

THE DEMOCRATIC SOCIALIST REPUBLIC
OF
SRI LANKA

THE MASTER PLAN STUDY
FOR
THE INTEGRATED RURAL DEVELOPMENT PROJECT
FOR
GAMPAHA DISTRICT

MAIN REPORT

SEPTEMBER 1987

JAPAN INTERNATIONAL COOPERATION AGENCY



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PREFACE

It is with great pleasure that I present this Master Plan Study on the Integrated Rural Development Project for Gampaha District to the Government of the Democratic Socialist Republic of Sri Lanka.

This report embodies the result of an in-depth survey in Gampaha district carried out from July 1986 to June 1987 by a Japanese survey team commissioned by the Japan International Cooperation Agency following the request of the Government of Sri Lanka to the Government of Japan.

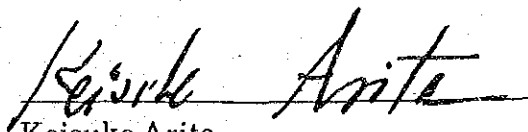
The survey team, headed by Mr. Fumio Tamura, Chuo Kaihatsu Corporation International, had a series of close consultation on the Project with the officials concerned of the Government of Sri Lanka and conducted a wide scope of field survey in the project area.

After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will be useful as a basic reference for development of the Project and contribute to the promotion of friendly relations between our two countries.

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

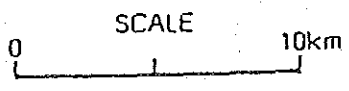
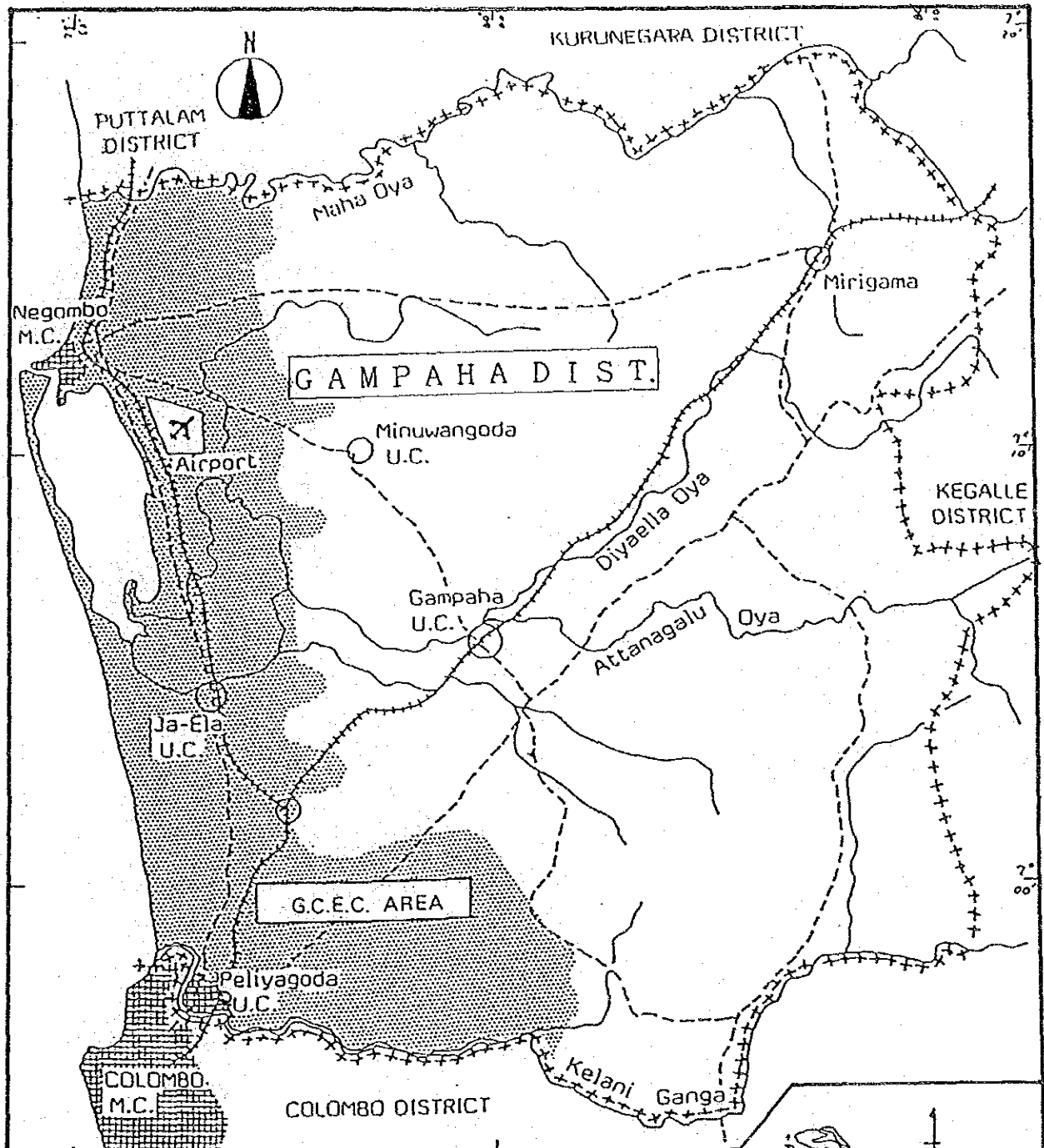
September, 1987



Keisuke Arita

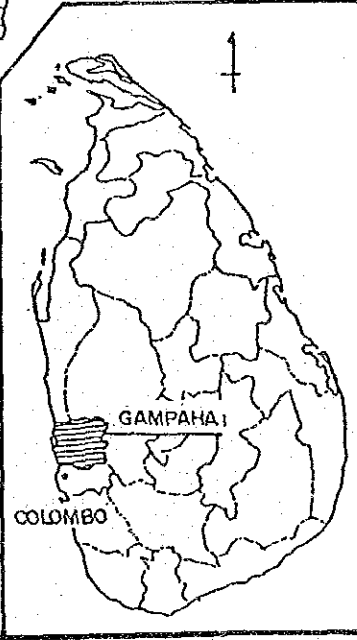
President

Japan International Cooperation Agency



- +++++ District Boundary
- Road
- Railway
- River

Location Map



SUMMARY

General

This report elaborates the Master Plan for the Integrated Rural Development Project (IRDP) in Gampaha District.

In order to improve the status of rural area in the district, two broad objectives of i) emancipation from poverty and ii) stabilization of people's livelihood have been set. These objectives are to be achieved through both strengthening of agricultural production infrastructure and enhancement of the rural living environment. Thus the Master Plan envisages a comprehensive development over a range of sectors towards establishing a stable and healthy rural society, and is not focused solely on expansion of agricultural productivity.

In order to realize the above described two broad objectives, not only short-term schemes but also long-term planning have been incorporated in the Master Plan to address both immediate problems, and those long range goals which cannot be effectively attained within only a 5~7 year framework for project implementation. Priority projects from among the short-term schemes have been identified, and designated as urgently warranting prompt realization.

(Background)

IRDP is being implemented in purely rural areas of 13 out of 25 districts in Sri Lanka. Recently attention has been focusing on the need for IRDP in rural portions of suburban areas as well, with particular concern being directed at Gampaha district as urgently in need of such a project. In view of national high priority for development in Gampaha district, the Sri Lanka Government has requested the Japanese Government to formulate a Master Plan for suburban type IRDP.

(Period in the field)

Based on the Scope of Work drawn up in April, 1986, field study was carried out three times during the period from July 1986 to September 1986 (75 days), from December 1986 to January 1987 (45 days), and in June 1987 (8 days).

(Sri Lanka)

Sri Lanka is situated 29 km off the south of the Indian subcontinent, and constitutes a tropical island. The area of Sri Lanka is 65,600 km² and its population is 15 million. The district with largest population is Colombo with 1.7 million, and the second is Gampaha with 1.4 million.

