. Regarding the existing crossing structures over small rivers or streams (culverts, small causeways, etc.), these are to be reconstructed at the same level as the sections requiring rehabilitation.

(c) Volume of Construction

The volume of construction by proposed road computed according to the above conditions is shown in Table 3.3-2 and summarized below:

Total	Pavement(km)			Side drain(km)		Culvert	Bridge	Causeway	Retaining		Widening
length(km)	type-A	type-B	type-C	type-D	type-I	type-II	(nos)	(nos)	(nos)	type-a	type-b	(nos)
67.0	1.3	46.1	18.1	1.5	13.3	53.8	294	3	11	4.4	1.2	13

(d) Operation and Maintenance

After implementation of the projects, operation and maintenance of roads will be carried out by Pradeshiya Sabha as before.

(2) Rural Water Supply

(a) Outline of the Present Water Supply Scheme

Kuruwita, selected for the Case Study, is the capital city of Kuruwita Division in Ratnapura District. Presently, water is supplied to a part of GN (Grama Niladari) in Eknerigoda, Kuruwita and Delagamuwa, and of Watuyaya Division. An present beneficiaries are 500 persons of 125 households. The outline of the existing water supply facilities is given below:

(i) Water source : Kuru Ganga
(ii) Intake facility : Well type intake, water channels 6" x 10m(L) x 3 pcs.
ϕ 3" centrifugal pump 1 unit x 18.5 kw (25hp)
(iii) Storage tank : Capacity 25,000 gal. (114m^3)
(iv) Distribution pipes : Total length : 3,650m (PVC ϕ 1.5" ~ ϕ 4")

(b) Design Policy

(i) Target year of the rehabilitation plan :

The target year shall be 2013 year.

(ii) Service area and beneficiary population :

The new service area will include Kandangoda G.N. in addition to the existing area (4 G.N.). The present population of the area is 9,924 and a population increase of 2.5% is assumed.

(iii) Future water demand :

Proposed average water demand 2,461.0 m^3/day
Proposed max. daily water demand 3,076.3 m^3/day

(iv) Design of facilities

i) Intake Facility :
The existing intake facilities on the Tundura Oya will be provided with a small weir (proposed intake volume : 39.2 l/sec), and the existing intake on the Karu Ganga will be rehabilitated.

ii) Transmission pipeline
The flow of the transmission pipeline will be identical to the intake volume. The diameter and length of pipeline will be 250 mm and 2,822 meter respectively.

iii) Slow sand filtration
Two new slow sand filters (20m x 20m x 2) with a filtration speed of 4.0m/day are proposed (total area : 770 m^2).

iv) Distribution Facilities
A gravity system with pressure reduction equipment will be employed. The existing 114m^3 storage tank will be rehabilitated and two new storage tanks (total volume :1,500 m^3) will be proposed. Pipeline diameters are 50 mm ~ 300 mm and the total length is 10,650 m.

(c) Operation and Maintenance

The intake and transmission pipe facilities are maintained by the National Water supply and Drainage Board (NWS & DB) and the distribution pipe facilities by Pradeshiya Sabha with support of NWS & DB.

3.3.4 Farm Land Conservation Plan

(1) Description of the Model Scheme Sites

Pelanpitiya Farm Land Conservation Model Scheme

The Pelanpitiya Farm Land Conservation Model Scheme is located in Yatiyantota Division, Kegalle District, and its command area is about 50 ha including two (2) Grama Niladari Divisions, namely Dedugala and Pelampitiya (See Fig. 3.3-2). The area has been mainly used for tree crops such as rubber and tea. However, cultivation of up-land crops such as potato, chilli and other vegetables is now mainly practised by local farmers without any proper erosion control measures. Considering the high agricultural development potential the area, the introduction and improvement of farmland conservation measures are indispensable to ensure sustainable development conditions in the area. The population density in the scheme area is about 200 persons per km^2. Establishment of the proper land use plan is most important for both agricultural development and environmental protection. A combination of vegetative and agronomic conservation measures is suitable in most of the areas with a slope of more than 45%. Change of the land use pattern and reforestation of the areas with a slope of more than 60% would be needed in the long term. Improvement of the drainage network should be a key component of the Scheme to control erosion.

A topo-survey area of about 2.1 ha which has typical site conditions of the command area is selected for detailed study for design and cost estimation of conservation measures. The area is about 50 ha with a slope of 30-60%. The area is now cultivated with potato, vegetables and other annual crops. The upper and middle parts of the area have a steep slope about 45%, and the lower part is rather gentle with a slope of about 30-40%. Only poorly managed terracing with no retaining walls and earth intercepting drains is done in the area. No systematic drainage networks are provided in the area. As this area will probably be used more intensively for cultivation of up-country vegetables and potatoes in future, establishment of a proper land use plan is essential for soil erosion control. Based on this land use plan, a suitable combination of farmland conservation measures is worked out.

(2) Project Components

Considering the topographic and land use conditions in the Model Scheme Area, an adequate combination of physical and vegetative conservation measures should be applied for this area. Thus, the following project components are required for farmland conservation:

- Bench terracing for reducing the slope;
- Vegetative measures using the Sloping Agricultural Land Technology (SALT);
- Intercepting drains along contour lines; and
- Collecting drains to receive water from the command area and upper catchment area.

(3) Design and Work Quantities

The typical layout and design of structures in the topo-surveyed area were determined and the unit work quantities per ha were estimated based on a topo-survey map prepared by the JICA Study Team. the calculated work quantities are shown in Table 3.3-3, and the features of the Pelanpitiya Farm Land Conservation Scheme are summarized below.

Work Item	Pelanpitiya
i) Retaining wall for bench terracing	230 m/ha
ii) SALT length	646 m/ha
iii) Intercepting drains	876 m/ha
iv) Collecting drains	154 m/ha

(4) Operation and Maintenance

Organization for Project Management

It is proposed that operation and maintenance of the Model Scheme be undertaken by NADSA under the jurisdiction of M/AD&R in cooperation with the Department of Provincial Land Commissioner in MOL. Necessary technical and administrative staff should be provided by NADSA and other agencies concerned. After completion of the Model Scheme, NADSA should monitor the conditions of maintenance, provide appropriate assistance to the local people, establish an appropriate policy and approach to the farmland conservation sector, and promote the implementation of the Master Plan.

CHAPTER 4 IMPLEMENTATION PLAN AND COST ESTIMATE

4.1 Organization for Project Implementation

The project involves of many fields: irrigation, agricultural feeder roads, rural water supply, agricultural promotion, agricultural support, and farmland conservation. Governmental agencies responsible for the projects exist in each field. The Project is to supplement the projects of such governmental organizations (administering offices, agencies, etc.). Accordingly, it must be emphasized that the implementation of the Project is only possible with the cooperation of the governmental offices and agencies.

MUPR is the only administrative organization which can coordinate with local and central governments to assist and support the provinces, districts, and governmental offices and agencies within the Project area in raising the local living standard, improving the living environment and especially improving infrastructures.

The Project requires cooperation from multiple governmental offices and agencies for implementation. In this respect, the Project is similar to the Integrated Rural Development Project (IRDP) promoted by the Ministry of Policy Planing and Implementation (MPPI). However, while IRDP is implemented at the district level, MUPR has the authority over the whole Project area.

Consequently, MUPR is considered to be the most appropriate organization for implementing the Project. The organization of MUPR has already been referred to under the section on the Master Plan (Part I of the Main Report).

The DUPR is proposed to be the main Project Office and the Sub-project Office is proposed to be established in Welimada Division for Area-I and Kuruwita Division for the Area-II.

A graphical representation of the project implementation system for each project, (with the MUPR as the core organization) is shown in Figure 4.1-1. MUPR, envisaging such a system, has already established the Steering Committee at the central governmental level, which is scheduled to be followed by the establishment of the Coordination Committees in provinces, districts, and divisions after the project has shifted to the implementation stage.

4.2 Implementation Plan

(1) Construction Volume

The facilities to be constructed and rehabilitated under the Project are described in Chapters 2 and 3. They are summarized below:

Projects	Area-I	Area-II	Total
1. Irrigation Facility Rehabilitation			
Command Area	766.0 ha	167.9 ha & 46.3 ha	980.2 ha
Canal Length	16.0 km	15.0 km & 2.1 km	33.1 km
2. Agricultural Feeder Road Rehabilitation (mostly E-Class roads)			
Total distance	128.8 km	67.0 km	195.8 km
Bridge	1 no	3 nos	4 nos
Causeway	40 nos	11 nos	51 nos
Culvert	120 nos	89 nos	209 nos
Pipe drain	472 nos	205 nos	677 nos
Retaining walls	15.7 km	5.6 km	21.3 km
3. Rural Water Supply			
Area	1 scheme	1 scheme	2 schemes
Beneficiaries (present)	1,780+1,000	9,924	12,704 persons
Intake facility	1 no	1 no	2 nos
Transmission pipeline length	915m	2,822m	3,737m
Distribution pipeline length	3,485m	10,650m	14,135m
Slow sand filtration	9m x 9m x 2	20m x 20m x 2	962m^3
New storage tanks	216m3 x 1	750m^3 x 2	1,716m^3
4. Agricultural Promotion & Supporting Plan			
Produce storage	6 nos; 5,040m^2		5,040 m2
Pola rehabilitation	3 nos	3 nos	6 nos
Fertilizer & agro-chemical storage	-	5 nos;325m^2	5 nos;325m^2
Paddy seed storage facility	-	4 nos;260m^2	4 nos;260m^2
Paddy seed multiplication facility	-	1 no;168m^2	1 no;168m^2
Agricultural training facility	-	1 no;887m^2	1 no;887m^2
Materials & equipment for above projects	-	1 set	1 set
5. Farm Land Conservation			
Model Project	2 areas; 100 ha	1 area; 50 ha	150 ha

(2) Construction Plans

The above construction works are of a small scale which is typical of such works in Sri Lanka. It is judged that such construction works can be executed satisfactorily by local contractors. However, it will be necessary to fully control the quality of finished structures and the work schedule during the construction stage.

The Project implementation term period inclusive of the detailed design period, will be 4 years in total, including 3 years for the Area-I and 2 years for the Area-II. The construction schedule is shown in Figure 4.2-1.

4.3 Project Cost Estimate

(1) Conditions for Estimation

The project costs are estimated according to the following conditions:

(a) The unit costs of major construction works are based on the unit prices in the government data collected during the field survey from February to December 1993, including the data of a) Ministry of Forestry, Irrigation & Mahaweli Development, b) National Water Supply & Drainage Board, and c) the Road Development Authority.

(b) The following exchange rate is applied:

US$1.00 = Rs.46.73 = ¥115.0
Rs.1.00 = ¥2.46

(c) A physical contingency equal to 15% of the direct construction cost is applies. Annual price contingencies of 11.6% and 3.2% are applied to the local currency portion and foreign currency portion, respectively.

(d) The cost of engineering design and construction supervision is equal to 8 % of the direct construction cost, and the administrative cost for Sri Lanka is equal to 5% of the direct construction cost.

(e) The land acquisition cost covers only private land and not state land. The applicable prevailing price of private land is Rs. 12.4/m^2.

(f) No maintenance and service costs during the construction period are taken into account.

(g) The construction cost of the project office is included in the administration cost.

(2) Composition of Project Cost

The composition of the project costs is as follows:

Project Cost	I.	Construction Cost	1. Irrigation
			2. Agricultural Feeder Roads
			3. Rural Water Supply
			4. Agricultural Promotion and Supporting Plan
			5. Farmland Conservation
	II.	Land Acquisition	
	III.	Engineering Cost	
	IV.	Administration	
	V.	Contingency	1. Physical Contingency
			2. Price Contingency

(3) Unit Construction Costs

The labour cost, unit prices of materials, and unit costs of construction works are shown in Tables 4.3-1~4.3-3.

(4) Estimated Project Cost

The total project cost is estimated at Rs. 2,652 million (See Table 4.3-4), breaking down into Rs. 1,742 million for the Area-I and Rs. 910 million for the Area II.

Cost breakdowns of each project by area are shown in Table 4.3-5 (Area-I) and Table 4.3-6 (Area-II).

(Unit: Million Rp.)

Items	Area-I			Area-II			Total		
	F/C	L/C	Total	F/C	L/C	Total	F/C	L/C	Total
Const. Cost	535.7	610.3	1,146.0	262.3	272.3	534.6	798.0	882.6	1,680.6
Land Acquisit.	0	11.0	11.0	0	2.1	2.1	0	13.1	13.1
Engineer.Cost	55.0	36.7	91.7	25.7	17.1	42.8	80.7	53.8	134.5
Administration	0	57.3	57.3	0	26.7	26.7	0	84.0	84.0
Physic. Cont.	80.3	91.6	171.9	39.4	40.8	80.2	119.7	132.4	252.1
Price Cont.	45.6	218.0	263.6	40.8	83.0	223.8	86.4	401.0	487.4
Grand Total	716.6	1,024.9	1,471.5	368.2	542.0	910.2	1,084.8	1,566.9	2,651.7

(5) Annual Disbursement

The annual disbursement amounts are shown below and detailed in Table 4.3-7.

(Million Rs.)

	F/C	L/C	Total
1st year	155	172	327
2nd year	340	467	807
3rd year	318	514	832
4th year	272	414	686
Total	1,085	1,567	2,652

CHAPTER 5 OPERATION AND MAINTENANCE

5.1 Organization for Operation and Maintenance

MUPR, as the implementation organization of the Project, will be responsible for the rehabilitation of infrastructures until their completion. Once the infrastructural facilities are completed, they will be transferred to the respective administering governmental offices and agencies, and the latter will be responsible for the operation and maintenance of such facilities thereafter.

The constructed and rehabilitated facilities under the project will be transferred after their completion as shown below:

Project	Responsible Organization after Completion
1. Irrigation Facilities(Major)	Irrigation Department --->Farmers' Organization
2. Irrigation Facilities(Minor)	Provincial Councils--------->Farmers' Organization
3. Agricultural Feeder Roads	Pradeshiya Sabha (PS)
4. Rural Water Supply Facilities	Pradeshiya Sabha (PS)
5. Produce Storage	Department of Agrarian Services (DAS)
6. Agricultural Markets (Pola)	Pradeshiya Sabha (PS)
7. Paddy Seed Multiplication Facility	Provincial Councils (PC)
8. Agricultural Training Facility	Provincial Councils (PC)
9. Fertilizers & Agro-chemicals Storage Facility	Department of Agrarian Services (DAS)
10. Paddy Seed Storage Facility	Department of Agrarian Services (DAS)
11. Farmland Conservation	Beneficiary Farmers

The irrigation facilities are operated and maintained by the Irrigation Department and the Provincial Council at the present. After being constructed and rehabilitated under the Project, these facilities are expected, as in other irrigation facilities rehabilitation plans, to be transferred to the farmers organizations that will ultimately operate and maintain them.

The operation, maintenance and control of the agricultural feeder roads, rural water supply facilities and Pola, as have been done up to now, will be undertaken by Pradeshiya Sabha. The management and maintenance of the agricultural feeder roads will be financed by the budget of the Provincial Council, and the rural water supply facilities and Pola respectively from the water charges collected from the beneficiaries and contract money charged to the civil contractors to whom the operation of Pola is entrusted.

The produce storage, fertilizers and agro-chemicals storage facilities and paddy seed storage facilities will be operated and maintained by the Department of Agrarian Services since these facilities are often annexed to the Agrarian Services Centres. In the future, however, it is desirable that these facilities will be directly operated by the farmers' organizations and that farmers will operate the facilities on their own responsibility.

The farmland conservation areas will be managed by the National Agricultural Diversification and Settlement Authority (NADSA) at first with the cooperation of the Ministry of Land, and then will, like in the case of the irrigation facilities, be ultimately transferred to the management of the beneficiary farmers' organizations. However, in

order to accumulate technologies and data to be ready for further promoting the Project in future, it is recommended that NADSA will continue to monitor the completed Project for a certain time. It is considered that the system and organization of NADSA need to be readjusted to attain this goal.

The maintenance and control of the farmland conservation areas, which comprise many fields inexperienced to Sri Lanka, are treated specifically in Volume III, Annex 2, Chapter 5.

5.2 Agricultural Support Services

Most of the facilities constructed and rehabilitated under the Project will bring about direct benefits to the local farmers and inhabitants. The projects in the category of agricultural promotion and support can bring large benefits to farmers when associated with technical support services for farm management, sales, storage, etc. In this respect, the full cooperation of the Department of Agrarian Services, the Department of Agriculture, Provincial Council, etc. is required.

It is desirable that MUPR, as the implementation organization of the project and in cooperation with the relative offices and agencies, will make efforts for smooth operation of the projects even after the completion of the facilities.

5.3 Monitoring Surveys

MUPR will, after completion of the facilities under the Project, transfer the facilities to the relevant administrative offices and agencies and terminate its role. MUPR should, however, as the implementation organization of the Project, carry out monitoring surveys on a periodic basis regarding the operation and maintenance conditions of the facilities, effectiveness of the facilities for the local farmers and inhabitants, etc. This is necessary to identify problems requiring improvements at an early stage and to feed that experience back to similar projects expected to follow.

CHAPTER 6 PROJECT EVALUATION

6.1 General

6.1.1 Basic Concept

The main objective of the Project is to improve the living standards of small-holding farmers in up-country areas. In order to achieve this aim, the rehabilitation and development projects consisting of several components are planned for the Case Study Areas (See Fig. 6.1-1). Synergistic benefits will be generated by the combination of all the components. However, it is very difficult to quantify these benefits of the Project.

For the economic evaluation, three measures of project viability, namely. Economic Internal Rate of return (EIRR), Benefit-Cost ratio (B/C) and Benefit Minus Cost (B-C) were examined for the Irrigation Rehabilitation Projects.

The benefits of the Project are not only the directly countable ones such as irrigation benefits, but also include uncountable secondary benefits. This kind of benefits is indeed characteristic of the projects which consist of several components. The indirect benefits and socio-economic effects, which would have on impact on the regional and national economy, were also studied briefly.

6.1.2 Beneficiaries

The population in the Case Study Area-I is estimated at 640,000 and that in the Case Study Area-II at 510,000. Most of the inhabitants of the Case Study Areas will get benefits directly or indirectly from the Project. Especially, rural roads improvements will benefit not only inhabitants but also dealers, retailers and transporters, etc. The estimated number of beneficiaries is summarized in the table below.

Project	Beneficiaries (estimated)
Case Study Area-I	
1. Agricultural Promotion and Supporting	
Rural Marketing Facilities (nos)	19,710
Agr.-produce Storage (farm fam.)	69,578
2. Irrigation Scheme (farm. fam.)	4,400
3. Rural Water Supply (nos)	2,780
4. Rural Roads (fam.)	12,020
Case Study Area-II	
1. Agricultural Promotion and Supporting	
Rural Marketing Facilities (nos)	23,940
Inputs Storage (farm fam.)	35,214
Paddy Seed Testing Laboratory (farm fam.)	60,600
DATC (farm fam.)	28,500
2. Irrigation Scheme (farm. fam.)	230
3. Rural Water Supply (nos)	9,924
4. Rural Roads (fam.)	11,260

6.2 Economic Evaluation

6.2.1 Basic Assumptions

The Project evaluation from the view point of the national economy was conducted on the following basic assumptions:

a) The economic useful life of the irrigation rehabilitation projects is 50 years.

b) All prices are expressed in 1993 constant prices

c) The exchange rate is US$1.00=Rs. 46.73

d) The period of construction works including preparatory works is 2 years.

e) A standard conversion rate (SCR) of 0.75 is applied to the economic prices of non-trade goods and services.

f) The price contingency and transfer payments are excluded from the economic project costs.

g) The cost of unskilled labour is evaluated based on the shadow wage rate (SWR) of 0.72

6.2.2 Economic Prices

Since the domestic consumption of rice is still supplemented by imported rice depending on the year, the economic farm gate price of rice is estimated at the average value of import parity prices on the basis of the international market price forecasted for the year 2000 by the World Bank. The economic price of fertilizer is also estimated at import substitution prices, based on the international market price projected by the World Bank.

Domestic consumption goods such as upland vegetables are valued at financial prices estimated on the basis of current market or farm gate prices prevailing in the Project area in 1993.

6.2.3 Economic Project Cost

The project costs for economic evaluation consist of capital cost, annual operation and maintenance (O&M) cost, replacement cost, and transmigration cost. The economic cost was obtained by applying SCR of 0.75 to the local currency component of the estimated financial project costs. The economic construction cost which consists of (i) direct construction cost of each project, and (ii) associated costs, is shown in Table 6.2-1 and summarized as follows.

(Unit: Rs. 1,000)

Case	Foreign Currency	Local Currency	Total
Case Study Area-I			
1. Uma Ela	137,523	55,268	192,790
Case Study Area-II			
1. Damme Ela	53,513	25,083	78,596
2. Issodanawela	1,338	924	2,263

The economic annual operation and maintenance cost (O & M cost) for project facilities would be initially disbursed in the year when full operation starts.

Some facilities and O&M equipment will be replaced at a certain period within the project life. These facilities are assumed to be imported and then the in economic replacement cost is estimated on the basis of the same projection as the project construction cost. According to the implementation schedule of the proposed project and works quantities, the economic replacement cost is summarized below:

(Unit: Rs. 1,000)

Item	Cost
Case Study Area-I	
1. Uma Ela	
i) O/M	12,000
ii) Replacement	57,142
Case Study Area-II	
1. Damme Ela	
i) O/M	510
ii) Replacement	19,497
1. Issodanawela	
i) O/M	150
ii) Replacement	225

6.2.4 Economic Benefits

The direct project benefits consist of irrigation benefits that will accrue primarily from increased crop production owing to stable irrigation water supply. The irrigation benefit to be expected is defined as the difference of primary profit from crops between the future "with" and "without" project conditions. On the basis of the estimated production cost and gross income, the economic net return per ha for each crop under the "with" and "without" project conditions are estimated. By multiplying the economic net return per ha for each crop to the harvested area, the total economic net return by crop production is calculated both under "with" and "without" project conditions as shown in Table 6.2-2. The annual economic irrigation benefit of each project at full development stage is estimated as shown below.

(Unit: Rs. 1,000)

Item	Value
Case Study Area-I	
1. Uma Ela	
"Without Project" Condition	98,667
"With Project" Condition	179,217
Balance (Economic Benefit)	80,550
Case Study Area-II	
1. Damme Ela	
"Without Project" Condition	1,466
"With Project" Condition	5,275
Balance (Economic Benefit)	3,809
1. Issodanawela	
"Without Project" Condition	170
"With Project" Condition	1,444
Balance (Economic Benefit)	1,275

With regard to the upland crop area and chena cultivation area in the extension area of the projects, no opportunity cost in a national economic sense was evaluated, since there was no potential alternative.

6.2.5 Economic Evaluation

In order to compute EIRR, B/C, and B-C, the annual economic cost and benefit flows were firstly prepared as shown in Table 6.2-3. In estimating B/C and B-C, an assumed discount rate of 10% was employed. The results of the economic evaluation are tabled below.

Case	EIRR (%)	B/C	B-C (Rs. 10^3)
Case Study Area-I			
1. Uma Ela	19.6%	1.94	262,349
Case Study Area-II			
1. Damme Ela	1.5%	0.40	-46,206
2. Issodanawela	38.8%	3.08	7,226

6.2.6 Effect of Improvement of Rural Roads

The road benefit is logically countable. However, economic evaluation on rural road improvements was not carried out in this study due to force of circumstances. Rural roads improvements will benefit not only inhabitants but also dealers, retailers, transporters, etc.

The implementation of 15 rural roads (128.3 km) in the Case Study Area-I and 8 roads (67.0 km) in the Case Study Area-II was planned. The present condition of these roads is shown in Table 6.2-4. In the Case Study Area-I 40 percent of the total road length or 50.1 km is earth/stone gravelled road and 30 percent or 37.2 km is footpath. The public buses do not cover the areas because of the poor road condition, which interferes with transportation by small vehicles. Especially in the rainy season, it is

difficult in walk on these roads because the road surface becomes slipping. In the Case Study Area-II, the situation is the same.

The improvement of rural roads is expected to greatly contribute to improving the transportation in the area. The implementation of rural roads will contribute to the saving the transportation cost and personnel expenses on the agricultural products due to rehabilitation of the roads conditions.

6.3 Indirect Benefits and Socio-economic Impacts

In addition to the direct benefits taken into account in the economic evaluation, various secondary and intangible benefits and/or favourable socio-economic impacts are expected from the implementation of the project. Principal socio-economic impacts are described below.

(1) Securing stable food supply and increasing agro-products

(a) Agricultural produce storage

The improvement of agricultural produce storage is expected to greatly contribute to smooth distribution, and stable supply of vegetables. The implementation of the Project will contribute to social welfare in the area by improving the living standards of small holders and giving small holders incentives for farming. While the financial benefits accrued to the farmers through the provision of produce storage facilities at selected locations are obvious, such a facility could also bring about desirable social benefits by strengthening farmers' organizations. A main objective of the establishment of farmers' organizations under the Agrarian Services (Amendment) Act of 1991 is to promote higher degree of community participation in development activities in order to realize greater self reliance among the communities as a final goal. As management bodies, the agricultural produce storage facilities will strengthen farmers' organizations through gradual development of skills in marketing as well as in leadership. The opportunity for direct involvement in beneficial commercial activities would ensure greater community participation as embodied in the objectives and goals of the farmers' organizations. Furthermore, the implementation of the Project is expected to have a beneficial demonstration effect as a model of agricultural supporting projects to other regions. Thus, the facilities could be viewed as centres for development of the farmers' organizations and the farming community.

(b) Input storage

The improvement of inputs storage is expected to greatly contribute to increasing agricultural products through stable input supply in adequate quantity, quality and time. The Project will lighten farmers burden to get agro-inputs.

(c) Seed testing facility

The implementation of the Project will contribute to the diffusion of the registered paddy seeds by improving the efficiency of certification work. The increase of seed production contributes directly to the increase of crop production. Therefore, industries related to paddy production will be developed, and employment opportunities will increase with these industries. Furthermore, the

implementation of the Project is expected to have a beneficial demonstration effect as a model of provincial level seed certification services to other regions and other seeds later on. The proposed paddy seed testing facility will streamline the paddy seed certification process in the Province, thereby encouraging better participation of seed producing farmers. This fully supports the Government policy on production of certified paddy seed through the involvement of the private sector. In this instance, the farmers registered with PDOA will constitute the private sector.

(2) Expansion of the willingness to work

In contrast with low productivity of the current agricultural husbandry, the farmers would find satisfaction with to the improvement of their living standards through the increment of the crop production in future condition. As a result, they will desire to gain more agricultural products and improve the living standards, and therefore the willingness to work will be enhanced.

(3) Increase of employment opportunities

Employment opportunities of the local people will be increased with the implementation of the Project, and a favourable impact to the regional economy will be expected through the increased monetary movement. The employee will gain more experience, technical know-how, skilfulness in various work fields. This accumulation of working techniques will be useful for future development in Sri Lanka.

(4) Enhancement of economic and social activities

Local transportation will be much improved with the improvement and rehabilitation of rural roads and bridges. The expanded road system will not only enhance the economic activity in and around the project area but also contribute to inter-regional accessibility and communications.

(5) Enhancement of the agricultural supporting services

Benefits of the proposed improvements of the agricultural training facilities in Karapincha in Kuruwita Division are difficult to be measured in financial terms. However, the training input will have a direct impact on the productivity through improvement in production and post harvest technology as well as in marketing of agricultural produce. A fact that has been emphasized is the introduction of an integrated approach to farmer training. It has been observed that the small holding farmer, in general, cultivates a combination of crops, ranging from annual crops such as paddy, vegetables, and yam to perennial crops such as plantation these, export agricultural crops, and fruit crops. Thus, the integrated approach to farmer training and extension to cover the farm as a unit rather than a compartmentalized single crop approach would be more meaningful and beneficial.

(6) Development of the regional economy

After implementation of the Project, income of farmers is expected to increase considerably as a direct result of the increase in crop production and crop diversification. Such increase in income would contribute to improving the farmers' living standards. Moreover, it is expected that farmers' purchasing power would increase along with the improvement of their living standards, and this increased purchasing power would benefit the development of the regional economy. Future marketing in the area is likely the expand. With anticipated higher agricultural production, more farm products could

be marketed by the farmers and the proportion of sales would also increase in proportion to consumption. The merchants would have a larger turnover which could increase their income.

(7) Improvement of the sanitary condition

With to the establishment of the drinking water supply system, the quality of drinking water will be improved and, as a result, water-borne diseases will be reduced.

(8) Impact from the Implementation of the Farm Land Conservation Model Scheme

Generally the farmland conservation is equated soil erosion control. Given proper farmland conservation and management, many areas could be farmed permanently and much more intensively without risking undue erosion. The model scheme will have an effect on inducing permanent farming. After implementation of the Master Plan, the erosion hazard on poorly managed farmland on slope areas should be reduced by adequate soil conservation measures. The productivity of sloping farm lands would increase the by adapting the watershed approach. Thus, the benefits brought by the farmland conservation scheme are principally considered to minimize soil loss and to reduce sedimentation and flood damage.

CHAPTER 7 CONCLUSIONS AND RECOMMENDATION

(1) The main of the projects selected/formulated in the Master Plan Study and the Case Study are (a) to increase the agricultural production and income, and (b) to improve the living standards and infrastructures of peasantry and habitants in the up-country areas where development has been concentrated in the plantation sector, resulting in less development in other sectors.

(2) The implementation period of the Master Plan is 10 years, by 2003, and the development target for each respective sector is as follows:

(a)	Irrigation	: rehabilitation of schemes in their entirety;
(b)	Rural Roads	: 60% of roads requiring rehabilitation, amounting to 2,430 km of classes C and D;
(c)	Rural Water Supply	: 70% of water supply in Nuwara Eliya District and 100% in other districts;
(d)	Rural Electrification	: 62% by 2,000; and
(e)	Farmland Conservation	: 21% of the required conservation areas.

(3) MUPR should make financial, administrative and other necessary arrangements for implementation of the projects formulated in the Master Plan and in the Case Study as follows:

(a) Implementation of the projects formulated in the Master Plan is expected to be completed within a decade based on the demand of beneficiaries. Since positive participation of the beneficiaries is essential for the successful achievement of this development plan, it is desired to awaken the beneficiaries interest in the project implementation from the beginnings stage. A certain follow up the beneficiaries is required after the project implementation.

(b) Soonest project implementation of 51 projects studied in the Case Study is desired since these projects are priority projects in the respective sector.

(4) The implementation agency will be MUPR. MUPR will coordinate the project implementation in consultation and cooperation with the relevant ministries and agencies Accordingly, it is recommended to establish a "Steering Committee" at the national level and "Coordination Committees" at the provincial level. In this set-up, MUPR is expected to secure and allocate the budgets, negotiate with the funding agencies and coordinate the on-going programmes and projects.

(5) After the completion of the projects formulated in the Study, most of the projects will be transferred to the agencies concerned, and operation and maintenance will be carried out by them. It is noted that for operation and maintenance of the farmland conservation schemes, it is required (a) to set up an O&M organisation, and (b) to execute (i) enlightening activities, and (ii) training and education of farmers for suitable project implementation.

