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Japan International Cooperation Agency
The Democratic Socialist Republic of Sri Lanka
Ministry of Plan Implementation, Ethnic Affairs and National Integration

**The Master Plan Study
For
Southern Area Development
In
The Democratic Socialist Republic of Sri Lanka**

Final Report

Executive Summary Report

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February 1997

**Nippon Koei Co., Ltd.
International Development Center of Japan
System Science Consultants Inc.**

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List of Reports

<u>Volume</u>	<u>Title</u>
1	Executive Summary Report
2	Master Plan Report
3	Sector Report 1 : Agriculture and Fishery
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US\$ 1 = ¥ 110

PREFACE

In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a master plan study for Southern Area Development and entrusted the study to the Japan International Cooperation Agency (JICA).

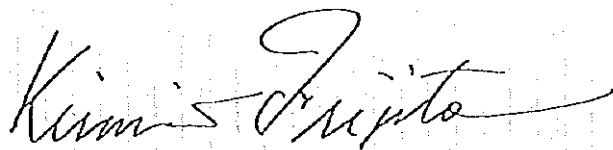
JICA sent to Sri Lanka a study team headed by Dr. Tsuyoshi Hashimoto, Nippon Koei Co., Ltd. between August 1995 and December 1996.

The team held discussions with the officials concerned of the Government of Sri Lanka, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their close cooperation extended to the team.

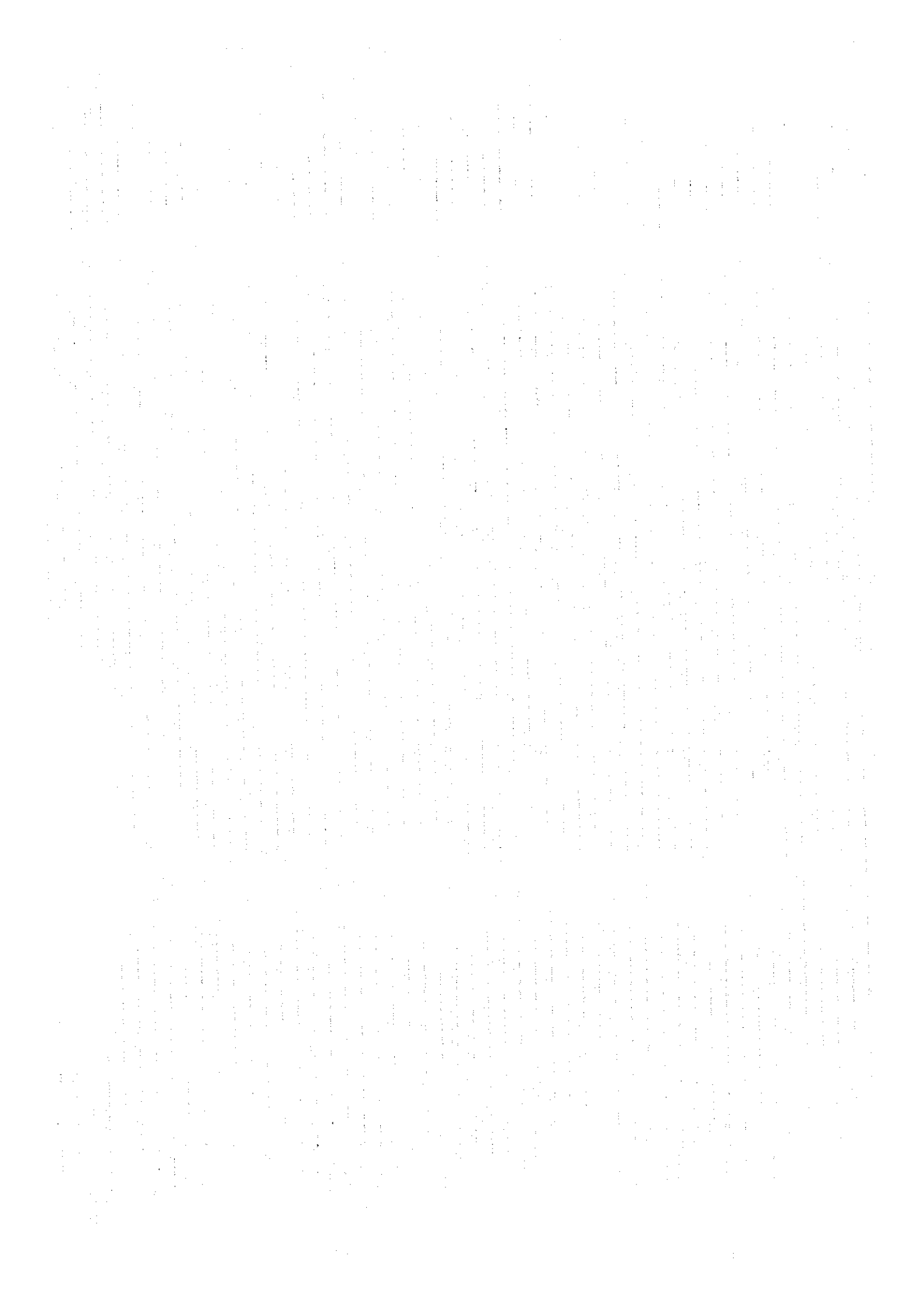
February, 1997



Kimio Fujita

President

Japan International Cooperation Agency



February, 1997

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

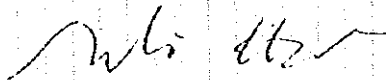
Letter of Transmittal

It is my greatest pleasure to submit to you the Final Report for the Master Plan Study for Southern Area Development in the Democratic Socialist Republic of Sri Lanka. We have been carrying out the study since August 1995 and successfully completed the work through close cooperation with the Regional Development Division (RDD), Ministry of Plan Implementation, Ethnic Affairs and National Integration. The Final Report is composed of Executive Summary Report, Master Plan Report, eight sector Reports, Project Report and Participatory Development Report.

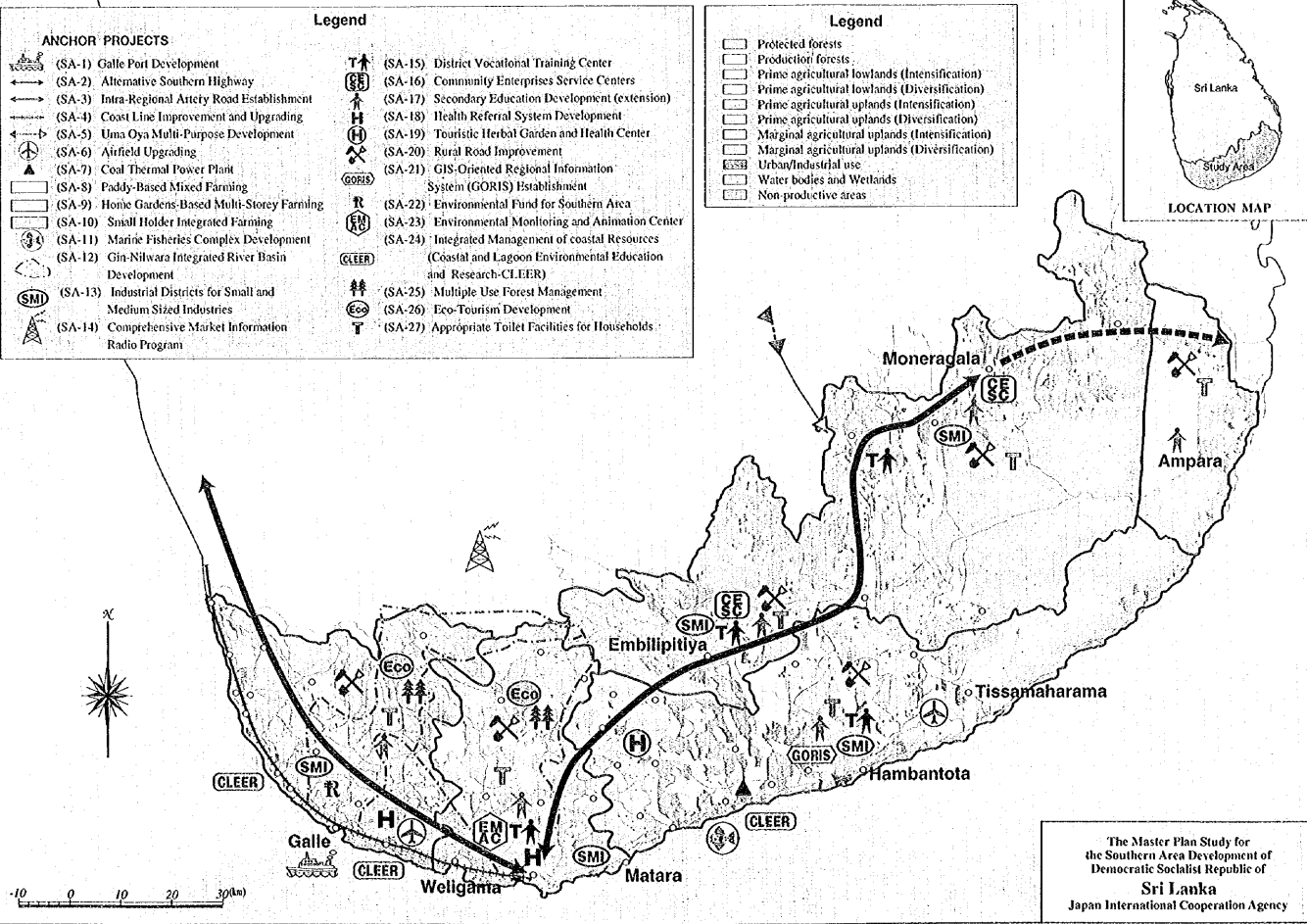
This Final Report is a product of the survey work by the Study Team as well as cooperative efforts of RDD and all the other parties concerned. In the course of the Study, a number of opportunities were made available such as workshops, seminars and subcommittee meetings to present the interim survey results to a wide range of participants including central and provincial government officers, academicians and researchers, private sector representatives and non-governmental organizations (NGOs). Comments and opinions raised at these opportunities were thoroughly analyzed and integrated into the Final Report to extent possible.

Southern Area of Sri Lanka have been one of the poorest regions in the Country. With a number of favorable conditions, however, the Area are starting to see a chance for economic development. The development of Southern Area will contribute to the job creation in the region as well as further economic development of the Country. Implementation of the master plan proposals contained in this Final Report will hold a key in this sense. I sincerely hope the Sri Lankan Government with the initiative by the newly created Southern Development Authority (SDA) will promptly take necessary steps towards the realization of the master plan.

Sincerely yours,



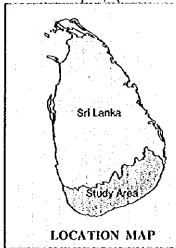
Tsuyoshi Hashimoto
Team Leader
The Master Plan Study for Southern Area Development in
the Democratic Socialist Republic of Sri Lanka



- ANCHOR PROJECTS**
- (SA-1) Galle Port Development
 - (SA-2) Alternative Southern Highway
 - (SA-3) Intra-Regional Artery Road Establishment
 - (SA-4) Coast Line Improvement and Upgrading
 - (SA-5) Uma Oya Multi-Purpose Development
 - (SA-6) Airfield Upgrading
 - (SA-7) Coal Thermal Power Plant
 - (SA-8) Paddy-Based Mixed Farming
 - (SA-9) Home Gardens Based Multi-Storey Farming
 - (SA-10) Small Holder Integrated Farming
 - (SA-11) Marine Fisheries Complex Development
 - (SA-12) Gin-Nilwara Integrated River Basin Development
 - (SA-13) Industrial Districts for Small and Medium Sized Industries
 - (SA-14) Comprehensive Market Information Radio Program

- Legend**
- (T) (SA-15) District Vocational Training Center
 - (SE) (SA-16) Community Enterprises Service Centers
 - (H) (SA-17) Secondary Education Development (extension)
 - (H) (SA-18) Health Referral System Development
 - (H) (SA-19) Touristic Herbal Garden and Health Center
 - (R) (SA-20) Rural Road Improvement
 - (GORIS) (SA-21) GIS-Oriented Regional Information System (GORIS) Establishment
 - (R) (SA-22) Environmental Fund for Southern Area
 - (EMAC) (SA-23) Environmental Monitoring and Animation Center
 - (CLEER) (SA-24) Integrated Management of coastal Resources (Coastal and Lagoon Environmental Education and Research-CLEER)
 - (T) (SA-25) Multiple Use Forest Management
 - (Eco) (SA-26) Eco-Tourism Development
 - (T) (SA-27) Appropriate Toilet Facilities for Households

- Legend**
- Protected forests
 - Production forests
 - Prime agricultural lowlands (Intensification)
 - Prime agricultural lowlands (Diversification)
 - Prime agricultural uplands (Intensification)
 - Prime agricultural uplands (Diversification)
 - Marginal agricultural uplands (Intensification)
 - Marginal agricultural uplands (Diversification)
 - Urban/Industrial use
 - Water bodies and Wetlands
 - Non-productive areas



The Master Plan Study for the Southern Area Development of Democratic Socialist Republic of Sri Lanka
 Japan International Cooperation Agency

ANCHOR PROJECTS

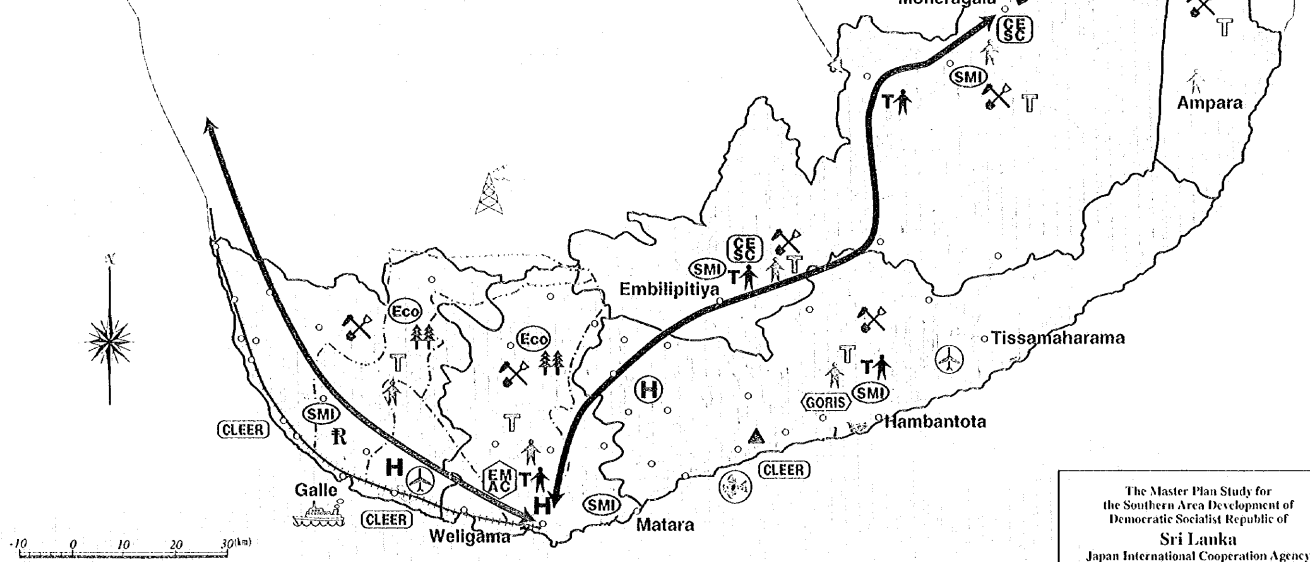
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Legend

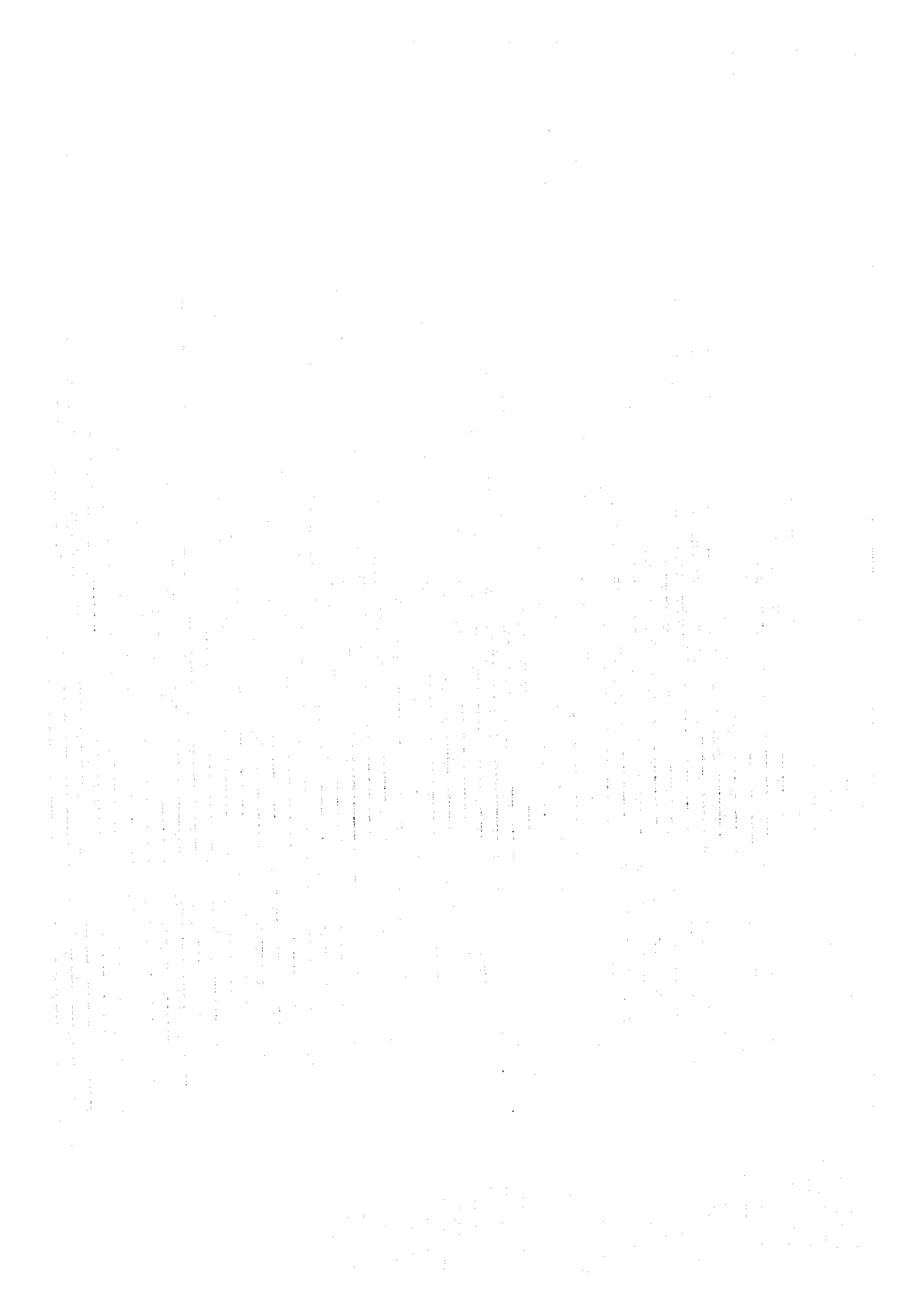
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The Master Plan Study for the Southern Area Development of Democratic Socialist Republic of Sri Lanka
 Japan International Cooperation Agency