Sri Lanka is an agricultural country mainly producing tea, rubber, coconut, and rice, production of which occupies 30% of the gross domestic product. Agriculture is the national mainstay, and provides 60% of exports and 70% of employment opportunity.

(National Development Program)

The Sri Lanka Government is implementing 5 main national development policies.

Program	Concept	Executing Agency	Assisting Entity
Mahaweli River Development Project	Major Irrigation for 900,000ac.; hydroelectric generation of 500 Megawatt; resettlement of 500,000	Ministry of Mahaweli Development	Japan, UK, US, etc.
Promotion of export oriented manufacturing	Establishment of GCEC area; at present 77 corporations, 36,000 workers	GCEC	Enterprises from US, UK, Taiwan, South Korea, etc.
Urban development	Targeted at Colombo and cities in other districts, establishes housing and industrial areas with roads, market, and public facilities	Urban Development Authority (Ministry of Local Government, Housing and Construction)	
Export Promotion	Export promoting policies for agricultural products, textiles, etc.; includes extension, investment, tariff reduction, guaranteed capital assistance, market development, etc.	Sri Lanka Export Development Board	
Integrated rural development program	District-wise integrated development: productivity increase, expansion of employment opportunity, income increase, and improvement of rural livelihood; is being implemented in 13 districts out of 25	Ministry of Plan Implementation	Sweden, Norway, World Bank, IFAD, etc.

(Conditions of Gampaha District)

(1) Special Features of the District

In national policy, Gampaha district has been targeted for promotion of industrial development, and as such accounts for 36% of the entire

country's industrial product. In the agricultural sector, priority has been given to production of coconut and fruit, development of freshwater fisheries and promotion of rubber small holders.

Primary development of infrastructure is largely completed, and land use rate is high. At present, 70% of district land is used for agricultural purposes. However, land holdings per household are small and agricultural production is low. As a result, most farmers cannot subsist on farm income alone. Part-time farming is widespread, and employment breaks down into 13% in the agricultural sector and 87% in other sectors. The district may be described as undergoing a period of employment shift to modern sectors. Despite the district's proximity to Colombo, the nation's capital, its gateway status as the site of the international airport, and the fact that it contains the so-called GCEC industrial zone, rural areas which comprise the major portion of the district remain impoverished and unemployment at 27% is twice the national average.

(2) Rural Conditions

Agriculture in Gampaha district is small scale, and part-time farming is widespread. Interspersion of farmer and non-farmer residences is commonly seen. Special features of rural area in the district may be described as follows:

- a) Coconut production is second highest in the nation.
- b) With the exception of coconuts, self-sufficiency in the district of food crop production has not been achieved.
- c) Approximately 70% of the entire district area has been developed as agricultural land, and potential for opening of new agricultural lands is extremely limited.
- d) Farm land holdings are small and fragmented, with 90% of the holdings at less than 3 acres (1.2ha), and 67% are extremely small at less than one acre. The national average for less than 3 acres is 77%, and 42% for less than one acre.
- e) Existing irrigation facilities are largely superannuated, and traditional cultivation methods of low productivity are generally practiced.

f) Under current conditions a marked increase in agricultural income cannot be expected.

g) As farm holdings are small and agricultural productivity is low, farmers cannot subsist on farm income alone and depend on supplemental off-farm income. However, income opportunities outside agriculture are limited resulting in a high unemployment rate.

(3) Principal Problems Affecting Agriculture and Rural Area

The following two major problems are present:

a) In rural area both areal and sectoral disparities in income are significant, and this condition is a potentially serious constraint to social stability.

b) A general consensus is present regarding the need to commence construction of agricultural production infrastructure and social infrastructure. Both types of infrastructure warrant urgent implementation.

(4) Aspirations and Needs of Farmers and Rural Residents

Although most all rural residents are currently oriented towards only part-time farming, consciousness remains high regarding the importance and necessity of agriculture and the population shows keen interest in efforts to improve productivity. Concern is also at a high level regarding improvement of the rural living environment, particularly with regard to education and health.

Furthermore, awareness of the need to preserve the natural environment, and the crucial contribution that this makes to national survival is high. Residents display a firm-seated desire to build a rural society that interacts harmoniously with its natural surroundings.

(Need for Integrated Rural Development in Gampaha District)

(1) Importance of Integrated Rural Development

A monosector project is not sufficient to address the problems faced by agriculture and rural communities in the district.

As a consequence, it is deemed necessary that an integrated project

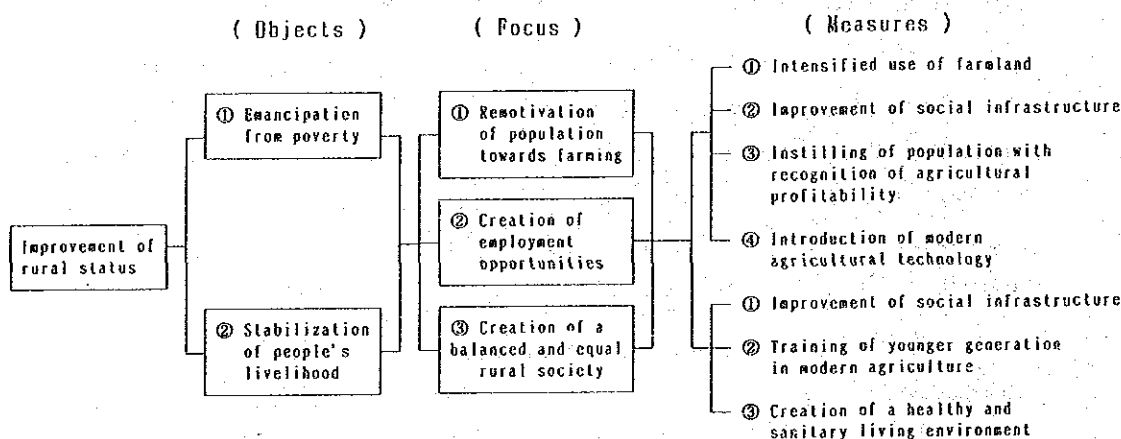
be formulated that is targeted over a range of components crucial to rural life, i.e. raising farm productivity, upgrading agricultural production infrastructure, strengthening social infrastructure, etc.

(2) Objectives of Integrated Development

In order to promote the prosperity of rural areas, all components of the rural social and economic environment must be strengthened. Efforts to achieve this are posited under two broad objectives:

- | |
|--|
| <p>① Emancipation from poverty</p> <p>② Stabilization of people's livelihood</p> |
|--|

These objectives and methods for achieving them may be diagrammed as follows:

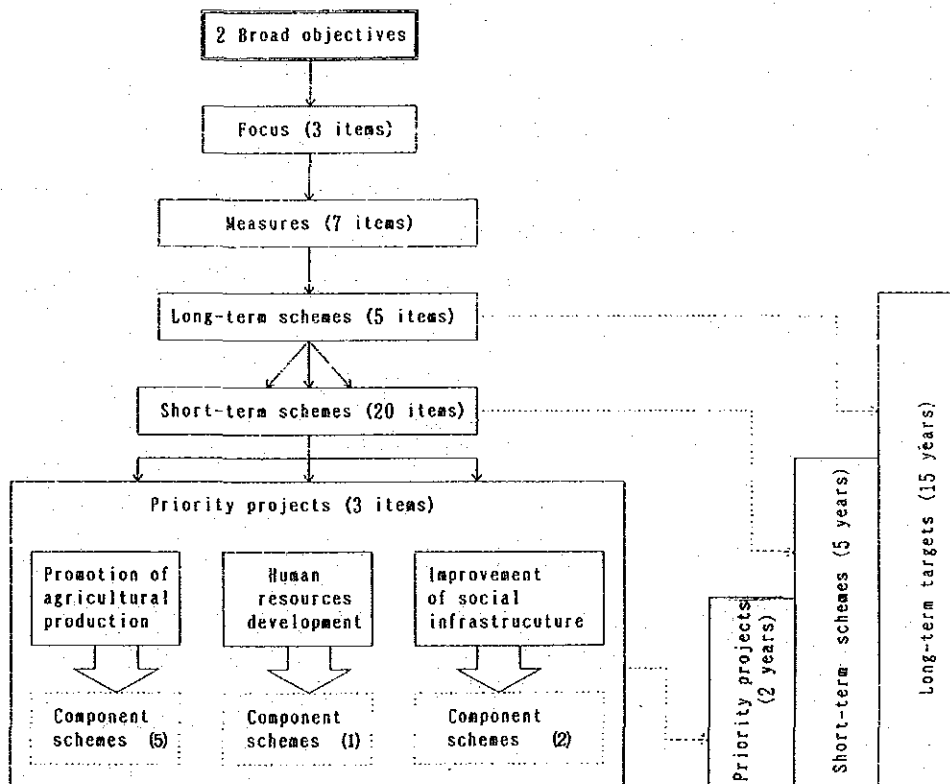


(3) Specific Measures to Improve Status of Rural Areas

Specific measures to improve the status of rural areas will include intensified utilization of farmland, increase of agricultural productivity and farm income, and generation of employment opportunities. In conjunction with this, steps will be taken to improve the daily living environment in rural areas.

(Formulation of a Master Plan)

On the basis of the results of field survey and study, a Master Plan was conceptualized as follows:



Gampaha IRDP represents a phase-wise program for comprehensive development of rural area in the district, and sets emancipation from poverty and stabilization of people's livelihood as its broad objectives. These objectives are to be achieved through both strengthening of agricultural production infrastructure and improvement of the rural living environment. Long-term targets are envisioned to be realized over a 15 year period. Short-term schemes (20 schemes) are formulated for implementation over a 5 year period on the basis of criteria of practicality, urgency, etc. Of these 20 short-term schemes, 3 are selected as priority projects meriting prompt implementation.

(Priority Projects)

Priority projects are a portion of the short term schemes, and represent the schemes of highest priority within the Master Plan. Selected priority projects are intended to provide immediate benefits and set in motion subsequent short term schemes and long term projects.

Selection criteria for priority schemes are given below.

- a) Degree of urgency for realization among the short term schemes
- b) Degree to which implementation of the scheme will serve as a fundamental core for IRDP from which a ripple effect stimulating development over a range of sectors in the district may be expected to follow.
- c) Degree of congruence with other on-going projects.
- d) Degree to which timing for implementation is mature.
- e) Degree to which project is targeted at aspects of rural life below the national average.

Selected priority projects focus on the following points.

Project	Focus
Model project for agricultural production improvement	Orientation of farmers attention towards profitable agriculture; fostering farmer leaders
Human resources development project	Level up of educational standards
Social infrastructure development project	Maintenance of good health of the district population

All components under priority projects are described as follows:

Priority Projects

Name of Project	Objective	Schemes	Components	Cost (Rs. Mn)
1. Agricultural production improvement model project	Income increase of small farmers; increase of employment opportunity; MEC cultivation; multiple cropping in paddy field	· MEC cultivation	Nursery farm construction (pepper and coffee)	53.6
		·Agricultural technology demonstration	Construction of demonstration farm and technology transfer center at Morena, Ambepussa	42.2
		·Strengthening agricultural supporting system	Strengthening of agrarian service centers (26)	19.0
		·Strengthening of agricultural extension and training system	Improvement of extension and training systems at Walpita and Ambepussa	63.5
		·Morena area model irrigation scheme	Morena area (392ha) reconstruction of anicut, rehabilitation of irrigation and drainage system	39.2
2. Human resources development project	Level up of scientific education standards of high schools; strengthening of technical vocational training	Improvement of educational facilities and equipments	Science, agriculture, home science course facilities and equipments	28.3
3. Social infrastructure	Improvement of basic health standards, district medical standards, and provision of safe drinking water	Improvement of 2 base hospitals	Strengthening of medical examination, mortuary, sewage disposal, and water service facilities at Gampaha and Wattupitiwala base hospitals	34.2
		Monitoring and improvement of shallow wells	Provision of water analysis equipment, chlorinators	19.6
			Total	299.9

Project costs were calculated on the following basis:

- a) Materials available locally are calculated at local prices.
- b) Materials unavailable locally are calculated based on international prices.
- c) Unit prices are based on collected data as of September '86.

(Implementing Schedule of Priority Projects)

(1) Executing agencies

Executing agencies are expected to continue the work for implementation of short term schemes and long term targets after priority projects implementation. Therefore, a permanent IRDP Project Office will be established under RDD of MPI which is the chief implementing agency, and said office is to be located at Gampaha Kacheri.

(2) Organization

Each concerned line agency and organization will be responsible for project planning, implementation, and operation of the relevant projects. Coordinating committees will be established at national, district, and project specific levels to provide integrated tuning for project implementation. In this manner a structure for project implementation would be created which is both technically proficient and oriented towards a comprehensive rural development.

(3) Implementation period

Implementation period of priority projects is about two years, to be immediately followed by implementation of other short term schemes and formulation of long-term projects.

(Benefit and After-effect)

Implementation of priority projects will yield the following benefits.

(1) Increase of agricultural production

- a) MEC intercropping: annual production: Rs. 912 million
farmers' net income: Rs. 566 million
- b) Upland crop intercropping 16,000 ha

c) Unit paddy yield 3.1 tons/ha → 4.5 tons/ha

(2) Farmers income increase

All farmers would be able to expect a net farm income increase of 3.5 fold over the present.

(3) Social benefit

- a) Due to 3 fold production increase, impoverished farmers receive more food, and better nourishment.
- b) Intensive agriculture will yield an increase of 25,000 employment opportunities in cultivation, and could be expected to also increase job opportunities in processing and marketing sectors due to three fold production increase.
- c) Impoverished farmers would increase their income, which would result in leveling of income disparities, and reducing of food stamp recipients by about 45,000.
- d) Upgrading of scientific educational standards of high school students in Gampaha.
- e) Upgrading of health levels by improvement of medical standards and securement of a safe drinking water supply.

(4) Ripple effect

Through experience in more modern MEC cultivation, farmers would acquire a level of agricultural technology permitting subsequent shift to suburban type agriculture such as vegetable/fruit production which is labor intensive, highly profitable and more suited to Gampaha's geographical location proximate to Colombo. Furthermore, accumulated capital would be invested in agro-based industry and marketing in the area, leading to new development in these other sectors.

(Conclusion)

Short term schemes have been formulated under the Master Plan for IRDP in Gampaha district to provide a base for eventual achieving of long term targets. These targets in turn are envisioned to bring about realization of the 2 overriding objectives of i) emancipation from poverty and ii) stabilization of people's livelihood.

In pursuing integrated rural development, it is essential to expand agricultural productivity and stimulate motivation and confidence among rural residents towards the profitability of farming. In this light, a model project for raising farm productivity and introducing high yield agriculture has been included among the priority projects. In conjunction with this model project, priority projects to improve secondary education and most basic social infrastructure will be pursued.

Priority projects are intended to set in motion the momentum for wide scale introduction of high yield agriculture into the district, upgrading of education levels of the younger generation and improving health standards of the population. In this manner, a firm foundation for moving forward with implementation of other short-term schemes and formulation of long-term projects would be established, and a positive spirit of enthusiasm and support would be instilled in the rural population for further development in accordance with the Master Plan for IRDP.

1. Background and Master Plan

The public investment plan of Sri Lanka gives high priority to IRDP in the districts which are not benefited by the Mahaweli development project. Rural residents in Gampaha district suffer from inequitable distribution of economic resources despite a potentially prosperous outlook for the area due to urbanization effects of nearby Colombo as well as the GCEC area. To cope with the current situation, it is urgently required to formulate an IRDP for the area.