TABLES

TABLES (PART 1)

Table 2.1-1 ESTIMATE OF GDP, AT CONSTANT 1982 FACTOR COST PRICES

Sector	Amount (Rs. Million)						Annual Growth Rate (%)					Average Growth
	1982	1987	1988	1989	1990	1991	1982	1988	1989	1990	1991	Rate(1982-91)
1. Agriculture, Forestry and Fishing	24,964	27,409	27,984	27,666	30,011	30,869	0.0	2.1	-1.1	8.5	2.9	2.4
1) Agriculture	20,771	23,003	23,762	23,311	25,729	26,240	0.0	3.3	-1.9	10.4	2.0	2.6
2) Forestry	1,710	2,215	1,943	1,985	2,030	2,107	0.0	-12.3	2.2	2.3	3.8	2.3
3) Fishing	2,483	2,191	2,279	2,370	2,252	2,522	0.0	4.0	4.0	-5.0	12.0	0.2
2. Industry	23,798	30,198	31,477	32,578	35,089	36,453	0.0	4.2	3.5	7.7	3.9	4.9
1) Mining and Quarrying	2,238	3,112	3,392	3,576	3,901	3,511	0.0	9.0	5.4	9.1	-10.0	5.1
2) Manufacturing	13,601	18,748	19,622	20,488	22,427	23,979	0.0	4.7	4.4	9.5	6.9	6.5
3) Construction	7,959	8,338	8,463	8,514	8,761	8,963	0.0	1.5	0.6	2.9	2.3	1.3
3. Services	45,917	58,315	59,589	61,485	64,144	68,067	0.0	2.2	3.2	4.3	6.1	4.5
1) Electricity, Gas, Water and Sanitary	1,089	1,448	1,499	1,526	1,681	1,812	0.0	3.5	1.8	10.2	7.8	5.8
2) Transport Storage and Communication	10,666	13,538	13,619	13,883	14,410	15,260	0.0	0.6	1.9	3.8	5.9	4.1
3) Trade	19,694	24,496	25,164	25,588	26,497	28,423	0.0	2.7	1.7	3.6	7.3	4.2
4) Finance	3,715	5,490	5,819	6,168	6,556	6,989	0.0	6.0	6.0	6.3	6.6	7.3
5) Others	10,753	13,343	13,488	14,320	15,000	15,583	0.0	1.1	6.2	4.7	3.9	4.2
Constant Factor Cost												
Total	94,679	115,922	119,050	121,729	129,244	135,389	0.0	2.7	2.3	6.2	4.8	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 3.3-1 PRESENT LAND USE

(Unit: ha)

		Urbanland		Agricultural Land								Forestland			Rangeland		Water	Barrenland	Wetland	Total
		Built up Land	Associated Non Agr-land	Homesteads	Tea	Rubber	Coconuts	Mixed Tree and Other Peren	Paddy	Sparcely Used	Other	Dense Forest	Open Forest	Forest Plantations	Scrubland	Grassland			Marsh	
Matale	W	310		5,910	3,610	1,750	1,540	3,730	2,330	3,930	20	720	550	230	1,150	540	80	370		26,770
	I	130		11,400	1,910	1,190	2,520	950	9,630	25,980	760	32,450	7,420	620	10,740	3,400	1,930	1,100		112,130
	D	50	80	3,340	0	0	910	20	8,860	15,690	1,620	14,930	1,540	1,410	8,290	1,640	2,100	120		60,600
	T	490	80	20,650	5,520	2,940	4,970	4,700	20,820	45,600	2,400	48,100	9,510	2,260	20,180	5,580	4,110	1,590		199,500
Kandy	W	970	80	27,650	24,460	2,970	1,270	7,380	9,580	14,400	530	5,070	1,250	960	1,770	3,650	950	140		103,080
	I	140	20	9,510	4,880		2,600	1,680	11,020	13,880	3,360	17,160	6,870	420	10,340	2,360	1,400	410		86,050
	D																			0
	T	1,110	100	37,160	29,340	2,970	3,870	9,060	20,600	28,280	3,890	0 22,230	8,120	1,380	12,110	6,010	2,350	550		189,130
Nuwara Eliya	W	780	20	6,520	52,470	300	10	330	1,320	3,870	2,130	26,260	6,900	5,660	4,210	5,590	2,760	380		119,510
	I	20		4,880	10,110		300	150	4,030	4,760	8,310	4,150	3,670	1,930	5,670	1,970	740	130		50,830
	D																			0
	T	800	20	11,400	62,580	300	310	490	5,350	8,630	10,440	0 30,410	10,570	7,590	9,880	7,560	3,500	510		170,340
Badulla	W	250		6,990	10,350			90	2,820	3,600	1,940	2,940	540	2,100	1,050	2,130	260	20		35,080
	I	610		28,060	25,670	960		430	17,140	65,010	4,050	12,400	30,360	10,790	12,910	8,100	2,480	990		219,960
	D	0	10	180					50	15,820	270	5,610	3,600		280		660	680		27,160
	T	860	10	35,230	36,020	960	0	520	20,010	84,430	6,260	0 20,950	34,500	12,890	14,240	10,230	3,400	1,690		282,200
Moneragala	W			860		390		360	80	520		1,440	740		310	190		190		5,080
	I			37,710	1,130	2,370	50	150	8,250	79,200	420	40,420	38,230	1,350	24,710	12,810	4,790	1,790	230	253,610
	D	140	140	8,810		10	20	240	6,600	106,610	2,630	125,690	19,030	4,810	19,050	1,130	8,350	3,350	630	307,240
	T	140	140	47,380	1,130	2,770	70	750	14,930	186,330	3,050	0 167,550	58,000	6,160	44,070	14,130	13,140	5,330	860	565,930
Kegalle	W	90	40	44,270	5,660	49,070	10,780	8,220	10,880	20	20,970	8,240	2,450	970	930	200	820	500		164,110
	I																			0
	D																			0
	T	90	40	44,270	5,660	49,070	10,780	8,220	10,880	20	20,970	0 8,240	2,450	970	930	200	820	500		164,110
Ratnapura	W	240	90	37,120	20,520	35,830	3,140	4,040	15,150	68,510	20	45,750	6,620	1,320	5,960	1,230	1,440	490		247,470
	I			7,200	590		260	150	2,320	22,250	10	2,550	7,120	540	3,970	1,860	10	130		48,960
	D	20		8,160	190		330	30	5,730	10,810	310	130	330	460	2,040	60	2,500	10		31,110
	T	260	90	52,480	21,300	35,830	3,730	4,220	23,200	101,570	340	48,430	14,070	2,320	11,970	3,150	3,950	630		327,540
Up-country	W	2,640	230	129,320	117,070	90,310	16,740	24,150	42,160	94,850	25,610	90,420	19,050	11,240	15,380	13,530	6,310	2,090	0	701,100
		70.4%	47.9%	52.0%	72.5%	95.2%	70.5%	86.4%	36.4%	20.9%	54.1%	26.1%	13.9%	33.5%	13.6%	28.9%	20.2%	19.4%	0.0%	36.9%
	I	900	20	98,760	44,290	4,520	5,730	3,520	52,390	211,080	16,910	109,130	93,670	15,650	68,340	30,500	11,350	4,550	230	771,540
		24.0%	4.2%	39.7%	27.4%	4.8%	24.1%	12.6%	45.2%	46.4%	35.7%	31.5%	68.3%	46.6%	60.3%	65.1%	36.3%	42.1%	26.7%	40.6%
	D	210	230	20,490	190	10	1,260	290	21,240	148,930	4,830	146,360	24,500	6,680	29,660	2,830	13,610	4,160	630	426,110
		5.6%	47.9%	8.2%	0.1%	0.0%	5.3%	1.0%	18.3%	32.7%	10.2%	42.3%	17.9%	19.9%	26.2%	6.0%	43.5%	38.5%	73.3%	22.4%
Total		3,750	480	248,570	161,550	94,840	23,730	27,960	115,790	454,860	47,350	345,910	137,220	33,570	113,380	46,860	31,270	10,800	860	1,898,750
		0.2%	0.0%	13.1%	8.5%	5.0%	1.2%	1.5%	6.1%	24.0%	2.5%	18.2%	7.2%	1.8%	6.0%	2.5%	1.6%	0.6%	0.0%	

Note: W : Wet Zone
I : Intermediate Zone
D : Dry Zone
T : Total

Source: Survey Department, Study Team

Table 3.3-2 POLAS IN THE STUDY AREA

Location		Location		Location		Location	
Central Province							
Kandy District		Matale District		Nuwara-Eliya District			
Kandy	Bogambara	Matale	Matale	Kotmale	Kotmale		
	Peradeniya		Palapathwela		Pundaluoya		
Harispattuwa	Katugastota	Naula	Naula	Ginigathhena	Hatton		
Kundasale	Rajawella		Nalanda	Nuwara-eliya	Kotagala		
Medadumbara	Teldeniya	Galewela	Galewela		Talawakelle		
Udadumbara	Hunasgiriya	Dambulla	Dambulla		Nuwara-eliya		
Minipe	Hasalaka	Laggala	Pallegama		Kandepola		
Medadumbara	Wattegama	Wigamuwa	Hettipola	Walapane	Ragala		
Thumpane	Galagedara	Rattota	Rattota	Hanguranketha	Hanguranketha		
Yatinuwara	Kadugannawa	Ambanganga K.	Kaikawela		Rahalhungoda		
	Danture	Ukuwela	Ukuwela				
Pasbage K.	Nawalapitiya		Elkaduwa				
Pathahewaheta	Thalathuoya	Pallepola	Pallepola				
	Marassana		Madipola				
Uva Province				Sabaragamuwa Province			
Badulla District		Moneragala District		Ratnapura District		Kegalle District	
Badulla	Badulla	Bibile	Bibile	Ratnapura	Ratnapura	Kegalle	Kegalle
Haliela	Haliela		Pitakumbura		Gileemale	Mawanella	Mawanella
Welimada	Welimada	Medagama	Medagama	Pelmadulla	Pelmadulla	Aranayaka	Aranayaka
Paranagama	Loonuwatta	Buttala	Buttala	Nivithigala	Nivithigala	Rambukkana	Rambukkana
Haputale	Haputale		Okkampitiya		Delwala	Warakapola	Warakapola
Bandarawela	Bandarawela	Thanamalwila	Arambepola	Kalawana	Kalawana		Ganagaldeniya
Haldummulla	Haldummulla		Sooriya-ara	Ayagama	Ayagama	Ruwanwella	Ruwanwella
Passara	Passara		Kiriibbanwewa	Kuruwita	Kuruwita		Anguruwela
Meegahakiula	Meegahakiula		Hambegamuwa	Eheliyagoda	Eheliyagoda		Bulathkohupitiya
Mahiyangana	Mahaiyangana		Hathporuwa		Parakaduwa	Dehiowita	Taldena
Ridimaliyadda	Andaulpotha		Danduma	Balangoda	Balangoda	Yatiyantota	Yatiyantota
Soranatota	Taldena	Madulla	Madulla	Weligepola	Weligepola		Kithulgala
Ella	Ella		Mari-Arawa	Godakawela	Godakawela	Deraniyagala	Deraniyagala
		Siyambalandu	Dombagahawela	Embilipitiya	Embilipitiya	Galigamuwa	Pitagaldeniya
			Siyambalanduwa		Pallebedda		Pindeniya
			Pallewela	Kahawatta	Madampe		
			Ethimale	Imbulpe	Imbulpe		
		Wellawaya	Wellawaya	Kolonne	Rakwana		
			Ethiliwela		Sooriyakanda		
			Kudaoya		Panamura		
			Veheraya				
		Moneragala	Moneragala				
			Hulandawa				
		Badalkumbura	Badalkumbura				

Source: Divisional Secretariats

Table 3.3-3 AVERAGE PRICE OF VEGETABLES (1/2)

Month	1988		1989		1990		1991	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
BUTTER BEANS:								
February	12.29	8.10	12.72	9.56	21.26	15.73	18.51	10.86
March	9.86	5.68	16.53	11.77	22.84	15.95	24.25	17.22
April	11.34	6.92	17.03	10.28	17.87	8.54	23.22	14.39
May	17.05	11.86	20.53	14.28	20.38	13.79	27.28	17.23
June	19.71	14.13	20.60	12.24	25.74	19.33	28.52	18.57
July	16.39	11.66	14.98	14.40	24.97	19.29	24.46	15.91
August	13.90	9.11	17.44	10.70	22.97	16.71	24.21	17.10
September	13.88	8.81	18.07	12.40	20.33	12.35	21.05	13.06
October	14.42	8.58	16.58	10.17	19.27	10.52	19.72	10.79
November	16.59	11.51	12.68	6.15	23.98	15.23	22.70	13.97
December	14.25	9.55	13.79	7.29	22.65	14.42	20.57	12.01
GREEN BEANS:								
January	15.53	11.31	14.20	9.85	17.62	10.61	22.23	15.06
February	12.32	8.19	12.72	9.58	21.26	15.73	18.40	10.86
March	9.86	5.73	16.53	11.73	22.89	15.95	24.08	17.23
April	11.28	6.93	17.04	10.28	17.90	8.54	22.55	14.26
May	17.06	11.96	20.63	14.24	20.38	13.78	26.94	17.25
June	19.75	14.98	20.68	12.24	25.74	19.29	27.82	16.05
July	16.39	11.79	15.09	14.40	24.94	19.29	24.12	15.92
August	13.91	9.15	17.34	10.70	22.97	16.69	23.90	17.09
September	13.88	8.58	18.12	12.43	20.33	12.37	20.85	13.06
October	14.43	8.58	16.62	10.17	19.27	10.51	19.62	10.79
November	16.55	11.51	12.67	6.15	23.88	15.23	22.46	13.97
December	14.27	9.55	13.85	7.29	22.76	14.42	21.41	11.93
CARROT:								
January	17.85	12.04	13.73	8.41	23.07	15.82	24.35	16.06
February	13.57	8.13	14.16	11.63	21.90	14.23	23.20	13.85
March	10.50	6.08	15.31	8.87	23.47	15.65	22.24	13.02
April	11.31	5.77	18.38	11.84	22.23	13.81	23.35	13.31
May	14.08	9.23	22.60	15.43	21.95	14.21	25.54	15.52
June	18.05	11.28	27.29	20.09	23.60	15.07	28.21	19.11
July	16.06	10.42	21.95	14.17	20.09	11.73	27.84	17.72
August	14.59	8.90	17.06	8.30	17.69	9.50	22.33	11.74
September	13.15	7.52	14.02	6.87	17.53	8.50	17.58	7.99
October	13.40	7.74	13.65	7.55	17.57	9.22	15.95	7.06
November	14.96	8.77	14.33	8.17	20.63	12.12	17.81	8.56
December	18.71	7.53	18.84	12.08	22.86	14.42	22.61	12.30
LEEKS:								
January	14.77	9.45	12.55	6.63	20.56	13.90	24.35	12.74
February	12.85	7.76	13.08	9.75	19.67	12.38	22.01	13.98
March	10.58	6.40	13.37	7.14	22.26	14.55	21.92	13.59
April	13.31	10.14	14.19	7.58	24.03	15.01	23.04	13.53
May	15.84	10.14	15.04	7.80	25.37	17.00	26.55	16.45
June	16.90	9.98	18.13	11.15	27.44	18.93	29.78	19.53
July	13.51	7.10	17.72	18.00	22.83	13.40	27.72	17.63
August	12.49	8.04	16.13	9.70	17.56	8.58	22.14	10.20
September	12.57	6.88	14.86	8.45	16.49	7.26	17.89	7.86
October	13.02	7.29	14.07	7.52	16.31	7.19	16.43	7.23
November	14.35	7.47	14.34	7.45	18.20	7.92	18.52	7.96
December	12.63	6.34	17.51	10.83	19.67	9.93	21.56	12.02
BEET ROOT:								
January	14.95	9.86	14.15	7.72	20.70	13.12	25.10	13.74
February	14.05	8.51	11.96	8.08	18.83	11.37	26.66	16.69
March	10.53	5.15	11.75	5.22	19.12	11.07	26.49	15.60
April	10.30	6.51	13.10	5.94	19.03	9.10	25.90	14.90
May	12.47	6.51	14.83	7.47	18.74	9.39	26.16	13.12
June	16.65	10.20	17.98	10.99	22.10	12.66	27.44	15.35
July	14.41	7.83	15.71	9.60	20.55	10.96	27.52	14.59
August	12.43	5.52	14.80	7.29	18.28	8.62	21.94	8.83
September	11.91	6.19	13.85	6.08	18.53	8.57	18.24	7.94
October	13.66	7.63	13.71	6.81	18.61	8.43	16.93	7.74
November	15.32	8.94	14.30	7.86	23.43	12.62	21.86	11.68
December	14.84	9.16	18.28	11.60	27.69	16.29	27.81	16.91
KNOK-KHOL:								
January	10.66	5.44	9.69	3.48	12.99	5.97	18.29	7.77
February	9.66	4.74	10	6.87	14.14	6.51	18.21	7.26
March	7.70	3.13	11	4.75	15.19	6.91	19.13	8.96
April	8.37	4.60	11.64	5.23	15.95	6.44	19.51	8.28
May	9.68	4.60	12.76	5.81	15.55	7.56	20.94	7.94
June	11.44	5.73	15.12	6.76	17.36	9.16	22.31	9.23
July	9.68	3.73	12.08	4.08	16.38	7.53	20.00	8.34
August	9.14	3.19	10.64	3.69	15.03	6.35	16.14	5.08
September	9.34	3.75	10.85	4.03	14.90	5.88	14.73	4.35
October	10.26	4.17	10.48	3.55	15.00	5.78	14.32	4.37
November	11.11	5.12	10.82	4.06	17.65	7.26	17.28	6.57
December	10.20	4.28	12.50	5.26	19.26	8.24	18.60	7.49

Month	1988		1989		1990		1991	198
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
CUCUMBER:								
	8.67	3.52	9.53	4.18	11.34	5.35	12.16	3.19
	7.73	3.01	8.39	5.36	10.71	4.02	11.35	5.01
	6.76	2.57	8.15	3.32	11.27	4.87	12.16	5.61
	7.63	2.67	9.47	4.40	11.70	4.22	14.53	6.50
	9.10	4.20	10.05	4.81	14.00	7.25	15.65	6.49
	9.74	4.83	10.27	4.26	14.26	7.11	17.37	8.11
	9.16	3.41	10.51	2.92	13.41	5.32	15.52	5.37
	8.21	2.68	10.57	2.68	11.17	3.64	13.79	4.78
	8.55	3.41	10.19	2.99	12.15	4.88	11.59	2.87
	9.00	3.38	9.63	3.73	13.50	6.35	11.37	3.49
	10.13	5.61	9.12	4.11	16.73	8.58	13.99	5.95
	9.26	4.29	8.55	4.28	15.67	7.01	13.80	4.91
BITTER GOURD:								
	12.02	5.71	13.58	7.08	15.71	8.18	21.39	9.24
	11.54	5.79	13.35	8.12	16.49	8.12	18.88	6.42
	11.09	6.37	12.64	7.21	17.00	8.83	19.76	8.67
	11.49	6.91	13.40	8.05	17.42	8.46	20.54	9.79
	13.99	8.75	15.13	8.87	18.89	9.71	24.13	12.58
	13.55	7.01	17.03	8.80	21.28	12.11	26.53	14.49
	12.13	5.01	14.74	6.86	20.23	9.24	23.46	8.82
	11.04	5.63	14.24	7.22	18.88	9.89	21.48	8.67
	12.39	6.49	14.15	6.94	18.82	10.17	19.16	9.09
	14.14	7.80	14.50	7.85	19.40	11.05	22.44	13.44
	15.15	10.09	14.33	7.92	26.20	16.75	25.20	16.04
	13.85	7.53	14.93	8.29	29.16	16.80	23.94	13.50
SNAKE-GOURD:								
	7.80	3.45	8.63	3.48	10.82	5.13	12.62	3.75
	7.01	3.22	8.82	4.53	11.70	5.41	12.37	3.20
	6.28	2.80	8.75	3.94	11.53	5.93	13.39	5.23
	6.81	2.53	9.25	4.68	11.58	5.92	14.72	6.08
	8.29	5.25	10.91	5.49	13.89	7.35	15.62	7.07
	8.28	3.62	11.40	4.79	15.09	8.01	17.16	7.53
	7.65	2.06	9.64	3.75	14.61	6.20	14.63	5.65
	7.54	2.35	9.65	3.48	13.22	5.90	13.36	9.92
	8.10	3.33	9.23	3.47	12.13	5.29	11.75	3.77
	8.84	3.91	9.29	3.68	13.15	5.94	12.52	5.57
	9.73	5.43	9.80	3.88	16.82	10.21	15.36	6.99
	8.66	3.81	9.92	4.32	17.77	10.44	14.15	5.70
LUFFA:								
	9.92	4.56	11.50	5.43	13.49	6.29	15.04	4.11
	10.19	4.94	11.62	6.60	14.55	7.19	14.45	4.36
	9.07	5.01	11.79	5.46	15.37	7.95	16.91	7.03
	9.72	4.72	12.88	6.20	15.83	7.67	20.17	8.81
	11.41	7.16	14.40	7.89	17.20	8.25	20.49	10.53
	11.29	5.31	15.83	7.73	18.48	10.55	23.53	12.31
	10.13	3.76	13.89	5.29	18.11	7.48	21.23	4.32
	10.14	3.47	11.84	4.03	16.13	6.99	16.30	5.37
	10.23	4.55	12.73	5.78	16.63	7.14	14.79	5.89
	11.98	5.71	13.16	6.73	16.98	7.96	17.48	9.67
	13.03	7.96	12.98	6.57	20.18	12.61	20.80	11.52
	11.53	5.38	13.24	6.50	20.47	10.72	19.70	8.94
LONG BEANS:								
	10.54	6.21	11.40	5.79	13.99	6.33	15.49	6.50
	10.14	5.81	11.19	6.87	14.82	9.14	15.52	6.08
	9.15	4.54	12.03	6.92	16.35	9.84	17.09	9.45
	8.96	4.50	12.80	6.30	14.24	6.53	19.09	7.91
	10.93	6.38	14.13	8.06	16.10	9.44	21.83	9.47
	11.83	6.89	15.26	7.73	17.78	9.91	21.78	9.47
	11.02	5.52	12.26	7.50	18.54	10.44	15.95	7.04
	10.39	5.08	12.92	5.47	16.49	7.76	16.73	7.96
	10.42	5.50	12.88	6.65	15.57	6.89	16.05	7.29
	11.64	5.88	12.99	6.85	15.59	7.30	16.76	8.59
	13.27	8.66	11.61	5.09	18.82	9.77	19.81	10.80
	11.78	6.50	12.04	5.29	17.73	7.83	18.45	8.11
ASH PLANTAINS:								
	16.46	11.02	14.59	8.98	18.74	10.74	26.93	16.19
	15.08	9.85	14.58	9.97	18.16	10.77	25.45	14.45
	13.62	8.87	14.06	9.17	19.21	11.21	24.71	14.57
	13.55	7.83	16.06	8.94	18.98	11.10	24.87	13.67
	13.71	7.95	15.56	9.58	18.38	9.83	24.75	14.75
	14.58	9.19	16.19	9.88	19.51	11.29	25.68	13.76
	13.53	8.01	16.22	10.49	19.55	11.81	23.88	12.13
	13.61	8.22	15.20	9.09	19.38	11.72	22.75	11.36
	13.53	8.24	15.66	9.23	20.60	12.31	21.10	11.17
	14.48	8.75	15.78	9.88	22.55	13.01	22.05	12.72
	16.03	11.07	16.48	10.66	25.18	16.19	25.14	15.45
	14.99	8.88	17.08	10.88	29.77	18.06	25.99	15.72

Table 3.3-3 AVERAGE PRICE OF VEGETABLES (2/2)

Month	1988		1989		1990		1991	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
RADDISH:								
January	7.61	2.73	7.19	2.03	9.48	3.72	11.43	3.35
February	6.02	1.87	7.33	3.49	7.34	3.70	10.30	2.37
March	5.01	1.39	7.63	2.29	10.55	4.06	9.89	2.73
April	6.24	1.56	9.00	3.52	10.62	3.78	11.58	4.05
May	6.88	2.69	10.44	4.23	10.04	4.10	13.58	5.48
June	8.61	4.10	11.82	5.14	11.64	4.93	14.99	5.41
July	7.52	2.86	9.41	3.67	11.54	4.73	14.25	4.92
August	7.10	2.34	9.04	2.91	10.69	4.02	11.75	3.21
September	7.25	2.73	8.38	2.58	10.50	3.34	10.12	2.58
October	7.88	5.40	8.13	3.15	9.90	3.22	10.34	2.74
November	8.60	4.05	8.34	3.13	12.09	4.40	12.55	4.63
December	7.73	3.57	9.25	3.56	12.84	5.06	12.99	5.05
CABBAGE:								
January	13.67	6.71	10.40	3.88	13.27	5.76	15.21	5.19
February	11.04	4.61	10.56	5.37	13.73	5.85	15.47	5.35
March	7.04	1.70	10.51	4.05	14.75	7.07	16.16	7.21
April	7.04	1.63	12.72	5.89	17.46	7.99	16.88	7.16
May	8.85	3.50	14.42	7.42	17.79	9.08	19.12	9.30
June	13.02	5.96	17.71	9.79	17.89	8.83	20.88	8.88
July	11.98	4.63	14.59	7.00	16.50	6.50	18.66	7.04
August	11.79	5.42	12.81	5.35	14.01	5.63	15.43	5.35
September	12.10	6.05	12.81	5.44	13.94	5.40	13.15	4.55
October	13.65	6.88	11.53	4.16	13.46	4.85	13.51	4.23
November	13.26	1.54	10.93	3.98	16.11	7.06	15.01	5.97
December	11.69	5.00	12.24	5.44	16.94	7.37	16.31	6.84
TOMATOES:								
January	18.46	10.22	21.12	11.21	21.08	9.72	31.92	17.31
February	15.27	7.29	17.14	9.47	25.02	10.26	29.38	14.62
March	11.82	5.15	17.19	8.47	32.55	17.76	27.98	14.75
April	15.94	7.18	18.80	8.58	35.47	18.57	28.83	13.86
May	18.51	10.11	22.89	11.72	22.43	11.10	28.43	13.39
June	20.45	10.45	22.65	12.15	21.02	10.82	34.73	18.71
July	17.32	7.37	20.50	9.48	22.60	11.43	34.32	17.40
August	12.78	4.85	17.49	6.62	20.00	9.42	27.21	10.36
September	15.60	8.26	22.53	11.86	21.57	10.22	25.17	10.38
October	17.14	8.71	26.04	13.26	27.69	12.16	29.70	16.43
November	20.14	10.72	27.26	15.48	28.60	14.51	26.03	11.21
December	18.75	10.68	29.77	10.80	33.87	17.81	29.83	10.69
LADIES FINGERS:								
January	12.74	6.96	13.84	6.97	16.57	9.13	19.40	7.87
February	12.30	6.81	13.28	7.13	17.82	9.89	20.63	8.88
March	9.89	3.91	13.16	7.00	17.61	9.55	20.93	10.71
April	10.30	4.32	14.41	7.21	17.63	8.25	21.12	9.61
May	11.95	6.07	15.56	8.51	18.90	9.64	24.42	11.90
June	13.51	6.38	17.60	9.57	23.00	12.88	26.05	12.11
July	11.80	5.31	16.40	8.20	21.91	11.09	21.95	9.52
August	12.02	5.15	13.86	5.75	19.32	10.16	20.29	8.49
September	12.41	6.27	14.74	6.61	18.58	9.57	17.74	7.78
October	13.49	6.82	14.60	7.67	19.12	9.86	18.86	8.09
November	16.60	10.32	14.78	8.26	25.13	15.38	22.84	13.62
December	19.63	7.25	15.17	7.80	23.74	10.40	20.88	9.29
BRINJALS:								
January	10.90	5.28	13.06	6.87	14.19	6.12	20.25	8.38
February	9.79	4.41	12.79	7.60	14.30	5.39	17.15	4.96
March	8.71	3.70	11.61	5.37	14.62	6.13	16.11	4.87
April	9.24	3.45	13.19	6.22	16.03	6.04	17.42	6.07
May	10.95	5.51	15.67	7.82	18.69	10.04	19.74	8.46
June	13.27	6.79	16.89	8.62	19.68	10.50	25.09	12.39
July	11.02	4.88	15.47	7.86	20.49	10.98	21.15	6.28
August	11.39	4.58	13.53	5.91	19.21	9.08	18.75	6.37
September	11.76	5.30	14.17	6.39	19.80	10.11	18.26	7.08
October	12.93	5.82	17.07	7.38	20.85	10.09	20.16	8.94
November	14.78	8.74	14.62	7.23	23.28	13.03	21.08	10.15
December	13.35	6.12	15.03	7.17	22.97	10.62	20.20	7.28
CAPSICUMS:								
January	15.51	11.34	19.90	12.50	22.99	15.26	31.78	18.06
February	15.86	9.21	21.50	16.48	24.66	15.45	30.35	18.64
March	13.26	7.63	19.21	11.89	25.42	16.09	29.43	16.63
April	12.71	6.65	19.06	9.85	23.90	12.27	29.64	13.91
May	14.45	7.97	20.68	12.17	24.65	16.29	29.49	15.25
June	19.28	12.45	23.66	14.76	30.46	20.60	34.23	21.31
July	19.66	13.47	22.71	14.10	32.55	21.96	36.87	24.61
August	15.34	8.00	20.03	10.55	27.59	16.44	34.46	22.16
September	14.84	7.66	19.15	10.96	29.82	18.74	32.83	19.02
October	19.23	12.41	21.79	13.20	30.71	17.99	33.96	21.85
November	22.22	16.20	23.58	16.30	33.10	20.16	34.84	22.33
December	19.71	13.24	24.15	15.77	33.99	20.06	37.57	23.98

Month	1988		1989		1990		1991		199
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	
GREEN CHILLIES:									
January	20.45	10.92	22.78	11.00	26.31	10.62	34.10	15.47	
February	26.73	15.75	28.12	22.78	28.67	16.39	35.17	19.17	
March	22.98	11.70	23.52	12.35	31.74	16.96	35.88	17.71	
April	17.74	6.43	24.01	11.31	28.72	12.79	34.34	12.70	
May	18.53	8.90	24.30	12.27	29.17	15.64	37.73	17.80	
June	29.77	18.33	82.00	20.15	36.45	22.40	59.98	36.03	
July	21.20	9.70	26.33	11.67	34.47	19.10	42.39	21.84	
August	17.78	7.98	22.71	7.35	30.08	14.05	35.69	9.96	
September	20.60	8.65	23.73	10.93	37.30	19.71	32.90	15.10	
October	27.02	12.27	27.70	15.26	44.66	26.67	54.18	26.58	
November	46.70	28.62	26.09	12.86	59.59	34.15	44.11	25.61	
December	31.48	13.02	24.80	11.69	46.80	22.91	60.26	35.17	
LIME:									
January	24.69	9.31	16.37	5.61	23.74	7.96	34.33	14.03	
February	21.56	8.97	22.97	10.09	23.16	7.29	34.06	15.39	
March	26.33	16.51	25.66	13.26	25.90	10.02	33.25	16.76	
April	49.44	29.93	36.37	17.76	31.51	13.46	46.78	26.34	
May	49.45	30.07	34.77	19.25	35.62	17.48	63.56	36.06	
June	37.20	14.51	36.87	18.21	34.94	16.25	56.81	28.68	
July	21.57	8.01	31.18	18.20	36.01	14.44	49.92	23.56	
August	16.96	5.82	23.01	6.32	32.12	20.56	44.45	24.82	
September	23.30	11.21	22.07	7.36	72.27	48.05	66.32	42.26	
October	47.05	28.25	28.52	15.42	119.41	78.23	111.29	67.49	
November	38.41	18.20	33.11	16.25	57.42	25.05	88.87	47.02	
December	21.12	6.52	28.78	12.26	38.39	17.10	62.24	27.30	
DRIED CHILLIES (GRADE1):									
January	91.69	3493	76.83	3286	96.11	4060	123.68	5457	
February	74.60	3067	83.94	3698	95.2	3692	156.67	6537	
March	71.90	3326	100.48	4189	86.22	3351	158.64	6546	
April	75.86	3331	88.46	3256	84.09	3298	147.03	6295	
May	70.67	2605	71.15	2528	79.49	3010	137.06	5144	
June	68.65	2883	70.39	2739	88.53	3625	133.31	5179	
July	73.20	3278	80.65	3324	106.72	4419	133.98	5369	
August	79.34	3145	81.01	3332	106.43	4247	134.65	5488	
September	66.43	2441	77.25	3044	88.77	3472	111.08	4374	
October	62.50	2537	88.28	3697	91.65	3760	113.62	4718	
November	75.85	3221	88.64	3790	101.05	4266	139.06	5427	
December	76.47	3264	95.71	4137	105.13	4368	133.09	5407	
B' ONION :									
January	20.14	778	22.24	863	31.51	1217	49.07	1895	
February	19.42	766	18.26	741	31.72	1323	42.46	1650	
March	16.46	576	17.95	751	45.27	1300	36.91	1555	
April	17.00	721	18.64	778	29.31	1153	46.21	1696	
May	18.21	761	19.59	799	51.64	2033	36.82	1479	
June	17.89	759	19.75	792	39.26	1418	35.45	1459	
July	18.31	785	21.43	841	26.69	1005	38.23	1599	
August	18.39	737	22.61	867	23.32	903	34.81	1473	
September	18.04	642	17.92	606	23.41	772	30.03	1055	
October	18.19	717	16.72	585	30.48	1183	29.83	1034	
November	28.48	1060	40.75	1764	48.24	1907	36.09	1446	
December	36.33	1205	45.79	1914	45.72	1618	34.34	1277	
POTATOES (NUWARA ELIYA):									
January	20.98	890	28.27	1156	19.7	776	53.21	2069	
February	20.7	343	23.94	1022	21.03	846	48.74	1986	
March	19.45	824	23.13	900	23.25	931	47.79	2031	
April	23.3	1000	24.92	982	30.73	1292	52.87	2142	
May	24.54	1060	23.45	922	33.37	1398	50.72	2099	
June	25.92	1091	24.96	998	36.2	1454	50.81	2157	
July	25.6	1067	28.64	1147	39.42	1643	62.08	2707	
August	22.25	839	30.45	1238	30.39	1154	55.54	2345	
September	17.1	695	20.46	800	25.38	997	41.1	1597	
October	20.82	816	19.69	799	28.13	1178	36.98	1416	
November	27.3	1080	19.31	746	44.81	1786	41.14	1682	
December	29.59	1207	19.45	722	61.49	2427	41.9	1640	
POTATOES (WELIMADA):									
January	18.95	819	25.09	1052	17.89	678	49.08	1816	
February	18.42	749	21.04	917	18.54	745	45	1736	
March	17.42	737	19.9	782	20.39	783	44.57	1845	
April	20.35	896	22.86	875	27.58	1174	49.36	1925	
May	21.99	964	21.44	853	30.6	1264	47.11	1896	
June	23.86	997	22.66	918	33.62	1309	47.65	1958	
July	23.18	957	26.57	1084	36.22	1502	52.42	2075	
August	19.3	714	27.94	1032	26.38	983	50.15	2010	
September	14.56	555	18.27	647	22.04	849	30.46	1171	
October	18.78	720	18.18	698	23.39	1075	31.77	1240	
November	24.34	978	18.15	650	42.22	1749	37.58	1497	
December	26.46	1126	17.94	637	57.69	2223	39.17	1562	

Table 3.4-1 LIVESTOCK NUMBERS IN THE STUDY AREA - 1991

(Unit:'000)

Province / District	Cattle	Buffaloes	Goats	Pigs	Poultry
Central					
Kandy	54,100	24,700	26,100	800	553,400
Matale	42,400	31,500	13,000	1,900	197,500
Nuwara Eliya	41,400	7,700	13,400	500	161,000
Sub Total	137,900	63,900	52,500	3,200	911,900
National Share	9.26%	7.74%	11.41%	3.53%	11.03%
Uva					
Badulla	79,500	16,300	18,200	100	214,300
Monaragara	53,400	33,800	4,400	100	88,400
Sub Total	132,900	50,100	22,600	200	302,700
National Share	8.99%	6.07%	7.43%	3.35%	3.66%
Sabaragawuwa					
Ratnapura	41,400	28,900	11,100	600	167,100
Kegalle	22,600	19,100	23,100	2,200	246,300
Sub Total	64,000	48,000	34,200	2,800	413,400
National Share	4.33%	5.83%	7.43%	3.55%	5.00%

Source: Sri Lanka Livestock Statistics, 1991/92.

Table 3.4-2 DISTRICT URBAN RETAIL PRICES FOR MEAT, MILK AND EGGS (ANNUAL AVERAGE 1989 - 1990)

(Rs / Unit)

	1987	1988	1989	1990	1991
Cow Milk Fresh (per Litre)					
Colombo	-	-	7.73	8.00	12.51
Kandy	-	5.66	7	6.50	10.67
Matale	-	6.12	8.08	8.02	9.7
Nuwara Eliya	-	6	7	6.13	8
Badulla	-	3.75	5.5	5.83	8
Monaragara	-	-	5.81	4.67	10
Ratnapura	-	4.46	4.54	5.94	9.36
Kegalle	-	-	6.29	6.00	11.7
Egg Medium (per each)					
Colombo	1.38	1.52	1.93	2.26	2.36
Kandy	1.34	1.48	2.04	2.90	2.34
Matale	1.36	1.7	2.1	2.48	2.42
Nuwara Eliya	1.51	1.84	2.08	2.48	2.42
Badulla	1.51	1.81	2.33	2.49	2.83
Monaragara	1.57	1.68	2.22	2.51	2.69
Ratnapura	1.37	1.79	2.17	2.38	2.74
Kegalle	1.36	1.79	2.31	2.34	2.28
Beef without Bones (per kg)					
Colombo	34.37	-	44.33	60.83	68.33
Kandy	35.37	32.33	35.25	54.17	67.08
Matale	29.37	28	33.67	51.25	66.67
Nuwara Eliya	35	30	32.5	58.33	66.46
Badulla	30.21	30	34.58	53.33	57.5
Monaragara	26.47	24	31	47.50	54.17
Ratnapura	30	35	37.92	62.50	63.33
Kegalle	30	-	41.67	61.25	65.83
Broiler Chicken Dressed (per kg)					
Colombo	-	-	55	66.25	-
Kandy	-	54.5	54.92	70.33	-
Matale	-	51.67	60.83	75.83	-
Nuwara Eliya	-	60	59.42	69.17	-
Badulla	-	51.35	57.42	74.33	-
Monaragara	-	55	56.92	66.58	-
Ratnapura	-	55	59.83	100.00	-
Kegalle	-	-	64.42	76.67	-
Pork Fresh (per kg)					
Colombo	-	40	52.92	69.42	62.92
Kandy	-	-	52.5	71.58	-
Matale	40	40	45.42	69.42	52.92
Nuwara Eliya	48.16	62	50.83	68.75	52.92
Badulla	48.63	48.75	40	67.92	-
Monaragara	-	-	42.5	67.92	-
Ratnapura	-	40	50.83	73.33	77.92
Kegalle	-	-	46.67	68.33	62
Mutton (per kg)					
Colombo	72.16	80	86.67	65.00	125.81
Kandy	61.37	67.5	65.58	-	120
Matale	40	62.08	69.17	53.00	118.54
Nuwara Eliya	71.35	72	78.25	-	105.83
Badulla	60	62.5	70	-	88.33
Monaragara	-	-	70	-	90
Ratnapura	65	76	81.67	67.50	100
Kegalle	40	-	83.75	-	115.42

Source: Sri Lanka Livestock Statistics, 1991/92.