EXECUTIVE SUMMARY REPORT

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ABBREVIATIONS

BOI	Board of Investment
CBO	Community-Based Organization
CLEER	Coastal and Lagoon Environmental Education Research
CTB	Ceylon Tourist Board
DNP	Department of National Planning
EIA	Environmental Impact Assessment
FD	Forest Department
GDP	Gross Domestic Product
GIS	Geographic Information System
GRDP	Gross Regional Domestic Product
JICA	Japan International Cooperation Agency
KDN	Kanneliya, Dadiyagala and Nakiyadeniya
MCPCIM	Ministry of Cooperatives, Provincial Councils and Indigenous Medicines
MFPEANI	Ministry of Finance, Planning, Ethnic Affairs and National Integration
NGO	Non-Governmental Organization
NITE	National Institute for Technical Training
NWFP	Non-Wood Forest Product
O&M	Operation and Maintenance
SAVEC	Southern Area Vocational Education Committee
SDA	Southern Development Authority
SEDZ	South-East Dry Zone
SLR	Sri Lanka Railways
SMI	Small and Medium Sized Industry
TVEC	Technical and Vocational Education Committee
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
VTDC	Vocational Training and Development Committee

Abbreviation of Measures

Length

mm	=	millimeter
m	=	meter
km	=	kilometer

Area

ha	=	hectare
km ²	=	square kilometer

Volume

l	=	lit = liter
m ³	=	cubic meter
MCM	=	Mm ³ = million cubic meter

Weight

mg	=	milligram
g	=	gram
kg	=	kilogram
t	=	ton = MT = metric ton

Energy

kcal	=	kilocalorie
TOE	=	tons of oil equivalent
kW	=	kilowatt
MW	=	megawatt
kWh	=	kilowatt-hour
Gwh	=	gigawatt-hour
MVA	=	megawolt-ampere
MMBFOE	=	million barrels of fuel oil equivalent

Others

%	=	percent
°C	=	degree Celsius
cap	=	capita
mil.	=	million
no.	=	number

EXECUTIVE SUMMARY

1. INTRODUCTION

In response to the request by the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan has decided to extend technical cooperation to prepare an integrated regional development master plan for its Southern Area and entrusted the implementation to the Japan International Cooperation Agency (JICA), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan. The implementing arrangement for this technical cooperation was agreed between the then Ministry of Finance, Planning, Ethnic Affairs and National Integration (MFPEANI) and JICA, and signed by respective representatives on February 2, 1995.

The area covered by this technical cooperation comprises the entire Southern province consisting of districts of Galle (16 divisions), Matara (14 divisions) and Hambantota (11 divisions), the southern part of Sabaragamuwa province (two divisions in Ratnapura district), the southern part of Uva province (six divisions in Moneragala district) and the southern part of Eastern province (one division in Ampara district) for a total of 50 divisions. The study area has 10,951 km² and the estimated population of 2,610,218 in 1994.

The objectives of the technical cooperation as agreed upon between MFPEANI and JICA are the following:

- 1) to prepare an integrated regional development master plan with the target year of 2015 for the study area defined above, out of which priority/emergency projects and programs shall be shortlisted, with a view to
 - (a) promoting the regional growth and narrowing of inter-regional income disparities,
 - (b) diversification of the regional economy, and
 - (c) expansion of employment-absorptive capacity; and
- 2) to make recommendations necessary for the effective implementation of the master plan, including investment promotion measures and institutional/budgetary arrangements.

2. ALTERNATIVES FOR SOUTHERN AREA DEVELOPMENT

2.1 Southern Area's Position

Southern Area in national socio-economy

Relative position of Southern Area in the national socio-economy of Sri Lanka may be summarized as follows.

- (1) Comparatively less developed with the per capita GRDP at 69% of the per capita GDP of Sri Lanka, smaller than the average per capita GRDP of all the areas (75% of the per capita GDP) excluding Southern Area and Western province in 1995.
- (2) Predominantly agricultural/rural with agriculture dominated by plantation crops (tea, rubber and coconut) and paddy.
- (3) High unemployment rates averaging 17% in 1994 as compared with the national average at 13% in the same year.
- (4) Comparative advantages in certain crops having dominant shares in the respective national production : cinnamon (84% of the national production in 1992/93 crop season), sugarcane (50%), greengram (46%), groundnut (29%), and low country vegetables (28%).

Southern Area in national spatial development

Characteristics of Southern Area in national spatial development may be summarized as follows.

- (1) Low level of urbanization with the ratio of urban population to the total population being 20.4% in Galle district, 11.1% in Matara district and 9.8% in Hambantota district, respectively lower than the national average of 21.5% in 1981 according to the official definition of "urban".
- (2) Lack of well developed urban centers with the largest urban center of Galle having an estimated population of only 102,000 in 1994.
- (3) Strong connection with Colombo with the coastal road as the main artery supplemented marginally by the coast line of the Sri Lanka Railway, and resultant poor access to most areas.

- (4) Major areas affecting migration patterns in Sri Lanka due to the rural-to-urban migration into Colombo from Galle and Matara and the migration from the wet zone to the dry zone both by settlement schemes and voluntarily in search for lands.

Southern Area's salient features

In addition to the comparative characteristics of Southern Area outlined above, the Area has some salient features incomparable with most other regions. Five features are noted.

- (1) Diversity in physical features with all the three climatic zones, vegetation ranging from tropical rain forests to savannah, topography containing mountains, undulating terrains and broad coastal plains; and varied soil suited to a variety of crops.
- (2) Long and varied coastlines containing headlands, pocket beaches, embayments, dune formations and lagoons.
- (3) Bio-diversity supported by the Sinharaja Forest Reserve, the Bundala and the Yala National Parks and other reserves.
- (4) Mal-distribution of water resources both in time and in space.
- (5) Rich socio-cultural and historical inheritances that date back to as early as 200 B.C., when the Kingdom of Ruhuna was founded.

2.2 Alternatives for Southern Area Development

- (1) Definition of development alternatives

To plan for the long-term development of Southern Area, three broad alternatives may be conceived as follows.

Alternative I : Indigenous resources based development

Alternative II : External resources/market driven development

Alternative III: Support industry/services oriented development

These are distinct alternatives conceptually but not mutually exclusive. Certain socio-economic activities may fall under two or three alternatives as clarified later.

Indigenous resources based development

The basic concept of this alternative is to utilize indigenous resources by and for the benefits of local people and communities. This represents a most authentic approach to regional development. This alternative naturally fits best to local conditions.

Attaining high growth under this alternative calls for the introduction of some innovative elements based on indigenous resources. Most essential indigenous resources, other than human resources, are land and water resources that would support various agricultural activities. Southern Area produces already a variety of characteristic crops suited to local conditions, that can be processed within the region if their production is expanded. They include citronella, cardamom, gingelly, lemongrass, chillies, peppers, and various fruits as well as cinnamon and cashew.

Population distribution would be more dispersed under this alternative, as comparatively more employment opportunities may be created in rural areas and small towns by agro-processing industries and agriculture-related services. This alternative may not justify early development of the Galle port, since those agro-products indicated above typically have small volume and high value such as condiments, pharmaceuticals and cosmetics.

External resources/market driven development

The basic concept of this alternative is to introduce external resources to develop mainly industries as a driving force for regional development, and to produce goods primarily for exports. This is a high growth, high industrialization alternative. It is expected to generate a large number of employment opportunities, but may not induce much the development of indigenous industries and related services.

This alternative would require large amount of public investments to improve various infrastructure facilities in one or at most a few growth centers with high potentials. Population would naturally concentrate in these centers. This alternative thus may entail more serious social and environmental problems.

Under this alternative, the Galle port would be important both to import various raw materials, intermediate and capital goods, and to export products. With associated improvements in various urban facilities and functions as well as strengthened links with Colombo, a supplemental transshipment function of the Galle port may become viable.

Support industry/ services oriented development

Under this alternative, such socio-economic activities would be encouraged that would serve other regions as well as Southern Area. A typical example is a sub-contracting firm to serve a major industry in the Colombo area. Other linkage type industries may also fall in this category including engineering and even software industry. Specialized health and education services may be established at selected locations to serve the Country as a whole, such as Ayurvedic medicine and environmental education capitalizing on the natural resources of Southern Area.

Another important activity under this alternative is inter-regional trade. The Galle port would be important more as a regional port serving mainly domestic transport needs. Spatial development under this alternative would be characterized by stronger links with other regions.

(2) Comparison of the alternatives

The three development alternatives are compared in Table I. Each alternative has advantages and disadvantages. Alternative II for external resources/ market driven development would attain the highest economic growth and generate the largest employment opportunities, followed closely by Alternative III for support industry/service oriented development. Income disparities between farmers and non-farmers would be reduced most significantly under Alternative I for indigenous resources based development. Social and environmental problems would be most serious under Alternative II, and most manageable under Alternative I.

Alternative II may require the largest amount of public investments, while Alternative III may call for higher levels of development management in the forms of training and extension as well as better planning and coordination of inter-related development activities.

2.3 Southern Area Development Alternative

The most desirable yet realistic alternative for the Southern Area development may be defined by combining the three alternatives in time and space. Initially, the Southern Area development may be based primarily on the indigenous resources, but selected elements of the other two alternatives would be injected in some areas to generate more employment opportunities, while diversifying and adding depth to the regional economy and protecting/enhancing social and environmental value. While the productivity of traditional

activities would be improved, some innovative elements should be introduced based on indigenous resources.

Home gardens may represent such a resource. Home gardens covering as much as 10% of agricultural land in many divisions may be rehabilitated to convert them into commercially viable production system (e.g. multi-storey farming) with selected crops of high value-added and marketability. Many characteristic crops already existing in Southern Area fit to this scheme such as cinnamon, cashew, coffee and various fruits. Vegetables and pulses may also be combined. Some herbal medicinal plants may fit as well.

Table 1 Comparison of three Development Alternatives (of Alternatives Development Scenarios)

	Alternative I Indigenous resource based development	Alternative II External resource/market driven development	Alternative III Support industry/service oriented development
Definition	To utilize indigenous resources by and for benefits of local people/communities	To introduce external resources as a driving force for development aiming at export markets	To provide various support services to other regions
Advantages and disadvantages	+Natural, benefit a wide range of local people -Low growth without innovations	+High growth, large employment opportunities -Limited linkage effects, undesirable social and environmental effects	+Higher growth than (1), social and environmentally more desirable than (2) -Volatile against changes in external conditions
Typical activities	Traditional farming, simple agro-processing, agricultural-related services	Industrial crops, commercial poultry, footloose and port/airport-oriented industries, industry-related services	Subcontracting and linkage industries, inter-regional trade, specialized health and education services
Spatial development Galle port	Dispersed population distribution Difficult to justify in near future	Concentration in a few urban centers Important for import and export, and possibly also for transshipment	Stronger links with other regions More important as a regional port
Indicative growth rate of economy	6.2% p.a.	8.4% p.a.	8.0% p.a.

Paddy-based mixed farming is another way to enhance agricultural productivity. Higher value pulses and vegetables may be combined with paddy under irrigated conditions. It may contribute also to increasing paddy yields through improved profitability of farming.

Another innovation may be to establish integrated farming systems by revitalizing/strengthening the traditional farming system by small holders, which combines crops and livestock. Buffalo and goat raising in the backyard may also be combined with crop cultivation.

The external resources/market driven development would be applicable initially only to the Galle area. More sub-contracting and foot-loose type industries may be established, if key infrastructure facilities are improved such as roads, water supply and telecommunications. Subsequently, some port or airport oriented industries would also establish. The latter may include jewellery, toys, pharmaceuticals, cosmetics, apparel and leather products. Some of them may locate in a few other urban centers.

A few activities of the support industry/services oriented development may also be established initially in a few locations where some specialized functions are expected to develop on the basis of local resources. They may take forms of specialized health and education services such as Ayurvedic medical care, environmental education and a hotel school. Tourism development linked with tourism resources in other regions may also fall in this category.

These support industry and services would diversify subsequently. They may include engineering and even software industries as well as various linkage type industries. Inter-regional trade and related services based on the Galle port would become increasingly more important.

The Southern Area development alternative is summarized in Table 2 as the development scenario with phasing.

Table 2 Development Scenario for Southern Area with Phasing - A Summary

	Phase I (~2000)	Phase II (2001-2010)	Phase III (2011-2015)
Characterization	<ul style="list-style-type: none"> Indigenous resources based development Initiation of innovations with respect economic activities and management organizations Strong government initiative Growth rate ~6% p.a. 	<ul style="list-style-type: none"> External resource/market driven development Transformation of spatial and economic structures Stable and open macro policies by the Government Growth rate 8.5% p.a. 	<ul style="list-style-type: none"> Support industry/services oriented development Strong private sector; facilitative government roles High images and respectable positions of Southern Area for outward oriented services Growth rate ~8% p.a.
Socio-economy (Typical activities)	<p><u>Agriculture</u></p> <ul style="list-style-type: none"> Continuation of on-going efforts to improve traditional crops Expansion of sugarcane and cashew Initiation of mixed, multi-storey and integrated farming Revitalization of inland fishery <p><u>Industry</u></p> <ul style="list-style-type: none"> Expansion of existing industries - e.g. garments, handicraft and agro-processing Initiation of new processing industries - e.g. leather, cashew Improvement of processing for higher value products <p><u>Services</u></p> <ul style="list-style-type: none"> Steady growth of consumer-oriented services Initiation of specialized services - e.g. higher education, Ayurvedic medical care, eco-tourism Further tourism development along southwestern coast and around Hambantota 	<p><u>Agriculture</u></p> <ul style="list-style-type: none"> Expansion of new crops and innovative production systems Diversification of integrated farming Marine fisheries as a main stream economic activity <p><u>Industry</u></p> <ul style="list-style-type: none"> New agro-processing in full scale Secondary processing for high value-added products - condiments, cosmetics and pharmaceuticals Foot loose industries and subcontracting industries to Colombo-based industries <p><u>Services</u></p> <ul style="list-style-type: none"> Expansion of non-industrial services - transport, wholesale, export services New types of transport and marketing services - refrigerated trucking, trading house Tourism with a variety of man-made attractions 	<p><u>Agriculture</u></p> <ul style="list-style-type: none"> Intensive agriculture Full utilization of primary products through complete cycle processing and recycling Direct export of cutflower, office plants, vegetables and fish <p><u>Industry</u></p> <ul style="list-style-type: none"> Products diversification and industrial deepening Engineering and other linkage industries as a main source of employment and income Integration with Colombo-based industries <p><u>Services</u></p> <ul style="list-style-type: none"> More specialized services - environmental education, bio-diversity research, eco-tourism, indigenous medical care International trade-related services in Galle Rural services delivery by wireless telecommunications network
Spatial development	<ul style="list-style-type: none"> Access improvement from Colombo to and through Galle Selective improvement of urban infrastructure - Galle, Matara, Hambantota, Embilipitiya, Tissamaharama and Suriyawewa Initiation of intra-regional artery 	<ul style="list-style-type: none"> Intra-regional artery as a high grade road Galle established as an international city Improvement of urban infrastructure in secondary towns 	<ul style="list-style-type: none"> Inter-regional links by the Galle port, highways and air Strong urban hierarchy Road links for all rural service centers
Human development	<ul style="list-style-type: none"> Formal community involvement in planning and development Improvement of delivery systems for health and education Streamlining of vocational and technical education and training 	<ul style="list-style-type: none"> "Distance" education and training Private hospitals NGO network to support community participation 	<ul style="list-style-type: none"> Formal education responsive to industry needs Occupational training linked with enterprises, placement network and monitoring systems Refocused health care for aging population NGOs as sound partners with communities for self-reliant development

Source : Master Plan Report, Section 5.3

3. OBJECTIVES AND STRATEGY FOR SOUTHERN AREA DEVELOPMENT

3.1 Regional Development Objectives and Strategy

(1) Southern Area development objectives

Objectives for the Southern Area development are defined to address the most critical problems in economic, social and environmental aspects. The first objective represents a major and more immediate concern in the social aspect. As the objective for a long-term development, it may be expressed as follows.

- 1) To create a sufficient number of high earning employment opportunities for growing and increasingly more educated labor force.

The second objective is defined related directly to environmental and socio-cultural concerns. It is expressed as follows.

- 2) To preserve/enhance the unique natural and socio-cultural resources of sufficient diversity as a sustainable basis for various socio-economic activities.

The third objective representing the economic aspect goes beyond the regional concern. As long as Sri Lanka continues to take open policy as she should, the Country would have to establish industrial and trade niches of her own. Southern Area should contribute to this.