The Gampaha district's IRDP is unique in that master-planning was conducted for the long term. Previous IRDPs in other districts have comprised short-term detailed investment programs ready for implementation. Under the master-planning for Gampaha IRDP, it was possible to envisage long term activities and component schemes which should later be taken up for feasibility study or implementation programming. Component activities proposed for the long and short term schemes in the Master Plan were so designed that the Sri Lankan government may make optional selection of what it deems to be the most attractive and/or urgent projects for actual implementation taking into consideration such factors as financial resources, etc.

2. Project Area

2.1 Natural Conditions

Gampaha district is situated north of and adjacent to the Sri Lankan capital of Colombo. The district is essentially square in configuration, measuring 40 km from north to south and 35 km from east to west. Land area is 1,399 km². The Kelani river constitutes the southern boundary of the district, while the Maha river forms the boundary in the north. In the east, a mountainous zone establishes the boundary with the adjacent Kegalle district. To the west, Gampaha borders on the Indian ocean.

Geologically, Southwest group mainly composed of granite is distributed in the west of the Project area, the Highland series in the east, and Vijayan series in the north largely of gneiss, where podzolic soil covers and coconut grows. Alluvial lowland distributes along rivers where double rice cropping is prevalent.

Gampaha district falls within the wet zone, with annual rainfall at 2,000~2,600mm. Rainfall occurs primarily during the two yearly monsoons. The Maha from October to December accounts for 40% of annual rainfall, while 30% occurs during the Yala from April to June. Annual mean temperature in the district is 23~31°C. Lower temperatures occur in December~January and higher temperatures in March~April. Annual mean humidity is 79%, with humidity higher in periods of heavy rainfall.

There are three large rivers in Gampaha district. Kelani Ganga is important as water source for Colombo. Attanagalu Oya is availed for agriculture and water source for Gampaha district while Maha Oya is not availed.

Alluvial deposits are being expected to offer more extensive groundwater development as a rural water supply.

2.2 Society and Economy

Adjacent to the capital of Colombo, Gampaha district ranks first among the country's 25 districts in industrial production and second in population density. One third of the area in the west is designated as an industry promotion area under the Greater Colombo Economic Commission (GCEC), and urbanization there has been accelerating, while rural areas remain in the north and east.

The district's administrative body is not well organized nor integrated due to departments consisting of numerous branches at the national government level.

Employment opportunities are fairly increasing in the latter, while agriculture alone is depended on as a lower income source in the rural area. Divulapitiya, Mirigama and other eastern AGA divisions represent more backward areas where the residents rely on low productive agriculture due to distant and hence costly travel to the modernized urban area. Thus areal disparity of income is marked.

Seventy percent of the district's land is devoted to agriculture, where coconuts, paddy and rubber are mainly cultivated under conventional technology. Productivity of agriculture is very low among the majority of farmers who cultivate tiny pieces of land which have been fragmented by traditional inheritance practices and by recent urbanization. The modernized sectors in the urbanized area cannot afford enough job opportunities to absorb the increasing jobless-landless and jobless-marginal farmers. These persons account for the major portion of food stamp recipients, which total 130,000 (45%) of the district's 289,000 households.

Income disparity has increased between residents with regular employment in the modernized sectors, and residents with irregular or incomplete employment in the traditional or agricultural sector. This is caused by the much lower productivity of the traditional sector, i.e. agriculture and traditional agro-based industries in comparison to the modernized sectors such as commercial, manufacturing and other activities in urbanized areas. The poorest residents are observed to be those who have no job in the modernized sectors irrespective of engagement in agriculture and the size of agricultural holding. Therefore, there is another disparity existing between sectors, in addition to the areal disparity discussed above.

As hinterland to Colombo and the GCEC area, Gampaha provides residential zones, and its school enrollment rate is higher than that of Colombo. Resident attitudes are observed to be oriented towards a modern life style. Under these conditions, the unemployed or job seekers account for 127,000 or nearly 10% of the district population. It is noted that 46% of the unemployed are women, while female share among employed accounts for 17% only. Despite the increasingly active willingness for women's participation, the modernized sectors cannot provide enough job opportunities. The traditional sector or rural industries are difficult to develop due to stagnant market condition, lack of adequate technologies and absence of accumulated capital to be invested.

2.3 Agriculture

Crop Production

With respect to agriculture, 70% of land is cultivated mainly with coconut(75%), rice(18%) and rubber(5%). Gampaha is the second largest coconut production district in the country. Sources of income are roughly divided into farm income and non-farm income. Farmers derive their farm income mainly from coconut, paddy, and export crops such as banana, cassava, and pineapple. The most important sources of farm income are paddy and coconut, followed by the export crops of pepper and coffee. Cassava and banana are mainly home consumed, and cash income derived from the same is limited. Pineapple is raised by a few farmers.

Land holdings are so fragmented and skewed that the average is 1.2 acres (0.48ha) while 67% of farm households are operating on less than 1 acre (0.4ha). As such small land holdings are insufficient to support a family, 60 to 80% of farmers are estimated to depend on income sources other than agriculture. As a result, many farmers practice weekend farming which invites low efficiency in the use of land and agricultural inputs.

Minor export crops, such as pepper, coffee, cacao, clove, Ceylon cinnamon tree, betel leaf vine, etc. have been increasingly cultivated in the district. In the last 5 years, pepper and coffee have increased 2.5 times, and clove nearly 6 times. In the district about 80,000 acres (32,000ha) are planted to coconut palm trees between 16 to 45 years of age which are favorable for inter-cropping of minor export crops and 40,000 acres (16,000ha) could be planted to minor export crops. Since the horizontal expansion of cultivation land is difficult in the district as mentioned above, this land area, the greatest potential land resources in the district, should be fully utilized.

Livestock

The estimated population figures of livestock are beef cattle (67,600), buffaloes (28,900), pigs (26,000), goats (700), and poultry (1,135,600).

The institutions directly responsible for the promotion of livestock production or for supplying the necessary inputs or marketing are:

- Department of Animal Production and Health
- National Livestock Development Board

- National Milk Board
- Oils and Fats Corporation

Though the Gampaha district is near to big Colombo market, all small holder animal production systems are characterized by a low level of management and productivity except a few organized large-scale commercial farms.

Agricultural machinery

The utilization ratios in 1985 for agricultural machinery in Gampaha district among small scale farmers were tractors: 1.0%, sprayers (portable type): 2.6%, and others at about 0.2% each. Agricultural training centers are currently located at Walpita and Ambepussa. However, facilities and teaching equipment are insufficient for farmer training in machinery operation and maintenance. Upgrading of these centers is desirable.

Small scale manufacturing and repair facilities for farm machinery are located at 4 locations within Gampaha district. Small workshops of 1-3 persons are located at 25-30 locations, however, these facilities handle only very simple equipment. There are no workshops capable of engine disassembly and repair. Paddy field scale and configuration is not conducive to introduction of mechanized cultivation.

Fisheries

Negombo, one of the major fishing ports in Sri Lanka, is located in the Gampaha district. About 15,000 tons of marine fish, representing 10% of the total annual catch in Sri Lanka, are annually landed at this port. The majority of these fish are distributed for consumption within the coastal area of Gampaha and Colombo.

Fish consumption in the rural areas of the Gampaha district is low, with annual per capita consumption estimated at only 4kg, including consumption of marine, freshwater and dried fish. This figure is extremely low in comparison to the annual average of 12kg/person. The Ministry of Fisheries in Sri Lanka is focusing future development on inland fisheries, however, development of inland fisheries, particularly freshwater fisheries in the Gampaha district has been hampered by lack of fingerlines, insufficient extension activities, and lack of supporting facilities and administrative infrastructures.

Agricultural Supporting Services

The Department of Agriculture is responsible to provide Gampaha district with extension material through such stations as the agriculture experiment stations, Coconut Research Institute, and Minor Export Crops Research Stations which are all located outside the district. Two agricultural training centers in Gampaha district are responsible for extension work in the district; however, the activities of these agencies are seriously restricted by poor mobility due to lack of transport and equipments.