Table 3.5-1 MAJOR/MEDIUM SCHEMES IN THE STUDY AREA (1/2)

Unit : ha

District	Division	Project Name		Design Irrigable Area	Actual Irrigation Area
Central Province					
Matale	Laggala	Hattota Amuna		206.5	243.9
	Laggala	Bowatenna Anicut		117.8	120.3
	Laggala	Radagalpotha Anicut		81.3	81.3
	Naula	Nalanda Reservoir		473.5	473.5
	Dambulla	Wewala Wewa		97.6	97.6
	Dambulla	Pahala Eraula Wewa		81.3	81.3
	Wilgamuwa	Himbiliyakada Wewa		156.1	52.8
			Sub-Total	1,214.1	1,150.7
Kandy	Pathahewaheta	Murapola Anicut		666.6	569.0
	Ganga Ihala Korale	Gampolawela Raja Ela Anicut		177.2	182.5
	Panwi la	Undugoda Bandara Anicut		120.3	120.3
	Gampola Uda Palath	Gurukele Galpihilla Anicut		119.9	48.8
	Minipe	Minipe Yoda Ela Anicut		4,908.5	6,130.0
			Sub-Total	5,992.6	7,050.6
Nuwara Eliya	Hanguranketa	Kitulpe Ela Anicut		157.7	157.7
	Hanguranketa	Ma Ela Anicut		570.3	700.0
	Hanguranketa	Lamasuriyagama Anicut		138.0	138.0
	Hanguranketa	Bodhi Ela Anicut		147.6	203.3
	Nuwara Eliya	Waduwawala Anicut		195.1	142.3
	Walapane	Mulhalela Anicut		173.2	173.2
	Walapane	Bolagandawela Anicut		144.7	170.7
	Walapane	Keenawela Anicut		106.5	106.5
	Walapane	Paragaha Arawa Anicut		81.3	81.3
			Sub-Total	1,714.4	1,872.9
	Total of Central Province			8,921.0	10,074.3
Uva Province					
Badulla	Hali Ela	Matotilla Anicut Scheme		285.0	200.0
	Welimada	Kande Ela Scheme		640.0	960.0
	Welimada	Ambewela Reservoir Scheme		392.0	410.0
	Welimada	Maha Eliya Scheme		216.0	147.0
	Welimada	Dambawinna Wewa		108.0	80.0
	Uva Paranagama	Uma Ela		813.0	740.0
	Soranatota	Taldena Ela Scheme		130.0	130.0
	Passara	Peesa Ela Scheme		170.0	48.0
	Mahiyangana	Sorabora Wewa		1,278.0	2,000.0
	Mahiyangana	Mapakada Wewa		376.0	528.5
	Mahiyangana	Dambarawa Wewa		428.9	650.4
	Migahakivula	Komarika Anicut		120.0	120.0
	Ridimaliyadde	Nagadeepa Scheme		1,626.0	1,626.0
	Ridimaliyadda	Dehigama Reservoir		154.5	113.8
	Ridimaliyadda	Demodara Perani Kandiya		160.0	110.0
	Kandeketiya	Badulu Oya Anicut		685.0	685.0
	Kandaketiya	Bathmedilla Anicut		465.0	600.0
	Kandaketiya	Gurudiyahilla Wewa		81.3	1.6
			Sub-Total	8,128.6	9,150.3

Table 3.5-1 MAJOR/MEDIUM SCHEMES IN THE STUDY AREA (2/2)

Unit : ha

District	Division	Project Name	Design Irrigable Area	Actual Irrigation Area
Monaragala	Wellawaya	Handapanagala Wewa	404.9	404.9
	Wellawaya	Debara Ara Wewa	97.2	97.2
	Wellawaya	Mallaththawela Radapola Amuna	121.5	298.8
	Wellawaya	Sudupanawela Amuna	242.9	242.9
	Wellawaya	Balaharuwa Wewa	85.0	85.0
	Wellawaya	Dambe Wewa	93.1	93.1
	Wellawaya	Horabokka Amuna	101.2	101.2
	Buttala	Yudaganawa Wewa	182.2	182.2
	Buttala	Kukurampola Amuna	144.8	144.8
	Buttala	Halmillapillewa Wewa	81.0	81.0
	Buttala	Pelwatta Amuna	121.5	121.5
	Buttala	Kumbukkan Oya Anicut	804.0	809.0
	Buttala	Buttala Anicut Scheme	646.0	646.0
	Tanamalwila	Maha Wewa	101.2	40.5
	Tanamalwila	Hambegamuwa Wewa	273.3	223.6
	Tanamalwila	Kandiyapita Wewa	145.8	145.8
	Tanamalwila	Kahakurullanpelessa Wewa	101.2	8.1
	Tanamalwila	Karavila Mailagama Detagamuwa Wew	161.9	161.9
	Siyabalanduwa	Muthukandiya Reservoir	813.0	813.0
	Siyabalanduwa	Ethimale Wewa	405.5	506.0
	Siyabalanduwa	Kotiyagala Wewa	182.9	182.9
	Monaragala	Hulandawa Left Bank Scheme	91.5	91.5
	Bibile	Dehiattawela Anicut Scheme	300.0	300.0
	Bibile	Badulu Oya Wewa	241.0	300.0
	Bibile	Aran Amuna	60.0	80.0
	Medagama	Monerawana Anicut	93.0	10.5
	Medagama	Magandana Anicut Scheme	80.0	26.0
		Sub-Total	6,175.4	6,197.2
	Total of Uva Province		14,304.1	15,347.5
Sabaragamuwa Province				
Ratnapura	Balangoda	Uggal Kaltota Anicut	1,100.0	1,100.0
	Pelmadulla	Batugedare Anicut	87.8	87.8
	Kolonne	Panamure Anicut	508.1	508.1
	Kolonne	Walagoda Anicut	182.9	182.9
	Embilipitiya	Hulandawa Oya Anicut	122.0	81.3
	Atakalanpanna	Wellawa Anicut	243.9	122.0
	Elapatha	Damme Ela	162.6	162.6
		Sub-Total	2,407.3	2,244.7
Kegalle		*No Major and Minor Schemes*	0.0	0.0
	Total of Sabaragamuwa Province		2,407.3	2,244.7
Total Area of Major and Medium Scheme			25,632.3	27,666.4

Table 3.5-2 EXTENT OF IRRIGATION SCHEMES IN THE STUDY AREA (1/2)

District	Division	Major and Medium Scheme			Minor Scheme				Total Area	Extent in percent		
		Over 600 ha	80 to 600 ha	Sub-total	Over 30 ha	5 to 30 ha	Below 5 ha	Sub-total	ha	Major	Minor	Total
Matale	Galewela			0.0	652.6	744.3	89.2	1,486.1	1,486.1	0.00%	1.92%	1.92%
	Dambulla		178.9	178.9	840.3	1,226.5	111.9	2,178.7	2,357.6	0.23%	2.81%	3.05%
	Naula		473.5	473.5	527.7	483.4	118.0	1,129.1	1,602.6	0.61%	1.46%	2.07%
	Pallepola			0.0	62.4	395.5	215.1	673.0	673.0	0.00%	0.87%	0.87%
	Yatawatta			0.0	0.0	449.3	210.5	659.8	659.8	0.00%	0.85%	0.85%
	Matale			0.0	32.4	228.1	139.0	399.5	399.5	0.00%	0.52%	0.52%
	Ambanganga Korale			0.0	42.5	246.6	92.6	381.7	381.7	0.00%	0.49%	0.49%
	Laggala		405.6	405.6	0.0	12.1	0.0	12.1	417.7	0.52%	0.02%	0.54%
	Wilgamuwa		156.1	156.1	100.4	367.2	101.1	568.7	724.8	0.20%	0.73%	0.94%
	Rattota			0.0	147.8	649.4	273.2	1,070.4	1,070.4	0.00%	1.38%	1.38%
	Ukuwela			0.0	48.6	508.4	134.4	691.4	691.4	0.00%	0.89%	0.89%
	Sub-total	0.0	1,214.1	1,214.1	2,454.7	5,310.8	1,485.0	9,250.5	10,464.6	1.57%	11.95%	13.52%
Kandy	Pujapitiya			0.0	0.0	218.2	87.2	305.4	305.4	0.00%	0.39%	0.39%
	Akurana			0.0	80.9	43.7	28.0	152.6	152.6	0.00%	0.20%	0.20%
	Pata Dumbara			0.0	34.8	208.2	45.1	288.1	288.1	0.00%	0.37%	0.37%
	Panwila		120.3	120.3	30.4	67.2	23.2	120.8	241.1	0.16%	0.16%	0.31%
	Uda Dambara			0.0	43.7	1,121.2	414.1	1,579.0	1,579.0	0.00%	2.04%	2.04%
	Minipe		4,908.5	4,908.5	442.3	364.2	27.6	834.1	5,742.6	6.34%	1.08%	7.42%
	Meda Dumbara			0.0	747.8	924.9	829.6	2,502.3	2,502.3	0.00%	3.23%	3.23%
	Kundasale			0.0	0.0	202.2	99.1	301.3	301.3	0.00%	0.39%	0.39%
	Kandy			0.0	404.4	80.6	83.6	568.6	568.6	0.00%	0.73%	0.73%
	Harispattuwa			0.0	0.0	278.9	65.7	344.6	344.6	0.00%	0.45%	0.45%
	Tumpane			0.0	93.1	500.4	385.7	979.2	979.2	0.00%	1.27%	1.27%
	Yatinuwara			0.0	0.0	329.5	153.7	483.2	483.2	0.00%	0.62%	0.62%
	Udunuwara			0.0	70.8	303.5	174.6	548.9	548.9	0.00%	0.71%	0.71%
	Pata Hewaheta	666.6		666.6	0.0	820.3	420.9	1,241.2	1,907.8	0.86%	1.60%	2.46%
	Udapalata		119.9	119.9	124.7	508.3	127.9	760.9	880.8	0.15%	0.98%	1.14%
	Ganga Ihala Korale		177.2	177.2	56.7	130.2	129.7	316.6	493.8	0.23%	0.41%	0.64%
	Pasbage Korale			0.0	0.0	258.9	51.2	310.1	310.1	0.00%	0.40%	0.40%
	Sub-total	666.6	5,325.9	5,992.5	2,129.6	6,360.4	3,146.9	11,636.9	17,629.4	7.74%	15.03%	22.78%
Nuwara Eliya	Kotmale			0.0	295.6	379.5	163.7	838.8	838.8	0.00%	1.08%	1.08%
	Uda Hewaheta		1,013.6	1,013.6	883.6	2,100.3	749.1	3,733.0	4,746.6	1.31%	4.82%	6.13%
	Walapane		505.7	505.7	821.5	1,700.8	419.5	2,941.8	3,447.5	0.65%	3.80%	4.45%
	Nuwara Eliya		195.1	195.1	33.2	84.2	11.7	129.1	324.2	0.25%	0.17%	0.42%
	Ambagamuwa Korale			0.0	56.7	137.4	115.5	309.6	309.6	0.00%	0.40%	0.40%
	Sub-total	0.0	1,714.4	1,714.4	2,090.6	4,402.2	1,459.5	7,952.3	9,666.7	2.21%	10.27%	12.49%
Badulla	Mahiyanganaya	1,278.0	804.9	2,082.9	0.0	0.0	0.0	0.0	2,082.9	2.69%	0.00%	2.69%
	Ridimaliyadda	1,626.0	314.5	1,940.5	0.0	39.1	0.0	39.1	1,979.6	2.51%	0.05%	2.56%
	Migahakivula		120.0	120.0	0.0	7.0	0.0	7.0	127.0	0.16%	0.01%	0.16%
	Kandaketiya	685.0	546.3	1,231.3	0.0	22.3	103.1	125.4	1,356.7	1.59%	0.16%	1.75%
	Uva Paranagama	813.0		813.0	103.1	270.5	236.3	609.9	1,422.9	1.05%	0.79%	1.84%
	Haliela		285.0	285.0	0.0	374.4	180.6	555.0	840.0	0.37%	0.72%	1.09%
	Soranatota		130.0	130.0	0.0	262.2	123.5	385.7	515.7	0.17%	0.50%	0.67%
	Passara		170.0	170.0	0.0	363.1	202.1	565.2	735.2	0.22%	0.73%	0.95%
	Badulla			0.0	34.4	239.0	7.2	280.6	280.6	0.00%	0.36%	0.36%
	Ella			0.0	0.0	109.3	50.8	160.1	160.1	0.00%	0.21%	0.21%
	Bandarawela			0.0	0.0	138.0	217.0	355.0	355.0	0.00%	0.46%	0.46%
	Haputale			0.0	64.8	446.1	153.3	664.2	664.2	0.00%	0.86%	0.86%
	Welimada	640.0	716.0	1,356.0	122.6	1,032.9	272.5	1,428.0	2,784.0	1.75%	1.84%	3.60%
	Haldummulla			0.0	79.0	396.1	136.2	611.3	611.3	0.00%	0.79%	0.79%
	Sub-total	5,042.0	3,086.7	8,128.7	403.9	3,700.0	1,682.6	5,786.5	13,915.2	10.50%	7.48%	17.98%
Monaragala	Madulla			0.0	0.0	0.0	0.0	0.0	0.0	0.00%	0.00%	0.00%
	Wellassa		601.0	601.0	0.0	0.0	0.0	0.0	601.0	0.78%	0.00%	0.78%
	Medagama		173.0	173.0	0.0	0.0	0.0	0.0	173.0	0.22%	0.00%	0.22%
	Badalkumbura			0.0	138.5	660.0	210.5	1,009.0	1,009.0	0.00%	1.30%	1.30%
	Monaragala		91.5	91.5	0.0	241.2	23.0	264.2	355.7	0.12%	0.34%	0.46%
	Siyambalanduwa	813.0	588.4	1,401.4	582.0	424.2	9.8	1,016.0	2,417.4	1.81%	1.31%	3.12%
	Buttala	1,450.0	529.5	1,979.5	89.1	323.5	0.0	412.6	2,392.1	2.56%	0.53%	3.09%
	Wellawaya		1,145.8	1,145.8	106.1	659.2	43.5	808.8	1,954.6	1.48%	1.04%	2.53%
	Tanamalwila		783.4	783.4	825.7	433.1	43.0	1,301.8	2,085.2	1.01%	1.68%	2.69%
	Sub-total	2,263.0	3,912.6	6,175.6	1,741.4	2,741.2	329.8	4,812.4	10,988.0	7.98%	6.22%	14.20%

Table 3.5-2 EXTENT OF IRRIGATION SCHEMES IN THE STUDY AREA (2/2)

District	Division	Major and Medium Scheme			Minor Scheme				Total Area	Extent in percent		
		Over 600 ha	80 to 600 ha	Sub-total	Over 30 ha	5 to 30 ha	Below 5 ha	Sub-total	ha	Major	Minor	Total
Kegalle	Rambukkana			0.0	0.0	295.6	211.1	506.7	506.7	0.00%	0.65%	0.65%
	Mawanella			0.0	238.9	331.6	168.4	738.9	738.9	0.00%	0.95%	0.95%
	Aranayaka			0.0	147.3	583.5	289.7	1,020.5	1,020.5	0.00%	1.32%	1.32%
	Galigamuwa			0.0	30.4	196.5	191.6	418.5	418.5	0.00%	0.54%	0.54%
	Kegalle			0.0	0.0	137.6	230.0	367.6	367.6	0.00%	0.47%	0.47%
	Warakapola			0.0	34.4	478.3	218.0	730.7	730.7	0.00%	0.94%	0.94%
	Ruwanwella			0.0	0.0	135.4	74.8	210.2	210.2	0.00%	0.27%	0.27%
	Yatiyantota			0.0	50.6	79.7	134.9	265.2	265.2	0.00%	0.34%	0.34%
	Deraniyagala			0.0	31.6	0.0	13.9	45.5	45.5	0.00%	0.06%	0.06%
	Dehiowita			0.0	0.0	17.3	35.0	52.3	52.3	0.00%	0.07%	0.07%
	Sub-total	0.0	0.0	0.0	533.2	2,255.5	1,567.4	4,356.1	4,356.1	0.00%	5.63%	5.63%
Ratnapura	Eheliyagoda			0.0	0.0	301.3	30.2	331.5	331.5	0.00%	0.43%	0.43%
	Kuruwita			0.0	335.7	1,050.1	111.9	1,497.7	1,497.7	0.00%	1.93%	1.93%
	Ratnapura			0.0	98.8	375.0	41.6	515.4	515.4	0.00%	0.67%	0.67%
	Imbulpe			0.0	161.9	188.8	55.5	406.2	406.2	0.00%	0.52%	0.52%
	Balangoda	1,100.0		1,100.0	371.9	608.4	302.7	1,283.0	2,383.0	1.42%	1.66%	3.08%
	Pelmadulla		87.8	87.8	195.9	382.4	108.4	686.7	774.5	0.11%	0.89%	1.00%
	Nivitigala			0.0	0.0	321.4	100.4	421.8	421.8	0.00%	0.54%	0.54%
	Kahawatta			0.0	0.0	71.7	26.3	98.0	98.0	0.00%	0.13%	0.13%
	Elapatha		162.6	162.6	0.0	253.6	69.0	322.6	485.2	0.21%	0.42%	0.63%
	Ayagama			0.0	0.0	86.7	56.6	143.3	143.3	0.00%	0.19%	0.19%
	Kalawana			0.0	30.4	207.3	56.9	294.6	294.6	0.00%	0.38%	0.38%
	Godakawela			0.0	54.2	271.2	130.2	455.6	455.6	0.00%	0.59%	0.59%
	Opanayaka			0.0	41.3	148.3	94.1	283.7	283.7	0.00%	0.37%	0.37%
	Weligepola			0.0	175.2	146.1	58.2	379.5	379.5	0.00%	0.49%	0.49%
	Embilipitiya		365.9	365.9	139.7	297.2	18.0	454.9	820.8	0.47%	0.59%	1.06%
	Kolonna		691.0	691.0	0.0	375.1	28.4	403.5	1,094.5	0.89%	0.52%	1.41%
	Sub-total	1,100.0	1,307.3	2,407.3	1,605.0	5,084.6	1,288.4	7,978.0	10,385.3	3.11%	10.31%	13.42%
Grand Total		9,071.6	16,561.0	25,632.6	10,958.4	29,854.7	10,959.6	51,772.7	77,405.3	33.11%	66.89%	100.00%

Table 3.5-3 CROPPING INTENSITY UNDER IRRIGATION SCHEME

MAJOR AND MEDIUM SCHEMES

	1986/87			1987/88			1988/89			1989/90		
	Maha	Yala	Total	Maha	Yala	Total	Maha	Yala	Total	Maha	Yala	Total
Wet Zone	87.68%	51.52%	139.20%	92.67%	68.88%	161.55%	91.68%	73.50%	165.18%	80.96%	67.05%	148.00%
Intermediate Zone	85.92%	48.68%	134.60%	86.41%	68.99%	155.40%	89.07%	44.76%	133.83%	85.05%	59.49%	144.54%
Dry Zone	72.88%	50.44%	123.32%	80.12%	51.30%	131.42%	64.04%	45.88%	109.93%	76.89%	71.33%	148.22%
Central Province												
Matale	98.49%	31.04%	129.53%	94.27%	55.14%	149.42%	82.33%	44.81%	127.13%	93.15%	52.82%	145.98%
Kandy	99.29%	93.70%	192.99%	99.73%	93.14%	192.87%	99.88%	93.33%	193.21%	99.93%	94.00%	193.92%
Nuwara Eliya	87.75%	53.70%	141.45%	89.26%	53.30%	142.56%	89.26%	52.19%	141.45%	93.29%	53.60%	146.89%
Uva Province												
Badulla	97.22%	77.58%	174.80%	98.22%	84.09%	182.32%	96.74%	77.86%	174.60%	97.56%	72.60%	170.16%
Moneragala	78.56%	44.77%	123.32%	89.88%	35.67%	125.54%	82.75%	18.43%	101.18%	81.25%	57.25%	138.50%
Sabaragamuwa Province												
Ratnapura	98.54%	82.19%	180.74%	92.59%	93.73%	186.31%	93.03%	92.57%	185.60%	98.58%	28.71%	127.29%
Kegalle												

MINOR SCHEMS

	1986/87			1987/88			1988/89			1989/90		
	Maha	Yala	Total	Maha	Yala	Total	Maha	Yala	Total	Maha	Yala	Total
Wet Zone	83.19%	57.84%	141.02%	86.99%	65.33%	152.31%	86.18%	58.80%	144.98%	86.28%	64.72%	151.00%
Intermediate Zone	71.41%	31.50%	102.91%	81.96%	50.74%	132.70%	75.48%	25.95%	101.43%	80.31%	37.02%	117.33%
Dry Zone	34.57%	4.11%	38.68%	49.73%	6.42%	56.15%	12.51%	2.73%	15.24%	41.37%	9.44%	50.80%
Central Province												
Matale	89.43%	30.97%	120.39%	90.65%	40.70%	131.35%	74.69%	24.59%	99.27%	88.88%	36.74%	125.62%
Kandy	94.42%	67.04%	161.47%	94.65%	72.34%	166.99%	95.16%	69.70%	164.86%	96.87%	72.38%	169.25%
Nuwara Eliya	85.06%	49.74%	134.80%	83.90%	50.02%	133.92%	85.20%	50.47%	135.67%	87.86%	48.26%	136.11%
Uva Province												
Badulla	91.02%	33.14%	124.15%	89.33%	32.67%	122.01%	90.18%	32.73%	122.91%	94.49%	34.96%	129.45%
Moneragala	67.44%	17.12%	84.56%	81.20%	29.46%	110.66%	80.13%	19.54%	99.68%	68.82%	26.93%	95.75%
Sabaragamuwa Province												
Ratnapura	93.49%	72.23%	165.73%	91.95%	83.44%	175.39%	90.72%	67.58%	158.29%	90.12%	81.12%	171.24%
Kegalle	99.34%	89.99%	189.33%	102.14%	98.43%	200.58%	99.12%	85.02%	184.14%	98.98%	97.46%	196.44%

Table 4.3-3 ENVIRONMENT PRESERVATION AND CONTROL PLAN (1/4)

Environmental Issues / Item		Causes and Effects	Target of Conservation	Strategy for Conservation	Legal Structure													
					National Environmental Action Plan (1990)	National Conservation Strategy (1990)	National Environment Act (1980, amended 1988)	National Heritage and Wildernes Act (1987)	National Aquatic Resources Act (1981)	Pesticides Control Act (1980)	Agrarian Services Act (1978)	Mines and Minerals Law (1973)	State Gem Corporation Act (1951)	Crown Lands Encroachment Ordinance (1947)	Fauna and Flora Protection Ordinance (1990)	Forest Ordinance (1937)	Land Development Ordhinrance (1990)
Land Resources	Soil Erosion	(1) Degradation of farm lands by inappropriate agricultural activities (2) Acceleration of sediment loads of rivers and dams due to defforestation and encroachment of reserves	(a) Reduction of the area to be treated (b) Implementation of soil conservation projects and programs (c) Establishment of appropriate land use plan and its management	(i) Promotion of farm land conservation and watershed management	○	○			○				○	○		○	○
				(ii) Enhancement of the on-going projects such as SALT Project	○	○							○				
				(iii) Introduction of panticipation of local people to soil erosion control projects and programs	○	○							○				
				(iv) Formulation of watershed management projects	○	○	○		○							○	
				(v) Control of shifting cultivation and inappropriate agricultural practices	○	○					○						○
	Shifting Cultivation	(1) Acceleration of deforestation and soil erosion (2) Encroachment of reserved areas (3) Degradation of marginal lands	(a) Control of shifting cultivation (b) Establishment of proper land use plan and its management	(i) Establishment of land use plan	○	○		○				○		○	○	○	○
				(ii) Enhancement of agro-fovestry	○	○					○					○	
				(iii) Promotion of settlemnt or transmigration of local people	○	○					○						
				(iv) Introduction of liverotock and other agricultural activities	○	○					○						
				(v) Promotion of IRDP	○	○					○						

Table 4.3-3 ENVIRONMENT PRESERVATION AND CONTROL PLAN (2/4)

Item / Environmental Issues		Causes and Effects	Target of Conservation	Strategy for Conservation	Legal Structure												
					National Environmental Action Plan (1990)	National Conservation Strategy (1990)	National Environment Act (1980, amended 1988)	National Heritage and Wilderness Act (1987)	National Aquatic Resources Act (1981)	Pesticides Control Act (1980)	Agrarian Services Act (1978)	Mines and Minerals Law (1973)	State Gem Corporation Act (1951)	Crown Lands Encroachment Ordinance (1947)	Fauna and Flora Protection Ordinance (1990)	Forest Ordinance (1937)	Land Development Ordinance (1990)
Land Resources	Landslides	(1) Damages to human life and social infrastructure (2) Impacts on regional economy	(a) Implementation of structural and non-structural prevention measures in the landslide prone areas	(i) Delineation of landslide prone areas	○	○											○
				(ii) Establishment of warning and evacuation system	○	○											
				(iii) Resettlement of people living in landslide prone areas	○	○											
				(iv) Implementation of prevention measures	○	○							○				
				(v) Reconstruction of infrastructure in the damaged area	○	○											
Mineral Resources	Gem Mining	(1) Acceleration of ground subsidence, slope instability and lowering groundwater table (2) Siltation of river water	(a) Extinction of illigal gem mining (b) Introduction of environmentally sound gem mining methods (c) Introduction of proper land use plan	(i) Control of illigal gem mining	○	○						○				○	○
				(ii) Delineation of gem mining prohibited areas	○	○			○			○		○		○	○
				(iii) Promotion of research and development of gem mining methods	○	○							○				

Table 4.3-3 ENVIRONMENT PRESERVATION AND CONTROL PLAN (3/4)

Environmental Issues \ Item		Causes and Effects	Target of Conservation	Strategy for Conservation	Legal Structure												
					National Environmental Action Plan (1990)	National Conservation Strategy (1990)	National Environment Act (1980, amended 1988)	National Heritage and Wilderness Act (1987)	National Aquatic Resources Act (1981)	Pesticides Control Act (1980)	Agrarian Services Act (1978)	Mines and Minerals Law (1973)	State Gem Corporation Act (1951)	Crown Lands Encroachment Ordinance (1947)	Fauna and Flora Protection Ordinance (1990)	Forest Ordinance (1937)	Land Development Ordinance (1990)
Forest Resources	Deforestation	(1) Acceleration of soil erosion (2) Degradation of forest resources and water resources (3) Encroachment of wildlife reserves	(a) Freeze of development of existing dense forests (b) Conversion of open forests into agricultural lands with careful environmental management (c) Reafforestation of marginal lands covered by open forests (d) Enhancement of sustainable use of forest plantation areas	(i) Establishment of land use plan and forestry development plan	○	○		○				○		○	○	○	○
				(ii) Control of shifting cultivation and illicit deforestation	○	○					○					○	○
				(iii) Promotion of proper management of forest lands	○	○			○						○	○	
				(iv) Implementation of reafforestation	○	○							○		○	○	
				(v) Promotion of community forestry	○	○										○	
Biodiversity and Wildfile	Encroachment of Reserves	(1) Degradation of forest, land, water and tourism resources (2) Destruction of habitates of wildlife (3) Confliction between man and wildlife	(a) Extinction of encroachment of reserves (b) Establishment of proper management of reserves	(i) Establishment of management plan of reserves	○	○		○							○		
				(ii) Delineation of specific zones for wildlife conservation	○	○	○	○						○	○	○	○
				(iii) Control of encroachment of reserves	○	○		○							○		
				(iv) Implementation of protection measures of farm lands	○	○		○							○		

Table 4.3-3 ENVIRONMENT PRESERVATION AND CONTROL PLAN (4/4)

Item / Environmental Issues		Causes and Effects	Target of Conservation	Strategy for Conservation	Legal Structure												
					National Environmental Action Plan (1990)	National Conservation Strategy (1990)	National Environment Act (1980, amended 1988)	National Heritage and Wildernes Act (1987)	National Aquatic Resources Act (1981)	Pesticides Control Act (1980)	Agrarian Services Act (1978)	Mines and Minerals Law (1973)	State Gem Corporation Act (1951)	Crown Lands Encroachment Ordinance (1947)	Fauna and Flora Protection Ordinance (1990)	Forest Ordinance (1937)	Land Development Ordhinrance (1990)
Biodiversity and Wildfile	Mono-cropping of Tabacco and Sugar Cane	(1) Acceleration of soil erosion, declining fertility of land and deforestation (2) Water pollution by utilization of fertilizers and agrochemicals (3) Confliction between man and wildfile	(a) Achievement of sustainable production of tabacco and sugar cane (b) Establishment of proper land use plan	(i) Establishment of land use plan	○	○		○				○		○	○	○	○
				(ii) Implementation of farm land conservation measures	○	○							○		○		
				(iii) Change of agricultural practices	○	○					○		○				
				(iv) Control of utilization of fertilizers and agrochemicals	○	○			○	○							

Table 5.3-1 REHABILITATION VOLUME OF FARM VILLAGE AND AGRICULTURAL INFRASTRUCTURE

Category	Present Condition	Development Schedule of Executive Organization	Proposed Rehabilitation Volume
Irrigation	1.Volume Needing Rehabilitation 1) Major Scheme 18,630ha out of 25,800ha 2) Minor(30~80ha) 2,870ha out of 11,000ha 3) Minor(5~30ha) 12,800ha out of 29,900ha 4) Micro(<5ha) 7,190ha out of 11,000ha 5) Total 41,500ha out of 77,530ha	1. NIRP; 16,620ha scheduled by 1996 2. IRDPs; 4,250ha estimated by 2003 (IRDPs continuation assumed; Project from past achievement) 3. MIDP; 2,470ha scheduled by 1995	1. Project by NIRP, MICD & IRDP be implemented as scheduled 2. The volume needing rehabilitation be completed fully by 2003 3. Rehabilitation Project (18,700ha) be newly implemented by 2003
Rural Road	1. Road density in Study Area ; 0.48km/km2 (A~D class) 2. National average 0.37 km/km2 3. Volume Needing Rehabilitation 1) Class C 1,560 km 2) Class D 1,300 km 3) Class E 1,410 km 4) Total 4,270 km	1. Class A & B Roads ; Rehabilitation be implemented by RDA by ADB, OECF,etc 2. Class C~E Roads ; Rehabilitation be implemented by Provincial Council with own fund. Based on Public Investment (1992~1996), following annual volume expected: 1) Class C 25.0km 2) Class D 25.0km 3) Class E 86.0km (same approarch as irrigation by IRDP)	1. Class C~E Roads be rehabilitated 2. Rehabilitation shall be include bridges and culverts 3. 60% of the total road length be rehabilitated by 2003 4. Rehabilitation Volume: 1) Class C 580km 2) Class D 530km 3) Class E 1,320km 4) Total 2,430km
Rural Water Supply	1. Rate of Protected Water Supply ; Study Area ; 62.80% National Average ; 69.60% 2. Project On-going in Kandy by FINNIDA 3. Project Completed in Matale in 1991 by DANIDA (Water Suooly rate 75 % attained)	1. 100% Water Supply rate targeted in Badulla & Ratnapura by 2000 by UNDP/WB. 2. 100% Water Supply rate targeted in Kegalle & Moneragala by 2010 by ADB. 3. FINNIDA's Project be continued in Kandy	1. Projects promoted by administering organization be implementated as scheduled in Badulla Ratnapura, Kegalla, Moneragala & Kandy 2. 100% Water Supply rate targeted in Matale 3. Abundant safe drinking water water source in N-Eliya; A national average of 70% targeted
Rural Electrification	1. Electrification rate Study Area ; 23.3% National average ; 37.0% Rural Area; 15~20%	1. CEB Goal National average; 80% by 2000 Study area; 70% by 2000	1. Same goal as 100% CEB (1,394 schemes be Implemented) 2. Priority to areas with strong demand by inhabitan
Farm Land Conservation	1. Areas Needing Conservation in the Study Area ; 1) Slope of 30~60 % (class 2) ; 161,300 ha 2) Slope over 60% (class 3) ; 79,700 ha 3) Slope of 30~60 % (class 8) ; 82,500 ha 4) Total ; 323,500 ha	1. NADSA	1. Target Year and Area (21% of the area needing conservation) Farmland Conservation; 69,000 ha