- 3) To contribute to realizing open and competitive economies of Sri Lanka within the increasingly borderless world through establishment of viable economic activities.

(2) Basic strategy for Southern Area development

The basic strategy for the Southern Area development is defined related to the physical/natural factors and the social/institutional factors identified through analyses on existing conditions. The first strategy component is to cope with the physical constraint facing Southern Area.

- 1) Strengthening of links with Colombo and improvement of access to inland areas and the south-east dry zone (SEDZ).

The second strategy component is concerned with water and land resources.

- 2) Integration of water resources development and management system with land use system from the upstream for watershed management consistently to the downstream.

The third strategy component addresses itself to the critical social/ institutional factor.

- 3) Revitalization and effective use of traditional/indigenous systems to be supported by modern infrastructure and services for higher land productivity, more efficient water management, sustainable agricultural and fishery practices, effective marketing and processing, diversified tourism and other services, and better social services delivery.

The fourth strategy component is related directly to the institutional factors.

- 4) Streamlining of development planning and administration in line with the devolution policy and the establishment of the Southern Development Authority particularly for:
 - better coordination and fund management,
 - more effective monitoring and evaluation, and
 - institutionalization of participation.

3.2 Strategy for Economic Development

(1) Agriculture

Crop agriculture

Crop diversification in the paddy land should be further promoted under the on-going Second Agricultural Extension Project. The best strategy for other field crops is to encourage private sector involvement in seed production, research, extension, marketing and processing.

Rainfed crop agriculture should be shifted to more intensive one particularly in the dry zone through establishment of clear land use policy and crop selection strategy as well as supply of the extension and farm input services. Promising crops include sugarcane, cashew, pineapple, maize, pulses, kurakkan and oil seeds (gingelly, sunflower, mustard and castor). Cultivation of export oriented crops such as melon and vegetables should also be promoted.

Plantation and minor export crops

Multi-storey/mixed farming systems should be promoted to diversify farmer income sources. Combination of cocoa with rubber, and cassava, sweet potato, ginger, pineapple, mulberry and legumes etc. with coconut have already been developed in the Country. Integrated farming combining crops with livestock/poultry should also be promoted further. Sericulture is promising in the intermediate zone of Moneragala and Hambantota districts.

Home garden farming should be made into a commercially viable production system through selection of high value crops and extension and farm inputs supply services. Promising crops for home gardens would include fruit trees such as mango, citrus, and rambutan, minor export crops such as citronella, cardamom, pepper, cocoa and vanilla, and vegetables.

Fruits and other crops

High value fruits production such as mango, citrus, pineapple, avocado and banana should be increased through strengthening of research and extension services. More research works should be carried out covering new fruits and new varieties of existing fruits. Shift of present subsistence-level farmers to sugarcane and cashew production should be further promoted in the dry and intermediate zones. The possibility of commercial growing of medicinal herb plants should be studied.

Irrigation and drainage

On-going projects/programs for rehabilitation of irrigation/drainage systems and its O&M improvement should be continued. Alternative irrigation technologies should be introduced to improve water use efficiency for various crops other than paddy. Farmer organizations should be strengthened to take responsibilities for water management in a sustainable manner.

Livestock and poultry

For cattle and buffalo, the development strategy should focus on increase in animal productivity especially for milk and not on increase in animal population. Poultry industry both for layers and broilers should be further expanded to supply rapidly growing markets. For this, private sector investment should be encouraged. Local production of fodder crops such as maize, sorghum and soybeans should be increased to supply feed ingredients for the feed industry, and decrease import of these products and save foreign exchanges. Proper utilization of by-products and crop residues should be promoted particularly in the dry zone.

Fishery

Inland fishery should be re-vitalized aiming at the self-sufficient level of production for people in inland areas. A key strategy is to increase fingerling production for stocking various inland water bodies by using the two stations at Udawalawe and Muruthawela and also encouraging private producers. Outgrower systems using seasonal tanks and other water bodies for nursing of fry to fingerlings should be encouraged.

Marine fishery should become a mainstream economic activities for coastal fishing communities. For this, small fishfolks should be organized and trained to enter into offshore fishery with larger and better equipped boats. Existing fishery harbours and anchorages should be rehabilitated together with associated on-shore facilities.

For both inland and marine fisheries, human resources development is essential. Training programs should be introduced at existing institutes for skippers, technicians and fishermen. Fishery resources inventory and management constitute another strategy/component for marine fishery.

(2) Industry

The government role in Southern Area industrial growth is confined to creating a conducive policy environment and selective facilitative supports. The latter include physical infrastructure, labour training and streamlining administration. Re-introduction of locational selectivity in BOI incentives is also recommended.

For target industries such as electronics, a specialized industry-wide institute should be established in Southern Area. A comprehensive package of promotional measures are proposed to gain the support and participation of potential foreign investors in this institute.

Infrastructure provision should be substantially speeded up in a few selected growth centers in Southern Area. Candidates are Galle, Hambantota and Embilipitiya. Not only industrial but total urban infrastructure should be improved in these centers.

Industrial finances must be made available at reasonable interest rates. Directed credit should be established and be made available to all regional firms, including those that agree to relocate part of their operations from Colombo or undertake their expansion in Southern Area. All financing requirements of such firms, including the part continuing production in Colombo, should be provided by the new facility.

One-stop service centers should be established in the selected urban centers to provide all functions presently performed by BOI, Customs Department, and relevant Ministries. These will be the core of the regional offices of the Southern Development Authority. It is recommended that they operate in close cooperation with the Regional Industry Service Committees.

For the medium term, these functions should be supported by establishing technology and training institutes specialized in a few products. It is likely that these will include consumer electronics, leather, fabricated metal products, and gems and jewelry.

(3) Tourism

Basic strategy for tourism

Tourism development in Southern Area will proceed further along the southwestern coast in the short to medium term, but in the medium to long term, Hambantota and Matara will become more attractive. Tourism resources in Southern Area will be inter-linked with each other and also resources in other regions. Important links and tourism clusters are illustrated in Figure 1. The Galle-Matara cluster (C-2) will be formed, if the Galle fort area is rehabilitated combined with traditional handicraft in Matara with the injection of new elements such as a cultural center.

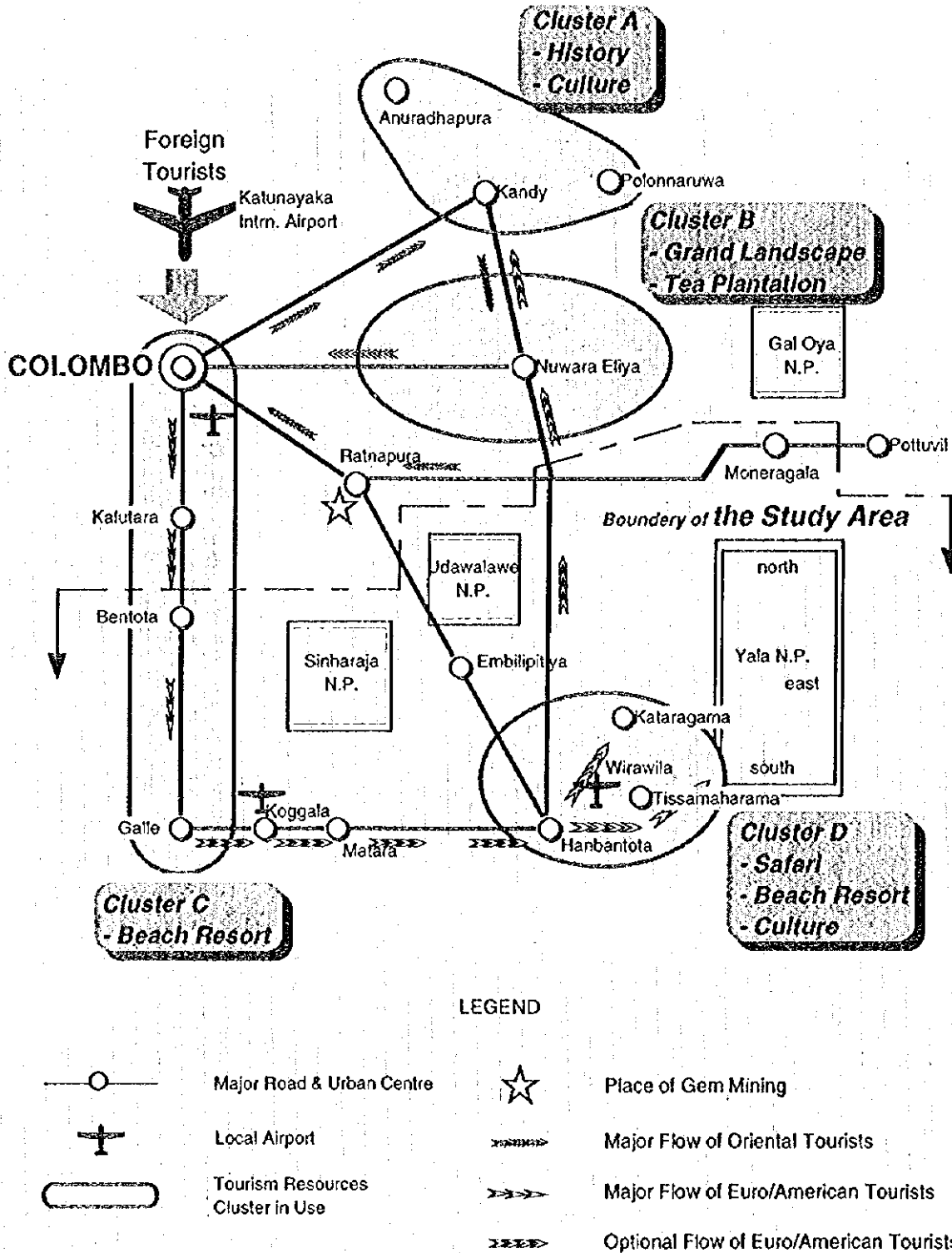
Tourism in Moneragala will center on the Maligawita statue rehabilitated by UNESCO cooperation in combination with other small historical remains and the Yala and the Lahugala National Parks. Once the security in the east is restored, the Arugam Bay resort at Pottuvil will be developed as recommended by the CTB/UNDP master plan. Then Moneragala will become another tourism gateway and a base for safari tourism. Another prerequisite is to upgrade the Weerawila airport for direct access by foreign tourists.

Promotional measures

CTB should take the initiative in cooperation with related agencies to encourage private sector investments and local participation. The following are particularly important.

- 1) Education and training for tourism services and management staff to improve service quality so that tourists themselves would become marketing agents;
- 2) Enhancement of public awareness for tourism's effects on employment generation and economic development so that social status of tourism service staff will be improved to facilitate manpower development for tourism;

Figure 1 Tourist Circuit and Resources Cluster at Present



Source : JICA Study Team

- 3) Strengthening of CTB supports for private investors to encourage new development in response to demand increase;
- 4) Upgrading and expansion of accommodations owned by public corporations for domestic tourists to contribute to income re-distribution;
- 5) Invitation of international conferences, trade fairs and other events as opportunities to market Sri Lanka tourism and to enhance its images;
- 6) Dissemination of tourism information to major tourism markets through international fairs and other events; and
- 7) Provision of specific detailed and up-to-date information on tourism sites at major hotels and other tourism spots;

(4) Trade and other services

Commercial trade

The current distribution system for manufactured goods should be improved by (1) streamlining their hierarchical structure (headquarters/warehouses-local wholesale agents-retailers), and (2) better stock management. For fresh food items, the strategy is to make the market function better through price deregulation, dissemination of market information, assurance of market access for small farmers with farmers organizing and infrastructure improvement, and modernization of transport and marketing facilities.

Consumer services

The best strategy is to leave this subsector without any policy intervention so that consumer services can respond to market demand properly. One possible exception is finance, that should be addressed separately.

Financial service

Prevailing high costs of finance must be corrected. Strategy for this is necessarily national but still highly relevant to the Southern Area development:

- reduce the national budget deficit;
- rationalize various concessional credit programs which are ineffective and yet a substantial budgetary burden; sell commercially oriented programs to

private banks and tightly target non-commercially oriented ones at the intended beneficiaries; and

- for banks, reduce the default rates by strengthening loan appraisal capacity as well as debt recovery discipline.

Strategy to improve credit availability outside the Colombo metropolitan area is again a matter of national policy:

- give the banks incentive to lend money to the Southern customers by reducing the statutory reserve ratio (15% currently) by 0.2--0.5% and earmarking the freed funds entirely for Southern Area; each commercial bank is required to deposit a certain portion of deposit liabilities in the Central Bank on which low interest is paid.

In many localities semiformal financial institutions are the only institutions that provide banking services but not all of them are up to professional standards. A separate strategy is necessary for them:

- monitor the health of the rural financial institutions closely and regularly; and
- strengthen the management of those institutions and of the Cooperative Rural Banks in particular because of its most extensive operation coverage.

3.3 Strategy for Environmental Development

(1) Environmental development

Environmental administration

Functional division between the Central Government and local governments should be re-established along the devolution policy. The Government should formulate policy measures and establish standards and criteria. Strict enforcement of EIAs is another function expected at the central level. Environmental monitoring and assurance of compliance with environmental law and regulations are among the functions to be fulfilled at local levels.

The devolution of environmental administration needs to satisfy three conditions: (1) increased participation of local people and communities in environmental and natural resources management, (2) strengthening of staff and financial capacities at the

provincial/district level, and (3) improved communications between CEA, the industrial sector and local people/communities.

Environmental awareness and training

Environmental centers should be established and linked with local people and communities. This would also help to enhance public awareness against illegal mining, encroachment of forest reserves, over-exploitation of fish resources and other inadequate practices. The centers will accumulate environmental information and data necessary for environmental monitoring, education and training.

International networking would also be important for education and training in forest management and bio-diversity preservation. A regional node would be necessary for such a network, which may even be a national center for environmental research, education and training.

Watershed management

Management of land and water resources should be integrated through watershed management. The traditional land-water ecosystem should be revitalized for the retention of soil moisture in the SEDZ.

Law enforcement and preventive measures

Environmental management for Southern Area should be based primarily on the promotion of preventive measures rather than mitigative measures. Strict enforcement of environmental standards is a prerequisite. The strengthening of District Environmental Law Enforcement Committees and municipal environmental councils is of prime importance.

A more positive approach consists of land use zoning and planning for basic infrastructure to human settlements in anticipation of future development. Land use zoning should be conducted from an environmental point of view to provide integrated resource profiles for various potential activities. Output should be published in the form of maps for easy access and use by planners, policy makers and investors as well as general public.

Financial incentives may be provided to increase "willingness to pay" for environmental conservation and rehabilitation by business enterprises. One way is to provide a subsidy for pollution control device. For a more broad based environmental improvement and management, an environmental fund may be established. The fund may be used for EIAs, preventive measures by the private sector currently not covered by existing funds, and

environmental activities by NGOs. Penalty payments by violators of environmental laws and regulations would be put directly into the fund.

(2) Forest and protected area management

Community participation

Since the Government does not have sufficient resources to prevent forest depletion, it needs to establish partnership with local villagers, farmers, enterprises and NGOs for both production and conservation. Provision of tangible benefits for local people in the forms of employment, income, services and infrastructure will enable them to maintain forest resources for their own benefits.

Economic incentives

Multiple use forests and tourism activities should be promoted as they provide economic incentives for protecting and enhancing environmental quality. Other relevant socio-economic activities to be encouraged include organic agriculture, use of herbal medicine, utilization of renewable energy and skill based rural industries.

Forest plantations and reforestation

Aggressive tree planting and reforestation should be undertaken by the private sector under the technical assistance of FD in various forms. Farmers' woodlots be established to provide income, land lease, and tree tenure to create incentives for maintaining seedlings. Home gardens may be used for nurseries. Taungya in a large scale can alleviate poverty and reduce land degradation by chena cultivation. Commercial forest plantations should be supported by FD for selection of sites and tree species and establishment of economic viability.

Woodbased industry

Wood based industry should be promoted to encourage people to plant more trees in their home gardens through creation of market. Research on less known indigenous species should be conducted by FD in cooperation with the private sector.

Training, education and research

Training in environmental management is a must for protected areas managers and front line officers. Effective environmental education can be conducted through participation in management of conservation and multiple use forests, nature-based tourism, nursery production in home gardens, and production of wood and non-wood forest products.

Research into new areas should cover suitable silviculture system for sustainable management of multiple use forests, practical aspects of wood products, socio-economic needs of local villagers, and economic analysis on agroforestry systems including home gardens.

3.4 Strategy for Social Development

(1) Health

The strategy to improve health services in Southern Area consists of the following:

- 1) establishment of a network of district level health institutions and facilities to effectively link preventive and curative health care;
- 2) development of a formal referral system to maintain quality of care and improve efficient use of resources and specialties at all levels, supported by dissemination of information on facilities to motivate people to use the appropriate level of service;
- 3) strengthening of quality, supply and deployment of health care staff, with high priority on under-served areas and provision of incentives to staff in remote areas;
- 4) upgrading of health care institutions, including provision of equipment and competent staff;
- 5) community mobilization to support reduction of preventable diseases and health awareness, in collaboration with NGOs for health promotion, prevention of diseases, and decisions on kinds of health care facilities needed;
- 6) research and development of services for the use of indigenous medicine, utilizing local resources;
- 7) encourage private sector to expand and diversify health care services, to reduce the burden on Government budget and staff;
- 8) upgrade management capacity for service delivery, including data management and information sharing at divisional, district, provincial, and national levels for better planning and monitoring and evaluation of system performance; and

- 9) research into health effects of factors such as migration and the impact of development activities.

(2) Education

The strategy for education sector in Southern Area is a multi-faceted one, with the following foci:

- 1) develop a rational framework and longer term plans at the national level;
- 2) revise curricula and teaching methods to emphasize problem solving and creative learning, with concentration on linguistic skills, mathematics, and sciences;
- 3) introduce/strengthen new courses for design and research skills, entrepreneurship, environmental awareness and others;
- 4) improve teacher training, teaching quality, and equitable deployment of teachers;
- 5) upgrade some school facilities and equipment;
- 6) improve distribution of and access to educational institutions;
- 7) expand informal education system for school drop outs and others who are unable to attend formal courses; and
- 8) create efficient administrative and management systems.