The major formal credit institution in Gampaha has failed to reach the majority of small farmers in the district because of ineffective supervision and the use of complex and costly procedures for loan processing. More than 80% of the farmers resort to informal channels, such as merchants, money lenders, landlords, and kinsmen. Credit discipline has been generally poor.

There are plenty of farmers associations such as multipurpose thrift and credit, dairy producers, pig producers and fisheries, while major problem is that a large portion of the farmer organizations are afflicted by inefficient management, and are subsequently ineffectualized by private enterprises. (MPCS, textiles)

Marketing

Coconut, the dominant crop in the district, however, is marketed largely through fairly institutionalized channels, such as coconut processing mills run privately or by cooperatives, which collect raw coconuts through traders from smallholders or directly from larger holders.

Only 5% of paddy is reportedly marketed within the district, with the rest consumed by producers.

Most of the betel leaves collected by middlemen are brought to Colombo and Katunayake, where domestic and export markets are located. It is believed that prices are not favorable to the producers who do not own transportation media or belong to cooperatives. However, the pricing mechanism is observed to be functioning fairly soundly due to competition among middlemen and the influence of broadcasted price information.

Gampaha is the main producer in the country of pineapple, passion fruit and rambuttans. Despite being seasonal crops, farmers are not provided with proper storage facilities or processing plants of their own and they therefore suffer from a sharp price drop in the peak season. Cultivation of pineapple for export was

once encouraged but quality was uncompetitive in the international market due mainly to poor quality control at both cultivation and post-harvest stages.

Irrigation and Drainage

Paddy field is the target of existing irrigation facilities in Gampaha district. Upland field consists primarily of coconut field and is not irrigated. Paddy field accounts for 17% of all cultivated land, and totals 17,000ha. Of this total, 56% is irrigated and 44% is rainfed.

Irrigation systems are classified into major which service 80ha or more, and minor with a service area of less than 80ha. Major irrigation in the district consists solely of the Attanagalu scheme, where diversion from anicuts at 34 locations provides water to 3,870ha. This scheme is under the jurisdiction of the Irrigation Department. However, anicut structures, gates, canals, and other irrigation facilities are in many cases not in operating condition. In particular, there is evidence of structural deterioration at a number of anicuts. During the Study period, the Opata anicut at the lowermost reaches of the Attanagalu oya was washed away. This fact suggests that anicut reconstruction and not simply rehabilitation may be necessary in the case of other anicuts as well.

Minor irrigation schemes under the jurisdiction of the Agrarian Services Department are at scattered locations in the district. Facilities, including anicut systems, head tank systems, etc., are located at 750 sites. As with large scale irrigation, superannuation of facilities is marked. Water source for irrigation is either river discharge or rainwater. Only small-scale ponding is seen in the case of minor irrigation; neither reservoir dams nor groundwater are utilized.

Irrigation is conducted twice annually, i.e. during the Yala (April~June) and Maha (September~November) seasons. Although 72% of annual rainfall occurs during this combined period, stable irrigation is not possible due to large fluctuation in rainfall amount.

In paddy field areas, there are numerous sectors of poor drainage. Existing irrigation cum drainage canals are not sufficient to properly drain these areas, and at present 4 drainage projects are planned by the Irrigation Department along the three major rivers in the district.

Specific problems affecting irrigation and drainage are water shortage during the Yala season and flooding during the Maha season. As both problems occur within the same catchment, it is recommended that topo-mapping of affected

areas be drawn up as promptly as possible, and an integrated plan coordinating irrigation and catchment drainage be formulated.

2.4 Social Infrastructure

As of 1981, the total population of Gampaha district was 1,390,862 of which 72% is rural population.

The project area comprises purely rural areas, and urban areas such as Gampaha and Minuwangoda surrounded by rural areas.

Lowland is utilized as paddy field, while upland serves as sites for dwellings and upland fields. Dwelling sites always include home gardens, wherein coconuts are generally cultivated. In terms of economic pattern, Gampaha may be classified into urban and rural zones.

The road network within the district is relatively developed, being second to that of Colombo. Although laterite paved roads are present in some villages, road network is sparse in paddy field areas.

Residents of the area obtain almost all their domestic water from shallow wells. In some instances, pumps have been installed at shallow wells to convey water to dwellings. Piped water service systems have been implemented in Gampaha city and Veyangoda town. As there exists no public sewage system, domestic wastewater is disposed of into nearby rivers by means of drainage ditches. Waste sludge disposal is by ground absorption.

Due to favorable land conditions, development has been in progress in Gampaha district for many years. As a consequence, fairly extensive social infrastructure construction has been undertaken. Nevertheless, in many cases facilities are superannuated and require urgent rehabilitation.

The electrification rate of rural area in Gampaha district is as high as the national average; however, telephone line coverage rate is noticeably lower than that of the national average.

Health conditions in the Gampaha district evaluated according to standard health indices are comparatively good in reference to the national average. However, the district has the second-highest population density in Sri Lanka and medical facilities are not sufficient, the ratio of which against population is lower than the national average.

A high percentage of children of school age would be associated with a high level of interest in education, and due to the competitive education system, many students leave Gampaha district to attend better schools in Colombo. The educational standards of the science division in particular are low and 48% of science students go to Colombo to complete their education. Even within Gampaha district there is a general trend for students from remote rural areas to gravitate towards the larger schools in the urbanized areas. This trend would be prevented by provision of higher scientific educational facilities to core schools in the district.

2.5 Rural Industries

In rural industry's sector, there are many local industrial units such as coconut processing, brick kilns, and rice mills, however, those demands in the country are limited and successful industrialization is required to access to modern technological innovations and knowhow so as to raise the productivity of this sector.

3. Conceptual Approach to Integrated Rural Development

3.1 Importance and Objectives of Integrated Rural Development

Focus had been given in Asian countries to the implementation of large-scale irrigation schemes emphasizing almost exclusively the establishment of agricultural production infrastructure and introduction of modern farming practices. This was in response to food shortages accompanying sharp population growth following World War II. Under such projects, high yield varieties, farm mechanization, agro-chemicals and various water use facilities were introduced, and the so called "Green Revolution" was pursued. Overall, these efforts contributed significantly to increased food production in Asia.

Nevertheless, this type of agricultural development in many cases benefited primarily the more economically upscale farmers in large-scale irrigation project areas with the financial resources to invest in farm inputs such as machinery, chemical fertilizers and agro-chemicals. The poorer small-scale and landless farmers often were largely excluded from the benefits of such projects. In areas not serviced by irrigation facilities, farmers continued cultivation according to traditional methods. In this manner, a sizeable portion of the rural population remained unable to participate in modern agriculture and continued to suffer in terms of living standards. This combined with growing development of industry

and commerce in cities and towns resulted in a steadily widening gap in levels of economic and social well being between rural and urban areas. Integrated rural development consequently emerged in response to this need to comprehensively enhance rural life.

Consequently, integrated rural development is directed at the above mentioned small-scale and landless farmers, and at more backward areas for which modern agricultural practices have not been introduced. The basic objectives of this type of development are to increase farm production and farmer income, expand employment opportunities, and strengthen social infrastructure in rural areas. Towards this end, maximum cooperation and participation of farmers will be essential, as the success or failure of envisaged projects will rest ultimately on the active support of the farmers themselves.

3.2 Government Guidelines

The Government of Sri Lanka has expressed the following guidelines as appropriate in the pursuit of integrated rural development.

- a) The national goals of economic and social development to be reflected in the Master Plan are the achievement of rapid rates of economic growth and structural change, employment creation, improvement of the overall living standards of the people and better income distribution while maintaining financial and economic stability.
- b) Maximum flexibility is necessary in the choice of scheme activities to allow for taking specific rural needs into account. Flexibility should also prevail in the matter of planning procedure.
- c) Greater attention should be paid to more backward areas within the district.
- d) Intensive programs with active participation of the people aimed at specific target groups should be considered.
- e) The possibility needs to be examined of focusing IRDP Programs so as to mitigate the impact on the poor of the removal of the food subsidies and the reduction in welfare programs through implementation of Food and Nutrition Programmes and other such programs focused on the poor needs to be examined.