Table 5.5-1 PROJECT COST FOR MASTER PLAN

Project Component	Contents		Project Volume	Total Cost (Million Rs)	Phase I Volume	Phase I Cost (M.Rs)	Phase II Volume	Phase II Cost (M.Rs)
1. Irrigation	1.R.Major Irrigation Scheme		4,251 ha	151.7	4,251 ha	151.7	0 ha	0.0
	2. -do.-		1,655 ha	114.6	16,553 ha	114.6	0 ha	0.0
	3. -do.-		7,248 ha	220.7	7,248 ha	220.7	0 ha	0.0
	4.Recon. Minor Irr.Scheme		3,389 ha	404.2	0 ha	0.0	3,389 ha	404.2
		sub-total	16,543 ha	891.2	28,052 ha	487.0	3,389 ha	404.2
	5.R. Minor Irr.Scheme		4,505 ha	157.7	4,505 ha	157.7	0 ha	0.0
	6. -do.-		3,750 ha	131.3	2,310 ha	80.9	1,440 ha	50.4
	7. -do.-		10,915 ha	382.0	4,263 ha	149.2	6,652 ha	232.8
	8.Recon. Minor Irr.Scheme		511 ha	32.1		0.0	511 ha	32.1
		sub-total	19,681 ha	703.1	11,078 ha	387.8	8,603 ha	315.3
		Total	36,224 ha	1,594.3	39,130 ha	874.8	11,992 ha	719.5
2. Rural Road	1.R.Class C Road		250 km	375.0	125 km	187.5	125 km	187.5
	2. -do.-		332 km	498.0	166 km	249.0	166 km	249.0
		sub-total	582 km	873.0	291 km	436.5	291 km	436.5
	3.R.Class D Road		250 km	274.0	125 km	137.0	125 km	137.0
	4. -do.-		277 km	307.4	139 km	153.7	139 km	153.7
		sub-total	527 km	581.4	264 km	290.7	264 km	290.7
	5.R.Class E Road		860 km	860.0	430 km	430.0	430 km	430.0
	6. -do.-		462 km	462.0	231 km	231.0	231 km	231.0
		sub-total	1,322 km	1,322.0	661 km	661.0	661 km	661.0
		Total	2,431 km	2,776.4	1,216 km	1,388.2	1,216 km	1,388.2
3. Rural Water Supply	1.Kandy		-	375.7	-	187.9	-	187.8
	2.Badulla		-	260.0	-	130.0	-	130.0
	3.Moneragala		-	229.0	-	114.5	-	114.5
	4.Ratnapura		-	307.0	-	153.5	-	153.5
	5.Kegalle		-	167.0	-	83.5	-	83.5
	6.Matale;	Piped WS	28Schemes	53.5	14Schemes	26.8	14Schemes	26.7
		TW	862Schemes	62.1	431Schemes	31.1	431Schemes	31.0
		DW	1,796Schemes	26.9	898Schemes	13.4	898Schemes	13.5
		sub-total	2,686Schemes	142.5	1,343Schemes	71.3	1,343Schemes	71.2
	7.N-Eliya;	Piped WS	131Schemes	132.2	66Schemes	66.1	65Schemes	66.1
		DW	3,631Schemes	54.5	1,815Schemes	27.3	1,816Schemes	27.2
		sub-total	3,762Schemes	186.7	1,881Schemes	93.4	1,881Schemes	93.3
		Total	-	1,667.9	-	834.1	-	833.8
4. Rural Electrification	MV/LV Lines		1,394Schemes	3,345.6	697Schemes	1,672.8	697Schemes	1,672.8
		Total	1,394Schemes	3,345.6	697Schemes	1,672.8	697Schemes	1,672.8
5. Agricultural Promotion Plan & Supporting Plan	1.R.Seed & Fertilizer Storehouse		178 ASC	407.1	89 ASC	203.6	89 ASC	203.5
	2.C.Agri.Production Storehouse		53 Sites	471.7	27 Sites	240.3	26 Sites	231.4
	3.R.Pola		55 Sites	330.0	28 Sites	168.0	27 Sites	162.0
	4.C.Sabaragamuwa ISTI		1 Site	7.6	1 Site	7.6	0 Site	0.0
	5.R.ISTI & DATC		3 ISTI & 7 DATC	28.2	3 ISTI & 7 DATC	28.2	0	0.0
	6. Imp. CAIC		1 Centre	8.1	-	8.1	-	0.0
	7. Imp. DVSS		7 Sites	28.5	-	28.5	-	0.0
		Total	-	1,281.2	-	684.3	-	596.9
6. Farm Land Conservation	1.Farm Land Conservation		69,000 ha	4,652.0	42,800 ha	2,523.0	26,200 ha	2,129.0
		Total	69,000 ha	4,652.0	42,800 ha	2,523.0	26,200 ha	2,129.0
Grand Total				15,317.4		7,977.2		7,340.2
Existing Project				6,784.4		3,637.4		3,147.0
New Project				8,533.0		4,339.8		4,193.2

< Note > R : Rehabilitation, Recon : Reconstruction, C : Construction, Imp : Implementation

TABLES (PART 2)

Table 2.1-1 Labour Force and Employment: Case Study Area-I

Case Study Area I

Division	Labour Force			Econ.Active	Total	Percent	Employment by Sector						Percent
	Male	Female	Total	Population	Employed	Employed	Agric	Est.Labour	Industry	Trading	Services	Other	Unemployed
Kundasale	35,594	34,388	69,982	45,488	24,395	54	5,174	3,416	4,157	1,864	9,784		46.37
Uda Dumbara	8,691	8,558	17,249	11,212	9,799	87	6,661	780	201	375	1,782		12.60
Meda Dumbara	19,549	19,862	39,411	25,617	17,305	68	5,990	4,628	546	1,187	4,954		32.45
Hanguranketha	29,419	28,549	57,968	37,679	29,592	79	16,403	6,925	2,095	2,256	1,913		21.46
Walapane	39,143	38,831	77,974	50,683	39,647	78	15,400	16,001	2,691	750	4,805		21.77
Uva Paranagama	23,724	22,976	46,700	30,355	22,396	74	13,200	4,100	1,463	1,500	2,133		26.22
Welimada	26,029	25,311	51,340	33,371	24,400	73	14,500	5,000	1,600	1,300	2,000		26.88
Haliela	26,901	26,794	53,695	34,902	18,959	54	10,000	5,000	1,936	1,273	750		45.68
Kandeketiya	7,853	7,400	15,253	9,914	7,800	79	4,000	1,000	600	700	1,500		21.33
Total	216,903	212,669	429,572	279,222	194,293	70	91,328	46,850	15,289	11,205	29,621		30.42

Source: Divisional Resource Profiles; Inventory Survey (1993)

Table 2.1-2 Social Infrastucture Facilities: Case Study Area-I

PRESENT POSITION OF EDUCATION AND HEALTH SERVICES IN THE STUDY AREA

Division	Gross Area (a) km2	Population (b)	Number of Schools					Density		Number of Hospitals								Number of	Density	
			Primary School	Junir high School	Senir high School	College	Total (c)	Schls/1,000Ps 1000x (c)/(b)	km2/school (a)/(c)	Central Dispensary	Meternity Home	Rural Hospital	Periphera Hospital	District Hospital	Base Hospital	Provincia Hospital	Total (b)	Total Beds (c)	Hopls/1,000P 1000x (b)/(a)	Beds/1,000Ps 1000x (c)/(a)
Uda Dumbara	280.2	25,031	10	10	4	0	24	1.0	11.7	1	0	0	0	1	0	0	2	74	0.08	2.96
Meda Dumbara	168.0	56,839	13	23	8	0	44	0.8	3.8	1	1	1	0	1	0	0	4	NA	0.07	-
Kundasale	84.8	101,720	7	10	18	1	36	0.4	2.4	1	5	5	1	1	0	0	13	325	0.13	3.20
Hanguranketha	231.0	96,030	31	28	8	1	68	0.7	3.4	1	2	2	0	2	0	0	7	195	0.07	2.03
Walapane	315.9	110,790	43	27	11	1	82	0.7	3.9	2	2	1	0	3	0	0	8	326	0.07	2.94
Kandaketiya	164.2	23,601	6	10	4	1	21	0.9	7.8	1	0	0	2	0	0	0	3	0	0.13	0.00
Uva paranagama	131.3	73,000	18	20	7	1	46	0.6	2.9	0	0	1	0	1	0	0	2	97	0.03	1.33
Haliela	168.4	89,044	10	50	8	1	69	0.8	2.4	2	1	8	0	0	0	0	11	12	0.12	0.13
Welimada	187.0	79,500	12	21	12	3	48	0.6	3.9	4	0	1	0	1	0	0	6	30	0.08	0.38

Division	Gross Area (a) km2	Population (b)	Number of Post Offices			Density km2/P.O. (a)/(c)	Number of Telephones (d)	Density Population/Tele (b)/(d)	Banking			Co-operative		
			General P.O.	Sub Office	Total (c)				Commercial Bank	eg.Rural Bank	Co-operati Bank	rift & Cr Co-op So	ulti-purpc op Prima	Co-op Primaries
Uda Dumbara	280.2	25,031	1	15	16	17.5	4	6,257.8	1		1	18	1	15
Meda Dumbara	168.0	56,839	2	20	22	7.6	NA	-	1	1	3		2	35
Kundasale	84.8	101,720	1	26	27	3.1	69	1,474.2	1		3	41	1	37
Hanguranketha	231.0	96,030	2	19	21	11.0	NA	-	2	1	5	31	2	46
Walapane	315.9	110,790	5	18	23	13.7	NA	-	5	1		24		
Kandaketiya	164.2	23,601	9	9	18	9.1	22	94.4	1		2	2	1	10
Uva paranagama	131.3	73,000	3	16	19	6.9	30	14,600.0	4		9	24	2	54
Haliela	168.4	89,044	2	31	33	5.1	220	6,849.5	2		8	16	2	44
Welimada	187.0	79,500	2	20	22	8.5	309	257.3	5		9	21	2	47

Table 2.1-3 Annual Extent Cultivated and Production: Case Study Area-I

	Udadumbara		Mwdadumbara		Hangoranketa		Walapane		Uva Paranagama		Welimada		Kandaketiya		Haiela		Ground Total		Average Yield
	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	Extent (ha)	Prod. (ton)	(ton/ha)
Paddy	2,846	8,538	1,852	4,987	4,526	7,292	4,706	9,365	1,614	6,380	1,557	6,050	2,368	8,341	1,812	6,915	21,281	57,868	2.7
Banana	0	0							0	0	0	0	0	0	0	0	0	0	
Beet	103	779	9	76	246	2,820	206	2,695	104	1,635	133	1,995	3	25	25	337	829	10,362	12.5
Bittergourd			9	75	61	554	10	110	17	214	10	105	15	217	3	37	125	1,312	10.5
Black gram	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	2	4	2.0
Brinjal	85	548	8	82	216	2,330	525	6,300	148	1,850	128	1,551	20	205	53	530	1,183	13,396	11.3
Bush Bean	159	954	17	50	524	1,020	310	928	280	839	780	2,340	2	2	69	224	2,141	6,357	3.0
Bushitao					9	14	0	0	7	18	2	4	10	30	5	12	33	78	2.4
Cabbage	108	1,260	12	139	337	3,770	330	5,715	319	6,550	536	10,720	10	150	102	1,890	1,754	30,194	17.2
Capsicum			4	16	66	171	196	602	83	316	262	1,040	32	96	27	95	670	2,336	3.5
Carrot	101	1,271	4	31	365	2,660	197	1,613	104	1,277	338	4,497	0	0	10	91	1,119	11,440	10.2
Cassava	60	696	15	149					0	0	0	0	0	0	0	0	75	845	11.3
Cauliflower					0	0	5	10	1	5	7	38	0	0	0	0	13	53	4.1
Cowpea	33	81	14	11	60	69	0	0	42	31	8	6	100	59	21	12	278	269	1.0
Cucumber			7	68	50	785			13	161	35	274	13	119	15	141	133	1,548	11.6
Dry Chilli	7	6	25	20	92	70	268	167	188	159	210	179	255	218	111	95	1,156	914	0.8
Garlic					0	0			17	100	17	100	0	0	2	16	36	216	6.0
Green Chilli	111	353	27	81	18	54	10	31	0	0	0	0	0	0	0	0	166	519	3.1
Green Gram	0	0	1	1	4	3	32	23	25	25	0	0	380	312	2	2	444	366	0.8
Knol Khol	36	288	9	44	186	760	224	905	261	1,305	238	1,190	3	15	21	105	978	4,612	4.7
Kurakkan	238	179	12	8	144	78	198	133	0	0	0	0	0	0	0	0	592	398	0.7
Large Onion	4	50	0	0	24	115			2	20	3	30	20	220	9	90	62	525	8.5
Leeks	121	1,452	1	9	136	1,551	163	2,677	13	185	65	1,280	0	0	6	80	505	7,234	14.3
Long Bean	45	210	12	40	28	39	86	257	10	29	6	15	15	46	7	51	209	687	3.3
Luffa			5	41	55	517	64	150	15	140	3	34	14	187	18	210	174	1,279	7.4
Maize	204	204	11	11	100	102	311	311	0	0	0	0	0	0	0	0	626	628	1.0
Okra			8	42	34	133	94	470	20	75	2	10	17	85	12	53	187	868	4.6
Pole Bean	128	1,152	21	80	529	1,377	478	1,920	694	2,776	1,650	6,418	11	31	121	502	3,632	14,256	3.9
Potato	6	67	4	32	380	5,422	444	7,371	1,953	21,681	3,924	40,922	0	0	475	4,913	7,186	80,408	11.2
Pumpkin	9	135	1	7	53	930			55	975	70	1,395	21	440	13	260	222	4,142	18.7
Raddish			5	42	285	1,546	207	1,683	130	1,290	328	3,270	20	119	21	189	996	8,139	8.2
Red Onion	66	660	22	212	320	2,489	165	1,241	78	692	121	1,126	22	203	30	265	824	6,888	8.4
Snakegourd			4	40	72	505	0	0	6	87	1	10	9	135	10	120	102	897	8.8
Sweet Potato	14	210	11	70					0	0	0	0	0	0	0	0	25	280	11.2
Soy Bean					43	43	9	9									52	52	1.0
Tobacco	778	820	92	107					30	30	40	40	20	20	75	75	1,035	1,092	1.1
Tomato	46	552	9	58	106	440	109	830	447	3,780	571	5,700	28	160	96	751	1,412	12,271	8.7
Total (excl. paddy)	2,462		379		4,543		4,641		5,062		9,488		1,042		1,359		28,976		

Table 2.1-4 (1/2) Wholesale and Retail Prices of Vegetables (1/2)

Month	1988		1989		1990		1991	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
BUTTER BEANS:								
February	12.29	8.10	12.72	9.56	21.26	15.73	18.51	10.86
March	9.86	5.68	16.53	11.77	22.84	15.95	24.25	17.22
April	11.34	6.92	17.03	10.28	17.87	8.54	23.22	14.39
May	17.05	11.86	20.53	14.28	20.38	13.79	27.28	17.23
June	19.71	14.13	20.60	12.74	23.74	19.33	28.52	18.37
July	16.39	11.66	14.98	14.40	24.97	19.29	24.46	15.91
August	13.90	9.11	17.44	10.70	22.97	16.71	24.21	17.10
September	13.88	8.81	18.07	12.40	20.33	12.35	21.05	13.06
October	14.42	8.58	16.38	10.17	19.27	10.52	19.72	10.79
November	16.59	11.51	12.68	6.15	23.98	15.23	22.70	13.97
December	14.25	9.55	13.79	7.29	22.65	14.42	20.57	12.01
GREEN BEANS:								
January	15.53	11.31	14.20	9.85	17.62	10.61	22.23	15.06
February	12.32	8.19	12.72	9.58	21.26	15.73	18.40	10.86
March	9.86	5.73	16.53	11.73	22.89	15.95	24.08	17.23
April	11.28	6.93	17.04	10.28	17.90	8.54	22.55	14.26
May	17.06	11.96	20.63	14.24	20.38	13.78	26.94	17.25
June	19.75	14.98	20.68	12.24	25.74	19.29	27.82	16.05
July	16.39	11.79	15.09	14.40	24.94	19.29	24.12	15.92
August	13.91	9.15	17.34	10.70	22.97	16.69	23.90	17.09
September	13.88	8.58	18.12	12.45	20.33	12.37	20.85	13.06
October	14.43	8.58	16.62	10.17	19.27	10.51	19.62	10.79
November	16.55	11.51	12.67	6.15	23.88	15.23	22.46	13.97
December	14.27	9.55	13.85	7.29	22.76	14.42	21.41	11.93
CARROT:								
January	17.85	12.04	13.73	8.41	23.07	15.82	24.35	16.06
February	13.57	8.13	14.16	11.63	21.90	14.23	23.20	13.85
March	10.50	6.08	15.31	8.87	23.47	15.65	22.24	13.02
April	11.31	5.77	18.38	11.84	22.23	13.81	23.35	13.31
May	14.08	9.23	22.60	15.43	21.95	14.21	25.51	15.52
June	18.05	11.28	27.29	20.09	23.60	15.07	28.21	19.11
July	16.06	10.42	21.95	14.17	20.09	11.73	27.84	17.72
August	14.59	8.90	17.06	8.30	17.69	9.50	22.33	11.74
September	13.15	7.52	14.02	6.87	17.53	8.50	17.58	7.99
October	13.40	7.74	13.65	7.55	17.57	9.22	15.95	7.06
November	14.96	8.77	14.33	8.17	20.63	12.12	17.81	8.56
December	18.71	7.53	18.84	12.08	22.86	14.42	22.61	12.30
LEEKS:								
January	14.77	9.45	12.55	6.63	20.56	13.90	24.35	12.74
February	12.85	7.76	13.08	9.75	19.67	12.38	22.01	13.98
March	10.58	6.40	13.37	7.14	22.26	14.55	21.92	13.59
April	13.31	10.14	14.19	7.58	24.03	15.01	23.04	13.53
May	15.84	10.14	15.04	7.80	25.37	17.00	26.55	16.45
June	16.90	9.98	18.13	11.15	27.44	18.93	29.78	19.53
July	13.51	7.10	17.72	18.00	22.83	13.40	27.72	17.63
August	12.49	8.04	16.13	9.70	17.56	8.58	22.14	10.20
September	12.57	6.88	14.86	8.46	16.49	7.26	17.89	7.86
October	13.02	7.29	14.07	7.52	16.31	7.19	16.43	7.23
November	14.33	7.47	14.34	7.45	18.20	7.92	18.52	7.96
December	12.63	6.34	17.51	10.83	19.67	9.93	21.56	12.02
BEET ROOT:								
January	14.95	9.86	14.15	7.72	20.70	13.12	25.10	13.74
February	14.05	8.51	11.96	8.08	18.83	11.37	26.66	16.69
March	10.53	5.15	11.75	5.22	19.12	11.07	26.49	15.60
April	10.50	6.51	13.10	5.94	19.03	9.10	25.90	14.90
May	12.47	6.51	14.83	7.47	18.74	9.39	26.16	13.12
June	16.65	10.20	17.98	10.99	22.10	12.66	27.44	15.25
July	14.41	7.83	15.71	9.60	20.55	10.96	27.52	14.59
August	12.43	5.52	14.80	7.29	18.28	8.62	21.94	8.83
September	11.91	6.19	13.85	6.08	18.53	8.57	18.24	7.94
October	13.66	7.63	13.71	6.81	18.61	8.43	16.93	7.74
November	15.32	8.94	14.30	7.86	23.43	12.62	21.86	11.68
December	14.84	9.16	18.28	11.60	27.69	16.29	27.81	16.91
KNOK-KHOL:								
January	10.66	5.44	9.69	3.48	12.99	5.97	18.29	7.77
February	9.66	4.74	10	6.87	14.14	6.51	18.21	7.26
March	7.20	3.13	11	4.75	15.19	6.91	19.13	8.96
April	8.37	4.60	11.64	5.23	15.95	6.44	19.51	8.28
May	9.68	4.60	12.76	5.81	15.55	7.56	20.94	7.91
June	11.44	5.73	15.12	6.76	17.36	9.16	22.31	9.23
July	9.68	3.73	12.08	4.08	16.38	7.53	20.00	8.34
August	9.14	3.19	10.64	3.69	15.03	6.35	16.14	5.08
September	9.34	3.75	10.85	4.05	14.90	5.88	14.75	4.35
October	10.26	4.17	10.48	3.55	15.00	5.78	14.32	4.37
November	11.11	5.12	10.82	4.06	17.65	7.26	17.28	6.57
December	10.20	4.28	12.50	5.26	19.26	8.24	18.60	7.49

Month	1988		1989		1990		1991	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
CUCUMBER:								
	8.67	3.52	9.53	4.18	11.34	5.35	12.16	3.19
	7.73	3.01	8.39	5.36	10.71	4.02	11.35	3.01
	6.76	2.57	8.15	3.52	11.27	4.87	12.16	5.61
	7.63	2.67	9.47	4.40	11.70	4.22	14.53	6.50
	9.10	4.20	10.05	4.81	14.00	7.25	15.65	6.49
	9.74	4.83	10.27	4.26	14.26	7.11	17.37	8.11
	9.16	3.41	10.51	2.92	13.41	5.32	15.52	5.37
	8.21	2.68	10.57	2.68	11.17	3.64	13.79	4.78
	8.55	3.41	10.19	2.99	12.15	4.88	11.59	2.87
	9.00	3.38	9.63	3.73	13.50	6.35	11.37	3.49
	10.13	5.64	9.12	4.11	16.73	8.58	13.99	5.95
	9.26	4.29	8.55	4.28	15.67	7.01	13.80	4.91
BITTER GOURD:								
	12.02	5.71	13.58	7.08	15.71	8.18	21.39	9.24
	11.54	5.79	13.35	8.12	16.49	8.12	18.88	6.42
	11.09	6.37	12.64	7.21	17.00	8.83	19.76	8.67
	11.49	6.91	13.40	8.05	17.42	8.46	20.54	9.79
	13.99	8.75	15.13	8.87	18.89	9.71	24.13	12.58
	13.55	7.01	17.03	8.80	21.28	12.11	26.53	14.49
	12.13	5.01	14.74	6.86	20.23	9.24	23.46	8.82
	11.04	5.63	14.24	7.22	18.88	9.89	21.48	8.67
	12.39	6.49	14.15	6.94	18.82	10.17	19.16	9.09
	14.14	7.80	14.50	7.85	19.40	11.05	22.44	13.44
	15.15	10.09	14.33	7.92	26.20	16.75	25.20	16.04
	13.85	7.53	14.93	8.29	29.16	16.80	23.94	13.50
SNAKE-GOURD:								
	7.80	3.45	8.63	3.48	10.82	5.13	12.62	3.75
	7.01	3.22	8.82	4.53	11.70	5.41	12.37	3.20
	6.28	2.80	8.75	3.94	11.53	5.93	13.39	5.23
	6.81	2.53	9.25	4.68	11.58	5.92	14.72	6.08
	8.29	5.25	10.91	5.49	13.89	7.35	15.62	7.07
	8.28	3.62	11.40	4.79	15.09	8.01	17.16	7.53
	7.65	2.06	9.64	3.75	14.61	6.20	14.63	5.85
	7.54	2.35	9.65	3.48	13.22	5.90	13.36	9.92
	8.10	3.33	9.23	3.47	12.13	5.29	11.75	3.77
	8.84	3.91	9.29	3.88	13.15	5.94	12.52	5.57
	9.73	5.43	9.80	3.88	16.82	10.21	15.36	6.99
	8.66	3.81	9.92	4.32	17.77	10.44	14.15	5.70
LUFFA:								
	9.92	4.56	11.50	5.43	13.49	6.29	15.04	4.11
	10.19	4.94	11.62	6.60	14.55	7.19	14.45	4.36
	9.07	5.01	11.79	5.46	15.37	7.95	16.91	7.03
	9.72	4.72	12.88	6.20	15.83	7.67	20.17	8.81
	11.41	7.16	14.40	7.89	17.20	8.25	20.49	10.53
	11.29	5.21	15.83	7.73	18.48	10.55	23.53	12.31
	10.13	3.76	13.89	5.29	18.11	7.48	21.23	4.32
	10.14	3.47	11.84	4.03	16.13	6.99	16.30	5.37
	10.23	4.55	12.73	5.78	16.63	7.14	14.79	5.89
	11.98	5.71	13.16	6.73	16.98	7.96	17.48	9.67
	13.03	7.96	12.98	6.57	20.18	12.61	20.80	11.52
	11.53	5.38	13.24	6.50	20.47	10.72	19.70	8.94
LONG BEANS:								
	10.51	6.21	11.40	5.79	13.99	6.33	15.49	6.50
	10.14	5.81	11.19	6.87	14.82	9.14	15.52	6.08
	9.15	4.54	12.03	6.92	16.35	9.84	17.09	9.45
	8.96	4.50	12.80	6.30	14.24	6.53	19.09	7.91
	10.93	6.38	14.13	8.06	16.10	9.44	21.83	9.47
	11.83	6.89	15.26	7.73	17.78	9.91	21.78	9.47
	11.02	5.52	12.26	7.50	18.54	10.44	15.95	7.04
	10.39	5.08	12.92	5.47	16.49	7.76	16.73	7.96
	10.42	5.50	12.88	6.65	15.57	6.89	16.05	7.29
	11.64	5.88	12.99	6.85	15.59	7.30	16.76	8.59
	13.27	8.66	11.61	5.09	18.82	9.77	19.81	10.80
	11.78	6.50	12.04	5.29	17.73	7.83	18.45	8.11
ASH PLANTAINS:								
	16.46	11.02	14.59	8.98	18.74	10.74	26.93	16.19
	15.08	9.85	14.58	9.97	18.16	10.77	25.45	14.45
	13.62	8.87	14.06	9.17	19.21	11.21	24.71	14.57
	13.55	7.83	16.06	8.94	18.98	11.10	24.87	13.67
	13.71	7.95	15.56	9.58	18.58	9.83	24.75	14.75
	14.58	9.19	16.19	9.88	19.51	11.29	25.68	13.76
	13.53	8.01	16.22	10.49	19.55	11.81	23.88	12.13
	13.61	8.22	15.20	9.09	19.58	11.72	22.75	12.36
	13.53	8.24	15.66	9.23	20.60	12.31	21.10	11.17
	14.48	8.75	15.78	9.88	22.55	13.01	22.05	12.72
	16.03	11.07	16.48	10.66	25.18	16.19	25.14	15.45
	14.99	8.88	17.06	10.88	29.77	18.06	25.99	15.72

Table 2.1-4 (2/2) Wholesale and Retail Prices of Vegetables (2/2)

Month	1988		1989		1990		1991	
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale
RADDISH:								
January	7.61	2.73	7.19	2.03	9.48	3.72	11.43	3.35
February	6.02	1.87	7.33	3.49	7.31	3.70	10.30	2.37
March	5.01	1.39	7.63	2.29	10.55	4.06	9.89	2.73
April	6.24	1.56	9.00	3.52	10.62	3.78	11.58	4.05
May	6.88	2.69	10.44	4.23	10.04	4.10	13.58	5.48
June	8.61	4.10	11.82	5.14	11.64	4.93	14.99	5.41
July	7.52	2.86	9.41	3.67	11.54	4.73	14.25	4.92
August	7.10	2.34	9.04	2.91	10.69	4.02	11.75	3.21
September	7.25	2.73	8.38	2.58	10.50	3.34	10.12	2.58
October	7.88	3.40	8.13	3.15	9.90	3.22	10.34	2.74
November	8.60	4.05	8.34	3.13	12.09	4.40	12.55	4.63
December	7.73	3.57	9.25	3.56	12.84	5.06	12.99	5.05
CABBAGE:								
January	13.67	6.71	10.40	3.88	13.27	5.76	15.21	5.19
February	11.04	4.61	10.56	5.37	13.73	5.85	15.47	5.35
March	7.04	1.70	10.51	4.05	14.75	7.07	16.16	7.21
April	7.04	1.63	12.32	5.89	17.46	7.99	16.88	7.16
May	8.85	3.50	14.42	7.42	17.79	9.08	19.12	9.30
June	13.02	5.96	17.71	9.79	17.89	8.83	20.88	8.88
July	11.98	4.63	14.59	7.00	16.50	6.50	18.66	7.04
August	11.79	5.42	12.81	5.35	14.01	5.63	15.43	5.35
September	12.10	6.05	12.81	5.41	13.94	5.40	13.15	4.55
October	13.65	6.88	11.53	4.16	13.46	4.85	13.51	4.23
November	13.26	1.51	10.93	3.98	16.11	7.06	15.01	5.97
December	11.69	5.00	12.24	5.41	16.94	7.37	16.31	6.84
TOMATOES:								
January	18.46	10.22	21.12	11.21	21.08	9.72	31.92	17.31
February	15.27	7.29	17.14	9.47	25.02	10.26	29.38	14.62
March	11.82	5.15	17.19	8.47	32.55	17.76	27.98	14.75
April	15.94	7.18	18.80	8.58	35.47	18.57	28.83	13.86
May	18.51	10.11	22.89	11.72	22.45	11.10	28.43	13.39
June	20.45	10.45	22.65	12.15	21.02	10.82	34.73	18.71
July	17.32	7.37	20.50	9.48	22.60	11.43	34.32	17.40
August	12.78	4.85	17.49	6.62	20.00	9.42	27.21	10.36
September	15.60	8.26	22.53	11.86	21.57	10.22	25.17	10.38
October	17.14	8.72	26.04	13.26	27.69	12.16	29.70	16.43
November	20.14	10.72	27.26	15.48	28.60	14.51	26.03	11.21
December	18.75	10.68	29.77	10.80	33.87	17.81	29.83	10.69
LADIES FINGERS:								
January	12.74	6.96	13.84	6.97	16.57	9.13	19.40	7.87
February	12.30	6.81	13.28	7.13	17.82	9.89	20.63	8.88
March	9.89	3.91	13.16	7.00	17.61	9.55	20.93	10.71
April	10.30	4.32	14.41	7.21	17.63	8.25	21.12	9.61
May	11.95	6.07	15.56	8.51	18.90	9.64	24.42	11.90
June	13.51	6.38	17.60	9.57	23.00	12.88	26.05	12.11
July	11.80	5.31	16.40	8.20	21.91	11.09	21.95	9.52
August	12.02	5.15	13.86	5.75	19.32	10.16	20.29	8.49
September	12.41	6.27	14.74	6.61	18.58	9.57	17.74	7.78
October	13.49	6.82	14.60	7.67	19.12	9.86	18.86	8.09
November	16.60	10.32	14.78	8.26	25.13	15.38	22.84	13.62
December	19.63	7.25	15.17	7.80	23.74	10.40	20.88	9.29
BRINJALS:								
January	10.90	5.28	13.06	6.87	14.19	6.12	20.23	8.38
February	9.79	4.41	12.79	7.60	14.30	5.39	17.15	4.96
March	8.71	3.70	11.61	5.37	14.62	6.13	16.11	4.87
April	9.24	3.45	13.19	6.22	16.03	6.04	17.42	6.07
May	10.95	5.51	15.67	7.82	18.69	10.04	19.74	8.46
June	13.27	6.79	16.89	8.62	19.68	10.50	25.09	12.39
July	11.02	4.88	15.47	7.86	20.49	10.98	21.15	6.28
August	11.39	4.58	13.53	5.91	19.21	9.08	18.75	6.37
September	11.76	5.30	14.17	6.39	19.80	10.11	18.26	7.08
October	12.93	5.82	17.07	7.38	20.85	10.09	20.16	8.94
November	14.78	8.74	14.62	7.23	23.28	13.03	21.08	10.15
December	13.35	6.12	15.03	7.17	22.97	10.62	20.20	7.28
CAPSICUMS:								
January	15.51	11.34	19.90	12.50	22.99	15.26	31.78	18.06
February	15.86	9.21	21.50	16.48	24.66	15.45	30.35	18.61
March	13.26	7.63	19.21	11.89	25.42	16.09	29.43	16.63
April	12.71	6.65	19.06	9.85	23.90	12.27	29.64	13.91
May	14.45	7.97	20.68	12.17	24.65	16.29	29.49	15.25
June	19.28	12.45	23.66	14.76	30.46	20.60	34.23	21.31
July	19.66	13.47	22.71	14.10	32.55	21.96	36.87	24.61
August	15.34	8.00	20.03	10.55	27.59	16.44	34.46	22.16
September	14.84	7.66	19.15	10.96	29.82	18.74	32.83	19.02
October	19.23	12.41	21.79	13.20	30.71	17.99	33.96	21.85
November	22.22	16.20	23.58	16.30	33.10	20.16	34.84	22.33
December	19.71	13.24	24.15	15.77	33.99	20.06	37.57	23.98

Month	1988		1989		1990		1991		19
	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	
GREEN CHILLIES:									
January	20.45	10.92	22.78	11.00	26.31	10.62	34.10	15.47	
February	26.73	15.75	28.12	22.78	28.67	16.39	35.17	19.17	
March	22.98	11.70	23.52	12.35	31.74	16.96	33.88	17.71	
April	17.74	6.43	24.01	11.31	28.72	12.79	34.34	12.70	
May	18.53	8.90	24.30	12.27	29.17	15.64	37.73	17.80	
June	29.77	18.33	82.00	20.15	36.45	22.40	59.98	36.03	
July	21.20	9.70	26.33	11.67	34.47	19.10	42.39	21.84	
August	17.78	7.98	22.71	7.35	30.08	14.05	35.69	9.96	
September	20.60	8.65	23.73	10.93	37.30	19.71	32.90	15.10	
October	27.02	12.27	27.70	15.26	44.66	26.67	54.18	26.18	
November	46.70	28.62	26.09	12.86	59.59	34.15	44.11	25.61	
December	31.48	13.02	24.80	11.69	46.80	22.91	60.26	33.17	
LIME:									
January	24.69	9.31	16.37	5.61	23.74	7.96	34.33	14.03	
February	21.56	8.97	22.97	10.09	23.16	7.29	34.06	15.39	
March	26.33	16.51	25.66	13.26	25.90	10.02	33.25	16.76	
April	49.44	29.93	36.37	17.76	31.51	13.46	46.78	26.34	
May	49.45	30.07	34.77	19.25	35.62	17.48	63.56	36.06	
June	37.20	14.51	36.87	18.21	34.94	16.25	56.81	28.68	
July	21.57	8.01	31.18	18.20	36.01	14.44	49.92	23.56	
August	16.96	5.82	23.01	6.32	32.12	20.56	44.45	24.82	
September	23.30	11.21	22.07	7.36	72.27	48.05	66.32	42.26	
October	47.05	28.25	28.52	15.42	119.41	78.23	111.29	67.49	
November	38.41	18.20	33.11	16.25	57.42	25.05	88.87	47.02	
December	21.12	6.52	28.78	12.26	38.39	17.10	62.24	27.30	
DRIED CHILLIES (GRADE1):									
January	91.69	3493	76.83	3286	96.11	4060	123.68	5457	
February	74.60	3067	83.94	3698	95.2	3692	156.67	6337	
March	71.90	3326	100.48	4189	86.22	3351	158.64	6546	
April	75.86	3331	88.46	3256	84.09	3298	147.03	6295	
May	70.67	2605	71.15	2528	79.49	3010	137.06	5144	
June	68.65	2883	70.39	2739	88.53	3625	133.31	5179	
July	73.20	3278	80.63	3324	106.72	4419	133.98	5369	
August	79.34	3145	81.01	3332	105.43	4247	134.66	5488	
September	66.43	2444	77.25	3044	88.77	3472	111.08	4374	
October	62.50	2537	88.28	3697	91.65	3760	113.62	4718	
November	75.85	3221	88.64	3790	101.05	4266	139.06	5427	
December	76.47	3264	95.71	4137	105.13	4368	133.09	5407	
B' ONION :									
January	20.14	778	22.24	863	31.51	1217	49.07	1895	
February	19.42	766	18.26	741	31.72	1323	42.46	1650	
March	16.46	576	17.95	751	45.27	1500	36.91	1555	
April	17.00	721	18.64	778	29.31	1153	46.21	1696	
May	18.21	761	19.59	799	51.64	2033	36.82	1479	
June	17.89	759	19.75	792	39.26	1418	35.45	1459	
July	18.31	785	21.43	844	26.69	1005	38.23	1593	
August	18.39	737	22.61	867	23.32	903	34.81	1475	
September	18.04	642	17.92	606	23.41	772	30.03	1055	
October	18.19	717	16.72	585	30.48	1183	29.83	1034	
November	28.48	1080	40.75	1764	48.24	1907	36.09	1446	
December	36.33	1205	45.79	1914	45.72	1618	34.34	1277	
POTATOES (NUWARA ELIYA):									
January	20.98	890	28.27	1156	19.7	776	53.21	2069	
February	20.7	343	23.94	1022	21.03	846	48.74	1956	
March	19.45	824	23.13	900	23.25	931	47.79	2081	
April	23.3	1000	24.92	982	30.73	1292	52.87	2142	
May	24.54	1060	23.45	922	33.37	1398	50.72	2099	
June	25.92	1091	24.96	998	36.2	1454	50.81	2157	
July	25.6	1067	28.64	1147	39.42	1643	62.08	2707	
August	22.25	839	30.45	1238	30.39	1154	55.54	2345	
September	17.1	695	20.46	800	25.38	997	41.1	1597	
October	20.82	816	19.69	799	28.13	1178	36.98	1416	
November	27.3	1080	19.31	746	44.81	1786	41.14	1682	
December	29.59	1207	19.45	722	61.49	2427	41.9	1640	
POTATOES (WELIMADA):									
January	18.95	819	25.09	1052	17.89	678	49.08	1816	
February	18.42	749	21.04	917	18.54	745	45	1736	
March	17.42	737	19.9	782	20.39	783	44.57	1845	
April	20.35	896	22.86	875	27.58	1174	49.36	1925	
May	21.99	964	21.44	833	30.6	1264	47.11	1896	
June	23.86	997	22.66	918	33.62	1309	17.65	1958	
July	23.18	957	26.57	1084	36.22	1502	52.42	2075	
August	19.3	714	27.94	1032	26.38	983	50.15	2010	
September	14.56	555	18.27	647	22.04	849	30.46	1171	
October	18.78	720	18.18	698	25.39	1075	31.77	1240	
November	24.34	978	18.15	650	42.22	1749	37.58	1497	
December	26.46	1126	17.94	637	57.69	2223	39.17	1562	