(3) Technical and vocational education and training

Coordination and rationalization

The strategy for Southern Area supports the Technical and Vocational Education Commission (TVEC) at the national level with a regional committee - Southern Area Vocational Education Committee (SAVEC). The tasks of SAVEC include the coordination of programs that respond to skill requirements, guidance in development of curricula, promotion of rational distribution of institutional responsibility for particular skill sectors and assurance of training quality meeting industry standards.

Market orientation

The following processes are critical to ensure market orientation :

- continuous private sector input on skill requirements, course contents, and training standards,
- flexible process to incorporate recommendations promptly, and
- employer evaluation of training and skill performance as well as efficient ways to use information.

Support services

Vocational training and development committees (VTDCs) and training institutions should help to develop counseling and placement centers in each district capital initially. SAVEC should offer same pre-training services at its counselling and placement centers as well as cooperate with secondary school counselling services.

The centers, in collaboration with VTDCs, will hold job fairs and use other creative ways to circulate information on job openings, such as newsletters, circulars, posters, and radio/TV announcements. NGOs and employment consultants will assist by providing training in skills such as job search and work habits, effective verbal communications, resume preparation, networking, confidence building, work ethics, decision-making and problem solving, and team work.

High quality training

Capacity building for training will focus initially on (1) strengthening staff of the regional TVEC and National Institute for Technical Training (NITE), the Vocational Training and Development Committees, and employer initiated training projects and (2) creating a cadre of master trainers and programme managers who, in turn, will train other staff. Attention will shift for the longer term to creating a cadre of specialized staff, with a corporate structure for greater management flexibility in planning, curricula development, monitoring and evaluation, and counselling and placement. These specialists would train others, as well as work on a permanent or contract basis for public or private agencies.

(4) Poverty alleviation

The main strategy will be to link welfare programs with development activities. Projects and programs will focus on helping the Samurdhi and other relevant on-going projects to refine the qualifications for welfare assistance, to develop community based endeavors to overcome poverty of the majority, and to assist those who will need support for the longer term.

4. SOUTHERN AREA DEVELOPMENT FRAMEWORKS

4.1 Socio-Economic Framework

A socio-economic framework has been worked out for the Southern Area development to the year 2015. The framework specifies the level of development expected in the target year by selected socio-economic indices projected in a mutual consistent way.

The gross regional domestic product (GRDP) of Southern Area is projected to increase from Rs. 17.0 billion (at 1995 prices) in 1995 to Rs. 76.0 billion in 2015 at the average annual rate of 7.8% with significant change in sector structure as illustrated in Figure 2. Expected growth performance of the Southern Area economy to the year 2015 is compared in Table 3 with growth targets of the Public Investment Program 1995-99.

Figure 2 GRDP Projection for Southern Area

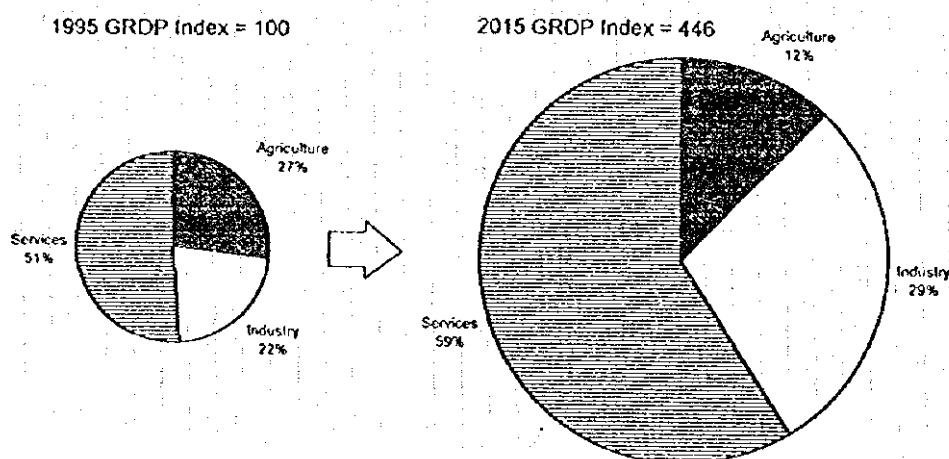


Table 3 Southern Area Growth Compared with National Targets

(Unit : % per annum)

	Southern Area 1995-2015	Sri Lanka 1995-99
Agriculture	3.3	3.9
Industry	9.2	10.0
Services	8.6	6.9
Total	7.8	6.9

The total employment is projected to increase from 794,000 in 1995 to 1,162,000 in 2015 to reduce the unemployment rate from the current 17% to 5% by 2015. Additional

employment generation will be 120,000 in industry and 248,000 in services for a total of 368,000 over 1995-2015.

4.2 Spatial Framework

(1) Artery network and growth centers

A future artery network for Southern Area should satisfy the following basic requirements:

- 1) to strengthen links with Colombo to expand markets and improve comparative advantage of Southern Area for location of industrial and other activities, and
- 2) to serve rural areas better for marketing of agro-products including processing and improved provision of various social services.

To satisfy these requirements, the following components should be incorporated in the spatial framework for the Southern Area development (Figure 3):

- 1) Establishment of two main access routes from Colombo: the Galle/Matara access and the Embilipitiya/Hambantota access;
- 2) Establishment of a strong intra-regional artery or intra-regional spinal road linking Galle, Matara, Embilipitiya, Tanamalwila, Wellawaya and Moneragala; and
- 3) Strengthening of the growth center of Embilipitiya at the major cross roads between the intra-regional artery and the Embilipitiya/Hambantota access.

A future urban hierarchy proposed by the Master Plan is illustrated in Figure 4. In this hierarchy, a few urban centers - Moneragala, Buttala, Tanamalwila and Sooriyawewa - along the proposed intra-regional artery are upgraded as boosting centers together with Kataragama and Morawaka.

(2) Land use framework

Land suitability has been evaluated to identify potential lands in eight classes : prime agricultural lowland (crops and pasture), prime agricultural lowland (only crops), prime agricultural upland, marginal agricultural lowland, marginal agricultural upland, production forest land, protected forest land, and land unsuitable for agricultural uses. The result has been compared with the present land use, and proposed land use has been developed. Land use conversion rules are given in Table 4. Figure 5 shows the proposed land use.

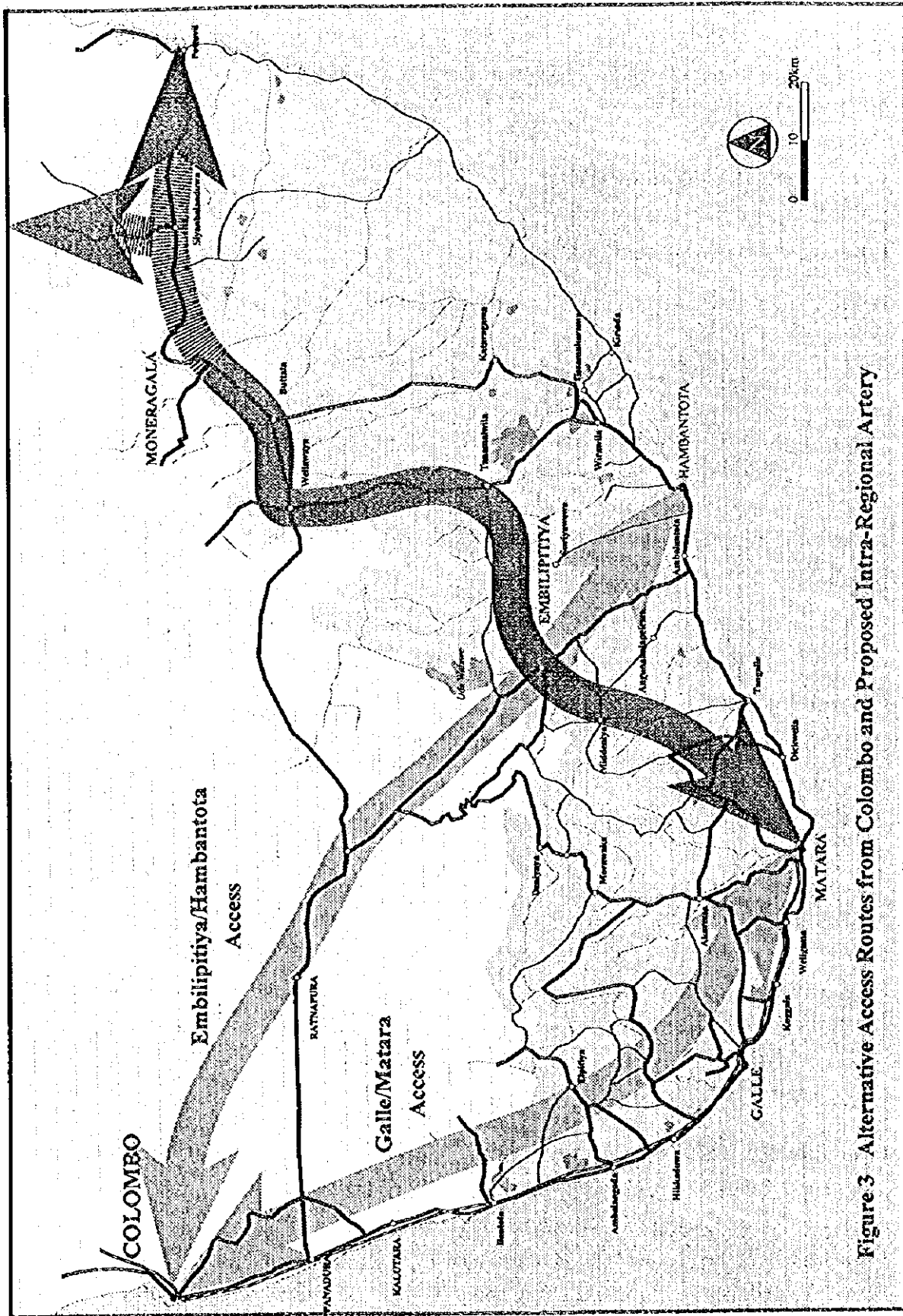
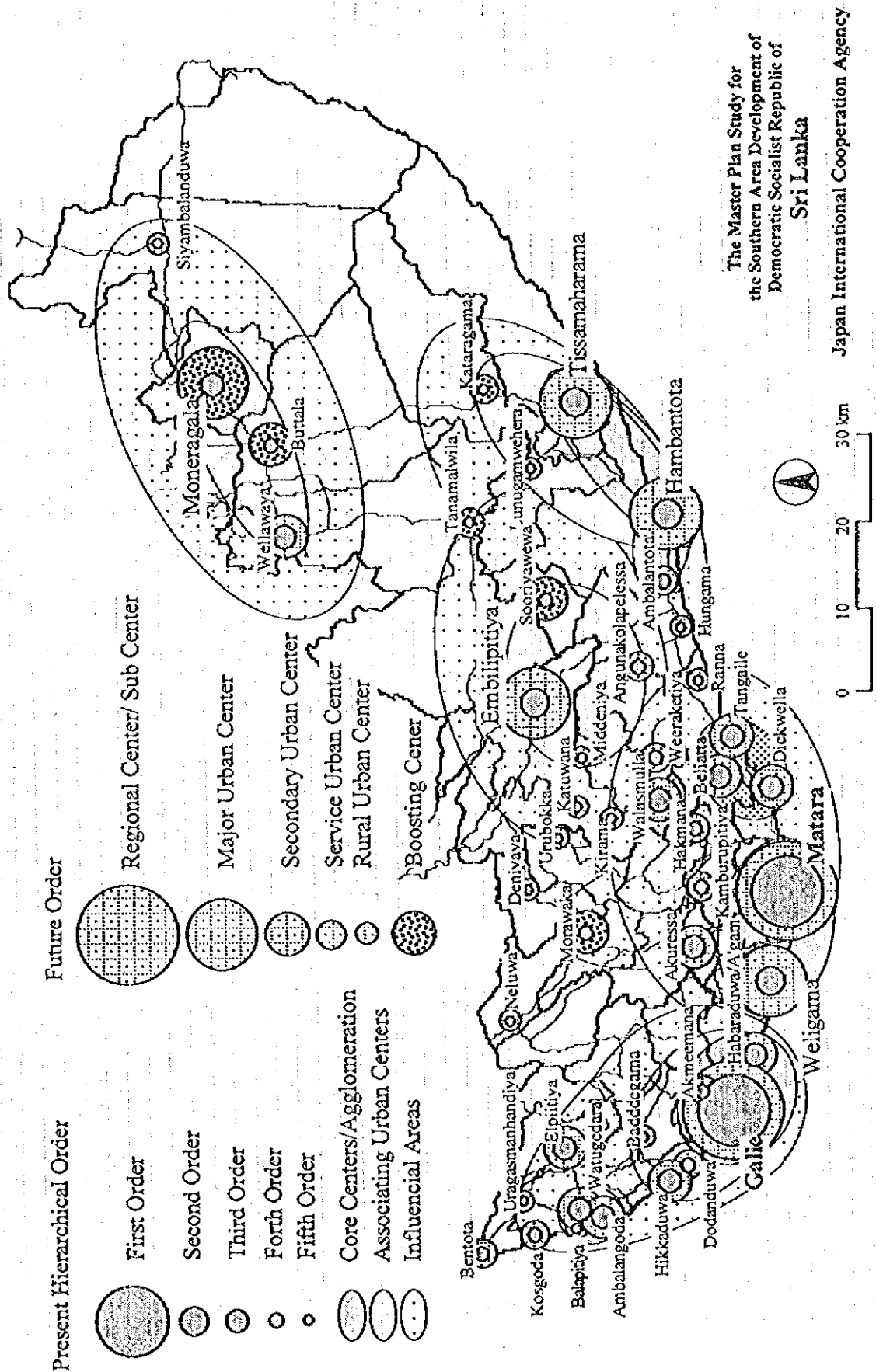


Figure 3 Alternative Access Routes from Colombo and Proposed Intra-Regional Artery

Figure 4 Possible Future Hierarchy of Urban Centers



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Table 4. Land Use Zoning Criteria for Deriving Proposed Land Use

POTENTIAL LANDUSE	a. Potential forest land	b. Production forest land	c. Prime agricultural lowlands	(only agriculture)	d. Prime agricultural lowlands	(agriculture and pasture)	e. Prime agricultural uplands	f. Marginal agricultural lowlands	g. Marginal agricultural uplands	h. Unsuitable for agricultural use
EXISTING LANDUSE										
A. Built up land and associated non-agricultural land	1	2		6		6	6	6	6	6
B. Homesteads	1	2		3a		3a	4a	8	5a	8
C. Trees and other perennial crops	1	2		3a		3a	4a	8	5a	8
D. Paddy cropland	1	2		3a		3a	4a	8	5a	8
E. Sparsely used land and other cropland	1	2		3b		3b	4b	8	5b	8
F. Dense forests	1	2		1		1	1	1	1	1
G. Open forests and plantations	1	2		3b		3b	4b	8	5b	8
H. Scrubland and grassland	1	2		3b		3b	4b	8	5b	8
I. Water bodies and wetlands	7	7		7		7	7	7	7	7
J. Barren land	1	2		8		8	8	8	8	8

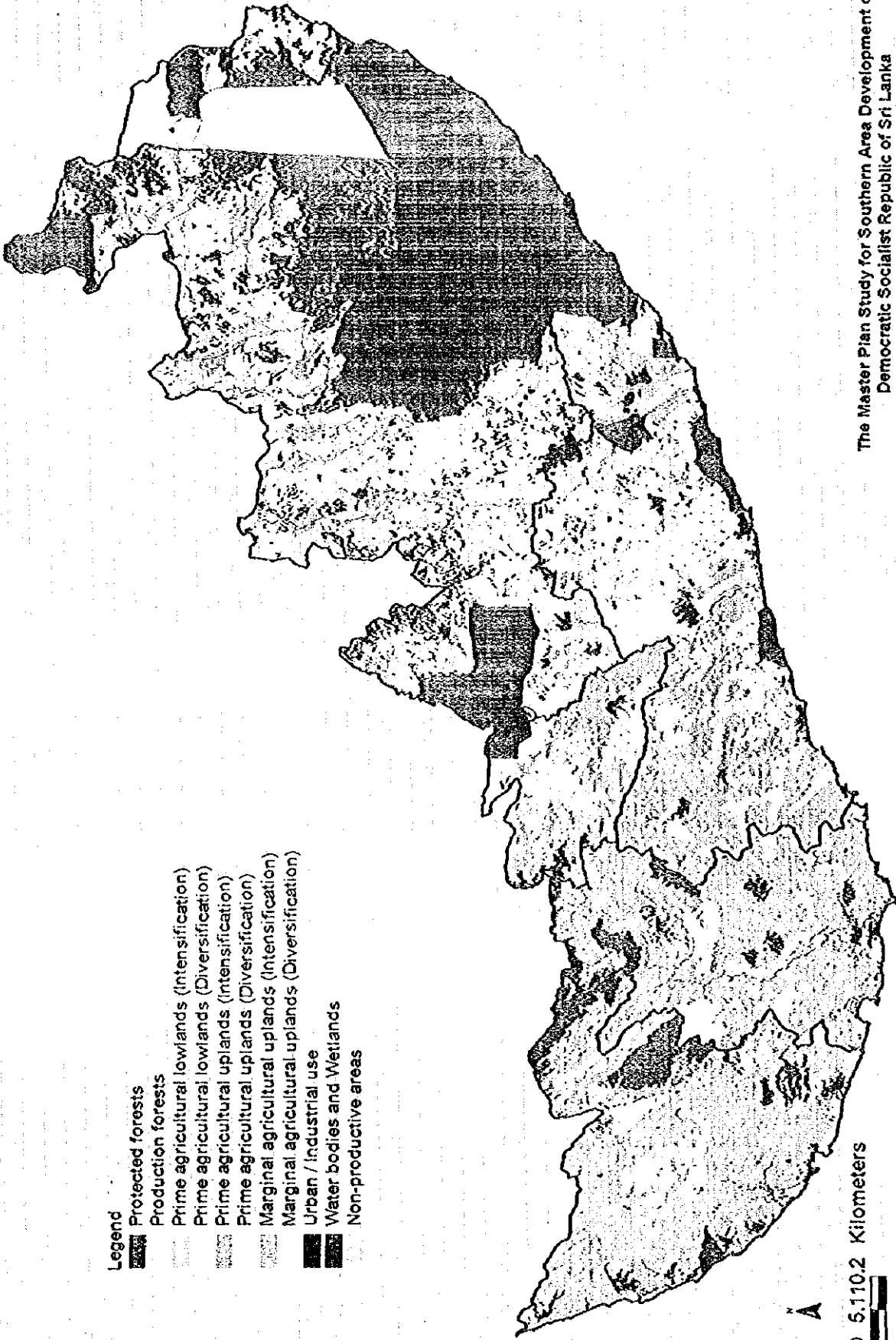
PROPOSED LANDUSE

- | | |
|---|--|
| 1 Protection forests | 5a Marginal agricultural uplands - Intensification |
| 2 Production forests | 5b Marginal agricultural uplands - Diversification |
| 3a. Prime agricultural lowlands - Intensification | 6 Urban/ industrial use |
| 4a. Prime agricultural uplands - Intensification | 7 Water bodies and wetlands |
| 3b. Prime agricultural lowlands - Diversification | 8 Non-productive areas |
| 4b. Prime agricultural uplands - Diversification | |

Source: JICA Study Team

Figure 5 Proposed Land Use for Southern Area in 2015

- Legend**
- Protected forests
 - Production forests
 - Prime agricultural lowlands (Intensification)
 - Prime agricultural lowlands (Diversification)
 - Prime agricultural uplands (Intensification)
 - Prime agricultural uplands (Diversification)
 - Marginal agricultural uplands (Intensification)
 - Marginal agricultural uplands (Diversification)
 - Urban / Industrial use
 - Water bodies and Wetlands
 - Non-productive areas



0 5.110.2 Kilometers

Source : JICA Study

The Master Plan Study for Southern Area Development of
Democratic Socialist Republic of Sri Lanka

Japan International Cooperation Agency

The following criteria were used to identify potential areas for urban and industrial use.