- f) No special authority should be created for implementing, executing or managing the planned activities. The existing governmental apparatus should be used.
- g) The long-term perspective envisaged for the IRDP approach is to develop a more comprehensive district plan.
- h) The scheme activities should be carefully selected taking into consideration the main economic problems and potentials of the district.
- i) A short-term and medium-term outlook should be adopted, particular attention being directed at eliminating the critical bottlenecks in the service delivery system and the production pattern.
- j) Scheme activities are to be of less capital intensive nature.
- k) Other direct income-generating activities outside pure agricultural production should receive due consideration.
- l) Scheme activities will be incremental to the other on-going and planned development measures under existing programs.

3.3 Problems Existing in Rural Area of Gampaha District, and Outline of Development Orientation

Due to the district's location contiguous to Colombo, it is heavily influenced by urbanization. Nevertheless, most of the district area is rural. Although there has been a trend for some rural areas to develop as residential area for persons commuting to the GCEC industrial area or Colombo, there is no question that agriculture remains the prime activity in the rural area.

In view of the scarcity of income opportunities other than agriculture in the rural area of Gampaha district, efforts to augment farmer income must be directed primarily at upgrading agricultural production. The two principal crops in the district are coconuts and rice.

Development in Gampaha has been underway for a long time, and basic infrastructure is relatively in place. Consequently there exists little potential for development of new agricultural land. Thus, efficient land use is necessary in order to improve agricultural productivity.

Close proximity of the urbanized consumption centers of the GCEC area and Colombo can be expected to result in the growing emergence of a suburban-type agricultural structure in the district. Increasing of agricultural productivity under the subject Master Plan will require addressing the problem of optimized land use for farmland which is currently allocated 75% to coconut production and 18% to paddy. Towards this end, planning will be oriented toward the introduction of various export crops, fruits and vegetables to be cultivated as inter-crops in coconut fields, and the introduction of upland crop cultivation in paddy fields in addition to rice. In order to ensure effective production of these crops, modern agricultural technology will likewise be introduced, agricultural production infrastructure such as irrigation and drainage facilities will be upgraded, and farmer support organizations, farmer groups and marketing networks for agricultural products will be strengthened.

At present, farmers in Gampaha district have almost no experience in intercropping in coconut fields and the cultivation of upland crops in paddy field. Consequently, guidance, instruction and practical demonstration regarding the required agricultural technology will be essential, and such intercropping will benefit very small farmers including women's employment opportunity.

Irrigation and drainage facilities have been constructed in Gampaha district to principally serve paddy field. Upland coconut fields, and rubber plantations receive the benefits of such facilities. As discussed in the previous section, agriculture in the district is increasingly shifting to a suburban type structure, and development planning is directed at intercropping of export crops, fruits and vegetables in coconut fields and the introduction of upland crops into paddy fields. In order to effectively accomplish this, agricultural production infrastructure requires strengthening. Specifically, rehabilitation and expansion of irrigation and drainage facilities is necessary.

Unemployment in Gampaha district is a high 26.9% which is twice the national average.

There exist some small-scale vocational training facilities for the unemployed. These are operated by the Small Industries Department and the Textiles Department and focus on traditional crafts (carpentry, textiles, handicrafts, etc.). Approximately 500 persons graduate from these centers each year, and either become self employed or seek employment in local industries. However, these facilities are superannuated, and require urgent rehabilitation.

On the other hand, despite growing motorization and the increasing introduction of electrical appliances and various types of machinery into Sri Lanka, there is a shortage of personnel capable of repairing, maintaining and operating such equipment. Vocational training facilities to respond to this need are not present in Gampaha district. However, the present educational level of the unemployed in regard to engineering and the sciences is considered as placing a restraint on the development of human resources with the above described technical capabilities. Consequently, the science curriculum in schools requires upgrading.

Development of vocational training for the unemployed will be focused on producing technically qualified personnel to respond to repair, maintenance and operational requirements accompanying the increasing introduction of electrical, mechanical and electronic equipment, and on rehabilitation of existing training centers in traditional crafts. Strengthening of school facilities will likewise be given emphasis to upgrade the science and engineering related curriculum.

As development has been progressing in Gampaha district over a long period of time, roads and other social infrastructure are relatively in place. However, these facilities are affected by superannuation aggravated by inadequate operation and maintenance. Furthermore, although the extension rate for social infrastructure district-wide is above the national average, that for certain aspects in the rural area alone is below the national average.

Social infrastructure strengthening will be oriented toward rehabilitation and elimination of geographical imbalance in the case of aspects of infrastructure whose extension ratio is at least the national average (unless some need for further upgrading of facilities is required in specific cases), and at upgrading of other categories of infrastructure to meet the nation-wide extension levels.

3.4 Basic Objectives of Integrated Rural Development in Gampaha District

The ultimate goal is establishment of a rural structure within which farmers engage in economically rewarding agricultural pursuits, enjoy the comforts of an adequate physical environment, and mutually interact with a reinforced sense of community. For this purpose the following four objectives are set to enhance life in the rural area of Gampaha district:

- a) To promote higher agricultural productivity through upgrading of agricultural technology, introduction of

intensive cultivation practices and rehabilitation and strengthening of agricultural production infrastructure.

- b) To strengthen and expand technical training facilities towards greater human resources development.
- c) To promote suitable rural industries.
- d) To rehabilitate and expand social infrastructure towards enhancement of the rural living environment.

3.5 Basic Strategy for the Integrated Rural Development Project for Gampaha District

In order to achieve the objectives of integrated rural development in terms of increased agricultural production, introduction, demonstration and extension of new agricultural technology will be necessary. Administrative, research and extension agencies established to perform such tasks currently exist in Gampaha district. Nevertheless, these entities in many cases lack the necessary facilities and institutional strength to fulfill their designated functions. Basic strategy for integrated rural development in Gampaha district will rehabilitation of existing agencies and construction of facilities taking into account future as well as present capability requirements.

3.6 Points for Careful Consideration in Project Formulation

The underlying goal of integrated rural development is the alleviation of rural poverty. In order to best achieve this, a series of linked schemes aimed at increased agricultural production, expanded employment opportunities and strengthened social infrastructure are formulated for phased implementation. Implementation scheduling is designed to maximize the beneficial interaction between individual schemes.

Bearing in mind the basic objectives and strategies of integrated rural development, a development concept is formulated for each sector, priority schemes within each sector are identified, and the selected schemes are integrated into an overall master plan for rural development.

3.7 Resident Participation

The farmer himself will be the major factor in the success or failure of the schemes to be implemented under the Master Plan. His acceptance, cooperation and active support of the envisaged schemes is essential. Accordingly, farmer participation will be maximized at all stages of project formulation and execution.

Nevertheless, as integrated rural development will involve the introduction of new agricultural technology with which the area farmers are not familiar, implementing agencies will of necessity have to assume a leadership role. Thus demonstration of scheme benefits and farmer training must be pursued at the outset to prepare farmers for more active participation in subsequent projects.

Increase of agricultural production will ultimately depend on the performance of the individual farmer. Introduction of new technology will require not only training, but acquirement of know-how through actual cultivation. Such practical experience will likewise serve to stimulate farmer incentive to pursue the recommended cultivation practices.

4. Sectoral-wise Development Concepts

4.1 Agriculture

Agricultural Production

(1) Main Strategy

National agricultural policy (Agriculture, Food and Nutrition Strategy, NAFNS) puts high priorities on Gampaha district for coconut production, fruit production and small rubber holders improvement. A coconut project and small rubber holder improvement project are planned with financing from ADB and the World Bank, respectively, and projects for these sectors have been accordingly excluded from priority project consideration under the subject IRDP.