Table 2.1-5 PRESENT POSITION OF RURAL ROAD IN THE CASE STUDY AREA-I

Case Study Area-I

District	Division	Existing Road Length (km) Class A	Class B	Class C	Class D	Total (A+B+C+D)	Class E	Road Density (km/km2)	(Popla/km)
Kandy	Kundasale	19.0	11.2	66.7	21.4	118.3	75.0	1.47	860
	Meda Dumbara	19.5	8.4	51.0	32.9	111.8	20.0	0.87	508
	Uda Dumbara	19.0	0.0	64.0	60.0	143.0	80.0	1.56	175
Nuwara Eliya	Hanguranketa	0.0	37.1	82.0	38.0	157.1	50.0	1.03	611
	Walapane	0.0	62.3	112.0	40.5	214.8	52.8	1.18	516
Badulla	Uva Paranagama	0.0	32.0	57.0	40.0	129.0	44.0	1.11	566
	Haliela	25.0	25.0	65.0	8.0	123.0	50.0	0.90	724
	Welimada	23.2	29.6	58.8	48.6	160.2	40.0	1.36	496
	Kandaketiya	0.0	10.0	30.0	65.0	105.0	100.0	0.87	225
	Total	**105.7**	**215.6**	**586.5**	**354.4**	**1262.2**	**511.8**	**1.12**	**519**
The Study Area		**1247.0**	**2030.3**	**3365.5**	**2762.5**	**9405.3**	**7350.6**	**0.80**	**557**

Table 2.1-6 PRESENT POSITION OF RURAL WATER SUPPLY IN THE CASE STUDY AREA-I

Case Study Area-I

District	Division	Total Families	Beneficiaries (Families) Piped Scheme Families (%)	Hand Pump Families (%)	Dug Well Families (%)	Total	Coverage Rate (%)
Kandy	Kundasale	19,080	1,950 (13.6%)	5,900 (41.0%)	6,530 (45.4%)	**14,380**	75.4%
	Meda Dumbara	13,530	1,270 (19.9%)	370 (5.8%)	4,730 (74.3%)	**6,370**	47.1%
	Uda Dumbara	5,960	900 (25.9%)	0 (0.0%)	2,580 (74.1%)	**3,480**	58.4%
Nuwara Eliya	Hanguranketa	19,790	2,840 (28.6%)	0 (0.0%)	7,080 (71.4%)	**9,920**	50.1%
	Walapane	20,520	2,430 (39.6%)	0 (0.0%)	3,710 (60.4%)	**6,140**	29.9%
Badulla	Uva Paranagama	16,990	800 (17.5%)	900 (19.7%)	2,880 (62.9%)	**4,580**	27.0%
	Haliela	16,120	1,840 (30.1%)	1,680 (27.5%)	2,600 (42.5%)	**6,120**	38.0%
	Welimada	18,870	2,280 (25.8%)	180 (2.0%)	6,380 (72.2%)	**8,840**	46.8%
	Kandaketiya	5,140	900 (32.1%)	250 (8.9%)	1,650 (58.9%)	**2,800**	54.5%
	Total	**136,000**	**15,210 (23.9%)**	**9,280 (14.6%)**	**39,140 (61.5%)**	**63,630**	**46.8%**
The Study Area		**1,077,028**	**128,757 (19.0%)**	**91,739 (13.6%)**	**455,659 (67.4%)**	**676,155**	**62.8%**

Table 2.1-7 PRESENT POSITION OF RURAL ELECTRIFICATION IN THE CASE STUDY AREA-I

Case Study Area-I

District	Division	Total Families	Consumers Families	Consumers Rate(%)	Electricity Line Density MT Line (km/km2)	Electricity Line Density LT Line (km/km2)
Kandy	Kundasale	19,080	9,650	(50.6%)	0.72	3.10
	Meda Dumbara	13,530	1,470	(10.9%)	0.33	0.37
	Uda Dumbara	5,960	1,000	(16.8%)	0.06	0.22
Nuwara Eliya	Hanguranketa	19,790	3,430	(17.3%)	0.36	0.66
	Walapane	20,520	2,440	(11.9%)	0.25	0.45
Badulla	Uva Paranagama	16,990	4,970	(29.3%)	0.27	1.56
	Haliela	16,120	4,490	(27.9%)	0.34	1.28
	Welimada	18,870	5,710	(30.3%)	0.33	2.08
	Kandaketiya	5,140	1,190	(23.2%)	0.20	0.38
	Total	**136,000**	**34,350**	**(25.3%)**	**0.28**	**1.02**
The Study Area		**1,077,028**	**250,630**	**(23.3%)**	**0.20**	**0.68**

Table 2.2-1 LIST OF CANDIDATE AGRICULTURAL FEEDER ROADS IN THE CASE STUDY AREA-I

Case Study Area-I

District	Division	Serial No.	Name of Agricultural Feeder Roads	Class	Length (km)
Kandy	**Kundasale**	I-1	Orutota-Naranpanawa Rd	E	7.5
		I-2	Maluwegama-Karagastenna (via Elamalpotha) Rd	C	3.0
		I-3	Ihalagonagama-Udagama-Menikhinna Rd	D	4.0
	Sub-total				**14.5**
	Meda Dumbara	I-4	Udispattuwa-Retiyagama-Metideniya Rd	E	7.0
		I-5	Werapitiya-Elliyadda Rd	E	2.0
	Sub-total				**9.0**
	Uda Dumbara	I-6	Loolwatta-Corberts Gap-Meemura Rd	E	17.1
		I-7	Madugalla-Kalawala-Pitigoda-Pamunutenna Rd	D,E	10.0
		I-8	Rangala-Corberts Gap Rd	D	11.5
	Sub-total				**38.6**
Nuwara Eliya	**Hanguranketa**	I-9	Maturata-Mandarannuwara Rd	E	6.0
		I-10	Kitulpe-Bambaragama-Karamiddula-Kirimetiya Rd	E	9.0
		I-11	Kosgahadebala-Unantenna Rd	D	3.0
		I-12	Handawalapitiya-Wetastenna-Delpathkada Rd	E	6.0
		I-13	Kitulpola-Silwathgama-Medenpitiya(Agapolla) Rd	E	5.0
		I-14	Pallebowala-Medagama Rd	E	3.0
	Sub-total				**32.0**
	Walapane	I-15	Teripehe-Bolagandawela (Uma oya) Rd (to Kandaketiya Div.)	E	6.7
		I-16	Teripehe-Randenigala Rd	E	6.0
		I-17	Yatimadura-Bolagandawela (Uma oya) Rd (to Kandaketiya Div.)	E	6.0
		I-18	Rupaha-Kurupanawela Rd	E	4.0
		I-19	Panditagekumbura-Rupaha Rd	E	4.0
	Sub-total				**26.7**
Badulla	**Uva Paranagama**	I-20	Hakgala-Medawela-Udunawara-Amherst Rd	E	20.2
		I-21	Bambarapana-Horatota Rd (to Haliela Div.)	E	9.1
		I-22	Yahalawara-Metiwala Kanda-Loonuwatta Rd	C	10.0
		I-23	Hathkinda-Godunna (via Galaniha) Rd	C	10.0
	Sub-total				**49.3**
	Haliela	I-24	Ketawela-Panakanniya-Horatota Rd (to Uva Paranagama Div.)	E	8.2
		I-25	Ettampitiya-Horatota Rd (to Uva Paranagama Div.)	E	4.0
		I-26	Bogoda-Halaba Rd	D	5.0
	Sub-total				**17.2**
	Welimada	I-27	Boralanda-Kandepuhlpola-Rahangala-Wangiyakumbura Rd	E	8.0
		I-28	Tawana-Kiriwelbedda-Warwick-Ambewela rail station Rd	E	6.0
		I-29	Kirindiela-Getalagamuwa-Alawatugoda Rd	E	4.0
		I-30	Galedanda-Aluthwela Rd	E	5.0
		I-31	Sapukade-Ambagahakumbura-Welimada Rd	E	2.0
	Sub-total				**25.0**
	Kandeketiya	I-32	Tithawelkandura-Balagandawela Rd (to Walapane Div.)	E	4.0
		I-33	Kandeketiya-Raja Mawatha-Mahakele Rd	D	6.0
		I-34	Karametiya-Kandeketiya-Kosgolla(Wasnagama) Rd	C,E	10.0
	Sub-total				**20.0**
Case Study Area-I Total					232.3

Table 2.2-2 LIST OF AGRICULTURAL FEEDER ROAD PROJECTS IN THE CASESTUDY AREA-I

Casestudy Area-I

District	Division	Serial No.	Name of Agricultural Feede road	Class	Length (km)
Kandy	Kundasale	I-1	Orutota-Naranpanawa Rd	E	7.5
	Meda Dumbara	I-4	Udispattuwa-Retiyagama-Metideniya Rd	E	7.0
	Uda Dumbara	I-6	Loolwatta-Corberts Gap-Meemura Rd	E	17.1
		I-7	Madugalla-Kalawala-Pitigoda-Pamunutenna Rd	D, E	10.0
Nuwara Eliya	Hanguranketa	I-9	Maturata-Mandarannuwara Rd	E	6.0
		I-10	Kitulpe-Bambaragama-Karamiddula-Kirimetiya Rd	E	9.0
	Walapane	I-15	Teripehe-Bolagandawela (Uma oya) Rd (to Kandaketiya Div.)	E	6.7
		I-16	Teripehe-Randenigala Rd	E	6.0
Badulla	Uva Paranagama	I-20	Hakgala-Medawela-Udunawara-Amherst Rd	E	20.2
		I-21	Bambarapana-Horatota Rd (to Haliela Div.)	E	9.1
	Haliela	I-24	Ketawela-Panakanniya-Horatota Rd (to Uva Paranagama Div.)	E	8.2
		I-25	Ettampitiya-Horatota Rd (to Uva Paranagama Div.)	E	4.0
	Welimada	I-27	Boralanda-Kandepuhlpola-Rahangala-Wangiyakumbura Rd	E	8.0
		I-28	Tawana-Kiriwelbedda-Warwick-Ambewela rail station Rd	E	6.0
	Kandeketiya	I-32	Tithawelkandura-Bolagandawela Rd (to Walapane Div.)	E	4.0
Casestudy Area-I Total					**128.8**

Table 2.3-1 PRESENT CONDITION OF THE PROPOSED AGRICULTURAL FEEDER ROAD PROJECTS IN THE CASESTUDY AREA-I

Serial No.	Class	District	Division	Benefited Grama Niladhari Divisions	Total Length (km)	Road Condition (km) Tarred fair	Tarred bad	Earth/Stone gravel	Foot-path	Maxiam Average Slope(%)	Existing Bridge (Nos.)
I-1	E	Kandy	Kundasale	1.Orutota, 2.Maluwegama, 3.Naranpanawa	7.5	0.0	0.0	2.5	5.0	2.3	0
I-4	E	Kandy	Meda Dumbara	1.Kurukohogama, 2.Retiyagama, 3.Kandekumbura, 4.Hatiyalwela, 5.Namadagoda, 6.Metideniya	7.0	2.8	0.6	1.6	2.0	6.0	5
I-6	E	Kandy	Uda Dumbara	1.Karambaketiya, 2.Kumbukgolla, 3.Pusseela, 4.Kaikawala, 5.Meemura	17.1	0.0	8.7	8.4	0.0	8.8	5
I-7	D, E	Kandy	Uda Dumbara	1.Madugalla, 2.Kalawala, 3.Pitigoda, 4.Pamunutenna, 5.Ganegala	10.0	0.0	1.3	2.9	5.8	10.0	0
I-9	E	Nuwara Eliya	Hanguranketa	1.Ampitigoda, 2.Wellagiriya, 3.Matibambiya, 4.Labuhenwela	6.0	0.0	0.0	4.9	1.1	9.0	3
I-10	E	Nuwara Eliya	Hanguranketa	1.Kitulpe, 2.Pallabowela, 3.Bambaragama, 4.Karamiddula, 5.Kirimetiya	9.0	0.0	4.0	3.7	1.3	6.9	3
I-15	E	Nuwara Eliya	Walapane	1.Teripehe, 2.Bolagandawela	6.7	0.6	0.0	2.0	4.1	7.9	0
I-32	E	Badulla	Kandeketiya	1.Tithawelkandura, 2.Dikkumbura	4.0	0.0	0.0	2.2	1.8	4.3	1
I-16	E	Nuwara Eliya	Walapane	1.Teripehe, 2.Mallagama, 3.Hegasulla, 4.Ambagahathenna, 5.Dulana	6.0	0.0	0.0	0.0	6.0	9.8	0
I-20	E	Badulla	Uva Paranagama	1.Boragas, 2.Galahagama, 3.Telhawadigama, 4.Medawela, 5.Karagahaulpota, 6.Hangunnawa, 7.Dimbulwala, 8.Kordekubura, 9.Mlapolagama,	20.2	5.3	10.9	4.0	0.0	8.4	9
I-21	E	Badulla	Uva Paranagama	1.Bambarapana, 2.Pitiyekumbura, 3.Panagoda, 4.Tuppitiya	9.1	0.0	0.2	3.8	5.1	11.1	0
I-24	E	Badulla	Haliela	1.Ketawela, 2.Landewela, 3.Bogoda, 4.Panakanniya	8.2	0.0	3.0	3.7	1.5	13.8	0
I-25	E	Badulla	Haliela	1.Gawela, 2.Tupptiya	4.0	0.0	0.0	1.5	2.5	5.3	1
I-27	E	Badulla	Welimada	1.Wangiyakumbura, 2.Kandepuhlpola, 3.Boralanda	8.0	0.0	1.3	6.7	0.0	3.0	2
I-28	E	Badulla	Welimada	1.Ambewela	6.0	0.0	3.3	1.7	1.0	9.0	0
Case Study Area-I Total					**128.8**	**8.7**	**33.3**	**49.6**	**37.2**		**29**

Table 2.3-2 VOLUME OF CONSTRUCTION FOR AGRICULTURAL FEEDER ROAD PROJECTS IN THE CASESTUDY AREA-I

Serial No.	District	Division	Class	Total Length (m)	Road Pavement (m) Type-A	Type-B	Type-C	Type-D	Side drain (m) Type-I Concrete	Type-II Unlining	Culvert (Nos.) Box W=2m	Box W=3m	Pipe ¢ 600	Bridge (Nos.)	Causeway Stream (Nos.) L=5m	L=10m	River (m)	Retainingwall (m) Type-a (H=3m)	Type-b (H=5m)	Road Windening (Nos.)	Passing Place (Nos.)	Existing Bri/Cause (Nos.)	Earth Work Cut (m3)	Bank (m3)	Turfing (m2)	Land Acquisition (m2)
I-1	Kandy	Kundasale	E	7,500	0	7,500	0	0	1,035	6,465	6	1	25	0	0	0	0	480	0	0	25	0	41,600	20,750	55,550	43,400
I-4	Kandy	Meda Dumbara	E	7,000	0	4,200	1,800	1,000	1,000	6,000	5	0	20	1	5	2	0	700	200	2	24	5	36,128	13,280	45,584	32,132
I-6	Kandy	Uda Dumbara	E	17,055	785	16,270	0	0	11,305	5,750	14	7	78	0	1	1	0	1,450	1,600	26	57	5	104,590	69,720	149,507	129,697
I-7	Kandy	Uda Dumbara	D,E	10,000	1,200	5,300	3,400	0	3,170	6,730	3	2	43	0	0	2	100	1,200	250	2	34	0	53,872	24,070	70,366	52,918
I-9	Nuwara Eliya	Hanguranketa	E	6,000	0	6,000	0	0	1,000	5,000	5	3	20	0	2	1	0	510	570	5	20	3	43,952	40,670	69,206	67,838
I-10	Nuwara Eliya	Hanguranketa	E	9,000	1,100	7,900	0	0	2,900	6,100	7	3	30	0	0	1	0	700	100	7	30	3	52,496	30,710	72,638	60,074
I-15	Nuwara Eliya	Walapane	E	6,665	1,780	4,210	0	575	3,090	3,475	4	5	19	0	0	1	100	700	100	4	23	0	36,153	16,600	47,472	36,037
I-32	Badulla	Kandeketiya	E	3,980	495	3,485	0	0	1,280	2,700	1	1	17	0	0	1	0	650	150	0	14	1	25,290	18,260	36,937	33,004
I-16	Nuwara Eliya	Walapane	E	6,000	250	5,750	0	0	3,500	2,500	4	2	25	0	3	0	0	500	0	0	20	0	48,000	49,800	78,600	80,400
I-20	Badulla	Uva Paranagama	E	20,220	1,495	10,500	6,550	1,675	10,095	10,125	10	2	59	0	0	1	0	1,500	200	15	68	9	102,070	33,200	126,363	85,716
I-21	Badulla	Uva Paranagama	E	9,105	2,580	6,425	0	0	4,580	4,425	5	0	34	0	1	8	100	1,550	350	3	31	0	53,318	31,540	73,971	61,424
I-24	Badulla	Haliela	E	8,245	520	7,725	0	0	3,445	4,800	4	0	47	0	0	0	0	700	200	8	28	0	49,234	30,710	69,195	58,579
I-25	Badulla	Haliela	E	4,000	250	3,750	0	0	1,700	2,300	2	0	20	0	1	0	0	340	100	4	14	1	22,800	12,450	31,050	25,050
I-27	Badulla	Welimada	E	8,000	300	7,700	0	0	1,250	6,750	8	2	20	0	3	1	0	200	0	0	27	2	59,216	55,610	93,698	92,354
I-28	Badulla	Welimada	E	6,000	1,600	4,400	0	0	2,800	3,200	10	4	15	0	0	2	0	650	100	8	20	0	32,176	14,110	41,878	31,294
Casestudy Area I Total				128,770	12,355	101,115	11,750	3,250	52,150	76,320	88	32	472	1	16	21	300	11,830	3,920	84	435	29	760,895	461,480	1,062,015	889,917

Table 2.3-3 Cost Estimation of Madugoda Farm Land Conservation Model Scheme (32%--15%, SALT, Drain)

Description of Works	Unit	Length(m)	Quantity	Foreign Cur'cy(Rs.) Unit P.	Foreign Cur'cy(Rs.) Amount	Local Cur'cy(Rs.) Unit P.	Local Cur'cy(Rs.) Amount	Total Cost (Rs.) Unit P.	Total Cost (Rs.) Amount
A Bench Terracing (2.5m)		578	-	-	673,286	-	1,587,259	-	2,260,545
(1) Earth works	m3	-	6,509	77.90	258,000	33.30	110,279	111.20	368,280
a) Excavation for retaining wall	m3	-	3,484	48.70	169,680	20.80	72,471	69.50	242,151
b) Backfill	m3	-	3,025	29.20	88,320	12.50	37,808	41.70	126,129
(2) Retaining wall works (masonry)	m3	-	749	404.90	303,072	1,619.80	1,212,436	2,024.70	1,515,508
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	112,214	-	264,543	-	376,758
B. Intercepting Drain		2,719	-	-	11,917	-	5,090	-	17,007
(1) Earth works (excavation)	m3	-	204	48.70	9,931	20.80	4,242	69.50	14,173
(2) Miscellaneous works (20% of (1))	set	-	-	-	1,986	-	848	-	2,835
C-1 Collecting Drain (0.9x0.9m)		17	-	-	8,751	-	21,447	-	30,198
(1) Earth works	m3	-	69	77.90	3,162	33.30	1,351	111.20	4,513
a) Excavation	m3	-	59	48.70	2,889	20.80	1,234	69.50	4,123
b) Backfill	m3	-	9	29.20	273	12.50	117	41.70	390
(2) Rubble riprap	m3	-	10	404.90	4,130	1,619.80	16,522	2,024.70	20,652
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	1,458	-	3,575	-	5,033
C-2 Collecting Drain (0.8x0.7m)		174	-	-	77,599	-	193,262	-	270,861
(1) Earth works	m3	-	596	77.90	27,326	33.30	11,674	111.20	39,000
a) Excavation	m3	-	509	48.70	24,786	20.80	10,586	69.50	35,372
b) Backfill	m3	-	87	29.20	2,540	12.50	1,088	41.70	3,628
(2) Rubble riprap	m3	-	92	404.90	37,340	1,619.80	149,378	2,024.70	186,718
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	12,933	-	32,210	-	45,144
C-3 Collecting Drain (0.7x0.7m)		175	-	-	72,273	-	182,792	-	255,065
(1) Earth works	m3	-	541	77.90	24,799	33.30	10,594	111.20	35,393
a) Excavation	m3	-	462	48.70	22,499	20.80	9,610	69.50	32,109
b) Backfill	m3	-	79	29.20	2,300	12.50	984	41.70	3,284
(2) Rubble riprap	m3	-	88	404.90	35,429	1,619.80	141,733	2,024.70	177,161
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	12,046	-	30,465	-	42,511
C-4 Collecting Drain (0.5x0.5m)		74	-	-	25,809	-	67,556	-	93,365
(1) Earth works	m3	-	181	77.90	8,324	33.30	3,556	111.20	11,880
a) Excavation	m3	-	155	48.70	7,568	20.80	3,232	69.50	10,800
b) Backfill	m3	-	26	29.20	756	12.50	324	41.70	1,080
(2) Rubble riprap	m3	-	33	404.90	13,184	1,619.80	52,741	2,024.70	65,924
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	4,302	-	11,259	-	15,561
D. River Protection Works		8	-	-	25,942	-	90,573	-	116,515
(1) Earth works	m3	-	69	77.90	3,080	33.30	1,316	111.20	4,396
a) Excavation	m3	-	55	48.70	2,679	20.80	1,144	69.50	3,823
b) Backfill	m3	-	14	29.20	402	12.50	172	41.70	573
(2) Gabion works	m3	-	36	514.95	18,538	2,060.05	74,162	2,575.00	92,700
(3) Miscellaneous works (20% of (1) to (3))	m3	-	-	-	4,324	-	15,096	-	19,419
E. Project Cost of SALT Method		2,141	-	-	47,219	-	190,934	-	238,153
(1) Randam rubble masonry works	m3	-	193	202.45	39,010	809.90	156,060	1,012.35	195,070
(2) Tree Planting	m3	-	193	1.76	339	15.84	3,052	17.60	3,391
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	7,870	-	31,822	-	39,692
Sub-total		-	-	-	942,797	-	2,338,914	-	3,281,711
		Length(m)							
F. Road Protection Works		120	-	-	523,753	-	1,211,348	-	1,735,102
(1) Earth works	m3	-	5,150	77.90	206,154	33.30	88,115	111.20	294,269
a) Excavation for retaining wall	m3	-	2,860	48.70	139,263	20.80	59,480	69.50	198,742
b) Backfill	m3	-	2,291	29.20	66,891	12.50	28,635	41.70	95,526
(2) Retaining wall works (masonry)	m3	-	569	404.90	230,307	1,619.80	921,342	2,024.70	1,151,649
(3) Miscellaneous works (20% of (1) to (2))	set	-	-	-	87,292	-	201,891	-	289,184
Grand Total		-	-	-	1,466,551	-	3,550,262	-	5,016,813
Total Area	ha	3.38	-	-	-	-	-	-	-
Unit Cost per ha (Sub-total/Total Area)	Rs./ha		-	-	278,934	-	691,986	-	970,920

Table 2.3-4 Cost Estimation of Hakgala Farm Land Conservation Model Scheme (45%--15%, SALT, Drain)

Description of Works	Unit	Length(m)	Quantity	Foreign Cur'cy(Rs.) Unit P.	Foreign Cur'cy(Rs.) Amount	Local Cur'cy(Rs.) Unit P.	Local Cur'cy(Rs.) Amount	Total Cost (Rs.) Unit P.	Total Cost (Rs.) Amount
A Bench Terracing (3.0m)		620	-	-	883,275	-	2,358,071	-	3,241,345
(1) Earth works	m3	-	7,025	77.90	274,152	33.30	117,191	111.20	391,343
a) Excavation for retaining wall	m3	-	3,540	48.70	172,408	20.80	73,636	69.50	246,044
b) Backfill	m3	-	3,484	29.20	101,744	12.50	43,555	41.70	145,299
(2) Retaining wall works (masonry)	m3	-	1,141	404.90	461,910	1,619.80	1,847,868	2,024.70	2,309,778
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	147,212	-	393,012	-	540,224
B. Intercepting Drain		2,494	-	-	5,830	-	2,490	-	8,320
(1) Earth works (excavation)	m3	-	100	48.70	4,858	20.80	2,075	69.50	6,933
(2) Miscellaneous works (20% of (1))	set	-	-	-	972	-	415	-	1,387
C-1 Collecting Drain (0.8x0.8m)		108	-	-	50,004	-	124,491	-	174,495
(1) Earth works	m3	-	383	77.90	17,619	33.30	7,527	111.20	25,145
a) Excavation	m3	-	329	48.70	16,042	20.80	6,852	69.50	22,893
b) Backfill	m3	-	54	29.20	1,577	12.50	675	41.70	2,252
(2) Rubble riprap	m3	-	59	404.90	24,051	1,619.80	96,216	2,024.70	120,267
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	8,334	-	20,749	-	29,082
C-2 Collecting Drain (0.7x0.7m)		261	-	-	107,790	-	272,621	-	380,411
(1) Earth works	m3	-	806	77.90	36,986	33.30	15,800	111.20	52,786
a) Excavation	m3	-	689	48.70	33,556	20.80	14,332	69.50	47,888
b) Backfill	m3	-	117	29.20	3,430	12.50	1,468	41.70	4,898
(2) Rubble riprap	m3	-	131	404.90	52,839	1,619.80	211,384	2,024.70	264,223
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	17,965	-	45,437	-	63,402
C-3 Collecting Drain (0.6x0.6m)		50	-	-	18,237	-	46,855	-	65,092
(1) Earth works	m3	-	133	77.90	6,087	33.30	2,600	111.20	8,688
a) Excavation	m3	-	113	48.70	5,503	20.80	2,350	69.50	7,854
b) Backfill	m3	-	20	29.20	584	12.50	250	41.70	834
(2) Rubble riprap	m3	-	23	404.90	9,110	1,619.80	36,446	2,024.70	45,556
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	3,039	-	7,809	-	10,849
D. Project Cost of SALT Method		1,874	-	-	47,760	-	193,120	-	240,880
(1) Random rubble masonry works	m3	-	195	202.45	39,457	809.90	157,846	1,012.35	197,303
(2) Tree Planting	m3	-	195	1.76	343	15.84	3,087	17.60	3,430
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	7,960	-	32,187	-	40,147
Grand Total		-	-	-	1,112,895	-	2,997,648	-	4,110,543
Total Area	ha	2.42	-	-	-	-	-	-	-
Unit Cost per ha (Sub-total/Total Area	Rs./ha		-	-	459,874	-	1,238,698	-	1,698,571

Table3.1-1 Labour Force and Employment: Case Study Area-II

Case Study Area II

Division	Labour Force			Econ.Active	Total	Percent	Employment by Sector						Percent
	Male	Female	Total	Population	Employed	Employed	Agric	Est.Labour	Industry	Trading	Services	Other	Unemployed
Aranayake	23,179	23,402	46,581	30,278	12,020	40	7,300	2,600	1,050	750	320	1,200	60.30
Yatiyantota	32,780	32,703	65,483	42,564	30,710	72	5,656	6,512	4,104	872	836	12,730	27.85
Dehiowita	23,880	24,237	48,117	31,276	23,275	74	1,883	11,807	1,857	694	900	6,134	25.58
Deraniyagala	16,863	16,581	33,444	21,739	12,655	58	340	5,700	2,600	445	320	3,250	41.79
Eheliyagoda	21,678	20,199	41,877	27,220	15,983	59	30	1,991	4,680	1,273	1,574	6,435	41.28
Kuruwita	37,558	38,270	75,828	49,288	32,299	66	13,350	12,860	2,179	1,076	1,542	1,292	34.47
Ayagama	17,856	18,144	36,000	23,400	9,914	42	2,500	1,585	1,124	600	105	4,000	57.63
Elapatha	8,964	8,804	17,768	11,549	8,802	76	3,795	451	1,110	1,829	221	1,396	23.79
Total	182,758	182,340	365,098	237,314	146,858	62	34,854	43,506	18,704	7,539	5,818	36,437	38.12

Source: Divisional Resource Profiles; Inventory Survey (1993)

Table3.1-2 Social Infrastucture Facilities: Case Study Area-II

Division	Gross Area (a) km2	Population (b)	Number of Schools					Density		Number of Hospitals								Number of	Density	
			Primary School	Junir high School	Senir high School	College	Total (c)	Schls/1,000Ps 1000x (c)/(b)	km2/school (a)/(c)	Central Dispensary	Meternity Home	Rural Hospital	Periphera Hospital	District Hospital	Base Hospital	Provincia Hospital	Total (b)	Total Beds (c)	Hopls/1,000P 1000x (b)/(a)	Beds/1,000Ps 1000x (c)/(a)
Eheliyagoda	139.0	63,764	2	24	10	1	37	0.6	3.8	0	0	0	0	1	0	0	1	262	0.02	4.11
Kuruwita	263.1	109,141	17	23	10	3	53	0.5	5.0	2	1	1	1	0	0	0	5	10	0.05	0.09
Elapatha	55.1	34,766	NA	6	3	0	9	0.3	6.1	1	0	1	0	0	0	0	2	0	0.06	0.00
Ayagama	63.0	26,724	NA	21	3	1	25	0.9	2.5	0	1	0	1	0	0	0	2	36	0.07	1.35
Aranayaka	117.2	65,241	30	17	7	1	55	0.8	2.1	3	0	0	0	1	0	0	4	180	0.06	2.76
Yatiyantota	243.6	94,560	38	31	9	1	79	0.8	3.1	3	0	0	0	0	1	0	4	124	0.04	1.31
Deraniyagala	217.6	46,842	NA	39	5	1	45	1.0	4.8	2	0	0	0	1	0	0	3	93	0.06	1.99
Dehiowita	230.0	71,820	37	16	12	0	65	0.9	3.5	1	0	1	0	0	0	0	2	10	0.03	0.14

Division	Gross Area (a) km2	Population (b)	Number of Post Offices			Density km2/P.O. (a)/(c)	Number of Telephones (d)	Density Population/Telc (b)/(d)	Banking			Co-operative		
			General P.O.	Sub Office	Total (c)				Commercial eg. Bank	Rural Bank	Co-operati Bank	rift & Cr Co-op So	ulti-purpc -op Prima	Co-op Primaries
Eheliyagoda	139.0	63,764	3	13	16	8.7	NA	-	2		4	16	1	21
Kuruwita	263.1	109,141	3	14	17	15.5	95	1,148.9	4		8	15	1	22
Elapatha	55.1	34,766	0	7	7	7.9	NA	-			2	5		14
Ayagama	63.0	26,724	0	10	10	6.3	12	2,227.0	1			14		16
Aranayaka	117.2	65,241	1	10	11	10.7	68	959.4						
Yatiyantota	243.6	94,560	1	10	11	22.1	152	622.1	3	2		11	2	63
Deraniyagala	217.6	46,842	1	10	11	19.8	64	731.9						
Dehiowita	230.0	71,820	1	20	21	11.0	76	945.0	2			17	2	18

Table3.1-3 Extent Cultivated and Production of Paddy: Case Study Area-II

Kegalle

ASC Area	Extent to be Sown				Net Extent to be Sown				Yield mt/ha			Production (mt)			
	Major	Minor	Rainfed	Total	Major	Minor	Rainfed	Total	Major	Minor	Rainfed	Major	Minor	Rainfed	Total
Aranayake		532	922	1,454		494	855	1,349		3.5	3.5		1,729	2,993	4,722
Dehiowita		130	263	393		121	244	365		2.3	2.0		284	488	772
Deraniyagala		30	135	165		28	126	154		3.0	2.1		84	265	349
Yatiyantota		223	396	619		207	267	474		3.2	3.0		662	1,101	1,763
Maha Season Total	0	915	1,716	2,631	0	850	1,492	2,342				0	2,759	4,847	7,606
Aranayake		532	918	1,450		494	851	1,345		3.5	3.5		1,729	2,978	4,707
Dehiowita		130	263	393		119	244	363		2.3	2.0		280	488	768
Deraniyagala		16	100	116		15	93	108		2.8	2.5		42	233	275
Yatiyantota		218	390	608		202	317	519		3.2	3.0		646	951	1,597
Yala Season Total	0	896	1,671	2,567	0	830	1,505	2,335				0	2,697	4,650	7,347

Ratnapura District

ASC Area	Extent to be Sown				Net Extent to be Sown				Yield mt/ha			Production (mt)			
	Major	Minor	Rainfed	Total	Major	Minor	Rainfed	Total	Major	Minor	Rainfed	Major	Minor	Rainfed	Total
Eheliyagoda		660	314	974		555	263	818		3.5	2.8		1,943	737	2,680
Kuruwita		1,183	1,423	2,606		1,171	1,401	2,572		3.5	2.6		3,483	3,097	6,580
Elapatha	140	401	297	838	119	337	248	704	4.0	3.5	2.8	476	1,180	694	2,350
Ayagama		109	244	353		92	204	296		3.5	2.6		322	530	852
Maha Season Total	140	2,353	2,278	4,771	119	2,155	2,116	4,390					6,928	5,058	12,462
Eheliyagoda		660	314	974		554	261	815		3.3	2.7		1,828	705	2,533
Kuruwita		1,157	1,255	2,412		972	1,042	2,014		3.0	2.6		2,916	2,709	5,625
Elapatha	135	378	270	783	113	317	224	654	3.2	3.0	2.6	362	951	582	1,895
Ayagama		100	235	335		84	196	280		3.0	2.5		252	490	742
Yalaa Season Total	135	2,295	2,074	4,504	113	1,927	1,723	3,763				362	5,947	4,486	10,795