- (1) Protected areas (Class I and II forests), water bodies and wetlands are excluded.
- (2) Prime agricultural lands are excluded.
- (3) All areas within 4 km of Class A roads or 2 km of Class B roads, or within 10 km of rank 1 urban centers, or 5 km of rank 2 urban centers are included.

Figure 6 presents the results. Prime agricultural lands in the dry zone region of Moneragala and Hambantota districts are also potential lands as water availability for agriculture is a major limitation there.

(3) Water demand-supply balance

Water demand in Southern Area has been projected to the year 2015 by river basin and for domestic, industrial and irrigation uses. Combined with the analysis on water resources endowments, water demand-supply balance has been worked out by river basin. Results are illustrated in Figure 7.

Without any major water resources development, several river basins will face water shortages in 2015 as seen from Figure 7. Existing water shortages in the Urubokka Oya, Kirama Oya, Malala Oya and Kirindi Oya will aggravate, and additional water shortages will occur in a few other basins including Menik Ganga. A gross deficit will be 595 million m³ annually.

Figure 6 Urban/Industrial Land Potential in Southern Area

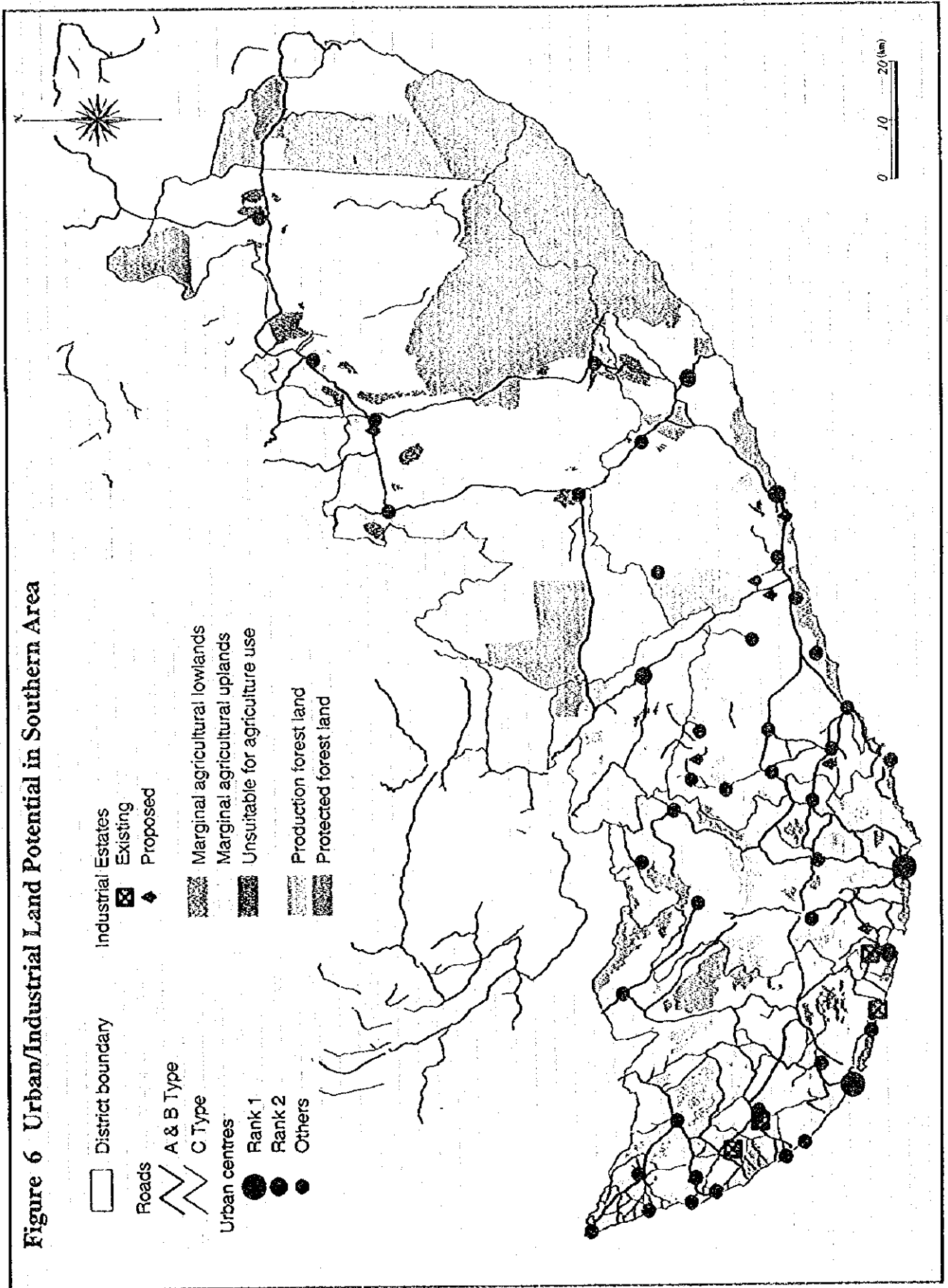
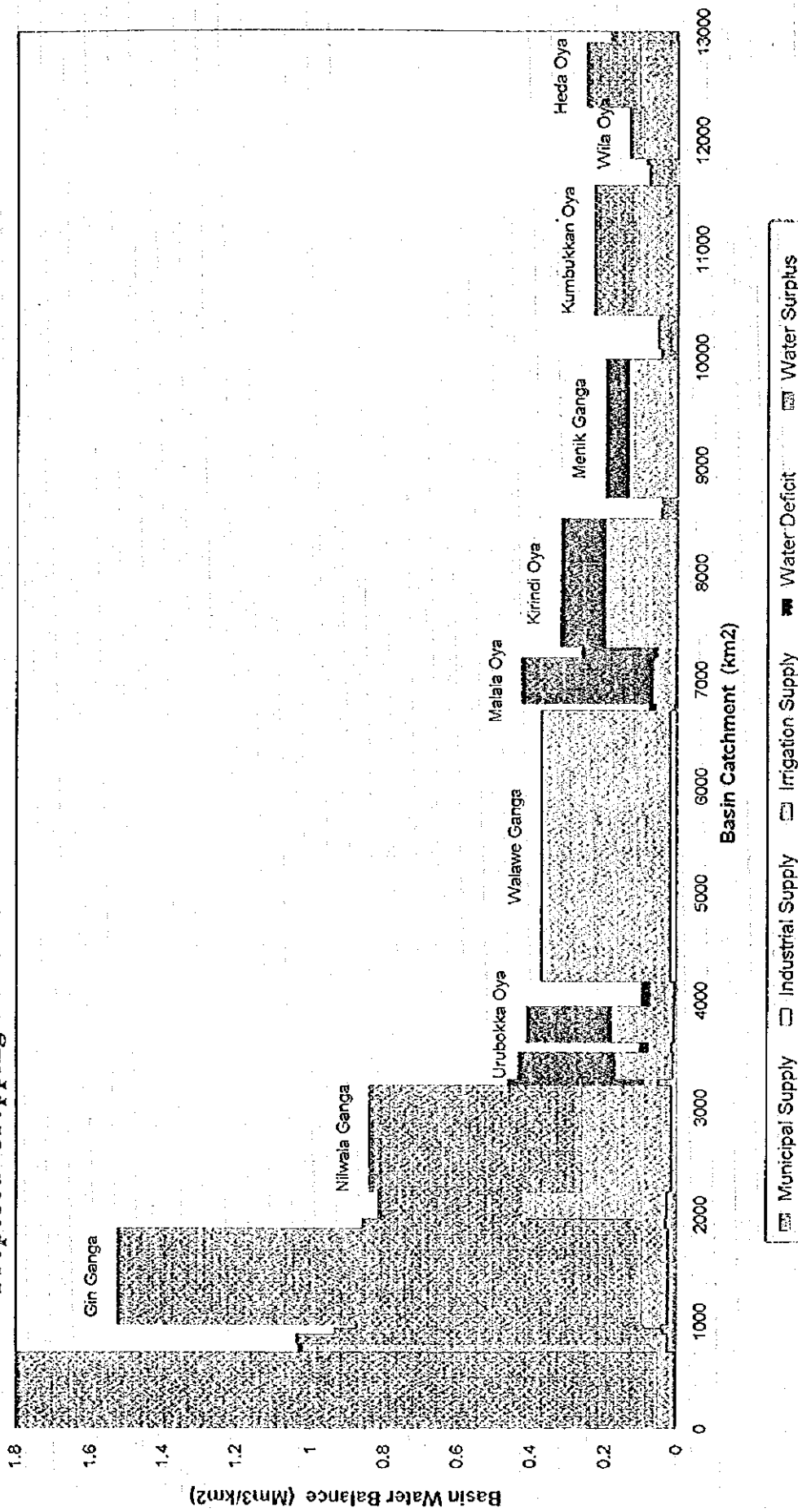


Figure 7 Water Balance in 2015 (without project) with Maximum Potential Lowland Development and Proposed Cropping Patterns



5. DEVELOPMENT PROJECTS AND PROGRAMS

The Southern Area development to the year 2015 would be supported by a set of projects/programs and related institutional measures constituting the Master Plan. This chapter presents projects and programs.

5.1 Anchor Projects

Out of the long list of projects/programs, 27 projects/programs have been selected as anchor projects. These are the projects/programs that characterize the Southern Area development due to (1) strategic importance to transform the spatial and the socio-economic structure of Southern Area, and/or (2) comprehensive coverage of a wide range of people to improve their living conditions as well as consistency with the development objectives and scenario for Southern Area (Tables 2 and 5).

5.1.1 Strategic infrastructure

The following are anchor projects in this category:

- (SA-1) Galle Port Development;
- (SA-2) Southern Highway;
- (SA-3) Intra-Regional Artery Road Establishment;
- (SA-4) Coast Line Improvement and Upgrading;
- (SA-5) Uma Oya Multi-Purpose Development;
- (SA-6) Airfield Upgrading; and
- (SA-7) Coal Thermal Power Plant.

The Galle Port Development will be instrumental in transforming the economic structure of Southern Area and changing patterns and expanding scope of flow of goods and movement of people. It will be developed in stages. In the first stage, the Galle port will be developed as a regional port serving mainly inter-regional trade, fishery and tourism.

Table 5 Development Objectives and Anchor Projects of Southern Area Master Plan

Objectives	Alternatives			Southern Area Alternative	Anchor Projects	
	I	II	III		Object-specific	Strategic Infrastructure
Social To create a sufficient number of high earning employment opportunities for growing and increasingly more educated labour force	△	⊙	○	○	(SA-15) District Vocational Center (SA-16) Community Enterprises Service Center (SA-17) Secondary Education Development (SA-18) Health Referral System (SA-19) Touristic Herbal Garden and Health Center (SA-20) Rural Road Improvement	(SA-1) Galle Port Development (SA-2) Southern Highway (SA-3) Intra-Regional Artery Road Establishment (SA-4) Coast Line Improvement and Upgrading
Environmental to preserve/enhance the unique natural and socio-cultural resources of sufficient diversity as a sustainable basis for various socio-economic activities	⊙	△	△	○	(SA-21) GIS-oriented RUS (SA-22) Environmental Fund (SA-23) Environmental Monitoring and Animation Center (SA-24) Integrated Management of Coastal Resources (SA-25) Multiple Use Forest (SA-26) Eco-Tourism (SA-27) Appropriate Toilet Facilities	(SA-5) Uma Oya Multipurpose Development (SA-6) Airfields Upgrading (SA-7) Coal Termal Power Plant
Economic To contribute to realizing open and competitive economies of Sri Lanka within the free trade regime	△	○	○	○	(SA-8) Paddy-based Mixed Farming (SA-9) Home Garden-based Multi Storey Farming (SA-10) Small Holder Integrated Farming (SA-11) Marine Fisheries Complex (SA-12) Gin-Nilwala Integrated River Basin Development (SA-13) Industrial District for SMIs (SA-14) Comprehensive Market Information	

- ⊙ High contribution
- Reasonable contribution
- △ Modest contribution

The Southern Highway will establish a much shorter and stronger link between Colombo and Galle/Matara. Together with the Galle port, it will contribute to improving comparative advantages of the Galle - Matara area for industrial and related services location. It may enhance the potential for the Galle port to function as a supplement transshipment port linked with the Colombo port.

The Intra-Regional Artery Road Establishment will provide shorter and faster links between Matara, Embilipitiya, Tanamalwila, Wellawaya, and Moneragala. It will improve the access to rural areas as well as the SEDZ.

The Coast Line Improvement and Upgrading will extend the on-going efforts to improve the coast line of SLR. Improved signalling and new rolling stocks will safeguard the lines potentials as a fast commuter train and a luxurious tourism coach.

The Uma Oya Multi-Purpose Development will be reformulated for several purposes. It may help to solve existing and foreseen water shortages in the Kirindi Oya, Malala Oya and even Walawe Ganga basins, and generate electricity for supply to the most power-deprived area in the South.

The Airfield Upgrading will upgrade the existing airfields at Koggala and Weerawila to facilitate tourists travelling to and from the South, following recommendations by an UNDP study. The Weerawila airport may be further upgraded subsequently.

The Coal Thermal Power Plan will be established most likely somewhere between Matara and Tangalle. Location will be determined from social and environmental points of view as well as on economic ground. It will provide a much needed base load power plant for more reliable and stable power supply in Sri Lanka and particularly in Southern Area.

5.1.2 Economic development

The following six projects are included:

- (SA-8) Paddy-Based Mixed Farming;
- (SA-9) Home Gardens-Based Multi-Storey Farming;
- (SA-10) Small Holder Integrated Farming;
- (SA-11) Marine Fisheries Complex Development;
- (SA-12) Gin-Nilwala Integrated River Basin Development;

- (SA-13) Industrial Districts for Small and Medium Sized Industries; and
- (SA-14) Comprehensive Market Information Radio Program.

The Paddy-Based Mixed Farming will be implemented mainly in existing paddy lands. It will diversify crops without sacrificing paddy production. Paddy yields will actually increase as a result of improved farm profitability and better soil management.

The Home Gardens-Based Multi-Storey Farming will strengthen the cultivation of a few selected crops in traditional home gardens depending on agro-ecological conditions of different areas. Provision of extension, input supply and other supports will be combined with the traditional management system.

The Small Holder Integrated Farming will combine livestock raising by small holders in the backyard with cultivation of various crops for risk reduction and complementary effects. Crop residues can be used to feed animals, and animal wastes may be used as organic fertilizer. Goat and buffalo may be encouraged.

The Marine Fisheries Complex Development will support the establishment of marine fisheries as a main stream economic activities for coastal communities in Southern Area. Complex facilities for storage, preservation, processing and marketing of fish and fish products will be provided as well as support measures for related industries and services.

The Gin-Nilwala Integrated River Basin Development may be implemented over the planning period, following a comprehensive river basin study in Phase I. The study will address many inter-related issues such as flooding during the wet season, water shortages during the dry season, acidification of soil, saline intrusion and watershed management as well as transbasin diversion opportunities.

The Industrial Districts for Small and Medium Sized Industries will be established at selected urban centers. Those SMIs to be established in the Districts will be provided with a package of support measures as well as common service facilities.

The Comprehensive Market Information Radio Program will provide market information including Colombo price levels and their trends widely to producers in Southern Area. With such information, they can better bargain with traders, adjust their supplies, and plan for their future production.