The main strategy for enhancement of agricultural production in Gampaha district consists of introduction of technologies necessary for intercropping in upland coconut fields and cropping of beans in paddy field between two rice seasons.

(2) Crop-wise Development Concepts

1) Minor Export Crops (intercropping in the coconut fields):

The medium term target aims at planting of one half of the 16,000ha area with pepper and coffee trees for an expected annual benefit of 283 million rupees.

For the short term, good seedling production and strengthening of extension system are targeted, while for the long term, development of post-harvest industry is envisioned.

2) Paddy:

The IRDP proposes as a short-term focal component, establishment of means and facilities to transfer modern agricultural technology to farmers. The establishment, demonstration and extension of systematic cultivation technology to increase rice yield by 50% from 3.1tons/ha to 4.5tons/ha is to be resolved in the short term.

The following long-term component schemes will be scrutinized:

- a) Upgrading of post-harvest technology to produce high quality rice;
- b) Rehabilitation of irrigation and drainage channels and land consolidation; and,
- c) Introduction of minor irrigation systems into the rainfed paddy field.

3) Upland Crops:

In the short term, cultivation of upland crops could be introduced between two paddy crops (Maha and Yala crops), and inter-cropped in the coconut fields with pineapple and passion fruit.

An upland crop demonstration farm will be established at Morenna and Ambepussa initially, and will be expanded to the entire district in the longer term.

4) Coconut:

A Coconut Project is being funded by an Asian Development Bank loan.

5) Livestock Development Program (Poultry Hatchery):

The major constraint facing small farmers intending to raise poultry is the insufficient supply of chicks. Under this scheme 4,500 hens would be imported to produce 120,000 chicks per month.

Inland Fisheries

The plan for development of inland fisheries is envisioned to encompass the following three points:

- a) Establishment of fingerling nurseries, a distribution system, an extension and training system and a research development system as well as establishment of a development base by strengthening administrative agencies and supporting infrastructures.
- b) Increased production of freshwater fish in order to raise the present per capita fish consumption in the scheme area from 4kg to the national average of 12kg.
- c) Increased production of commercially high grade fish such as black tiger prawns and giant prawns in order to raise the income level of local residents.

To achieve the above goals, a short-term scheme and a long-term development plan have been formulated. The short term plan involves establishment of an experimental freshwater fishery in Gampaha district and a model freshwater fish pond, and expansion of the Pambala and Pitipana brackish water fisheries experimental stations. The long term plan, which is complementary to the above activities, consists of improvement of productivity, construction of new fish culture ponds (target pond area: 1,500ha), introduction of giant prawn, construction of ponds for black tiger prawn (30ha near Negombo Lagoon), and construction of a fish crawl for milkfish production (100ha in Negombo Lagoon).

Farm Mechanization

Generally agricultural mechanization is effective in case that the farm scale is big with lack of labor and big capital. Gampaha district does not apply to these conditions and farm mechanization at this stage on purpose of labor saving is not considered.

Agricultural Supporting Services

Short-term target projects are a) strengthening of agricultural extension services and b) improvement of agricultural training centers. Gampaha district has two training centers at Walpita and Ambepussa which lack facilities and equipment. These facilities will play a major role in promoting increased agricultural production and as an information base for new agricultural technology.

Main project features are:

- a) Strengthening of agrarian input with official credit supply and extension services
- b) Improvement of training center facilities

Farmer's Organizations

It is expected in the implementation of the Project to promote farmers organizations.

IRDP will include organization of the farmers to carry out the following schemes:

- a) Seedling production of minor export crops
- b) Agricultural technology demonstration farm and new cultivation practice transfer scheme

Farmers will learn seed quality control, post-harvest quality control, on-farm water management, new cultivation practices, etc.

Irrigation and Drainage

Performance of old schemes has deteriorated significantly due to superannuation of facilities. In contrast to other paddy field areas, the Attanagalu cya area has effective access to river water. This advantage should be fully realized to increase agricultural productivity through irrigated cultivation. This

would include not only rehabilitation of facilities, but also establishment of a new water management structure with full participation of affected farmers and the introduction of inter-crops. Such efforts would have a ripple effect benefit on areas of minor irrigation and rainfed paddy as well.

Proposed development schemes are:

- (1) Short term
 - a) Attanagalu Oya Irrigation Rehabilitation Scheme (F/S)
 - b) Morena Model Irrigation Construction Scheme
 - c) Minor Irrigation Rehabilitation Scheme
 - d) Minor Flood Protection Scheme
- (2) Long term
 - a) Rehabilitation of Anicut Gates and Downstream Flood Damage Countermeasures
 - b) Drainage Plan for Inundated Area along Attanagalu Oya
 - c) Development of Rainfed Paddy Field and Upland Field
 - d) Other Drainage Schemes

4.2 Rural Industries

The development of rural industries plays an important role in increasing employment opportunities and rural income. However, such development depends on availability of raw materials, capital, human resources and market, and even if these conditions are satisfied, business operation and maintenance often faces various difficulties.

Introduction of rural industry is an important strategy for generation of farmers income and employment opportunity, however, try and error is not being allowed.

Exploitation of new rural industry will be required in cooperation of the experts with regard to the capital, technology, and marketing.

4.3 Human Resources Development

Education and vocational training become highly important, especially in regard to the younger segment of the population.

Education and training have the following principal foci:

- a) Establishment of adequate education facilities
- b) Establishment of an adequate vocational training program

Emphasis would be placed on raising science and engineering levels among middle and secondary school graduates, with a view to promoting creation of a technical workforce from among rural youth as a means of improving their employment opportunities.

4.4 Social Infrastructure

Roads

Second to Colombo, the road network in the Gampaha district is the most developed of the 25 districts in Sri Lanka and road density greatly exceeds the national average. Accordingly, rather than construction of new roads, priority should be placed upon improvement of existing roads. Road development policy focuses on the following three items:

- a) Improvement of the existing road network and establishment of a maintenance system;
- b) Replacement of existing bridges and construction of new bridges; and,
- c) Study of an integrated transportation system covering a wide area and including the capital, Colombo.

Domestic Water Supply

A stable, clean water supply is absolutely essential for daily life. On the basis of the field survey, basic guidelines for the rehabilitation and new development of domestic water supply facilities in Gampaha district are determined as follows:

(1) 1st Stage

Water quality analysis will be implemented for all wells in the district and a well sanitation map drawn up which delineates wells with

water suitable for drinking, and those for which water treatment measures are necessary.

(2) 2nd Stage

For wells where water is presently unsuitable for drinking, the following measures will be implemented:

a) Shallow Well Rehabilitation

Area for a six meter radius around shallow wells would be cleaned and protected from sewage and wastewater intrusion. Simple chlorinators would be set up at shallow wells at hospitals, schools, markets, and public regional offices and other points of concentrated human activity.

b) Piped Water Service Schemes

These projects would be carried out in areas of high population density (town centers, etc.) where measures in a) above would not be realistic.

c) Groundwater Development

Deep tubewell development of groundwater would be carried out in medium population density areas.

In view of the above guidelines, the following short-term scheme would be carried out:

- a) Establishment of water quality testing procedures and standards and implementation of district-wide water quality testing
- b) Shallow well rehabilitation and installation of simple chlorinators (100 sites)

Rural Electrification and Communications

Schemes for rural electrification in the area have been formulated as follows:

- a) Electrification rate will be increased from the present 44.6% at the GS level and 48.6% at the village level to 100% (long-term objective). In addition, the capacity of the existing distribution network will be increased and deteriorated facilities improved and strengthened in order to expand the systems capacity and to ensure a reliable supply of electricity.
- b) A target electrification rate of 65% at the GS and village levels is set for the first 5 years as a short-term objective. Fifty kilometers of high voltage line, 200km of low voltage line and other necessary facilities will be installed.
- c) In order to successfully realize items a) and b), the distribution route will be planned to ensure reliable supply and necessary repairs will be undertaken.