Table 3.1-4 PRESENT POSITION OF RURAL ROAD IN THE CASE STUDY AREA-II

Case Study Area-II

District	Division	Existing Road Length (km) Class A	Class B	Class C	Class D	Total (A+B+C+D)	Class E	Road Density (km/km2)	(Popla/km)
Kegalle	Aranayake	0.0	20.0	19.5	26.0	65.5	67.0	0.61	996
	Yatiyantota	25.0	25.0	60.0	60.0	170.0	93.0	0.83	556
	Dehiowita	13.6	29.1	27.4	21.0	91.1	97.7	0.40	788
	Deraniyagala	0.0	27.8	27.1	46.8	101.7	40.0	0.66	461
Ratnapura	Eheliyagoda	15.0	25.0	65.2	7.5	112.7	122.0	0.99	566
	Kuruwita	45.0	4.0	77.0	10.0	136.0	152.0	0.59	803
	Ayagama	0.0	32.0	22.0	64.0	118.0	45.0	0.97	226
	Elapatha	0.0	10.0	28.7	12.0	50.7	65.0	0.57	686
Total		**98.6**	**172.9**	**326.9**	**247.3**	**845.7**	**681.7**	**0.68**	**606**
The Study Area		**1247.0**	**2030.3**	**3365.5**	**2762.5**	**9405.3**	**7350.6**	**0.80**	**557**

Table 3.1-5 PRESENT POSITION OF RURAL WATER SUPPLY IN THE CASE STUDY AREA-II

Case Study Area-II

District	Division	Total Families	Beneficiaries (Families) Piped Scheme Families (%)	Hand Pump Families (%)	Dug Well Families (%)	Total	Coverage Rate (%)
Kegalle	Aranayake	16,080	1,200 (15.0%)	480 (6.0%)	6,300 (78.9%)	**7,980**	49.6%
	Yatiyantota	20,730	2,050 (20.0%)	80 (0.8%)	8,100 (79.2%)	**10,230**	49.3%
	Dehiowita	15,190	2,770 (25.6%)	130 (1.2%)	7,900 (73.1%)	**10,800**	71.1%
	Deraniyagala	9,560	720 (13.6%)	180 (3.4%)	4,380 (83.0%)	**5,280**	55.2%
Ratnapura	Eheliyagoda	14,230	2,120 (21.0%)	30 (0.3%)	7,960 (78.7%)	**10,110**	71.0%
	Kuruwita	21,830	1,450 (11.4%)	0 (0.0%)	11,260 (88.6%)	**12,710**	58.2%
	Ayagama	6,240	1,470 (38.4%)	0 (0.0%)	2,360 (61.6%)	**3,830**	61.4%
	Elapatha	7,510	1,270 (46.7%)	60 (2.2%)	1,390 (51.1%)	**2,720**	36.2%
Total		**111,370**	**13,050 (19.6%)**	**960 (1.4%)**	**52,550 (79.0%)**	**66,560**	**59.8%**
The Study Area		**1,077,028**	**128,757 (19.0%)**	**91,739 (13.6%)**	**455,659 (67.4%)**	**676,155**	**62.8%**

Table 3.1-6 PRESENT POSITION OF RURAL ELECTRIFICATION IN THE CASE STUDY AREA-II

Case Study Area-II

District	Division	Total Families	Consumers Families	Consumers Rate(%)	Electricity Line Density MT Line (km/km2)	Electricity Line Density LT Line (km/km2)
Kegalle	Aranayake	16,080	2,420	(15.0%)	0.35	0.99
	Yatiyantota	20,730	1,940	(9.4%)	0.26	0.39
	Dehiowita	15,190	2,510	(16.5%)	0.18	0.27
	Deraniyagala	9,560	750	(7.8%)	0.14	0.15
Ratnapura	Eheliyagoda	14,230	3,790	(26.6%)	0.23	0.66
	Kuruwita	21,830	3,710	(17.0%)	0.29	0.58
	Ayagama	6,240	380	(6.1%)	0.03	0.16
	Elapatha	7,510	1,150	(15.3%)	0.24	0.45
Total		**111,370**	**16,650**	**(15.0%)**	**0.21**	**0.43**
The Study Area		**1,077,028**	**250,630**	**(23.3%)**	**0.20**	**0.68**

Table 3.2-1 LIST OF CANDIDATE AGRICULTURAL FEEDER ROADS IN THE CASE STUDY AREA-II

Case Study Area-II

District	Division	Serial No.	Name of Agricultural Feeder Roads	Class	Length (km)
Kegalle	**Yatiyantota**	II-1	Undugoda(Sooriyamalgama)-Yatideriya-Uduwa-Dedugala Rd	E	8.5
		II-2	Dolosbage-Pelamapitiya Rd	E	5.5
		II-3	Kendawa-Doolgala-Polatagama Rd	E	12.0
		II-4	Jayawiddagama-Mugumiwila-Welihela (via Polpitiya) Rd	E	10.0
	Sub-total				**36.0**
	Dehiowita	II-5	Muruttettuwa-Kandewatta-Thimbiripola-Maniyangama Rd	E	7.0
		II-6	Attulugama-Kelegama-Napawela-Magammana Rd	D	10.0
		II-7	Elaulla-Humpitikanda-Demada-Kosgahakanda Rd	E	8.0
		II-8	Thelumpitiya-Welangalla-Bandarawatta-Madola-Seethawake Rd	D	10.0
	Sub-total				**35.0**
	Deraniyagala	II-9	Maliboda-Yatiwala Rd (to Kuruwita Div.)	E	5.5
		II-10	Talawa-Hingurana-Mahatenna-Polgaswatta Rd	E	9.0
		II-11	Pallebage-Lenudorakade-Nawala-Pahalagama Rd	E	8.0
	Sub-total				**22.5**
Ratnapura	**Eheliyagoda**	II-12	Minnana-Mitipola-Kiriporuwa-Erepola Rd	E	11.5
		II-13	Erepola-Kiriporuwa-Dammulla Rd	E	5.5
		II-14	Marabe-Huladdukanda-Jamburadeniya Rd	E	2.5
	Sub-total				**19.5**
	Kuruwita	II-15	Kuruwita-Erathna-Yatiwala Rd (to Deraniyagala Div.)	C	16.3
		II-16	Kuruwita-Halpe-Gorakaela Rd	C	9.5
		II-17	Kandagala-Teppanwewa-Gorakawela Rd	C	10.5
		II-18	Ellawala-Pitakanda Rd	D	9.0
	Sub-total				**45.3**
	Ayagama	II-19	Galatura-Ihalagalatura Rd	E	4.7
		II-20	Heraniyawaka-Nammuniyawatta-Medabeddara-Pallekade Rd	D	13.5
		II-21	Ayagama-Dumbara Manana-Ellagawa Rd	D	23.0
		II-22	Galatura-Kavichchikanda-Kandewatta-Ayagama Rd	D	12.0
	Sub-total				**53.2**
	Elapatha	II-23	Kotamulla-Raddella-Dambulwana-Kahawatta-Medagalatura Rd	C,E	8.0
		II-24	Palawela-Millawitiya-Dimiyawa Rd	C	8.0
	Sub-total				**16.0**
Case Study Area-II Total					**227.5**

Table 3.2-2 LIST OF AGRICULTURAL FEEDER ROAD PROJECTS IN THE CASESTUDY AREA-II

Casestudy Area-II

District	Division	Serial No. ìπòHñº		Class	Length (km)
Kegalle	Yatiyantota	II-1	Undugoda(Sooriyamalgama)-Yatideriya-Uduwa-Dedugala Rd	E	8.5
		II-2	Dolosbage-Pelamapitiya Rd	E	5.5
	Dehiowita	II-5	Muruttettuwa-Kandewatta-Thimbiripola-Maniyangama Rd	E	7.0
	Deraniyagala	II-9	Maliboda-Yatiwala Rd (to Kuruwita Div.)	E	5.5
Ratnapura	Eheliyagoda	II-12	Minnana-Mitipola-Kiriporuwa-Erepola Rd	E	11.5
	Kuruwita	II-15	Kuruwita-Erathna-Yatiwala Rd (to Deraniyagala Div.)	C	16.3
	Ayagama	II-19	Galatura-Ihalagalatura Rd	E	4.7
	Elapatha	II-23	Kotamulla-Raddella-Dambulwana-Kahawatta-Medagalatura Rd	C, E	8.0
Casestudy Area-II Total					**67.0**

Table 3.3-1 PRESENT CONDITION OF THE PROPOSED AGRICULTURAL FEEDER ROAD PROJECTS IN THE CASESTUDY AREA-II

Serial No.	Class	District	Division	Benefited Grama Niladhari Divisions	Total Length (km)	Road Condition (km) Tarred fair	Tarred bad	Earth/Stone gravel	Foot-path	Maxiam Average Slope(%)	Existing Bridge (Nos.)
II-1	E	Kegalle	Yatiyantota	1.Undugoda, 2.Sooriyamalgama, 3.Uduwa, 4.Dedugala	8.5	3.9	2.1	2.5	0.0	6.0	4
II-2	E	Kegalle	Yatiyantota	1.Dolosbage, 2.Werannawa, 3.Dedugala	5.5	0.0	0.0	5.5	0.0	6.0	0
II-5	E	Kegalle	Dehiowita	1.Algoda, 2.Batangala, 3.Thimbiripola, Maniyangama, 4.Galanbalankada	7.0	1.7	0.7	0.4	4.2	-	4
II-9	E	Kegalle	Deraniyagala	1.Yatiwala, 2.Maliboda	5.5	0.0	0.0	5.5	0.0	5.3	0
II-15	C	Ratnapura	Kuruwita	1.Kuruwita, 2.Eknaligoda, 3.Soodagala, 4.Lasakanda, 5.Erathna	16.3	3.7	6.8	5.8	0.0	7.6	10
II-12	E	Ratnapura	Eheliyagoda	1.Minnana, 2.Iddamalgoda, 3.Mitipola, 4.Kiriporuwa, 5.Erepola	11.5	3.7	4.5	3.3	0.0	7.4	3
II-19	E	Ratnapura	Ayagama	1.Galatura, 2.Pahalagalatura	4.7	0.0	0.5	0.0	4.2	0.6	0
II-23	C, E	Ratnapura	Elapatha	1.Kotamulla, 2.Karangoda, 3.Raddella, 4.Dambulwana, 5.Kahawatta, 6.Galatura	8.0	1.9	0.5	5.6	0.0	-	3
Case Study Area-II Total					**67.0**	**14.9**	**15.1**	**28.6**	**8.4**	**32.9**	**24**

Table 3.3-2 VOLUME OF CONSTRUCTION FOR AGRICULTURAL FEEDER ROAD PROJECTS IN THE CASESTUDY AREA-II

Serial No.	District	Division	Class	Total Length (m)	Road Pavement (m) Type-A	Type-B	Type-C	Type-D	Side drain (m) Type-I Concrete	Type-II Unlining	Culvert (Nos.) Box W=2m	Box W=3m	Pipe ¢ 600	Bridge (Nos.)	Causeway Stream (Nos.) L=5m	L=10m	River (m)	Retaining wall (m Type-a (H=3m)	Type-b (H=5m)	Road Windening (Nos.)	Passing Place (Nos.)	Existing Bri/Cause (Nos.)	Earth Work Cut (m3)	Bank (m3)	Turfing (m2)	Land Acquisition (m2)
II-1	Kegalle	Yatiyantota	E	8,500	500	4,500	3,500	0	2,300	6,200	15	3	20	0	2	2	0	1,000	300	7	29	4	18,360	0	19,380	8,415
II-2	Kegalle	Yatiyantota	E	5,500	500	4,000	1,000	0	1,300	4,200	6	4	15	0	0	0	0	500	100	3	19	0	11,880	0	12,540	5,445
II-5	Kegalle	Dehiowita	E	7,000	0	6,000	1,000	0	1,000	6,000	2	2	20	2	2	4	0	450	0	1	24	4	39,648	34,860	61,404	59,052
II-9	Kegalle	Deraniyagala	E	5,525	0	5,525	0	0	750	4,775	5	0	57	0	0	0	0	500	300	1	19	0	11,934	0	12,597	5,470
II-15	Ratnapura	Kuruwita	C	16,300	0	4,950	9,825	1,525	4,025	12,275	9	2	36	0	0	0	0	700	200	1	55	10	35,208	0	37,164	16,137
II-12	Ratnapura	Eheliyagoda	E	11,500	75	8,625	2,800	0	1,750	9,750	17	5	25	0	0	0	0	300	0	0	39	3	24,840	0	26,220	11,385
II-19	Ratnapura	Ayagama	E	4,710	0	4,710	0	0	650	4,060	9	2	12	0	0	0	0	300	0	0	16	0	34,702	34,860	56,183	56,785
II-23	Ratnapura	Elapatha	C,E	8,000	200	7,800	0	0	1,500	6,500	7	1	20	1	1	0	0	600	300	0	27	3	17,280	0	18,240	7,920
Casestudy Area II Total				67,035	1,275	46,110	18,125	1,525	13,275	53,760	70	19	205	3	5	6	0	4,350	1,200	13	228	24	193,852	69,720	243,728	170,609

Table 3.3-3 Cost Estimation of Pelanpetiya Farm Land Conservation Model Scheme (37%--15%, SALT, Drain)

Description of Works	Unit	Length(m)	Quantity	Foreign Cur'cy(Rs.) Unit P.	Foreign Cur'cy(Rs.) Amount	Local Cur'cy(Rs.) Unit P.	Local Cur'cy(Rs.) Amount	Total Cost (Rs.) Unit P.	Total Cost (Rs.) Amount
A Bench Terracing (2.5m)		482	-	-	500,466	-	1,297,563	-	1,798,029
(1) Earth works	m3	-	4,189	77.90	164,320	33.30	70,240	111.20	234,560
a) Excavation for retaining wall	m3	-	2,155	48.70	104,926	20.80	44,814	69.50	149,741
b) Backfill	m3	-	2,034	29.20	59,394	12.50	25,426	41.70	84,819
(2) Retaining wall works (masonry)	m3	-	624	404.90	252,735	1,619.80	1,011,063	2,024.70	1,263,797
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	83,411	-	216,261	-	299,671
B. Intercepting Drain		1,839	-	-	4,299	-	1,836	-	6,135
(1) Earth works (excavation)	m3	-	74	48.70	3,582	20.80	1,530	69.50	5,112
(2) Miscellaneous works (20% of (1))	set	-	-	-	716	-	306	-	1,022
C-1 Collecting Drain (0.9x0.9m)		136	-	-	70,007	-	171,580	-	241,587
(1) Earth works	m3	-	549	77.90	25,299	33.30	10,808	111.20	36,107
a) Excavation	m3	-	475	48.70	23,115	20.80	9,873	69.50	32,987
b) Backfill	m3	-	75	29.20	2,184	12.50	935	41.70	3,119
(2) Rubble riprap	m3	-	82	404.90	33,040	1,619.80	132,176	2,024.70	165,216
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	11,668	-	28,597	-	40,264
C-2 Collecting Drain (0.8x0.8m)		120	-	-	55,560	-	138,324	-	193,883
(1) Earth works	m3	-	426	77.90	19,576	33.30	8,363	111.20	27,939
a) Excavation	m3	-	366	48.70	17,824	20.80	7,613	69.50	25,437
b) Backfill	m3	-	60	29.20	1,752	12.50	750	41.70	2,502
(2) Rubble riprap	m3	-	66	404.90	26,723	1,619.80	106,907	2,024.70	133,630
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	9,260	-	23,054	-	32,314
C-3 Collecting Drain (0.7x0.7m)		68	-	-	28,083	-	71,028	-	99,111
(1) Earth works	m3	-	210	77.90	9,636	33.30	4,117	111.20	13,753
a) Excavation	m3	-	180	48.70	8,743	20.80	3,734	69.50	12,477
b) Backfill	m3	-	31	29.20	894	12.50	383	41.70	1,276
(2) Rubble riprap	m3	-	34	404.90	13,767	1,619.80	55,073	2,024.70	68,840
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	4,681	-	11,838	-	16,518
D. Project Cost of SALT Method		1,357.00	-	-	31,923	-	129,085	-	161,008
(1) Randam rubble masonry works	m3	-	130.27	202.45	26,374	809.90	105,507	1,012.35	131,881
(2) Tree Planting	m3	-	130.27	1.76	229	15.84	2,064	17.60	2,293
(3) Miscellaneous works (20% of (1) to (2)	set	-	-	-	5,321	-	21,514	-	26,835
Grand Total		-	-	-	690,337	-	1,809,416	-	2,499,753
Total Area	ha	2.14	-	-	-	-	-	-	-
Unit Cost per ha (Grand Total/Total A	Rs./ha		-	-	322,588	-	845,521	-	1,168,109

Table 4.3-1 LABOUR COST

Category	Description	Wages per day (8 hrs) Rs.
Unskilled Labour		90.00
Semi-skilled Labour		105.00
Skilled Labour A	Ordinary	120.00
Skilled Labour B	Carpenters,Masons,Welders	150.00
Skilled Labour C	Construction Machine Operator	230.00
Mechanics		150.00

Table 4.3-2 UNIT PRICE OF MAIN CONSTRUCTION MARETIALS

Materials	Specification/Size	Unit	Price(Rs.)	F/C (%)	L/C(%)
Cement	Normal Portland	50kg	175.00	60	40
Reinforcement bar	Mild Steel	ton	24,600.00	80	20
	Tor Steel	ton	26,750.00	80	20
Aggregate	50 mm	m3	377.70	30	70
	38 mm	m3	423.90	30	70
	25 mm	m3	472.70	30	70
	Sand	m3	105.90	30	70
Rubble Stone	150 ~ 225 mm	m3	284.70	30	70
Shuttering Planks	Class II,1"(25mm)	m2	190.00	30	70
	Class I,1"(25mm)	m2	300.00	30	70
Brick	Class A	pcs		20	80
Nail	Normal	kg		70	30
Sand	for pipe laying	m3	105.90	30	70
	for slow sand filter(upper)	m3	233.00	30	70
	for slow sand filter(lower)	m3	466.00	30	70
PVC pipe	25mm dia.	m	19.50	70	30
	40 mm dia.	m	38.60	70	30
	50 mm dia.	m	51.60	70	30
	75 mm dia.	m	122.30	70	30
	100 mm dia.	m	277.70	70	30
	150 mm dia.	m	392.40	70	30
	200mm dia.	m	522.10	70	30
	250mm dia.	m	810.00	70	30
	300mm dia.	m	1,145.40	70	30
Galvanized Iron Pipe	40 mm dia.	m	308.00	60	40
	50 mm dia.	m	440.20	60	40
	65 mm dia.	m	585.60	60	40
	80 mm dia.	m	693.30	60	40
	100 mm dia.	m	980.00	60	40
	125 mm dia.	m	1,310.40	60	40
	150 mm dia.	m	1,540.00	60	40
Galvanized iron pipe	250mm dia.	m	2,000.00	60	40
RCC Pipe	6"(150mm) dia.	m	226.00	60	40
	9"(220mm) dia.	m	285.00	60	40
	12"(300mm) dia.	m	384.00	60	40
	15"(380mm) dia.	m	535.00	60	40
	18"(450mm) dia.	m	614.00	60	40
	24"(600mm) dia.	m	938.00	60	40
	30"(760mm) dia	m	1,466.00	60	40
	36"(910mm) dia.	m	1,820.00	60	40
	42"(1,060mm) dia.	m	2,172.00	60	40
	48"(1,220mm) dia	m	2,792.00	60	40
	54"(1,370mm) dia.	m	3,248.00	60	40
Collar for RCC Pipe	6" dia.	each	59.00	60	40
	9"	each	73.00	60	40
	12"	each	91.00	60	40
	15"	each	154.00	60	40
	18"	each	181.00	60	40
	24"	each	249.00	60	40
	30"	each	396.00	60	40
	36"	each	441.00	60	40
	42"	each	532.00	60	40
	48"	each	675.00	60	40
	54"	each	812.00	60	40
Diesel	Heavy	l	11.10	80	20
	Auto	l	11.50	80	20
Gasoline(Petrol)	Regular	l	30.00	80	20
	Super	l		80	20
Bitumen	84/100	l	18.70	50	50
Emultion	CRS 2	l	14.60	50	50
	CRS 1	l	13.30	50	50

Table 4.3-3 UNIT COST OF CONSTRUCTION WORKS

Work	Specification		Unit	Cost (Rs.)	F/C (Rs.)	L/C (Rs.)
Excavation	Common	Mannual	m3	99.30	9.90	89.40
	Common	Machinery	m3	54.80	38.40	16.40
	Hard Soil	Mannual	m3	139.90	14.00	125.90
	Hard Soil	Machinery	m3	69.50	48.70	20.80
	Soft Rock	Mannual	m3	180.60	18.00	162.60
	Soft Rock	Machinery	m3	84.30	59.00	25.30
	Rock	Mannual	m3	293.50	29.40	264.10
	Rock	Machinery	m3	229.60	160.70	68.90
	Rock blasting		m3	422.90	296.00	126.90
Backfill	Common		m3	41.70	29.20	12.50
Embankment	Common, L=1.6 km		m3	101.60	71.10	30.50
Removal Soil	Common, L=1.6 km		m3	32.50	22.80	9.70
Levelling & trimming	for side drains		m2	1.40	0.30	1.10
Turfing			m2	13.80	2.10	11.70
Reinforced Concrete	1:2:4 (3/4), 210 kg/cm2,Mac		m3	3,011.30	1,806.80	1,204.50
	1:2:4(1 1/2),-do.-,Mach		m3	2,777.30	1,666.40	1,110.90
Concrete	1:3:6(1 1/2),180kg/cm2,Man		m3	2,585.60	1,551.40	1,034.20
	1:4:8, 150 kg/cm2,for leveling		m3	2,337.10	1,402.30	934.80
Mortar	1/2" thick(13mm), 1: 3		m2	107.20	64.30	42.90
Reinforcement	Mild Steel		ton	49,450.00	39,560.00	9,890.00
	Tor Steel		ton	53,370.00	42,696.00	10,674.00
Shuttering(Form)	for each 3 uses		m2	230.40	69.10	161.30
Brick Masonry	1: 5 ct.mortar, structure		m3	1,842.20	368.40	1,473.80
Randam Rubble Masonry	1: 5 ct.mortar, structure		m3	2,024.70	404.90	1,619.80
Gravel Bedding			m3	127.10	25.40	161.70
Gravel Paving	incl.loading,spreading &rolling		m3	212.60	42.50	170.10
Rubble Paving	pitched pave, 6"(150mm)thick		m2	106.00	21.20	84.80
Surface course	2 coats:3 little/m2		m2	62.40	18.70	43.70
Base course						
i) Concrete pavement	RCC:50kg/m3,L=4km		m3	5,934.90	3,560.90	2,374.00
			m2	774.00	415.00	359.00
ii) Tarred pavement	50mm(80%),18mm(20%),L=8km		m3	734.10	220.20	513.90
Subbase course	50mm dia,L=8km		m3	684.00	205.20	478.80
Breaking road surface	d=50mm		m2	6.30	1.90	4.40
Guard stone			nos	240.80	48.20	192.60
Handrail			m2	1,472.00	883.00	588.80
Concrete pipe	600mm dia. laying		m	1,755.00	1,053.00	702.00
Standpost			nos	1,812.90	725.20	1,087.70
Pump set (with electricity)			nos	500,000.00	400,000.00	100,000.00
Pump hut			m2	10,000.00	7,000.00	3,000.00
Pola building	Type-A		m2	7,500.00	3,000.00	4,500.00
	Type-B		m2	9,000.00	3,600.00	5,400.00
	Type-C		m2	15,000.00	6,000.00	9,000.00
	Type-D		m2	15,000.00	6,000.00	9,000.00
Office building			m2	12,000.00	4,800.00	7,200.00
Storage	Vegitables		m2	12,000.00	4,800.00	7,200.00
	Fertilizer/Chemical		m2	10,000.00	4,000.00	6,000.00
	Paddy seed		m2	10,000.00	4,000.00	6,000.00
Garage			m2	7,500.00	3,000.00	4,500.00
Fencing	H=1.8m		m	700.00	630.00	70.00

Table 4.3-4 PROJECT COST OF CASESTUDY AREAS

(Unit : 1,000 Rs.)

Works	Total Cost			Area-I			Area-II		
	F/C	L/C	Total	F/C	L/C	Total	F/C	L/C	Total
I. Construction Cost									
(1) Irrigation	156,652	78,863	235,515	111,807	53,203	165,010	44,845	25,660	70,505
(2) Agricultural Feeder Road	379,067	499,645	878,712	283,729	364,320	648,049	95,338	135,325	230,663
(3) Rural Water Supply	16,654	10,450	27,104	3,051	1,942	4,993	13,603	8,508	22,111
(4) Agricultural Promotion & Supporting Plan	192,075	153,707	345,782	99,653	93,182	192,835	92,422	60,525	152,947
(5) Farm Land Conservation	53,592	140,052	193,644	37,463	97,746	135,209	16,129	42,306	58,435
Total of Construction Cost	798,040	882,717	1,680,757	535,703	610,393	1,146,096	262,337	272,324	534,661
II. Land Acquisition	0	13,178	13,178	0	11,045	11,045	0	2,133	2,133
III. Engineering Cost	80,677	53,784	134,461	55,013	36,675	91,688	25,664	17,109	42,773
IV. Administration Costs	0	84,038	84,038	0	57,305	57,305	0	26,733	26,733
Sub-Total (II~IV)	80,677	151,000	231,677	55,013	105,025	160,038	25,664	45,975	71,639
V. Physical Contingency	119,707	132,408	252,115	80,356	91,559	171,915	39,351	40,849	80,200
Sub-Total (I~V)	998,424	1,166,125	2,164,549	671,072	806,977	1,478,049	327,352	359,148	686,500
VI. Price Contingency	86,376	401,020	487,396	45,555	218,005	263,560	40,821	183,015	223,836
Grand Total	1,084,800	1,567,145	2,651,945	716,627	1,024,982	1,741,609	368,173	542,163	910,336

Table 4.3-5 PROJECT COST OF CASESTUDY AREA-I

(Unit : 1,000 Rs.)

	Description		F/C	L/C	Total Cost
I.	**Construction Cost**				
I-1	Irrigation				
	(1) Uma Ela Irrigation Scheme	Command Area 766.0ha	111,807	53,203	165,010
I-2	Agricultural Feeder Road				
	(1) Orutota-Naranpanawa Rd.(I-1)	Class E : 7.5 km	11,894	14,761	26,655
	(2) Ratiyagama-Metideniya Rd.(I-4)	Class E : 7.0 km	12,208	17,541	29,749
	(3) Loolwatta-Meemuura Rd.(I-6)	Class E : 17.1 km	46,003	66,841	112,844
	(4) Madugalla-Pamunutena Rd.(I-7)	Class D/E : 10.0 km, Ma oya crossing	21,277	28,574	49,851
	(5) Maturata-Mandarannuwara Rd.(I-9)	Class E : 6.0 km	16,959	23,802	40,761
	(6) Kitulpe-Kirimetiya Rd.(I-10)	Class E : 9.0 km	18,283	21,783	40,066
	(7) Teripeha-Bolagandawela-Tithawelkandura Rd (I-15 & 32)	Class E : 10.7 km, Uma oya crossing	26,919	33,254	60,173
	(8) Teripeha-Randenigala Rd.(I-16)	Class E : 6.0 km	15,575	15,946	31,521
	(9) Hakgala-Amherst Rd.(I-20)	Class E : 20.2 km	31,838	40,805	72,643
	(10) Bambarapana-Horatota-Ketawela Rd. (I-21 & 24)	Class E : 17.3 km, Uma oya crossing	42,544	56,595	99,139
	(11) Ettampitiya-Horatota Rd.(I-25)	Class E : 4.0 km	7,774	10,584	18,358
	(12) Boralenda-Wangiyakumbura Rd.(I-27)	Class E : 8.0 km	17,230	16,546	33,776
	(13) Tawana-Ambewela RS Rd.(I-28)	Class E : 6.0 km	15,225	17,288	32,513
	Sub-Total		283,729	364,320	648,049
I-3	Rural Water Supply				
	(1) Watumulla W/S Scheme	Population : 1,780	3,051	1,942	4,993
I-4	Agricultural Promotion & Supporting Plan				
	(1) Produce Storage Facility Scheme				
	Hanguranketa	(600 ton storage)	7,625	5,227	12,852
	Walapane	(600 ton storage)	7,625	5,227	12,852
	Uva Paranagama	(2,000 ton storage)	15,789	12,070	27,859
	Ambagasdowa	(2,000 ton storage)	15,789	12,070	27,859
	Bogahakumbura	(2,400 ton storage)	16,566	13,237	29,803
	Boralenda	(2,400 ton storage)	16,566	13,237	29,803
	sub-total		79,960	61,068	141,028
	(2) Improvement Scheme of Pola Facility				
	Uda Dumbara		1,912	3,047	4,959
	Napolabokka		7,977	13,155	21,132
	Welimada		9,804	15,912	25,716
	sub-total		19,693	32,114	51,807
	Total		99,653	93,182	192,835
I-5	Farm Land Conservation				
	(1) Madugoda Priority Scheme	Land Area : 50 ha	14,470	35,811	50,281
	(2) Hakgala Priority Scheme	Land Area : 50 ha	22,993	61,935	84,928
	Total		37,463	97,746	135,209
I-6	Total of Construction Cost		535,703	610,393	1,146,096
II.	**Land Acquisition**	89.07 ha	0	11,045	11,045
III.	**Engineering Cost**		55,013	36,675	91,688
IV.	**Administration**		0	57,305	57,305
	Total (II~IV)		55,013	105,025	160,038
V.	**Physical Contingency**		80,356	91,559	171,915
	Total (I~V)		671,072	806,977	1,478,049
VI.	**Price contingency**		45,555	218,005	263,560
	Grand Total		716,627	1,024,982	1,741,609

Table 4.3-6 PROJECT COST OF CASESTUDY AREA-II

(Unit : 1,000 Rs.)

	Description		F/C	L/C	Total Cost
I.	**Construction Cost**				
I-1	Irrigation				
	(1) Damme Ela Irrigation Scheme	Command Area 167.9 ha	43,507	24,428	67,935
	(2) Issodanawela Irrigation Scheme	Command Area 46.3 ha	1,338	1,232	2,570
	Total		44,845	25,660	70,505
I-2	Agricultural Feeder Road				
	(1) Undugoda-Dedugala Rd.(II-1)	Class E : 8.5 km	14,736	22,273	37,009
	(2) Dolosbage-Pelanpitiya Rd.(II-2)	Class E : 5.5 km	8,548	12,251	20,799
	(3) Muruttettuwa- Maniyangama Rd.(II-5)	Class E : 7.0 km	13,081	15,184	28,265
	(4) Maliboda-Yatiwala-Kuruwita Rd.(II-9 &15)	Class C/E : 21.8 km	23,344	39,004	62,348
	(5) Minnana-Erepola Rd.(II-12)	Class E : 11.5 km	13,299	16,395	29,694
	(6) Galatura-Ihalagaratura Rd.(II-19)	Class E : 4.7 km	11,092	11,068	22,160
	(7) Kotamulla-Medagalatura Rd.(II-23)	Class C/E : 8.0 km	11,238	19,150	30,388
	Total		95,338	135,325	230,663
I-3	Rural Water Supply				
	(1) Kuruwita W/S Scheme	Population : 9,924	13,603	8,508	22,111
I-4	Agricultural Promotion & Supporting Plan				0
	(1) Fertilizer & Agro-chemical Storage Facility Improvement Scheme				
	Pelanpetiya		4,028	1,056	5,084
	Eheliyagoda		4,028	1,056	5,084
	Kuruwita		4,028	1,056	5,084
	Dodampe		4,028	1,056	5,084
	Gawaragiriya		4,028	1,056	5,084
	sub-total		20,140	5,280	25,420
	(2) Seed Paddy Storage Facility Improvement Scheme				
	Eheliyagoda		4,096	1,113	5,209
	Ayagama		4,096	1,113	5,209
	Dumbara/Manana		4,096	1,113	5,209
	Ketepola		4,096	1,113	5,209
	sub-total		16,384	4,452	20,836
	(3) Seed Paddy Multiplication Facility Improvement Scheme				
	Karapincha DTC		8,639	2,351	10,990
	(4) Agricultural Training Facilities Improvement Scheme				
	Karapincha DTC		12,481	9,864	22,345
	(5) Improvement Scheme of Pola Facility				
	Yatiyantota		10,728	16,302	27,030
	Talduwa		15,645	9,536	25,181
	Kuruwita		8,405	12,740	21,145
	sub-total		34,778	38,578	73,356
	Total		92,422	60,525	152,947
I-5	Farm Land Conservation				
	(1) Pelanpitiya Priority Scheme	Land area : 50 ha	16,129	42,306	58,435
I-6	Total of Construction Cost		262,337	272,324	534,661
II.	**Land Acquisition**	17.20 ha	0	2,133	2,133
III.	**Engineering Cost**		25,664	17,109	42,773
IV.	**Administration**		0	26,733	26,733
	Total (II~IV)		25,664	45,975	71,639
V.	**Physical Contingency**		39,351	40,849	80,200
	Total (I~V)		327,352	359,148	686,500
VI.	**Price contingency**		40,821	183,015	223,836
	Grand Total		368,173	542,163	910,336

Table 4.3-7 ANNUAL DISBURSEMENT SCHEDULE (CASESTUDY AREA I & II)

(Unit ; 1,000 Rs.)