5.1.3 Social development

Anchor projects in the social development category consist not only of those directly related to social services and training but also of others supporting them indirectly. The following six projects are included:

- (SA-15) District Vocational Training Center;
- (SA-16) Community Enterprises Service Centers;
- (SA-17) Secondary Education Development (extension);
- (SA-18) Health Referral System Development;
- (SA-19) Touristic Herbal Garden and Health Center; and
- (SA-20) Rural Road Improvement Program.

The District Vocational Training Centers will produce workers proficient in the kinds of skills required by an expanded and diversified industrial base. In addition to quality training, formal links with the private sector will help assure effective placement.

The Community Enterprise Service Centers will promote sustainable income by creating partnerships between communities, non-governmental organizations and private investors. This joint venture will provide continuous support to selected communities who demonstrate some organizational capacity.

The Secondary Education Development will extend the on-going Asian Development Bank project. Its second stage will introduce new curricula, supported by teacher training and provision of facilities and equipment.

The Health Referral System will develop technical and operational linkages between health care services to assure that continuity and quality of care will be improved and resources used efficiently.

The Touristic Herbal Garden and Health Center will diversify tourism resources and contribute to establishing high images of Sri Lanka and Southern Area as a world health center. It will help also to enhance awareness of local people for preventive health care and indigenous medicine.

The Rural Road Development Program will introduce a new approach to improve and maintain rural roads based on a broad participation of local people and communities

supported by provision of basic equipment and technical guidance. This will meet various imminent needs for rural road repair and maintenance including social services delivery.

5.1.4 Environmental development

The environmental development category contains projects to improve environmental quality and to support better management of natural resources (e.g. database). They consist of the following:

- (SA-21) GIS-Oriented Regional Information System Establishment;
- (SA-22) Environmental Fund for Southern Area;
- (SA-23) Environmental Monitoring and Animating Center;
- (SA-24) Integrated Management of Coastal Resources;
- (SA-25) Multiple-Use Forest Management;
- (SA-26) Eco-Tourism Development; and
- (SA-27) Appropriate Toilet Facilities for Households.

The GIS-Oriented Regional Information System Establishment will provide an inventory of natural resources and map data as well as a wide range of socio-economic data necessary for planning and management of regional development and resource utilization. The database will be expanded in steps to include data necessary for investment decisions and data on wise use of resources.

The Environmental Fund for Southern Area will provide grants or soft loans to support private sector activities for environmental protection and rehabilitation. It may cover EIA, installation of pollution control device and activities of environmental NGOs.

The Environmental Monitoring and Animator Center will introduce a simple monitoring system and analysis laboratory to be used by environmental animators. Training on monitoring and analysis techniques and environmental education to local government officials, EIA experts, students, NGOs and local people will be provided at the center.

The Integrated Management of Coastal Resources will enhance the institutional capacity for coastal resources management. Initially, a Coastal and Lagoon Environmental Education and Research (CLEER) center will be established near the Rekawa lagoon to provide a field laboratory for related research and education.

The Multiple-Use Forest Management will promote sustainable production of wood and non-wood forest products (NWFPs) in multiple-use forests. Local organizations will be identified/established and trained for forest management and production of NWFPs.

The Eco-Tourism Development will develop tourism activities in the Kanneliya, Dadiyagala and Nakiyadeniya (KDN) forest complex with participation of local communities. Management plans will be prepared, emphasizing both economic and conservation aspects of tourism activities. The project will serve as a model case of eco-tourism, that may be applicable to other areas as well.

The Appropriate Toilet Facilities for Households will be implemented over the long term to improve toilet facilities for households covering Southern Area as a whole. A water sealed toilet with a septic tank will be installed as a minimum requirement for sanitation.

5.2 Special Program for Participatory Development

Pilot projects for participatory development have been formulated for three selected divisions through local consultation facilitated by NGOs. These projects should be implemented in the nearest future under the Special Program for Participatory Development. They are listed below by division, together with related government projects/programs.

Hikkaduwa

- (1) Integrated Fisheries Organization (SA-11 Marine Fisheries Complex Development);
- (2) Center for Tourism Development (TO-13 Tourism Promotion Program); and
- (3) Vocational Training-Guidance-Counselling (SO-16 Counselling Placement Centers).

Kamburupitiya

- (4) Self-Employment Promotion (SO-18 Technical Training and Commercial Center);
- (5) Crop Diversification and Productivity Enhancement (SA-8 Paddy-Based Mixed Farming; SA-9 Home Garden-Based Multi-Storey Farming);
- (6) Employment Motivation; and
- (7) Revitalization of Handloom Industry.

Tanamalwila

- (8) Tanks Renovation for Drinking Water and Agriculture (AG-7 Abandoned Tanks Renovation);

- (9) Improved Farming System (SA-9 Home Garden-Based Multi-Storey Farming; SA-10 Small Holder Integrated Farming); and
- (10) Crop-Animal Conflicts Minimization (SA-10 Small Holder Integrated Farming; EN-20 Multiple Use Development of Protected Areas).

Profiles of these projects are contained in Project Report. The participatory procedure used to develop these project proposals is described in Participatory Development Report.

5.3 Local Projects and Programs

5.3.1 Agriculture

The following 10 projects/programs are proposed:

- (AG-1) Seed Paddy Production and Supply System Improvement,
- (AG-2) Tea Small Holdings Sector Improvement,
- (AG-3) Sugar Plantation Development,
- (AG-4) Strengthening of Cattle and Buffalo Breeding Program,
- (AG-5) Beef Processing and Marketing Development,
- (AG-6) Irrigation System Rehabilitation and Development
- (AG-7) Abandoned Tanks Renovation,
- (AG-8) Private Sectors Irrigated Agriculture Development,
- (AG-9) Enhancement of Training and Research Facilities in Faculty of Agriculture, University of Ruhuna, and
- (AG-10) Alternative Irrigation Techniques Pilot Project.

Project Nos. (AG-1) and (AG-2) will expand on-going efforts to enhance productivity of the respective traditional crops. Project No. (AG-3), (AG-5), (AG-8) and (AG-10) are expected to be implemented by the private sector initiative. Project No. (AG-4) aims to increase livestock (milk) productivity. Project No. (AG-6) will continue the on-going rehabilitation of existing irrigation schemes and develop additional ones. Project No. (AG-7) is also continuation and expansion of on-going efforts. Project No. (AG-9) will support applied research and outreach programs, including research requirements of the private sector.

5.3.2 Fishery

In addition to the Marine Fisheries Complex Development proposed as an anchor project the following four projects/programs are proposed:

- (FI-1) Inland Fisheries Re-Establishment,
- (FI-2) Prawn farming,,
- (FI-3) Strengthening of Faculty of Fisheries Science in the University of Ruhuna, and
- (FI-4) Improvement of Fish Markets.

Project No. (FI-1) will provide a comprehensive package of measures to support inland fisheries aiming at self-sufficiency level of fish production for rural populace in inland areas. Project No. (FI-2) is expected to be implemented by the private sector. Project No. (FI-3) will provide improved facilities for marine and inland fisheries research and hydro-biological studies at the University of Ruhuna. Project No. (FI-4) will be implemented by local governments.

5.3.3 Industry

Industrial development in Southern Area would be supported by an anchor project, the Industrial Districts for Small and Medium Sized Industries, and four other projects:

- (IN-1) Integrated Urban Industrial Development,
- (IN-2) Credit for Manufacturing Enterprises,
- (IN-3) Improved Availability of Manufacturing Input, and
- (IN-4) Training and Technology Institute.

Project No. (IN-1) will build on industrial estates and develop them as tools for supporting regional growth centers. Project No. (IN-2) will augment available credit for manufacturing enterprises, supplementing the available funding. Project No. (IN-3) will alleviate high import duties and procedural problems preventing small and medium sized industries from access to production input at world prices. Project No. (IN-4) will be joint public private sector efforts to support new industries to be introduced in Southern Area.

5.3.4 Tourism

The Eco-Tourism Development and the Touristic Herbal Garden and Health Center would be implemented as anchor projects. The following 13 additional projects/programs are proposed:

- (TO-1) Galle Fortified City Conservation,
- (TO-2) Hambantota Hotel Construction,
- (TO-3) Hotel School,
- (TO-4) Unawatuna Bay Resort Development,
- (TO-5) Arugama Bay North/South Resort Development,
- (TO-6) Tissamaharama Archaeological Excavation with Gateway Facilities Complex,
- (TO-7) Marine Archaeological Museum,
- (TO-8) Sinharaja Forest Visitor Center,
- (TO-9) Arts and Handicraft Center,
- (TO-10) National Oceanarium and Indian Ocean Institute,
- (TO-11) Walawe Spa Resort Development,
- (TO-12) Research Institute of Birds,
- (TO-13) Tourism Promotion Program, and
- (TO-14) Internet Tourism Information Center.

Most projects will be implemented by the private sector supported by CTB and SDA.

5.3.5 Trade and other services

The Comprehensive Market Information Radio Program would be implemented as an anchor. In addition, the following three projects are proposed:

- (SE-1) Venture Capital Company for the Southern Area Development,
- (SE-2) Producers' *Pola* Improvement, and
- (SE-3) Research on Introduction of corrugated Paper Boxes for Agricultural Packaging.

Project No. (SE-1) will provide medium to long-term equity finance exclusively to investors in Southern Area. Project No. (SE-2) will bring the *pola* under respective municipalities' ownership and management for upgrading and maintenance. Project No. (SE-3) will

prepare for the wide use of the new packaging method to reduce wastage of agricultural produce during transportation.

5.3.6 Water and sanitation

The following 20 projects are proposed:

- (WS-1) Weli Oya Diversion,
- (WS-2) Mau Ara Diversion,
- (WS-3) Menik Ganga Diversion,,
- (WS-4) Menik Ganga-Kumbukkan Oya Integrated Development,
- (WS-5) Aparekka Reservoir Development,
- (WS-6) Greater Galle Water Supply Improvement,
- (WS-7) Matara Water Supply Improvement,
- (WS-8) Hambantota Water Supply Improvement,
- (WS-9) Water Supply to Lunugamwehera Villages,
- (WS-10) Improvements to Beliatta Water Supply,
- (WS-11) Walasmulla-Weeraketiya Water Supply,
- (WS-12) Kirinda Water Supply,
- (WS-13) Gate Dams for Prevention of Salinity Intrusion to Rivers,
- (WS-14) Treatment Facilities for High Fluoride and Iron Contents in Water,
- (WS-15) Setting up of Rain Water Collector Tanks for Schools, Hospitals and Houses,
- (WS-16) Piped Sewerage Systems with Treatment and Inland Disposal Facilities for Moneragala,
- (WS-17) Piped Sewerage Systems for Major Coastal Urban Centers,
- (WS-18) Innovative Sewerage Systems Pilot Installation,
- (WS-19) Accumulated Sludge Treatment for Septic Tanks, and
- (WS-20) Groundwater Development.

Several trans-basin water diversion schemes proposed in the past were reviewed through the water balance analysis (Section 4.2), and some schemes have been reformulated (Figure 8). Of these schemes, the Uma Oya diversion and the Gin-Nilwala scheme are taken up by anchor projects. Project Nos. (WS-1), (WS-2) and (WS-3) may be implemented in stages. Project No. (WS-4) will be implemented as a long term project based on a further study. Project No. (WS-5) in the Nilwala basin may be implemented separately from the overall Gin-Nilwala project.

Seven projects are proposed to expand water supply capabilities for urban centers and rural areas : Project Nos. (WS-6), (WS-7), (WS-8), (WS-9), (WS-10), (WS-11) and (WS-12). Project No. (WS-13) will offer a short-term measure to ensure continued water supply to major urban centers by controlling saline intrusion. Project No. (WS-14) will address to water quality problems associated with municipal water supply. Project No. (WS-15) will offer an alternative low cost water supply in the dry zone.

Four projects are proposed to improve sewage treatment and disposal in different areas : Project Nos. (WS-16), (WS-17), (WS-18) and (WS-19). Project No. (WS-20) will start with a systematic assessment of groundwater resources aiming at their future development for water supply in urban and rural areas of Southern Area.

5.3.7 Transportation

The following seven additional projects are proposed:

- (TR-1) Bypass Roads,
- (TR-2) Rehabilitation and Maintenance of National Highways,
- (TR-3) New Road Construction,
- (TR-4) Provincial Road Rehabilitation,
- (TR-5) Bus Terminal Improvement,
- (TR-6) Community Based Transport Services, and
- (TR-7) Commercial Distribution Center.

Project Nos. (TR-1), (TR-2), (TR-3) and (TR-4) will cover national and provincial road systems together with the two anchor projects : the Alternate Southern Highway and the Intra-Regional Artery Establishment. Rural roads will be covered by another anchor project : the Rural Road Improvement.

Project No. (TR-5) will provide bus parking, passenger shelter, toilet and information center at existing or new bus terminals in major urban centers. Project No. (TR-6) will allow community organizations to operate transport services. Project No. (TR-7) will establish a truck terminal with storage and market facilities in Matara and/or Embilipitiya.

5.3.8 Telecommunications

The following three projects are proposed:

- (TL-1) Establishment of Galle Information Community,
- (TL-2) Digital Wireless Local Loop System to Rural Service Centers, and
- (TL-3) Integrated Services Social Network.

Project No. (TL-1) will be implemented as an essential part of efforts to make Galle an international city. Project No. (TL-2) will be implemented by selected private sector enterprises to offer wireless telecommunications services. Project No. (TL-3) will be implemented as a breakthrough to meet a wide range of communication requirements in public and social organizations by establishing computers and communications networks linking them.

5.3.9 Energy

The following five projects are additionally proposed:

- (EG-1) Distribution Efficiency Improvement,
- (EG-2) Extension of 33 kV Distribution Lines,
- (EG-3) Expansion of Distribution Network,
- (EG-4) Solar Power/Solar Water Supply Systems, and
- (EG-5) Wind Power Plant.

Projects Nos. (EG-1), (EG-2) and (EG-3) will improve power distribution systems for different parts of Southern Area. Project No. (EG-4) will serve rural areas difficult to serve by grid power supply. Project No. (EG-5) will install wind power plant in the vicinity of the Bundala National Park.

5.3.10 Urban system

The following four projects/programs are proposed:

- (UR-1) Local Development Planning Capability Improvement,
- (UR-2) Sites and Services,
- (UR-3) Urban Administration Restructuring, and
- (UR-4) Galle Downtown Redevelopment.

Project No. (UR-1) will initiate a practice of integrated greater area urban planning centered on the largest urban centers in Southern Area. Project No. (UR-2) will create developed urban lots in locations where the local government proposes to lead development. Project

No. (UR-3) will provide detailed descriptions of tasks to be undertaken by each type of urban administration. Project No. (UR-4) aims at transforming Galle into an international city.

5.3.11 Environment

In addition to anchor projects, 20 projects/programs are proposed:

- (EN-1) Wetland Conservation and Management,
- (EN-2) Environmental Rehabilitation of the Nilwala and Nupe Canals,
- (EN-3) Coastal Belt Protection,
- (EN-4) Soil Resources Inventory at Scale 1:50,000 for Southern Area,
- (EN-5) World Bio-Diversity Research Institute,
- (EN-6) Wastewater Treatment for Fishery Communities,
- (EN-7) Promotion and Extension of Efficient Fuelwood-Stoves in Rural Areas,
- (EN-8) Solid Waste Disposal Management,
- (EN-9) Gem-Mining Regulation and Health Project,
- (EN-10) Functional Improvement of National Parks,
- (EN-11) Cooperative Planting Promotion,
- (EN-12) Integrated Watershed Management,
- (EN-13) Wood-based Industry Improvement Project,
- (EN-14) Environmental Wise-Use Research and Training Center,
- (EN-15) Wet-Zone Forest Management through Community Participation,
- (EN-16) General Conservation Center for Forest-cum-Wildlife Reserve Area,
- (EN-17) Ecological Management of Soil Erosion and Minor Tanks in the SEDZ,
- (EN-18) Biological and Environmental Zoning,
- (EN-19) Commercial Forestry Promotion, and
- (EN-20) Multi-use Development of Protected Areas.

These projects collectively cover all the different aspects of environment. Six projects cover all types of lands including wetland, coastal land, upper catchment, National Parks and conservation areas: Project Nos. (EN-1), (EN-2), (EN-3), (EN-10), (EN-12), (EN-16) and (EN-17). Six projects contribute to reducing environmental loads or enhancing regenerating capacities of the environment : Project Nos. (EN-27), (EN-6), (EN-7), (EN-8), (EN-9), and (EN-13). Project Nos. (EN-4) and (EN-18) will create basic data for environmental management. Two other projects will promote advanced and applied research : Project Nos. (EN-5) and (EN-14). Two projects will support the community

participation in environmental management : Project Nos. (EN-11) and (EN-15). Two other projects will provide economic incentives to environmental protection : Project Nos. (EN-19) and (EN-20).

5.3.12 Social development

In addition to anchor projects, 18 projects/programs are proposed:

- (SO-1) Education Resource Center,
- (SO-2) Expansion of Secondary Schools (type IAB),
- (SO-3) Non-formal Education Program,
- (SO-4) Establishing Faculty of Engineering in Ruhuna University,
- (SO-5) Pilot Project of Study on Budget Allocation on Education Sector in Southern Area,
- (SO-6) Master Plan of Health Development of Southern Area,
- (SO-7) Nutrition Campaign,
- (SO-8) Hospital Improvement Program,
- (SO-9) Basic Training Center for Para-medical Health Personnel,
- (SO-10) In-service Training for Health Personnel,
- (SO-11) Integrated Malaria Control and Prevention Program,
- (SO-12) Inter-disciplinary Research Program for Dry Zone Areas,
- (SO-13) Social Issues Research Project,
- (SO-14) Southern Area Vocational Education Commission (SAVEC),
- (SO-15) Counseling Placement Centers,
- (SO-16) Employer Initiated Training,
- (SO-17) Technical Training and Commercial Centers, and
- (SO-18) Master Trainer and Program Manager.