Works	1st year			2nd year			3rd year			4th year			Total		
	F/C	L/C	Total	F/C	L/C	Total	F/C	L/C	Total	F/C	L/C	Total	F/C	L/C	Total
I. Construction cost															
I-1 Irrigation	44,723	21,281	66,004	67,084	31,922	99,006	17,403	9,771	27,174	27,442	15,889	43,331	156,652	78,863	235,515
I-2 Agri.feeder road	40,230	52,743	92,973	118,917	149,098	268,015	142,786	189,011	331,797	77,134	108,793	185,927	379,067	499,645	878,712
I-3 Rural water supply	0	0	0	0	0	0	3,051	1,942	4,993	13,603	8,508	22,111	16,654	10,450	27,104
I-4 Agri.P/S plan	9,888	9,324	19,212	61,869	59,761	121,630	49,614	41,843	91,457	70,704	42,779	113,483	192,075	153,707	345,782
I-5 F/L Conservation	3,832	10,322	14,154	21,573	57,582	79,155	14,746	36,893	51,639	13,441	35,255	48,696	53,592	140,052	193,644
sub-total	98,673	93,670	192,343	269,443	298,363	567,806	227,600	279,460	507,060	202,324	211,224	413,548	798,040	882,717	1,680,757
II. Land acquisition	0	5,523	5,523	0	5,522	5,522	0	2,133	2,133	0	0	0	0	13,178	13,178
III. Engineering cost	36,151	24,101	60,252	9,431	6,287	15,718	27,396	18,263	45,659	7,699	5,133	12,832	80,677	53,784	134,461
IV. Administration	0	17,192	17,192	0	20,056	20,056	0	28,076	28,076	0	18,713	18,713	0	84,037	84,037
V. Physical contingency	14,801	14,051	28,852	40,416	44,754	85,170	34,140	41,919	76,059	30,349	31,684	62,033	119,706	132,408	252,114
sub-total (I~V)	149,625	154,537	304,162	319,290	374,982	694,272	289,136	369,851	658,987	240,372	266,754	507,126	998,423	1,166,124	2,164,547
VI. Price contingency	4,788	17,926	22,714	20,754	91,871	112,625	28,624	144,242	172,866	32,210	146,981	179,191	86,376	401,020	487,396
FC : 3.2%/year															
LC : 11.6%/year															
Total	154,413	172,463	326,876	340,044	466,853	806,897	317,760	514,093	831,853	272,582	413,735	686,317	1,084,799	1,567,144	2,651,943

Table 6.2-1 IMPLEMENTATION OF ECONOMIC COST

Uma Ela (Unit: Rs. 1,000)

	F.C.	L.C.	T.C	1994 F.C	1994 L.C	1994 Sub-Total	1995 F.C	1995 L.C	1995 Sub-Total
1. Base Cost									
a) Construction Cost	111,807	39,902	151,709	44,723	15,961	60,684	67,084	23,941	91,025.57
b) Associatio Cost	8,945	9,380	18,325	3,578	3,752	7,330	5,367	5,628	10,994.77
c) Physical Contingency	16,771	5,985	22,756	6,708	2,394	9,103	10,063	3,591	13,653.84
Total	137,523	55,268	192,790	55,009	22,107	77,116	82,514	33,161	115,674.18

Damme Ela

	F.C.	L.C.	T.C	1996 F.C	1996 L.C	1996 Sub-Total	1997 F.C	1997 L.C	1997 Sub-Total
1. Base Cost									
a) Construction Cost	43,507	18,321	61,828	17,403	7,329	24,731	26,104	10,993	37,096.89
b) Associatio Cost	3,481	4,013	7,494	1,392	1,605	2,998	2,088	2,408	4,496.29
c) Physical Contingency	6,526	2,748	9,274	2,610	1,099	3,710	3,916	1,649	5,564.53
Total	53,513	25,083	78,596	21,405	10,033	31,438	32,108	15,050	47,157.72

Issodawela

	F.C.	L.C.	T.C	1996 F.C	1996 L.C	1996 Sub-Total	1997 F.C	1997 L.C	Sub-Total
1. Base Cost									
a) Construction Cost	1,088	690	1,778	0	0	0	1,088	690	1,778.26
b) Associatio Cost	87	131	218	0	0	0	87	131	217.57
c) Physical Contingency	163	104	267	0	0	0	163	104	266.74
Total	1,338	924	2,263	0	0	0	1,338	924	2,262.57

Table 6.2-2 IRRIGATION BENEFITS

Item	Uma Ela			Damme Ela		Issodanawela	
	With Project Condition	Without Project Condition		With Project Condition	Without Project Condition	With Project Condition	Without Project Condition
		Irrigated	Rainfed				
CultivatedArea (ha)							
Paddy	366	170	173	336	184	92	45
Potato	766	259					
Vegetables	1,166	348	434				
Total	2,298	777	607	336	184	92	45
Economic Value (Rs. 1,000)							
Paddy	5,746	2,669	952	5,275	1,198	1,444	170
Potato	55,193	39,057					
Vegetables	118,278	35,018	20,971				
Total	179,217	76,744	21,923	5,275	1,198	1,444	170
Economic Benefit (Rs. 1,000)							
Total			80,550		4,078		1,275

Table 6.2-3 PROJECT COSTS AND BENEFITS FLOWS (1/3)

Uma Ela (Unit: Rs.1,000)

No	Year	Costs				Gross Benefit	Balance
		Capital	O&M	Replacement	Total (C)	(B)	(B-C)
1	1994	77,116	0		77,116	0	-77,116
2	1995	115,674	0		115,674	-98,667	-214,341
3	1996		12,000		12,000	56,385	44,385
4	1997		12,000		12,000	64,440	52,440
5	1998		12,000		12,000	72,495	60,495
6	1999		12,000		12,000	76,523	64,523
7	2000		12,000		12,000	80,550	68,550
8	2001		12,000		12,000	80,550	68,550
9	2002		12,000		12,000	80,550	68,550
10	2003		12,000		12,000	80,550	68,550
11	2004		12,000		12,000	80,550	68,550
12	2005		12,000		12,000	80,550	68,550
13	2006		12,000		12,000	80,550	68,550
14	2007		12,000		12,000	80,550	68,550
15	2008		12,000		12,000	80,550	68,550
16	2009		12,000		12,000	80,550	68,550
17	2010		12,000	57,142	69,142	80,550	11,408
18	2011		12,000		12,000	80,550	68,550
19	2012		12,000		12,000	80,550	68,550
20	2013		12,000		12,000	80,550	68,550
21	2014		12,000		12,000	80,550	68,550
22	2015		12,000		12,000	80,550	68,550
23	2016		12,000		12,000	80,550	68,550
24	2017		12,000		12,000	80,550	68,550
25	2018		12,000		12,000	80,550	68,550
26	2019		12,000		12,000	80,550	68,550
27	2020		12,000		12,000	80,550	68,550
28	2021		12,000		12,000	80,550	68,550
29	2022		12,000		12,000	80,550	68,550
30	2023		12,000		12,000	80,550	68,550
31	2024		12,000		12,000	80,550	68,550
32	2025		12,000	57,142	69,142	80,550	11,408
33	2026		12,000		12,000	80,550	68,550
34	2027		12,000		12,000	80,550	68,550
35	2028		12,000		12,000	80,550	68,550
36	2029		12,000		12,000	80,550	68,550
37	2030		12,000		12,000	80,550	68,550
38	2031		12,000		12,000	80,550	68,550
39	2032		12,000		12,000	80,550	68,550
40	2033		12,000		12,000	80,550	68,550
41	2034		12,000		12,000	80,550	68,550
42	2035		12,000		12,000	80,550	68,550
43	2036		12,000		12,000	80,550	68,550
44	2037		12,000		12,000	80,550	68,550
45	2038		12,000		12,000	80,550	68,550
46	2039		12,000		12,000	80,550	68,550
47	2040		12,000	57,142	69,142	80,550	11,408
48	2041		12,000		12,000	80,550	68,550
49	2042		12,000		12,000	80,550	68,550
50	2043		12,000		12,000	80,550	68,550
				NPV(10%) =	278,515	540,864	262,349

ITEM	
B-C	262,349
B/C	1.94
EIRR	19.6%

Table 6.2-3 PROJECT COSTS AND BENEFITS FLOWS (2/3)

Danme Ela (Unit: Rs.1,000)

No	Year	Costs				Gross Benefit	Balance
		Capital	O&M	Replacement	Total (C)	(B)	(B-C)
1	1996	31,438	0		31,438	0	-31,438
2	1997	47,158	0		47,158	-1,198	-48,356
3	1998		510		510	2,855	2,345
4	1999		510		510	3,262	2,752
5	2000		510		510	3,670	3,160
6	2001		510		510	3,874	3,364
7	2002		510		510	4,078	3,568
8	2003		510		510	4,078	3,568
9	2004		510		510	4,078	3,568
10	2005		510		510	4,078	3,568
11	2006		510		510	4,078	3,568
12	2007		510		510	4,078	3,568
13	2008		510		510	4,078	3,568
14	2009		510		510	4,078	3,568
15	2010		510		510	4,078	3,568
16	2011		510		510	4,078	3,568
17	2012		510	19,497	20,007	4,078	-15,929
18	2013		510		510	4,078	3,568
19	2014		510		510	4,078	3,568
20	2015		510		510	4,078	3,568
21	2016		510		510	4,078	3,568
22	2017		510		510	4,078	3,568
23	2018		510		510	4,078	3,568
24	2019		510		510	4,078	3,568
25	2020		510		510	4,078	3,568
26	2021		510		510	4,078	3,568
27	2022		510		510	4,078	3,568
28	2023		510		510	4,078	3,568
29	2024		510		510	4,078	3,568
30	2025		510		510	4,078	3,568
31	2026		510		510	4,078	3,568
32	2027		510	19,497	20,007	4,078	-15,929
33	2028		510		510	4,078	3,568
34	2029		510		510	4,078	3,568
35	2030		510		510	4,078	3,568
36	2031		510		510	4,078	3,568
37	2032		510		510	4,078	3,568
38	2033		510		510	4,078	3,568
39	2034		510		510	4,078	3,568
40	2035		510		510	4,078	3,568
41	2036		510		510	4,078	3,568
42	2037		510		510	4,078	3,568
43	2038		510		510	4,078	3,568
44	2039		510		510	4,078	3,568
45	2040		510		510	4,078	3,568
46	2041		510		510	4,078	3,568
47	2042		510	19,497	20,007	4,078	-15,929
48	2043		510		510	4,078	3,568
49	2044		510		510	4,078	3,568
50	2045		510		510	4,078	3,568
		78,596		NPV(10%) =	76,727	30,520	-46,206

ITEM	(%)
B-C	-46,206
B/C	0.40
EIRR	1.5%

Table 6.2-3 PROJECT COSTS AND BENEFITS FLOWS (3/3)

Issodanawela (Unit: Rs.1,000)

No	Year	Costs				Gross Benefit	Balance
		Capital	O&M	Replacement	Total (C)	(B)	(B-C)
1	1997	2,263	0		2,263	-165	-2,428
2	1998		150		150	893	743
3	1999		150		150	1,020	870
4	2000		150		150	1,148	998
5	2001		150		150	1,211	1,061
6	2002		150		150	1,275	1,125
7	2003		150		150	1,275	1,125
8	2004		150		150	1,275	1,125
9	2005		150		150	1,275	1,125
10	2006		150		150	1,275	1,125
11	2007		150		150	1,275	1,125
12	2008		150		150	1,275	1,125
13	2009		150		150	1,275	1,125
14	2010		150		150	1,275	1,125
15	2011		150		150	1,275	1,125
16	2012		150	225	375	1,275	900
17	2013		150		150	1,275	1,125
18	2014		150		150	1,275	1,125
19	2015		150		150	1,275	1,125
20	2016		150		150	1,275	1,125
21	2017		150		150	1,275	1,125
22	2018		150		150	1,275	1,125
23	2019		150		150	1,275	1,125
24	2020		150		150	1,275	1,125
25	2021		150		150	1,275	1,125
26	2022		150		150	1,275	1,125
27	2023		150		150	1,275	1,125
28	2024		150		150	1,275	1,125
29	2025		150		150	1,275	1,125
30	2026		150		150	1,275	1,125
31	2027		150	225	375	1,275	900
32	2028		150		150	1,275	1,125
33	2029		150		150	1,275	1,125
34	2030		150		150	1,275	1,125
35	2031		150		150	1,275	1,125
36	2032		150		150	1,275	1,125
37	2033		150		150	1,275	1,125
38	2034		150		150	1,275	1,125
39	2035		150		150	1,275	1,125
40	2036		150		150	1,275	1,125
41	2037		150		150	1,275	1,125
42	2038		150		150	1,275	1,125
43	2039		150		150	1,275	1,125
44	2040		150		150	1,275	1,125
45	2041		150		150	1,275	1,125
46	2042		150	225	375	1,275	900
47	2043		150		150	1,275	1,125
48	2044		150		150	1,275	1,125
49	2045		150		150	1,275	1,125
50	2046		150		150	1,275	1,125
		2,263		NPV(10%) =	3,472	10,698	7,226

Sensitivity data:

ITEM	(%)
B-C	7,226
B/C	3.08
EIRR	38.8%

Table 6.2-4 DATA FOR AGRICULTURAL FEEDER ROADS IN THE CASE STUDY AREA-I (1/2)

Case Study Area-I

Serial No.	Class	District	Division	Benefited Grama Niladhari Divisions	Total Length (km)	Road Condition (km) Tarred fair	Tarred bad	Earth/Stone gravel	Foot-path	Detour Road B.P.to E.P. (km)	(hour)	Closest Pola to Pola/Town	from	(km)	(hour)	by	Beneficiary (Families)	Benefited Agri.Land Crops	Area (ha)
I-1	E	Kandy	Kundasale	1.Orutota, 2.Maluwegama, 3.Naranpanawa	7.5	0.0	0.0	2.5	5.0	-	-	Teldeniya(p)	Maluwegama	5.0	1.5	walk & bus	1,400	Paddy Garden Tea	30 150 60
I-4	E	Kandy	Meda Dumbara	1.Kurukohogama, 2.Rethyagama, 3.Kandekumbura, 4.Hatiyalwela, 5.Namadagoda, 6.Metideniya	7.0	2.8	0.6	1.6	2.0	20.0	1.0	Meda-Mahanuwara(t)	Kandekunbura	3.2	1.0	walk	540	Paddy Vegetable Tea	210 40 90
												Udisspattuwa(t)	Kandekunbura	6.0	2.0	walk			
I-6	E	Kandy	Uda Dumbara	1.Karambaketiya, 2.Kumbukgolla, 3.Pusseela, 4.Kaikawala, 5.Meemura	17.1	0.0	8.7	8.4	0.0	-	-	Hungasgiriya(p)	Kaikawala	30.0	4.0	walk & bus	380	Paddy Vegetable Garden Tea	300 100 150 220
I-7	D, E	Kandy	Uda Dumbara	1.Madugalla, 2.Kalawala, 3.Pitigoda, 4.Pamunutenna, 5.Ganegala	10.0	0.0	1.3	2.9	5.8	32.0	4.0	Hungasgiriya(p)	Kalawana	24.0	1.5	bus	330	Paddy Vegetable	370 270
												Hungasgiriya(p)	Patnunetenna	12.0	1.5	walk & bus		Garden Tabacco	300 600
I-9	E	Nuwara Eliya	Hanguranketa	1.Ampitigoda, 2.Wellagiriya, 3.Matibambiya, 4.Labuhenwela	6.0	0.0	0.0	4.9	1.1	18.0	1.5	Rikillgaskada(t)	Matibambiya	20.0	2.0	walk & bus	620	Paddy Vegetable Garden Potatoes	250 250 160 50
I-10	E	Nuwara Eliya	Hanguranketa	1.Kitulpe, 2.Pallabowela, 3.Bambaragama, 4.Karamiddula, 5.Kirimetiya	9.0	0.0	4.0	3.7	1.3	20.0	1.5	Rahatungoda(p)	Bambaragama	16.0	1.5	walk & bus	750	Paddy Vegetable Garden	430 350 90
												Rahatungoda(p)	Moragolla	10.0	1.5	walk & bus			
I-15	E	Nuwara Eliya	Walapane	1.Teripche, 2.Bolagandawela	6.7	0.6	0.0	2.0	4.1			Nildandahinna(t)	Bolagandawela	20.0	2.0	walk & bus	850	Paddy Vegetable Garden	390 250 100
I-32	E	Badulla	Kandeketiya	1.Tilhawelkandura, 2.Dikkumbura	4.0	0.0	0.0	2.2	1.8	100.0	8.0	Kandeketiya(p)	Bothgoda	13.0	1.5	walk & bus		Chena	270
I-16	E	Nuwara Eliya	Walapane	1.Teripche, 2.Mallagama, 3.Hegasulla, 4.Ambagahathenna, 5.Dulana	6.0	0.0	0.0	0.0	6.0	50.0	3.0	Nildandahinna(t)	Weligoda	16.0	1.5	walk & bus	560	Paddy Vegetable Garden	60 630 70
I-20	E	Badulla	Uva Paranagama	1.Boragas, 2.Galahagama, 3.Telhawadigama, 4.Medawela, 5.Karagahaulpota, 6.Hangunnawa, 7.Dimbulwala, 8.Kordekubura, 9.Mlapolagama,	20.2	5.3	10.9	4.0	0.0	25.0	1.5	Welimada(p)	Perewela	15.0	1.5	walk & bus	2,000	Vegetable Garden Tea	600 350 450
												Ragala(p)	Udunawara	11.0	2.5	walk & bus			
I-21	E	Badulla	Uva Paranagama	1.Bambarapana, 2.Pituyekumbura, 3.Panagoda, 4.Tuppitiya	9.1	0.0	0.2	3.8	5.1			Ettampitiya(p)	Horatota	16.0	2.0	walk & bus			
												Haliela(t)	Horatota	26.0	2.5	walk & bus	2,200	Paddy Vegetable	300 400
I-24	E	Badulla	Haliela	1.Ketawela, 2.Landewela, 3.Bogoda, 4.Panakanniya	8.2	0.0	3.0	3.7	1.5	38.0	2.5	Ettampitiya(p)	Panakanniya	20.0	3.0	walk & bus		Garden Tea Potatoes	200 200 200
I-25	E	Badulla	Haliela	1.Gawela, 2.Tupptiya	4.0	0.0	0.0	1.5	2.5			Ettampitiya(p)	Gawela	7.5	1.0	walk & bus			
I-27	E	Badulla	Welimada	1.Wangiyakumbura, 2.Kandepuhlpola, 3.Boralanda	8.0	0.0	1.3	6.7	0.0	-	-	Welimada(p)	Kandepuhlpola	12.0	1.5	walk & bus	1,330	Paddy Vegetable Garden Potatoes	50 150 50 150
I-28	E	Badulla	Welimada	1.Ambewela	6.0	0.0	3.3	1.7	1.0	21.0	1.5	Welimada(p)	Tawana	14.0	2.0	walk & bus	1,060	Paddy Vegetable Tea Potatoes	90 30 80 140
Case Study Area-I Total					128.8												12,020		9,680

Table 6.2-4 DATA OF AGRICULTURAL FEEDER ROADS IN THE CASE STUDY AREA-II (2/2)

Case Study Area-I Total

Serial No.	Class	District	Division	Benefited Grama Niladhari Divisions	Total Length (km)	Road Condition (km)				Detour Road B.P.to E.P.		Closest Pola					Beneficiary (Families)	Benefited Agri.Land	
						Tarred fair	Tarred bad	Earth/Stone gravel	Foot-path	(km)	(hour)	to Pola/Town	from	(km)	(hour)	by		Crops	Area (ha)
II-1	E	Kegalle	Yatiyantota	1.Undugoda, 2.Sooriyamalgama, 3.Uduwa, 4.Dedugala	8.5	3.9	2.1	2.5	0.0	18.0	1.5	Bulatkohu-pitiya(p)	Yatideria	10.0	1.5	walk & bus	690	Paddy	80
																		Garden	500
																		Tea	380
																		Rubber	350
II-2	E	Kegalle	Yatiyantota	1.Dolosbage, 2.Werannawa, 3.Dedugala	5.5	0.0	0.0	5.5	0.0	100.0	5.0	Bulatkohu-pitiya(p)	Dolosbage	23.0	2.5	walk & bus	550	Vegetable	10
																		Garden	260
												Nawalapitiya(p)	Pelanpitiya	23.0	2.5	walk & bus		Tea	230
																		Rubber	800
II-5	E	Kegalle	Dehiowita	1.Algoda, 2.Batangala, 3.Thimbiripola, Maniyangama, 4.Galanbalankada	7.0	1.7	0.7	0.4	4.2	7.0	0.5	Talduwa(p)	Thimbiripola	6.0	1.5	walk & bus	1,000	Paddy	30
																		Garden	600
																		Rubber	500
II-9	E	Kegalle	Deraniyagala	1.Yatiwala, 2.Maliboda	5.5	0.0	0.0	5.5	0.0	55.0	3.0	Deraniyagala(p)	Gangaboda	11.0	1.0	bus	3,720	Paddy	80
																		Garden	820
II-15	C	Ratnapura	Kuruwita	1.Kuruwita, 2.Eknaligoda, 3.Soodagala, 4.Lasakanda, 5.Erathna	16.3	3.7	6.8	5.8	0.0			Kuruwita(p)	Gangaboda	20.0	2.0	walk & bus		Tea	1780
																		Rubber	490
II-12	E	Ratnapura	Eheliyagoda	1.Minnana, 2.Iddamaigoda, 3.Mitipola, 4.Kiriporuwa, 5.Erepola	11.5	3.7	4.5	3.3	0.0	15.0	1.5	Talduwa(p)	Mitipola	14.0	3.0	walk & bus	1,670	Paddy	160
																		Garden	360
												Eheliyagoda(p)	Mitipola	7.0	1.5	walk & bus		Rubber	860
II-19	E	Ratnapura	Ayagama	1.Galatura, 2.Pahalagalatura	4.7	0.0	0.5	0.0	4.2	-	-	Galatura(p)	Medagalatura	3.0	1.0	walk	1750	Paddy	80
																		Garden	30
																		Tea	170
																		Rubber	760
II-23	C, E	Ratnapura	Elapatha	1.Kotamulla, 2.Karangoda, 3.Raddella, 4.Dambulwana, 5.Kahawatta, 6.Galatura	8.0	1.9	0.5	5.6	0.0	30.0	2.0	Galatura(p)	Werawela	7.0	1.5	walk & bus	1,880	Paddy	150
																		Vegetable	50
																		Garden	30
																		Tea	230
																		Rubber	300
Case Study Area-II Total					**67.0**												**11,260**		**10,090**

FIGURES

FIGURES (PART 1)

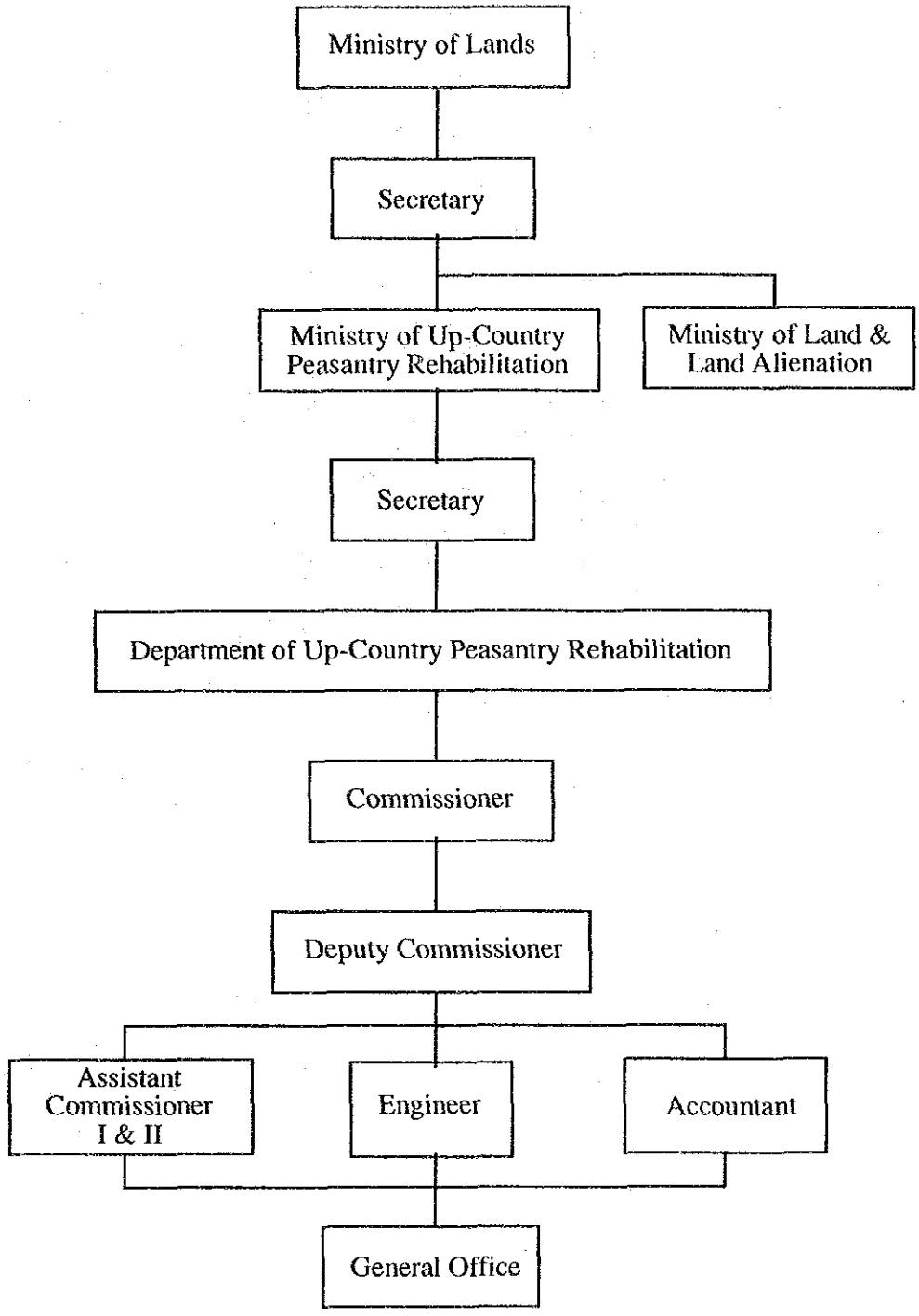
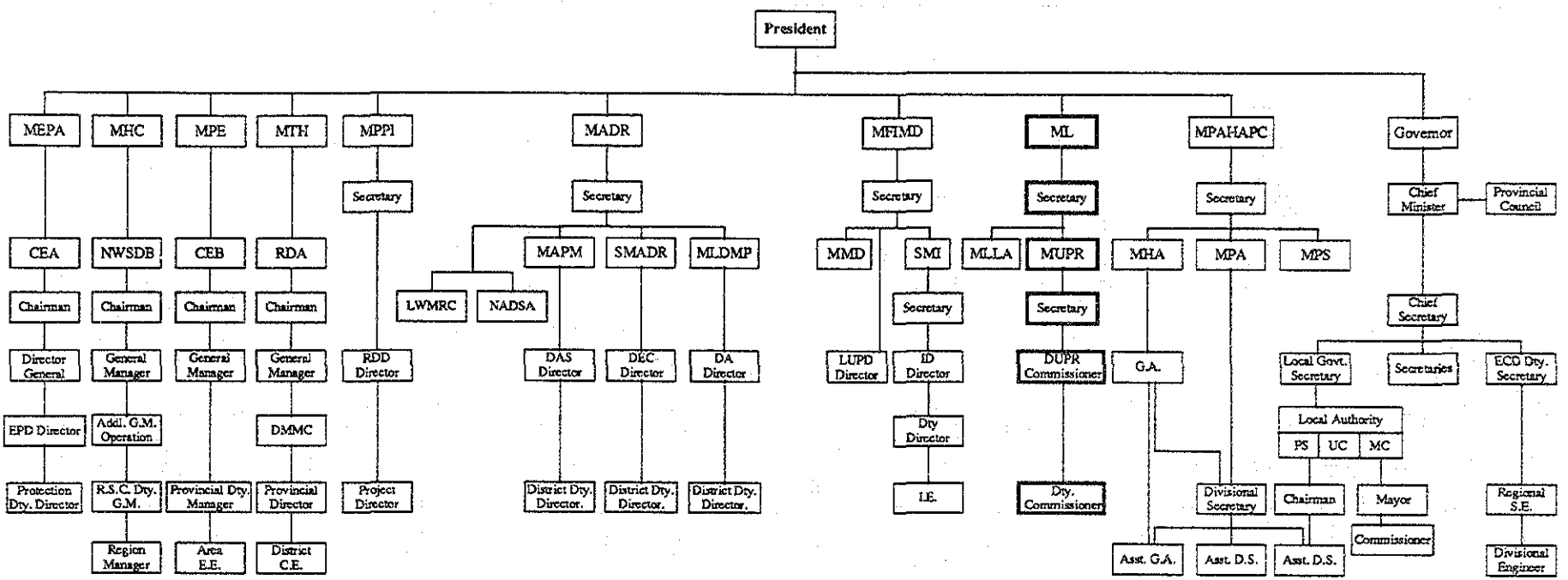


Fig. 2.3-1 Organization Chart of MUPR

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



MEPA :Ministry of Environment & Parliamentary Affairs
MHC :Ministry of Housing & Construction
MPE :Ministry of Power & Energy
MTH :Ministry of Transport & Highway
MPPI :Ministry of Policy Planning & Implementation
MADR :Ministry of Agricultural Development & Research
ML Ministry of Land
MUPR :Ministry of Upcountry Peasantry Rehabilitation
DUPR :Department of Upcountry Peasantry Rehabilitation
LUPD :Land Use Planning & Division
MHA :Ministry of Home Affairs
MPA :Ministry of Public Administration
MFIMD :Ministry of Forest, Irrigation & Mahaweli Development

MPAHAPC :Ministry of Public Administration, Provincial Councils & Home Affairs
CEA :Central Environmental Authority
NWSDB :National Water Supply & Drainage Board
CEB :Ceylon Electricity Board
RDA :Road Development Authority
RDD :Regional Development Division
EPD :Environmental Protection Department
MPC :Ministry of Provincial Councils
ID :Irrigation Department
ECD :Engineering & Construction Department
R.S.C. :Regional Support Centre

DMMC :Director of Maintenance, Management & Construction
LWMRC :Land & Water Management Research Centre
NADSA :National Agricultural Diversity & Settlement Authority
MAPM :Ministry of Agricultural Production & Marketing
SMADR :State Minister of Agricultural Development & Research
E.E. :Executive Engineer
C.E. :Chief Engineer
I.E. :Irrigation Engineer
D.S. :Divisional Secretary
G.A. :Government Agent
Dty. :Deputy

MLDMP :Ministry of Livestock Development & Milk Production
DAS :Department of Agrarian Services
DEC :Department of Export Crops
DA :Department of Agriculture
MLLA :Ministry of Land & Land Alienation
MMD :Ministry of Mahaweli Development
SMI :State Ministry of Irrigation
S.E. :Superintending Engineer
P.S. :Pradeshiya Sabha
U.C. :Urban Council
M.C. :Municipal Council

Fig. 2.3-2 Ministries and Agencies Concerned

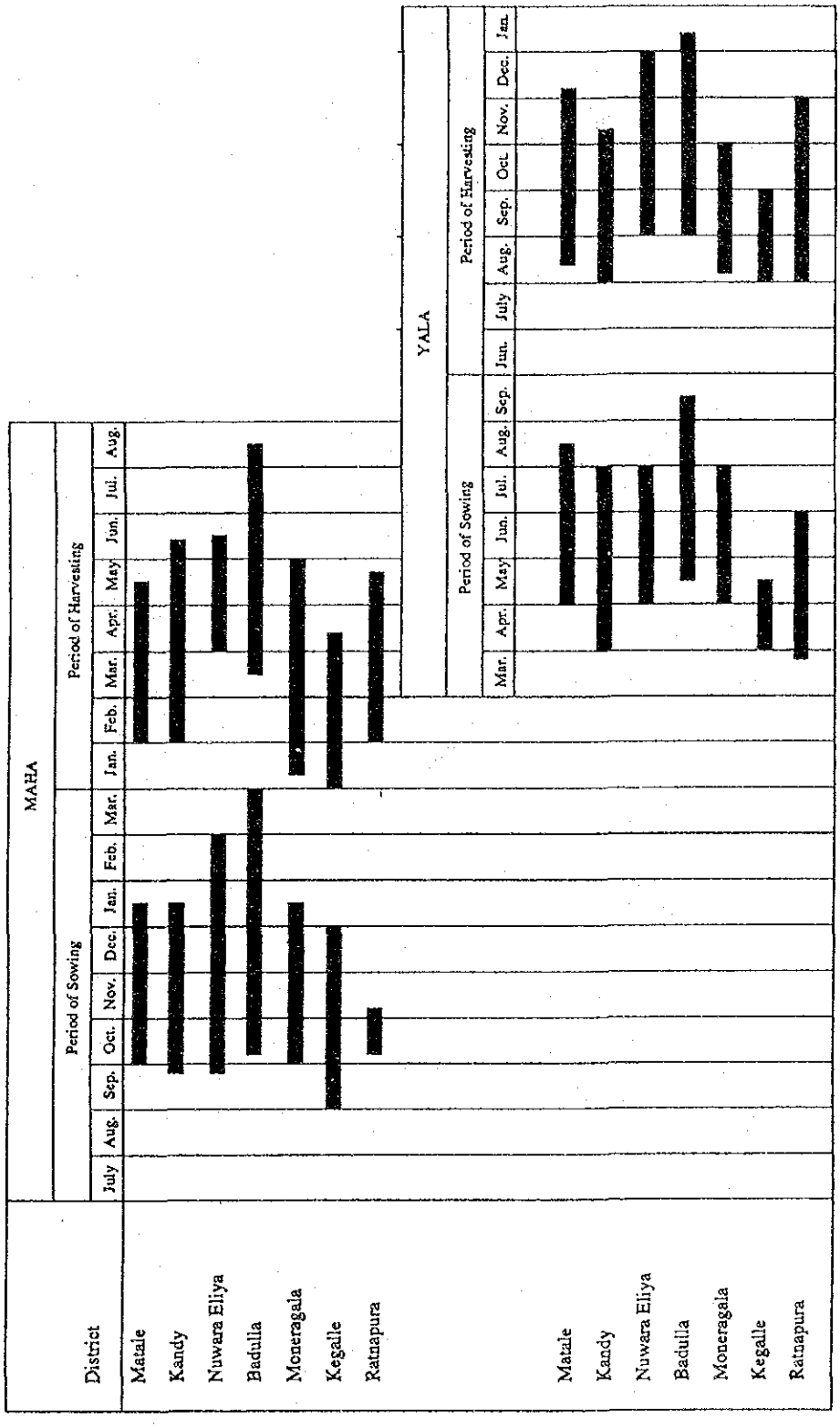


Fig. 3.3-1 DISTRIBUTION OF SOWING AND HARVESTING TIMES OF PADDY

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

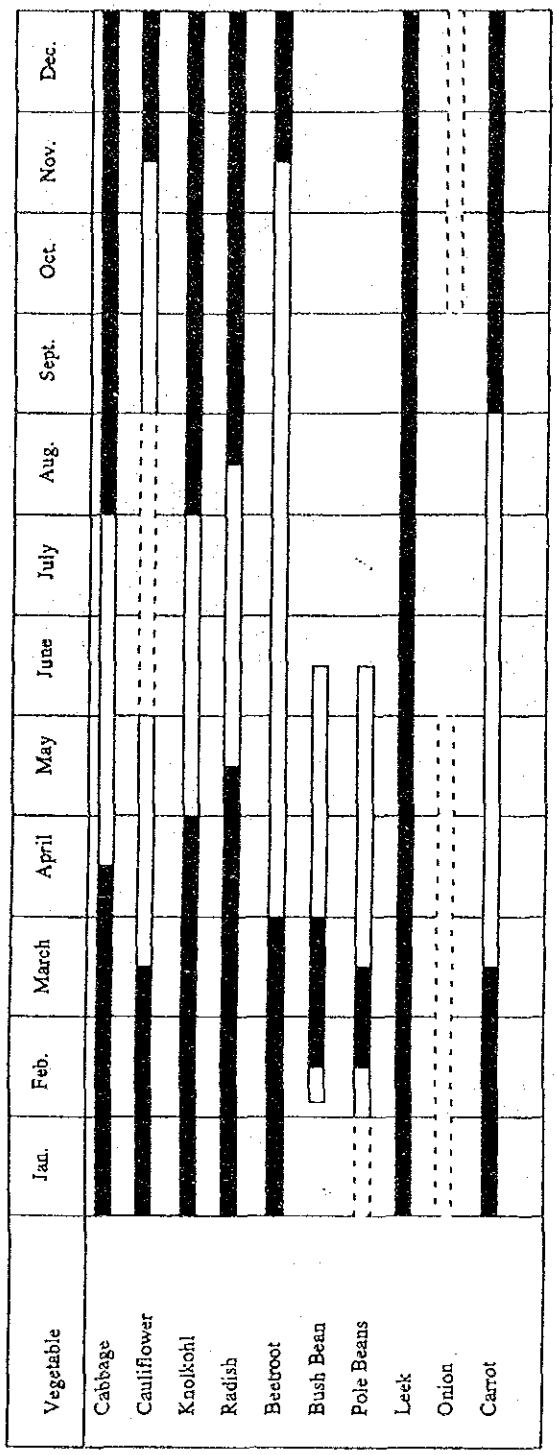


Fig. 3.3-2

TIME TABLE FOR VEGETABLE PLANTING

- A.R.S., RAHANGALA (1/2)