Project No. (SO-1) will establish an educational resource center in a primary and a secondary school in each division, focusing on primary and secondary school teachers' training and providing counseling and career guidance for secondary school students. Project No. (SO-2) will focus on deploying type IAB schools in under-served areas. Project No. (SO-3) will be for school leavers, and focus on numeracy and English. Project No. (SO-4) is expected to create engineers who will be required according to the progress of development projects in Southern Area. Project No. (SO-5) will study on the decentralized provincial budget allocation.

Project No. (SO-6) will investigate the need for upgrading of health institutions after re-categorization. Project No. (SO-7) will accelerate the national level endeavor in Southern Area by providing the necessary facilities, manpower, and transportation. Project No. (SO-8) will focus initially on the base hospitals in Hambantota, Embilipitiya and Moneragala, Matara Provincial Hospital, and Kalapitiya and Mahamodara Teaching Hospitals. Project No. (SO-9) will be established in Kalapitiya teaching hospital to serve Southern Area. Project No. (SO-10) will strengthen training for all categories of health personnel in primary health institutions. Project No. (SO-11) will promote community participation in health promotion and preventive health care, together with training for field health workers. Project No. (SO-12) will be conducted in Moneragala and Hambantota districts. Project No. (SO-13) will investigate area specific health related problems and the impact of development activities on health.

Project No. (SO-14) aims at regionally streamlined management of technical and vocational education and training. Three projects are proposed to make vocational training more responsive to supply and demand: Project Nos. (SO-15), (SO-16), and (SO-17). Project (SO-18) aims to increase effectively training capacity at institution and delivery levels.

5.4 Indicative Investment Schedule

The amount of public investments that may be allocated to projects and programs in Southern Area has been estimated based on total investment requirements to attain the estimated GRDP growth for Southern Area, and growth-investment relationships of the Country in the recent past. The cumulative public investments for Southern Area have been determined to be US\$ 830 million in Phase I (1997-2000), US\$ 3,620 million in Phase II (2001-2010), and US\$ 1,970 million in Phase III (2011-2015).

Crude estimates of investment costs are made for all the projects and programs proposed in the Master Plan. They are allocated to different phases in due consideration of the development phasing for Southern Area within the projected public investments availability. For those projects and programs of which the implementation is subject to the results of studies recommended by the Master Plan, only indicative allocations are made.

An indicative investment schedule thus prepared is given in Table 6. The total public investment requirements for all the proposed projects and programs account for 82% of the estimated public investment allocation for Phase I and 77% for Phase II. Taking account of other regular programs to be implemented by sector agencies, the investment budget is

already tight for these phase, especially for Phase II where implementation of additional projects is implied without costing. Implementation of all the proposed projects and programs as scheduled would call for increased resources mobilization in the private sector. Some projects are expected to be implemented by the private sector, such as industrial estates, telecommunications projects, urban projects, and even some projects of social services.

Table 6 Indicative Investment Schedule for Southern Area Development (1/3)

(Unit: US\$ million)

1. Anchor Projects				Investment ²		
Code No.	Project/Program Title	Agencies	Status ¹	Phase I (1997-2000)	Phase II (2001-2010)	Phase III (2011-2015)
SA-1	Galle Port Development	SLPA, private	R	50	240	250
SA-2	Southern Highway	RDA	P	30	270	
SA-3	Intra-Regional Artery Road Establish.	RDA	N	10	40	
SA-4	Coast Line Improvement	SLR	P	30	120	210
SA-5	Uma Oya Multipurpose Dev't	CEB, ID, SDA	R	20	330	
SA-6	Air Field Upgrading	DCA, AAS	P	10	20	40
SA-7	Coal Thermal Power Plant	CEB	P	50	500	
SA-8	Paddy-based Mixed Farming	DCA, ID	N	5	20	20
SA-9	Home Garden-based Multi-storey	DOA, DEA, cashew corp	N	10	20	20
SA-10	Small Holder Integrated Farming	DAPH, DOA, DEA	N	8	20	20
SA-11	Marine Fisheries Complex	CHIC, private	N	10	10	
SA-12	Gin-Nilwala Integrated River Basin	SDA	N	5	*	*
SA-13	Industrial Districts for SMIs	IDB, RISC, private	N	1	1	1
SA-14	Comprehensive Market Information	ARTI, SLBC	N	1		
SA-15	District Vocational Training Center	RVEC, VTA	N	5	10	5
SA-16	Community Enterprise Service Centers	NGOs	N	1	2	1
SA-17	Secondary Education Development	MOE	R	30	15	
SA-18	Health Referral System	MOH	N	5	10	
SA-19	Touristic Herbal Garden and Health C.	Private	N	-	-	-
SA-20	Rural Road Improvement	LGs	N	3	3	2
SA-21	GIS-Oriented Regional Information S.	SDA	N	5		
SA-22	Environmental Fund	SDA, CB, PCAF, NGOs	N	15	10	
SA-23	Environmental Monitoring and Animation	LGs	N	4	5	
SA-24	Integrated Management of Coastal Res.	SDA	N	10	10	
SA-25	Multiple Use Forest Management	FD, NGOs	N	2	3	
SA-26	Eco-Tourism Development	CTB, FD, NGOs	N	1	1	1
SA-27	Appropriate Toilet Facilities	MHCPU	N	2	2	2
Total Anchor Projects				323	1662	572
2. Special Program for Participatory Development		NGO/CBOs, LGs	N	*		
3. Local Projects/Programs				Investment ²		
Code No.	Project/Program Title	Agencies	Status ¹	Phase I	Phase II	Phase III
Agriculture						
AG-1	Seed Paddy Production and Supply	DOA, LGs	N	5	5	
AG-2	Tea Small Holdings Sector Improve.	TSHDA, inter-agency	P	2	3	
AG-3	Sugar Plantations Development	Private	N	-	-	-
AG-4	Strengthening of Cattle and Buffalo Breed	DAPH	N	4	3	
AG-5	Beef Processing and Marketing	Private	N	-	-	-
AG-6	Irrigation System Rehabilitation/Dev't	ID, inter-agency	P	7	30	20
AG-7	Abandoned Tanks Renovation	ID	P	8	20	10
AG-8	Private Sector's Irrigated Agriculture	Private	N	-	-	-
AG-9	Enhancement of Training and Research	Univ. of Ruhuna	N	5		
AG-10	Alternative Irrigation Techniques	SDA, FOs	N	1	2	-
Sub-total				33	63	30
Fishery						
FI-1	Inland Fisheries Re-Establishment	MFAR, Private	N	5	5	
FI-2	Prawn Farming	Private	P	-	-	-
FI-3	Strengthening of Faculty of Fisheries	Univ. of Ruhuna		3	3	
FI-4	Improvement of Fish Markets	LGs	N	2	5	
Sub-total				10	13	0
Industry						
IN-1	Integrated Urban Industrial Dev't	SDA	N	5	10	5
IN-2	Training and Technology Institute	Inter-agency	N	2	3	3
IN-3	Credit for Manufacturing Enterprises	NDB, DFCC	N	10	10	10
IN-4	Improved Availability of Manuf. Input	CD, BOI	N	1	1	1
Sub-total				18	24	19

(to continue)

Table 6 Indicative Investment Schedule for Southern Area Development (2/3)

(Unit: US\$ million)

Code No.	Project/Program Title	Agencies	Status ¹	Phase I	Investment ² Phase II	Phase III
Tourism						
TO-1	Galle Fortified City Conservation	LG, CTB	P	1	1	1
TO-2	Hambantota Hotel Construction	Private	N	-	-	-
TO-3	Hotel School	CTB	P	2	1	-
TO-4	Unawatuna Bay Resort Dev't	Private	P	-	-	-
TO-5	Arugama Bay North/South Resort	Private, CTB	P	1	1	-
TO-6	Tissamaharama Archeological Excavation	UDA, CTB, LG	P	1	3	-
TO-7	Marine Archeological Museum	MCA	N	1	2	1
TO-8	Sinharaja Forest Visitor Center	FD, DWLC, CTB	N	1	-	-
TO-9	Arts and Handicraft Center	MCA, LG	N	2	-	-
TO-10	National Oceanarium and Indian Ocean	MFAR, MCA	N	1	2	3
TO-11	Walawe Spa Resort Development	Private, CTB	N	-	-	-
TO-12	Research Institutes of Birds	DWLC	N	1	2	-
TO-13	Tourism Promotion Program	MNITA, CTB	N	1	1	-
TO-14	Internet Tourism Information	CTB	N	1	1	-
	Sub-total			12	14	5
Trade and other services						
SE-1	Venture Capital Company	SDA	P	5	4	-
SE-2	Producers' Pola Improvement	LGs	N	2	1	-
SE-3	Research on Introduction of Corrugated	NPC, HARTI	N	1	-	-
	Sub-total			8	5	0
Water and sanitation						
WS-1	Weli Oya Diversion	ID	P	-	*	-
WS-2	Mau Ara Diversion	ID	P	-	*	-
WS-3	Menik Ganga Diversion	ID	P	8	-	-
WS-4	Menik Ganga-Kumbukkan Oya Integrated	ID, SDA	P	3	*	*
WS-5	Aparekka Reservoir Development	ID, SDA	P	2	*	*
WS-6	Greater Galle Water Supply	NWSDB	R	15	45	40
WS-7	Matara Water Supply Improvement	NWSDB	P	10	30	30
WS-8	Hambantota Water Supply	NWSDB	P	10	40	25
WS-9	Water Supply to Lunugamvehera Villages	NWSDB	P	2	-	-
WS-10	Improvement of Beliatta Water Supply	NWSDB	P	1	-	-
WS-11	Walasmulla Weeraketiya Water Supply	NWSDB	P	4	10	-
WS-12	Kirinda Water Supply	NWSDB	P	2	-	-
WS-13	Gate Dams for Prevention of Salinity	NWSDB	N	2	5	*
WS-14	Treatment Facilities for High Fluoride	NWSDB	N	1	1	2
WS-15	Setting Up of Rain Water Collectors	MIIC	N	2	3	2
WS-16	Piped Sewerage Systems (Moneragala)	NWSDB	N	1	3	5
WS-17	Piped Sewerage Systems for Coastal	NWSDB	N	3	5	10
WS-18	Innovative Sewerage Systems	NWSDB	N	1	5	-
WS-19	Accumulated Sludge Treatment	NWSDB	N	-	3	-
WS-20	Groundwater Development	WRB	N	3	*	*
	Sub-total			70	150	114
Transportation						
TR-1	By pass Roads	RDA	P	5	20	-
TR-2	Rehabilitation and Maintenance of National Roads	RDA	R	35	245	95
TR-3	New Road Construction	RDA	P	25	330	220
TR-4	Provincial Road Rehabilitation	Prov. RDA	P	10	17	-
TR-5	Bus Terminal Improvement	LG	N	2	2	-
TR-6	Rural Transport Services	LG, Private	N	2	2	-
TR-7	Commercial Distribution Center	MTEWA	N	5	5	-
	Sub-total			79	601	315
Telecommunications						
TL-1	Establishment of Galle Information Center	MOI	N	10	40	-
TL-2	Digital Wireless Local Loop System	MPT	N	5	5	-
TL-3	Integrated Services Social Network	MPIBANI	N	-	10	-
	Sub-total			15	55	0
Energy						
EG-1	Distribution Efficiency Improvement	CEB	P	3	-	-
EG-2	Extension of 33 kv Distribution Lines	CEB	P	2	-	-
EG-3	Expansion of Distribution Network	CEB	P	7	2	-
EG-4	Solar Power/Solar Water Supply Systems	NHDA	P	2	5	3
EG-5	Wind Power Plant	CEB, Private	P	5	10	-
	Sub-total			19	17	3

Table 6 Indicative Investment Schedule for Southern Area Development (3/3)

(Unit: US\$ million)

Code No.	Project/Program Title	Agencies	Status ¹	Phase I	Investment ² Phase II	Phase III
Urban System						
UR-1	Local Development Planning Capability	LGs	N	8	15	10
UR-2	Sites and Services	SDA, UDA, LGs	N	5	10	10
UR-3	Urban Administration Re-structuring	MPIEANI	N	1	1	
UR-4	Galle Downtown Redevelopment	SDA, UDA, LGs	N	5	10	
	Sub-total			19	36	20
				280	97	50
Environment						
EN-1	Wetland Conservation and Management	CEA, DWLC, NGOs	R		5	
EN-2	Environmental Rehabilitation of Nilwala/Nupe	Inter-agency	P	1	2	
EN-3	Coastal Belt Protection	CCD	N	1	2	
EN-4	Soil Resources Inventory	ID	N	2		
EN-5	World Bio-diversity Research Institute	DWLC, Private	N		5	3
EN-6	Wastewater Treatment for Fishery Comm.	DFAR	P	1	3	
EN-7	Promotion/Expansion of Effit Fuelwood Stores	CEB, FD, NGOs	N	1	2	
EN-8	Solid Waste Disposal Management	LGs, NGOs	N	2	6	3
EN-9	Gem-mining Regulation and Health	NGJA, HD, FD	R	1	2	1
EN-10	National Parks Functional Improvement	DWLC, FD, CTB	N	3	5	3
EN-11	Cooperative Planting Promotion	AD, FD	N	1	2	
EN-12	Integrated Watershed Management	FD, NGOs	N	3	6	4
EN-13	Wood-based Industry Improvement	FD, STC, Private			3	3
EN-14	Environmental Wise Use Research		N	2	4	1
EN-15	Wet Zone Forest Management		P	1	1	1
EN-16	General Conservation Center for Forest/WL		N	3	6	
EN-17	Ecological Management of Soil Erosion		N	2	4	2
EN-18	Biological and Environmental Zoning		N	2	3	
EN-19	Commercial Forestry Promotion	FD, Private	P	-	-	-
EN-20	Multi-use Development on Protected Areas		N	1	1	
	Sub-total			27	62	22
Social Development						
SO-1	Educational Resource Center		N	1	1	
SO-2	Expansion of Secondary Schools (IAB)	MOE		1	1	1
SO-3	Non-Formal Education	MOE		1	1	1
SO-4	Establishing Faculty of Engineering	Univ. of Ruhuna	N	2	18	
SO-5	Pilot Project of Study on Budget alloc.			1		
SO-6	Master Plan for Health Development	MOH	N	1		
SO-7	Nutrition Campaign	MOH		1	1	
SO-8	Hospital Improvement	LGs		5	45	30
SO-9	Basic Training Center for Para-medical	MOH		8	2	
SO-10	In-Service Training for Health Personnel			1		
SO-11	Community Oriented Health Education	HEB		1		
SO-12	Integrated Malaria Control and Prevention	MOH		2		
SO-13	Inter-disciplinary Research		N	1		
SO-14	Social Issues Research	MOH, CENWOR	N	1		
SO-15	Southern Area Vocational Education Center	TVEC	N	11	6	5
SO-16	Counselling Placement Center	RVEC	N	5	3	2
SO-17	Employer Initiated Training	RVEC	N	4	8	4
SO-18	Technical Training and Commercial Centers	RVEC	N	3	2	1
SO-19	Master Trainer and Program Manager		N	4	3	2
	Sub-total			54	91	46
Total Local Projects/Programs				364	1131	574
Grand Total				687	2793	1146
				(82%)	(77%)	(58%)

Notes 1: P-planned by sector agencies, N- newly formulated, R- revised/expanded

2: *- costs depending on study outcomes

Source: JICA Study Team

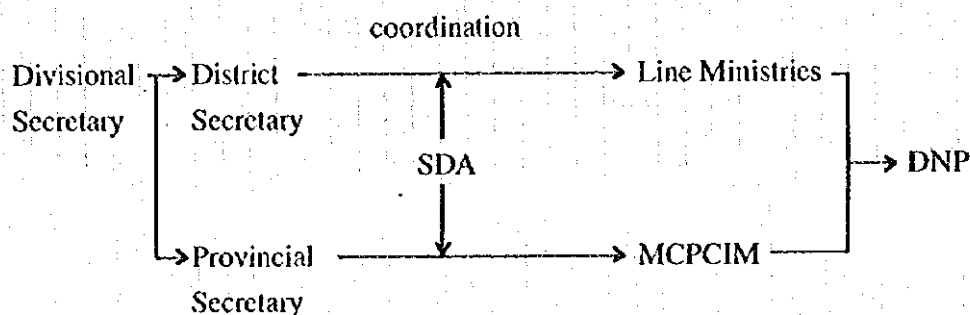
6. IMPLEMENTING ARRANGEMENTS FOR SOUTHERN AREA DEVELOPMENT

In association with the establishment of the Southern Development Authority (SDA), the existing administrative structure should be streamlined. Given the problems in the existing development administration, three major functions need to be strengthened: (1) planning and coordination, (2) fund management, and (3) monitoring and evaluation. In line with the recent devolution policy of the Government, development planning and administration at local/regional level should be improved for these functions. Also, local participation should be encouraged and substantiated especially for the planning, and the monitoring and evaluation functions.

6.1 Institutional Framework with SDA and Local Participation

(1) Planning and coordination

SDA should function as a main planning and coordinating body for all the projects/programs proposed within Southern Area at division, district and provincial levels. The existing development administration can still function for both devolved and non-devolved issues under such an arrangement as illustrated.



(2) Fund management

SDA is expected to be instrumental in managing public investment fund according to the investment schedule. Functions of SDA would be different for various types of projects/programs.

For multi-sector projects involving several agencies, SDA would function as a coordinating agency. In this case, project funds may be released directly to different agencies under SDA coordination, and project implementation may be monitored also by SDA.

Fund management by SDA should also facilitate more effective use of transfers from the Central Government to local governments, ensuring coordinated implementation of related local projects or project components by different agencies. One way for this is to open a common fund account for all related local projects through which proper disbursement would be made consistently without delays or duplications.

Various livelihood development and other types of local projects may be implemented with local participation. Any implementing agencies for these projects should adopt the "conduit system" through accredited NGOs for channelling funds to relevant project components. SDA may assist the NGOs for loan agreement, contract of loan and memorandum of agreements.

(3) Monitoring and evaluation

As indicated above, SDA would be in the best position to monitor the disbursement of public investment funds and implementation of various projects/programs. Monitoring and guidance should extend naturally to private sector investments as well. Further, SDA may perform monitoring of development performance. Monitored results may be evaluated in the light of the Master Plan, and policy measures or remedial actions recommended. The Master Plan itself should be reviewed and updated occasionally by SDA. For these activities, regional socio-economic data base may be established and maintained also by SDA.

In addition to coordination with government agencies, establishing and maintaining communication channels with local people and communities would be another function of SDA. Activities to be conducted may include: (1) publicity campaign through mass media, seminars/workshops, other public participation events and documentation to different audiences, (2) education to re-orient the value of people, and (3) information dissemination. More useful information for Southern Area development includes that on investment opportunities, support programs available, market information and extension information.

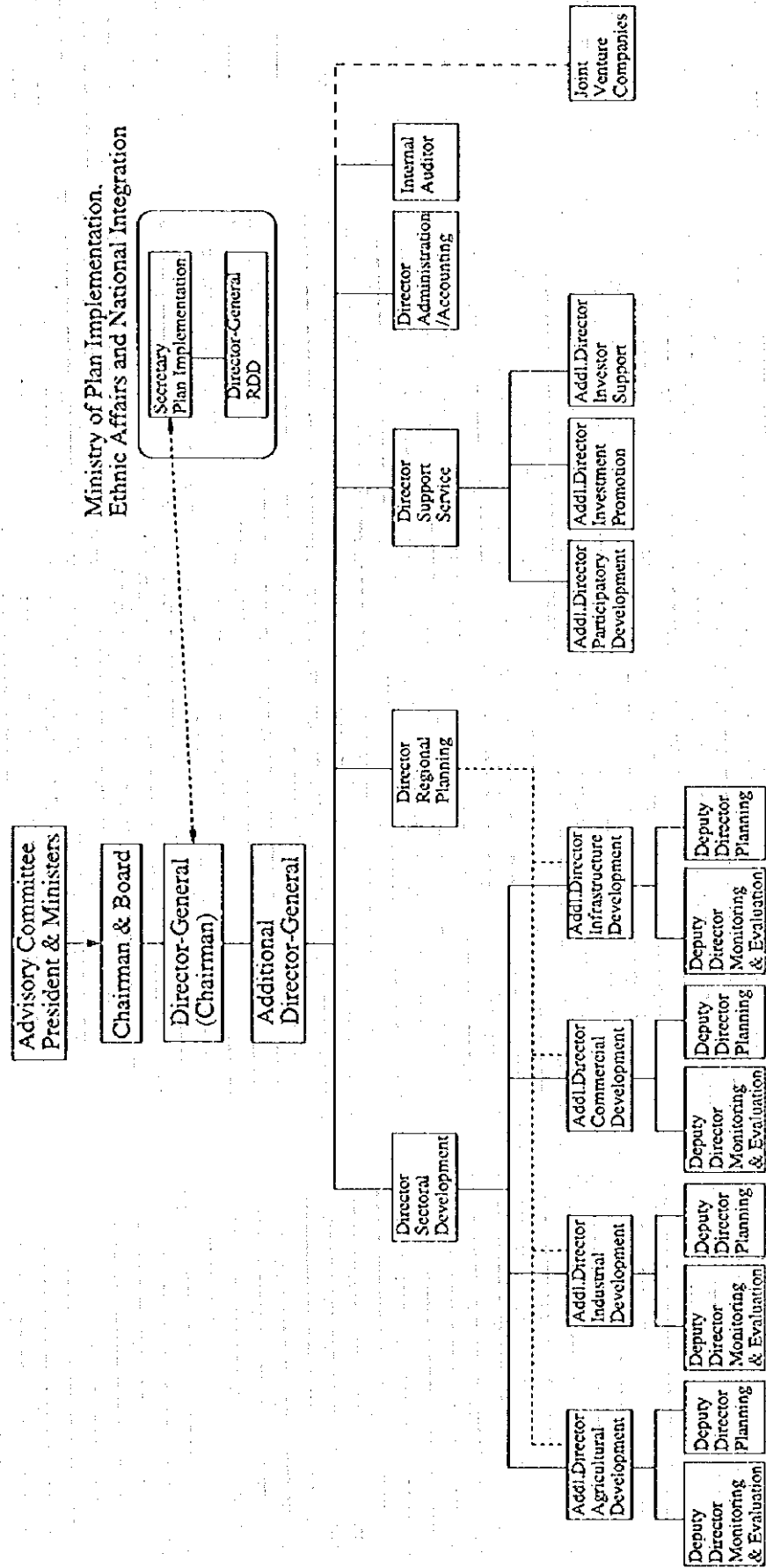
6.2 Recommended Organizational Structure of SDA

SDA's organizational structure proposed by the Task Force has two major problems: 1) lack of functional (or sectoral) directors within SDA and 2) difficulty to foster an integrated view of Southern Area for regional development. Figure 8 shows the recommended organizational structure of SDA.

As seen from Figure 8, SDA should be organized along sectoral lines rather than zonal boundaries (Sectoral Development Division). A staff function of SDA should be created to ensure the integrated regional development (Regional Development Division).

Participatory development and private sector support are the main themes of the Southern Area development with SDA. Along these lines, the Participatory Development Unit, Investor Support Unit and Investment Promotion Unit should be created. SDA should facilitate the implementation of projects proposed by local communities or NGOs through fund sourcing or own financing. The Investor Support Unit will provide information useful for private investors making their decisions. The Investment Promotion Unit will undertake various promotional activities to attract prospective investors.

Figure 8 Recommended Organization of Southern Development Authority of Sri Lanka (SDA)



7. ACTION PLAN

Activities to be undertaken subsequent to the completion of the Master Plan for the Southern Area development are (1) adoption and promotion of the Master Plan, (2) restructuring/strengthening of implementing arrangements with SDA, and (3) further development of individual projects and programs and implementation of identified priority projects.

7.1 Master Plan Adoption and Promotion

The bulk of development projects and programs proposed by the Master Plan can be implemented or further developed within the competence and policies of relevant sector agencies. However, the coordination of various development efforts by many agencies and timely implementation of anchor projects will have to be assured. For this purpose, Master Plan proposals will have to be discussed among related agencies, sector concerns and conflicts resolved, and the Master Plan should be formally adopted, if necessary with addenda. SDA should take the initiative in this coordination and conflict resolution process.

In parallel with these procedures the Master plan proposals should be disseminated widely to facilitate implementation through further cultivating public acceptance. The following will be particularly effective:

- (1) implementation of orientation seminars to convey the Master Plan proposals to a wide range of people such as politicians, local government officials, NGO's, environmentalists and researchers as well as general public,
- (2) preparation of publicity materials such as brochures and videos,
- (3) drafting of promotion materials for selected priority projects/programs,
- (4) launching of a series of TV programs combining video presentation, plan schematics and commentaries by various people, and
- (5) organization of international donors meeting and investment promotion seminars by public-private cooperation.

7.2 Re-structuring of Implementing Arrangements

Implementing arrangements for development projects/programs in Southern Area should be re-structured/strengthened, centering around SDA. For private investment projects, SDA should be active in close cooperation with BOI and provincial ministries. The Master Plan will provide SDA with a tool to guide private sector investors as to promising socio-economic activities, favourable locations and other factors affecting their investment decisions.

For inter-agency and inter-provincial projects, SDA should take the initiative for project development in consultation with related agencies and local governments. Implementation of project components by sector agencies and local governments should be coordinated by SDA. Monitoring and evaluation will also be conducted by SDA in collaboration with local governments and local communities.

Other bulk of development projects and programs will continue to be initiated and implemented by sector agencies. For these projects/programs, SDA's roles should be confined to planning, coordination, and monitoring and evaluation in the light of the Master Plan.

To perform these functions, a clear organizational structure of SDA needs to be established as proposed in Chapter 6. SDA should have its own technical staff to fulfill the planning and coordination functions effectively.

7.3 Project Development and Implementation

Most projects and programs proposed by the Master Plan are expected to be initiated during Phase I, as they have been formulated to address immediate needs of the region or to anticipate desirable changes in the more distant future. Many projects and programs are composite ones comprising also study components to develop more individual projects or schemes. Priority projects or schemes identified by the Master Plan should be implemented in the immediate future, while additional projects or schemes should be developed through such studies for subsequent implementation under the common concepts and strategy.

7.3.1 Anchor projects

Immediate actions to be taken for all the anchor projects are summarized in Table 7. Five projects would need feasibility studies in the immediate future : The Galle Port Development (as a regional part), Uma Oya Multipurpose Development, Home Garden-based Multi-storey Farming, Small Holder Integrated Farming, and Eco-Tourism Development. A feasibility study for the Galle Port may be conducted by a private shipping consortium. A feasibility study for Eco-Tourism will involve local participation. For the Gin-Nilwala Integrated River Basin Development, master planning should be conducted first.

Private sector involvement is expected for the Galle Port Development, Industrial Districts for Small and Medium Sized Industries, and Touristic Herbal Garden and Health Center. Some more projects may be implemented in part by the private sector to reduce the public sector resource requirements. Implementation of some infrastructure projects may be expedited, if additional resources are mobilized in the private sector to implement them on the BOO/BOT basis.

Local participation is important for further development and implementation of all the projects. In particular, local communities supported by NGOs should be the implementing agencies for the Community Enterprises Service Centers, Rural Road Improvement Program, Multiple Use Forest Management, and Eco-Tourism Development.

7.3.2 Special program

The special program for participatory development should be implemented in the nearest future. Some projects may be further developed by extending the efforts during the master planning, involving conceived local communities and NGOs supported by local governments. Those projects to be implemented as the initial components of other larger government projects/programs should be budgeted immediately through the relevant line ministry with the support of SDA.

7.3.3 Local projects/programs

Most local projects and programs are expected to be implemented by relevant sector agencies. For most of them, further project development including feasibility studies and design can be conducted also by the sector agencies.

Local projects include some private investment projects. Their inclusion in the Master Plan signifies that they are in line with the vision and the scenario for the Southern Area development. Most of them have some innovative nature, and strong support by SDA is expected for their promotion. They include:

- Sugar Plantation Development,
- Beef Processing and Marketing,
- Private Sector's Irrigated Agriculture,
- Prawn Farming,
- Hambantota Hotel Construction,
- Unawatuna Bay Resort Development,
- Arugama Bay North/South Resort,
- Walawe Spa Resort Development,
- Venture Capital Company,
- Galle Information Community, and
- Galle Downtown Development.

Table 7 Immediate Actions to Be Taken for Anchor Projects

Code No.	Project	Immediate Actions
SA-1	Galle Port Development	• F/S as a regional port by SLPA or shipping consortium
SA-2	Southern Highway	• Initial implementation as planned
SA-3	Intra-Regional Artery Road Establishment	• Continual improvement by section
SA-4	Coast Line Improvement	• Further improvements-signalling, bridges, rolling stock
SA-5	Uma Oya Multipurpose Development	• Comprehensive F/S with environmental inventory, and impact assessment
SA-6	Airfield Upgrading	• Detailed design for Weerawila airfield
SA-7	Coal Thermal Power Plant	• Site selection from environmental point of view
SA-8	Paddy-based Mixed Farming	• Pilot implementation with innovative production systems
SA-9	Home Garden-based Multi-storey Farming	• F/S to identify promising crop cycles and sites for pilot implementation
SA-10	Small Holder Integrated Farming	• F/S to identify viable integrated farming systems and sites for pilot implementation
SA-11	Marine Fisheries Complex	• Fishery resources inventory and upgrading of the Tangalle Regional Fishery Training Center
SA-12	Gin-Nilwala Integrated River Basin	• Master planning
SA-13	Industrial Districts for SMIs	• Invitation for private sector application to form manufacturers' associations
SA-14	Comprehensive Market Information	• Coordination setup and program design
SA-15	District Vocational Training Center	• Program development by RVIC
SA-16	Community Enterprises Service Centers	• Program development by NGO consortia
SA-17	Secondary Education Development	• Preparation of scope of work for extension of on-going program
SA-18	Health Referral System	• System design for pilot development
SA-19	Touristic Herbal Garden and Health Center	• Promotion for implementation by private sector
SA-20	Rural Road Improvement Program	• Program design for training and support system
SA-21	GIS-Oriented Regional Information System	• Continuous buildup on existing RIS and training for GIS experts
SA-22	Environmental Fund	• Financial appraisal and implementing arrangement
SA-23	Environmental Monitoring and Animating	• Planning for the center and monitoring system design
SA-24	Integrated Management of Coastal Resources	• Design for a CLBER center
SA-25	Multiple Use Forest Management	• Resource inventory and formulation of management plan with local participation
SA-26	Eco-Tourism Development	• F/S with local participation
SA-27	Appropriate Toilet Facilities	• Preparation of a long-term program and establishment of a subsidy scheme

Source : JICA Study Team

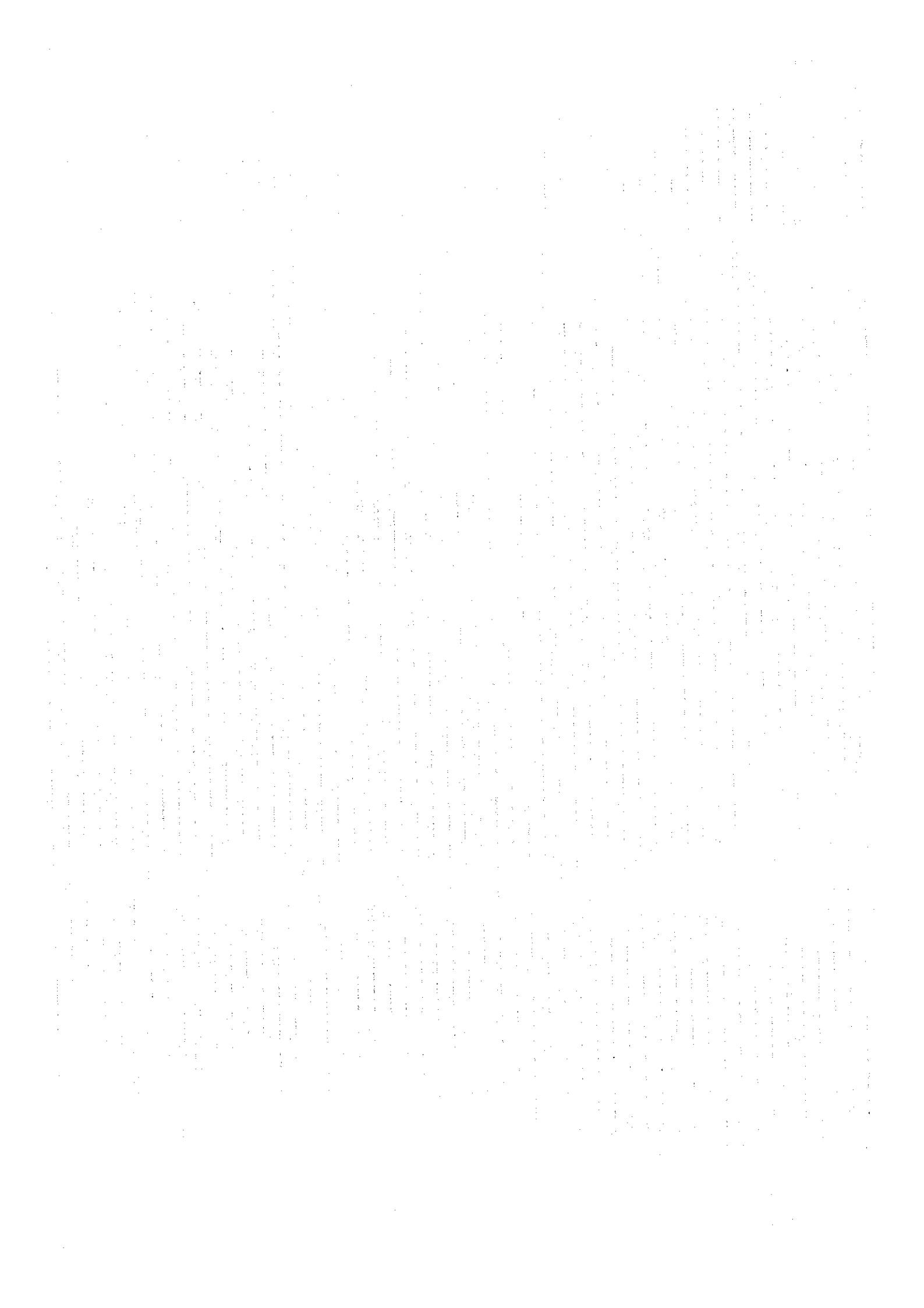


The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry, no matter how small, should be recorded to ensure the integrity of the financial data. This includes not only sales and purchases but also expenses and income. The document provides a detailed list of items that should be tracked, such as inventory levels, customer orders, and supplier payments. It also outlines the procedures for recording these transactions, including the use of specific forms and the assignment of responsibilities to different staff members.

The second part of the document focuses on the analysis of the recorded data. It describes various methods for identifying trends and anomalies in the financial performance. This includes comparing current periods with previous ones, as well as analyzing the data by department or product line. The document also discusses the importance of regular audits to verify the accuracy of the records and to detect any potential fraud or errors. It provides a step-by-step guide for conducting these audits, from the selection of samples to the final reporting of findings.

The third part of the document addresses the reporting and communication of the results. It explains how to prepare clear and concise reports that provide a comprehensive overview of the financial situation. This includes the use of charts and graphs to visualize the data and make it easier to understand. The document also discusses the importance of regular communication with management and other stakeholders to ensure that they are kept informed of the company's financial health and any potential risks. It provides a template for these reports and outlines the key information that should be included in each one.

Finally, the document concludes with a summary of the key points and a call to action. It reiterates the importance of maintaining accurate records and the need for regular analysis and reporting. It encourages all staff members to take responsibility for their own financial records and to work together to ensure the overall success of the company. The document ends with a list of contact information for further assistance and a date of publication.



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