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

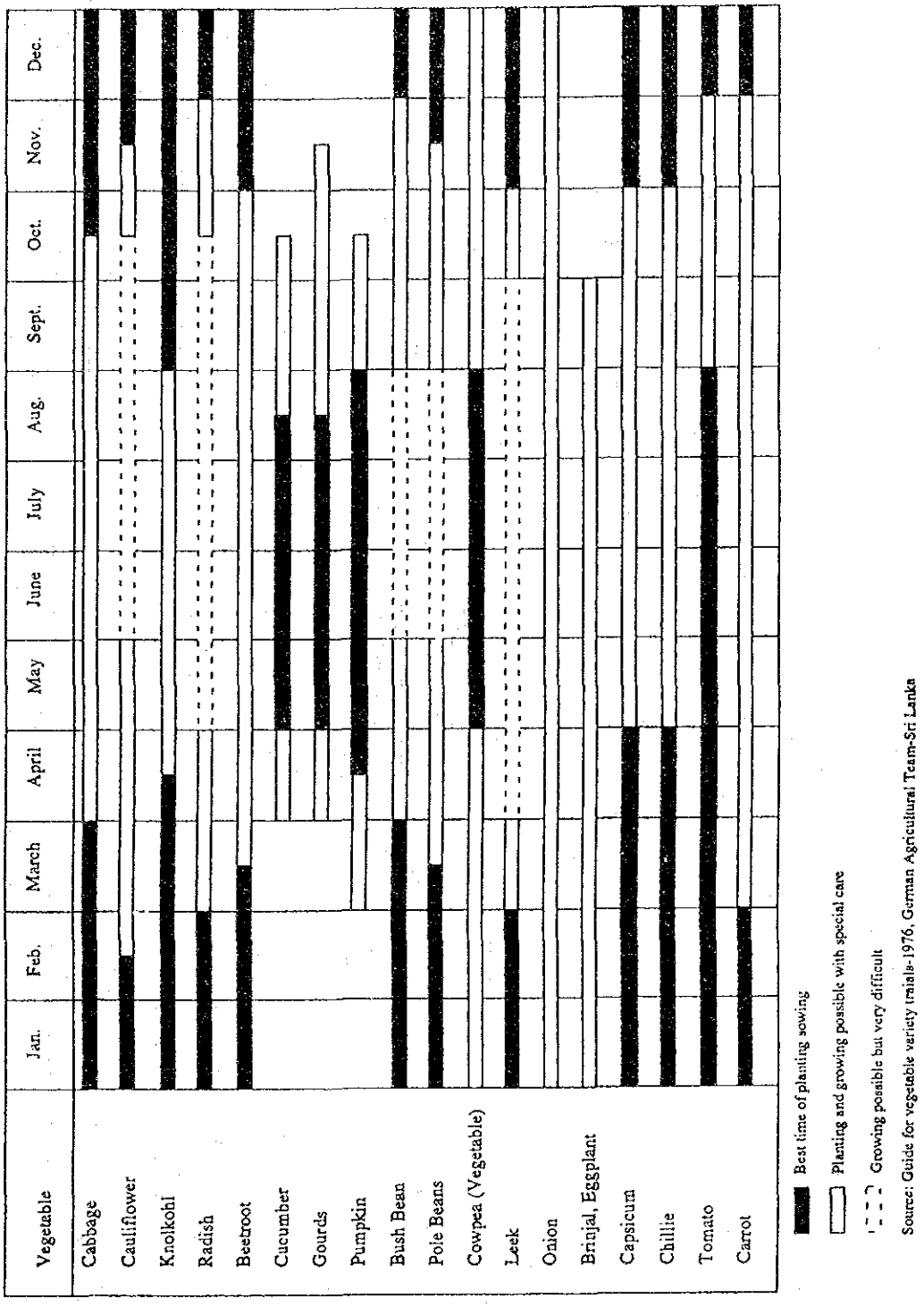


Fig. 3.3-2

TIME TABLE FOR VEGETABLE PLANTING

- A.R.S., RAHANGALA (2/2)

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

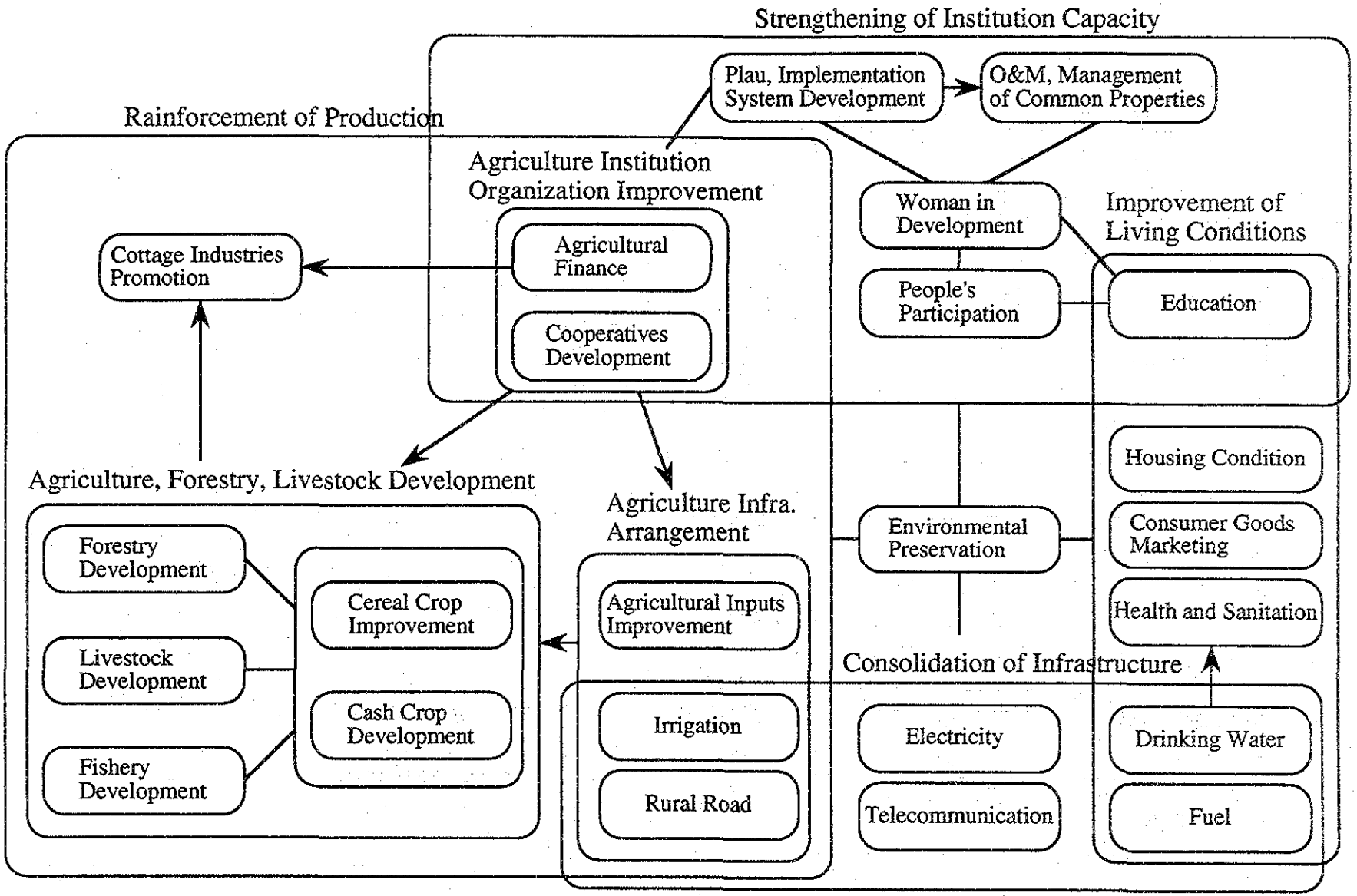


Fig. 4.1-1 CONCEPTUAL PICTURE OF THE MASTER PLAN

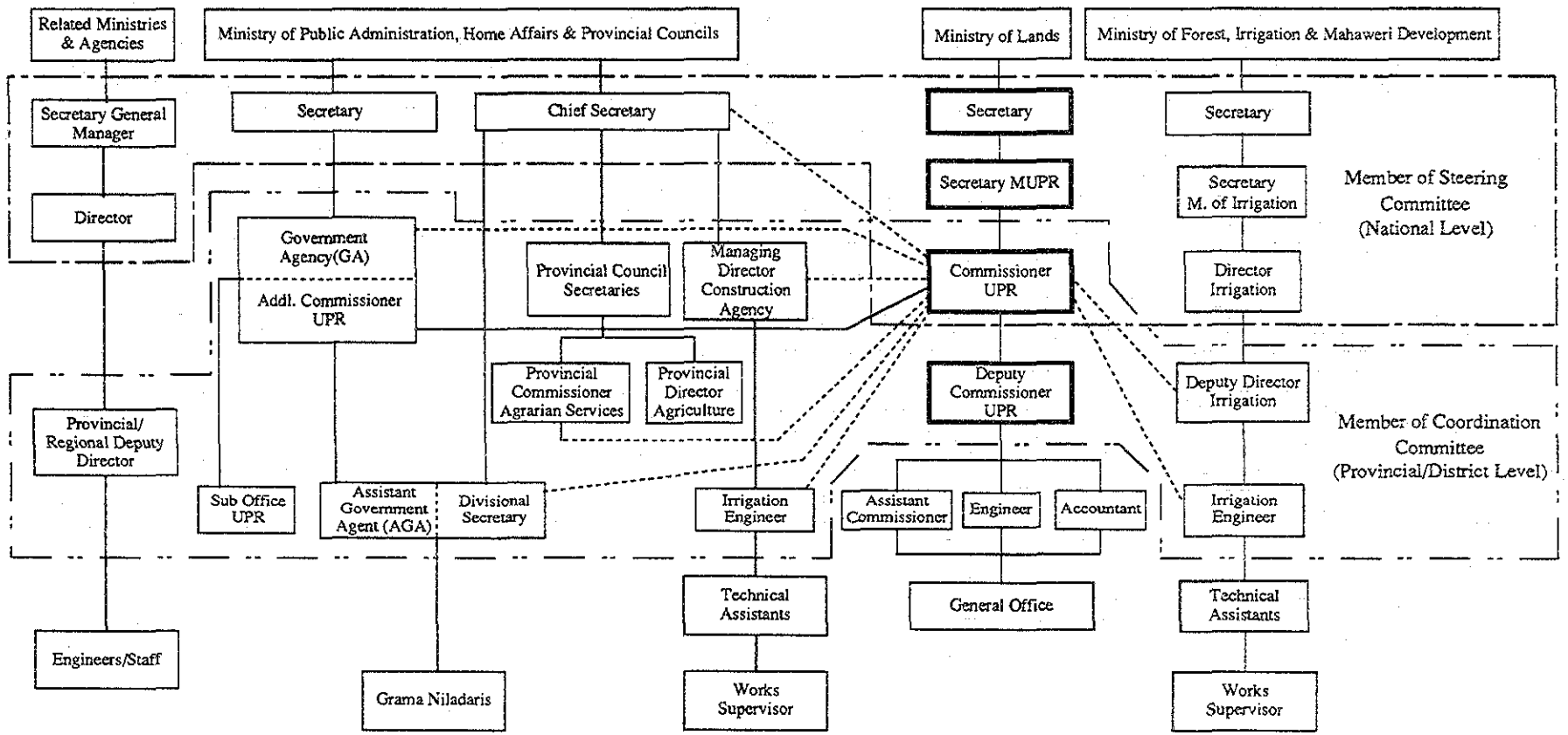


Fig. 5.2-1 PROJECT IMPLEMENTATION SYSTEM(DUPR RELATIVE MINISTRIES & AGENCIES AND COMMITTEES)

Project Component	Contents	Project Volume	Implementation Agency	Phase I 1994	1995	1996	1997	1998	Phase II 1999	2000	2001	2002	2003	Remarks
1. Irrigation	R.Major Irr.Scheme	4,251ha	NIRP, ID											
	R.Major Irr.Scheme	1,655ha	EEC,ID,MUPR											
	R.Major Irr.Scheme	7,248ha	Undicided											
	Recon.Major Irr.Scheme	3,389ha	Undicided											
	R.Minor Irr.Scheme	4,505ha	NIRP,ID,DAS											
	R.Minor Irr.Scheme	3,750ha	IRDP,MPPI											
	R.Minor Irr.Scheme	10,915ha	Undicided											
	Recon.Minor Irr.Scheme	511ha	Undicided											
2. Rural Road	R.Class C Road	250km	PC,budget											
	R.Class C Road	330km	Undicided											
	R.Class D Road	250km	PC,budget											
	R.Class D Road	280km	Undicided											
	R.Class E Road	860km	IRDP,budget											
	R.Class E Road	460km	Undicided											
3. Rural Water Supply	Kandy WS		FINNIDA,NSWDB											
	Badulla WS		UNDP,NSWDB											
	Moneragala WS		ADB,NSWDB											
	Ratnapura WS		UNDP,NSWDB											
	Kegalle WS		ADB,NSWDB											
	Matale ; PipedWS	28 schemes	NSWDB budget											
	TW	862 schemes	NSWDB budget											
	DW	1,796 schemes	NSWDB budget											
	N-Eliya ; PipedWS	131 schemes	NSWDB budget											
	DW	3,631 schemes	NSWDB budget											
4. Rural Electrification	MV/LV Line	1,394 schemes	ADB, CEB											
5. Agricultural Promotion & Supporting Plan	R.Seed Fertilizer Storehouse	178 ASC	DAS Undicided											
	C.Agri. Production SH.	53 Sites	DAS Undicided											
	R.Pola	55 Sites	DAS Undicided											
	C. Sabaragamuwa ISTI	1 Site	2nd AEP,DA,WB/IDA											
	R.ISTI & DATC	3 ISTI & 7 DATC	2nd AEP,DA,WB/IDA											
	Imp.CAIC	1 Centre	DAPH Undicided											
	Imp.DVSS	7 Sites	DAPH Undicided											
6. Farm Land Conservation	Farmland Conservation	69,000ha	Undicided											

< Note > R : Rehabilitation, Recon : Reconstruction, C : Construction, Imp : Implementation

Fig. 5.4-1 Implementation Schedule for Master Plan

FIGURES (PART 2)

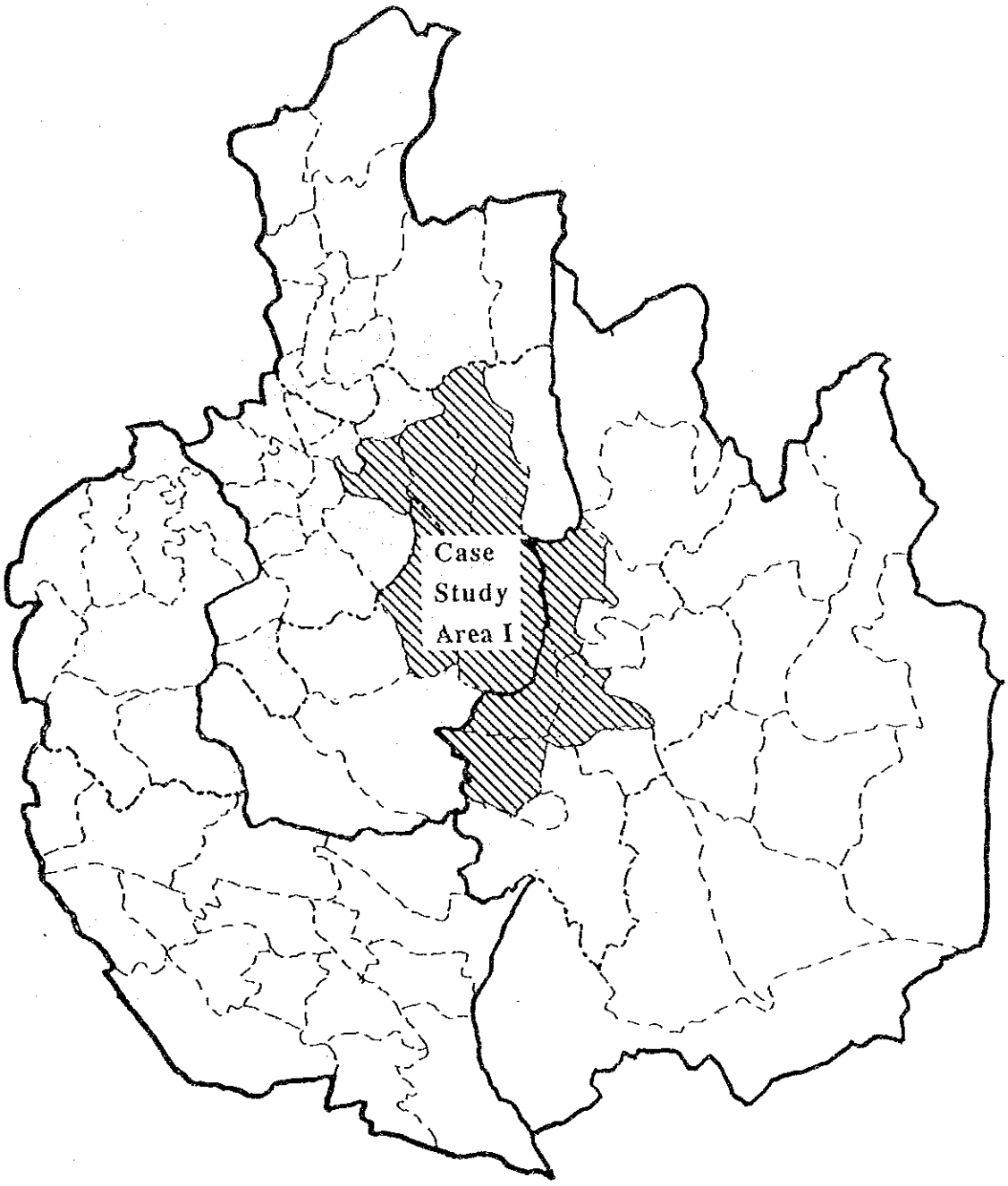


Fig. 2.1-1 LOCATION OF THE CASE STUDY AREA-I

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

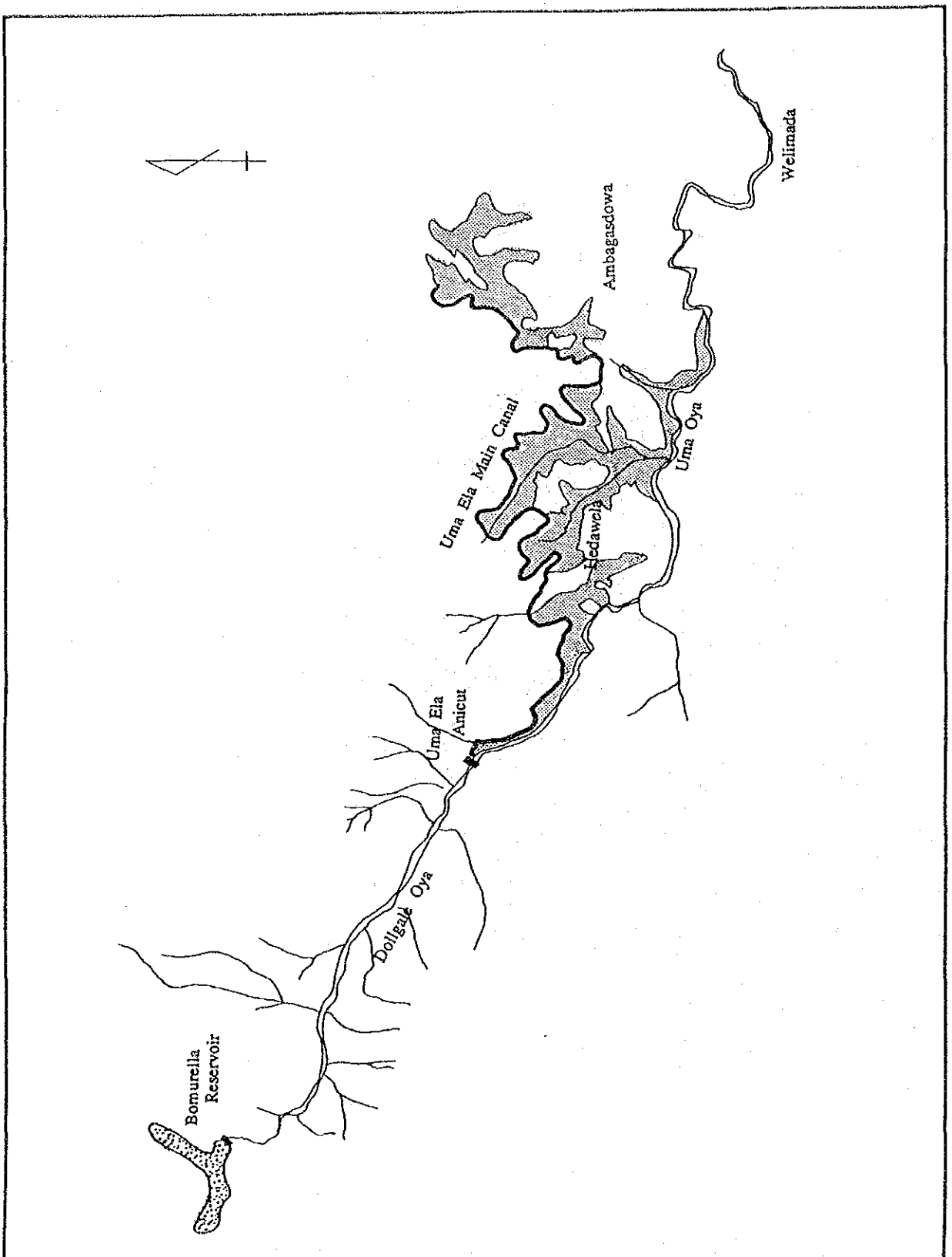


Fig. 2.3-1

LOCATION MAP OF
UMA ELA SCHEME

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

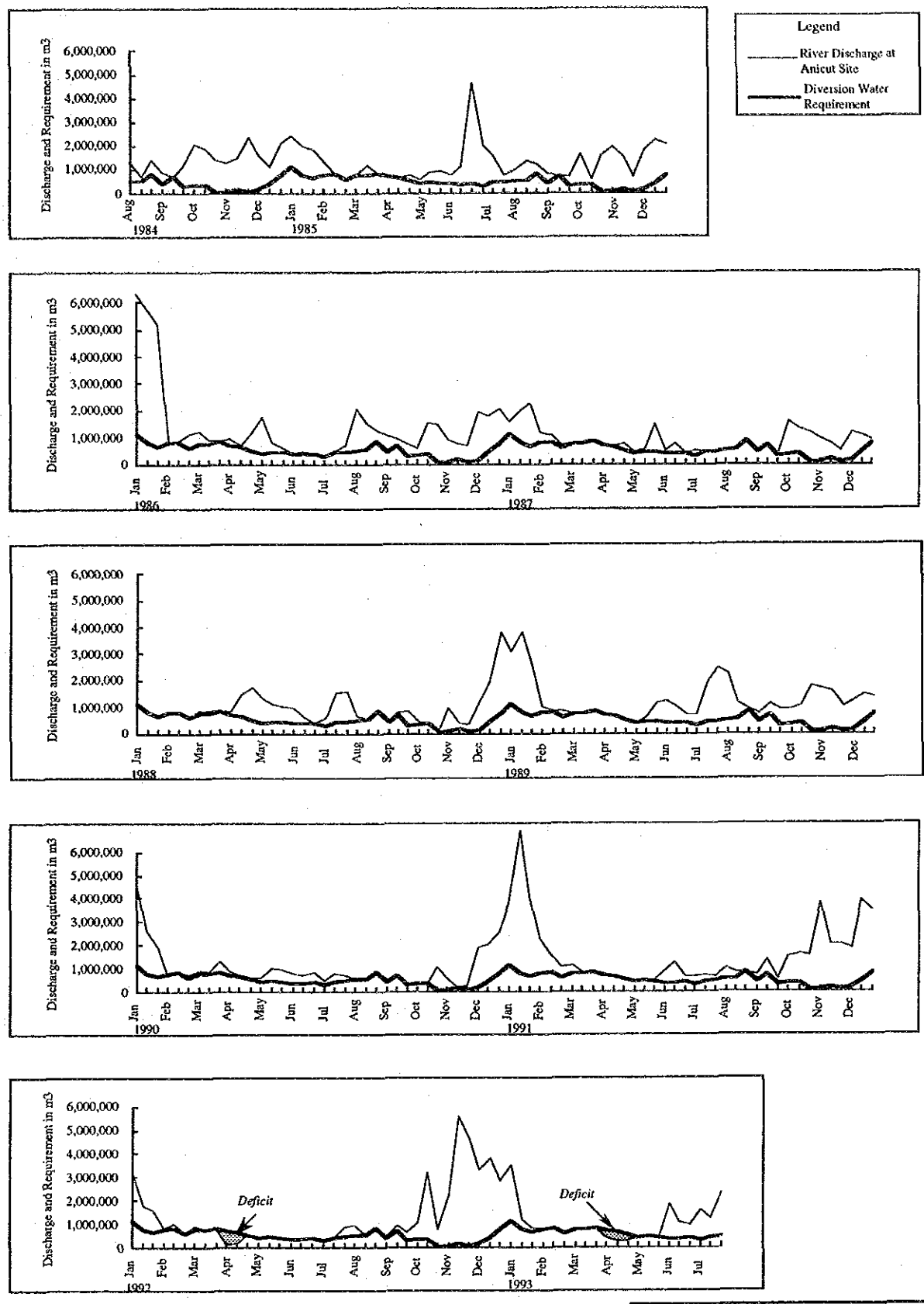


Fig. 2.3-2 RESULTS OF WATER BALANCE STUDY

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

MASTER PLAN STUDY ON
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UP-COUNTRY PEASANTRY REHABILITATION
PROGRAMME

Japan International Cooperation Agency

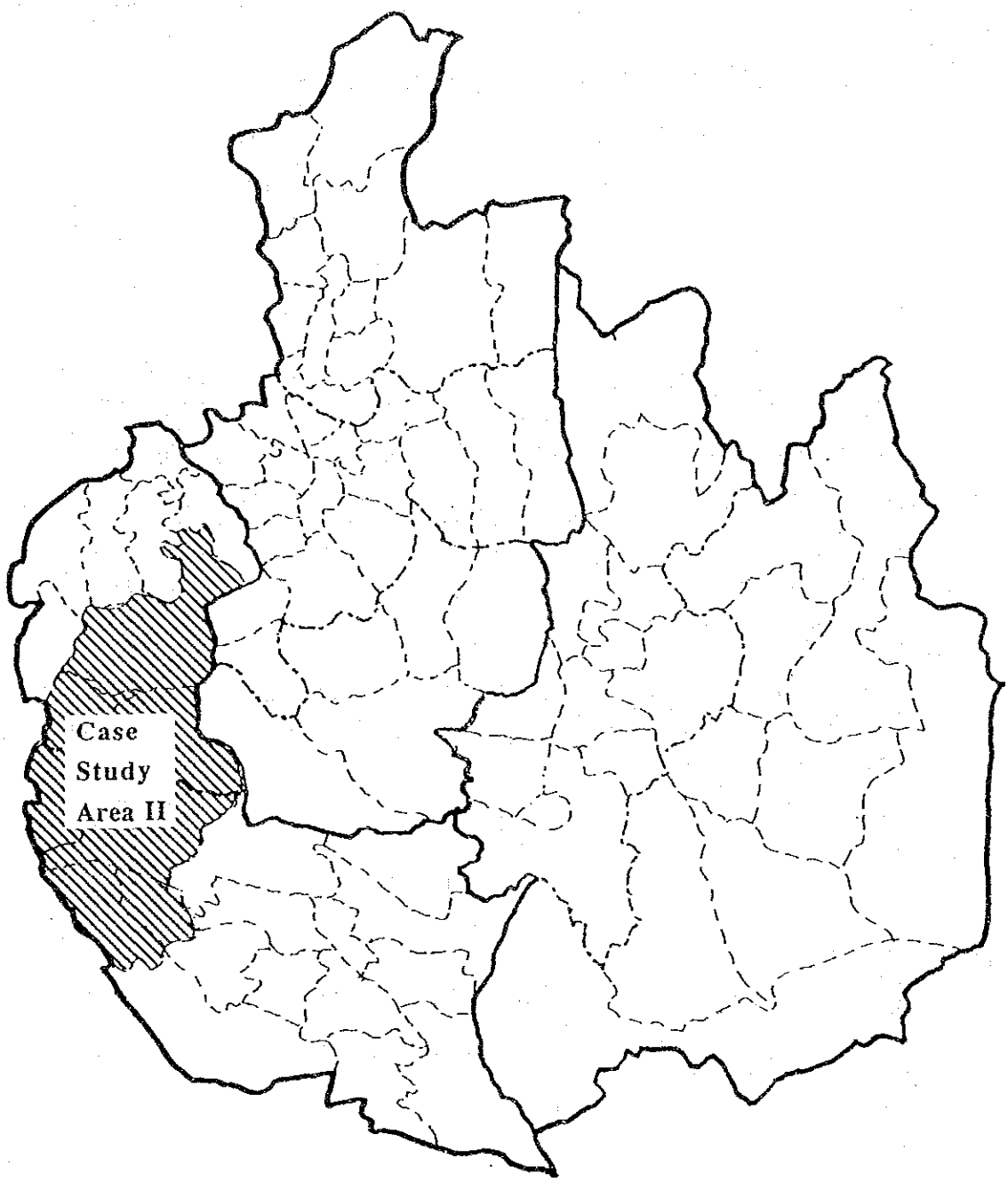

Fig. 3.1-1 LOCATION OF THE CASE STUDY AREA-II

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

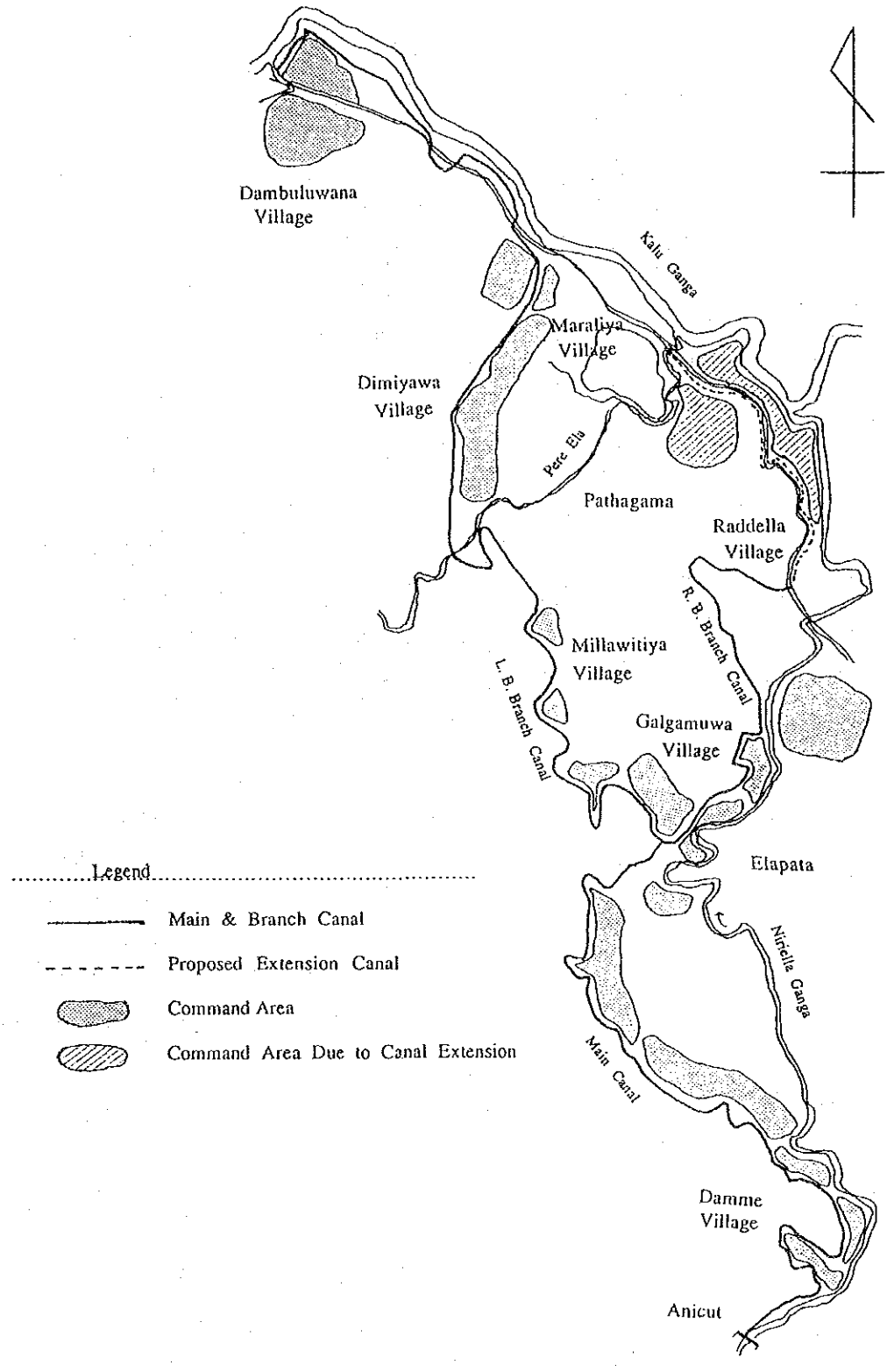

Fig. 3.3-1
LOCATION MAP OF
DAMME ELA SCHEME

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

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