- d) Distribution lines, etc. for irrigation facilities, water supply systems, research facilities, schools, hospitals and other facilities which require electricity for lighting or motor operation will be studied as high priority items separate from general rural electrification.
- e) A committee with members from the Gampaha District Office, CEB and LECO will be established to select the most appropriate scheme.

Schemes for communications development in the Study area have therefore been formulated as follows:

- a) The objective will be to realize SLTD's master plan with long-term goals of extending the communications network to all GS and to installing public telephones in all centers of every GS. The target coverage rate for public telephones is 0.36 phones/1,000persons, and that for private telephones is 1.67 phones/100persons.
- b) Short-term plan goals are to increase the present private telephone coverage rate of 0.14 phones /100 persons to 0.45/100 and the public phone coverage rate to 0.20/1,000. This will require installation of 100 public telephones and 250km of telephone wire.
- c) The long-term plan also aims to increase the capacity of the existing communication system and improve or replace superannuated equipment in order to meet future demand increases.

Medical and Health Services

Health standards and the overall condition of the medical and health services system in Gampaha district are lower than the national average. Following the guideline of the PHC Complex program promoted by the Government of Sri Lanka, steps will be taken to improve the health services in the area in consideration of present conditions.

The short-term schemes include priority items which require early implementation for achievement of the above objectives, as follows:

- a) Improvement of Base Hospitals

Improvement in the short-term plan will focus on Gampaha and Wattupitiwala (Attanagalla) Base Hospitals.

b) Improvement of Divisional Health Care Program

Divisional Health Centers will be constructed in regions where there is no MOH Office and the health standards are low, in order to ensure efficient health management. The areas designated for construction are Divulapitiya and Minuwangoda. A health inspection vehicle will also be provided.

Social Welfare

Over two-thirds of government social welfare expenditure is taken up by the Foodstamps Program and consequently other social welfare programs receive limited funding. It is therefore necessary to give more priority to the benefits which can be derived through programs for increased agricultural production and job creation. In addition existing social welfare activities are hampered by lack of adequate facilities and accordingly improvement of public facilities is urgently required. Objectives of the short-term plan are i) improvement of welfare facilities for the elderly in Mirigama, and ii) improvement of the Seeduwa training center for the handicapped.

5. Components of Master Plan

The Master Plan is composed of long-term development targets and short-term schemes.

Long-term development targets are based on agricultural production development which will increase farmers and residents income, and countermeasures for the jobless.

In order to develop agricultural production in Gampaha, upgrading agricultural production by diverting suburban type agriculture and intercropping of minor export crops in the coconut fields is programmed. Rehabilitation of agricultural infrastructure, improvement of cultivation practice, and strengthening agricultural supporting services which will contribute to development of agricultural production are to be included in the schemes.

Countermeasures for the jobless are partially provided by creating employment opportunity through labor intensive agriculture. However, there is a limit to the number of unemployed which may be so absorbed. Furthermore, there

is no quick yielding solution to development of rural industries as a job creating measure.

Since the need for technicians is increasing, establishment of vocational training schools was also included.

Improvement of social infrastructure was included towards reducing inequalities between rural and urban areas.

Short-term schemes were selected based on long-term targets. They have high priorities, and are as follows:

Development of Agricultural Production:

Agricultural Technology Demonstration and Transfer Scheme

Minor Export Crop Promotion Scheme

Scheme for Improvement of Farmer Support System

Scheme for Improvement of Agricultural Training System

Livestock Development Scheme (Poultry Hatchery)

Inland Fisheries Development Scheme

Development of Agricultural Infrastructure

Attanagalu Oya Irrigation Scheme

Morenna Model Irrigation Scheme

Minor Irrigation Scheme

Minor Flood Protection Scheme

Development of Rural Industries:

Scheme for Improvement of Vocational Training Programs

Development of Human Resources:

Scheme for Improvement of Core Schools

Scheme for Establishment of Vocational Training Center

Development of Social Infrastructure:

Scheme for Improvement of Road Maintenance System

Rural Electrification Scheme

Telecommunications Development Scheme

Scheme for Monitoring and Improvement of Shallow Wells

Scheme for Improvement of Base Hospitals

Scheme for Improvement of Divisional Health Care Program

Scheme for Improvement of Social Welfare Facilities

6. Estimated Project Cost

Total estimated cost for the short-term schemes is Rs 617 million.

Long Term Development Objectives	Main Development Schemes	Estimated Cost (Rs)
Development of Agricultural Production	Agriculture Technology Demonstration and Transfer Scheme	42,275,000
	Minor Export Crop Multiplication Scheme	53,683,000
	Scheme for Improvement of Agriculture Supporting System	19,044,000
	Scheme for Improvement of Agricultural Training System	63,516,000
	Livestock Development Scheme (Poultry Hatchery)	3,965,000
	Inland Fishery Development Scheme	23,840,000

(Table continued on following page)

Long Term Development Objectives	Main Development Schemes	Estimated Cost (Rs)
Development of Agricultural Infrastructure	Attanagalu Oya Irrigation Scheme (F/S)	50,000,000
	Morena Model Irrigation Scheme	39,214,000
	Minor Irrigation Scheme	17,966,000
	Minor Flood Protection Scheme	24,000,000
Development of Rural Industries	Scheme for Improvement of Vocational Training Programs	21,620,000
Development of Human Resources	Scheme for Improvement of Core Schools	28,356,000
	Scheme for Establishment of Vocational Training Center	40,997,000
Development of Social Infrastructure	Scheme for Improvement of Road Maintenance System	12,650,000
	Rural Electrification Scheme	59,600,000
	Telecommunication Development Scheme	49,600,000
	Scheme for Monitoring and Improvement of Shallow Wells	19,600,000
	Scheme for Improvement of Base Hospitals	34,237,000
	Scheme for Improvement of Divisional Health Care Program	12,950,000
	Scheme for Improvement of Social Welfare Facilities	200,000
Total		617,313,000

Note: Construction cost for project office is estimated at Rs. 6,062,000

7. Implementation Program

7.1 Implementing Agencies and Organizations

As implementation of the present short term schemes will involve 19 departments and ministries of the government, a responsible body will be necessary to coordinate these government departments. Therefore, the Ministry of Plan Implementation will perform this function by establishing the Gampaha IRDP Office in the project area.

A Project Steering Committee at the national level and the Project Coordinating Committee at the district level are to be established as coordinating organs. In case inter-departmental coordination is required for individual component schemes, operation committees will be formed by the IRDP Office.

7.2 Implementation Schedule

Implementation of the short term schemes will be completed in 5 years.

8. Project Benefits

The Gampaha District Integrated Rural Development Project was envisaged to alleviate disparities among various segments of the population by improving agricultural production and farm income, expanding employment opportunities and improving rural living standards. The sectoral development projects and component schemes were formulated accordingly. The various schemes were selected on the basis of maximum benefit technically and economical attainability within the restrictions of the physical environment, resource distribution and socio-economic conditions of the Study area.

Introduction of minor export crops and other upland crops supported by irrigation schemes and modern agricultural technology will increase productivity, farm income and employment opportunities, and eventually enable the poorest smallholders to make a living without depending on off-farm income. Improved education and vocational training are most needed by the unemployed and will provide qualified manpower which will meet the needs of accelerated industrialization and urbanization. At the same time, improved water supply and augmented medical services at the Base Hospitals and Divisional Health Care Centers will improve health conditions in the rural areas, which at present suffer from serious deterioration. Prompt impact is expected from the major development

schemes particularly in the education and social infrastructure sector where improvement measures are urgently required at this stage of development.

The benefits derived from major and minor irrigation schemes and accompanying extension of modern agricultural technology and introduction of minor export crops will be measurable over the medium and long term. Benefits from education and social infrastructure schemes will be scattered over various levels, and may therefore be evaluated in terms of immediateness of effects and the extent of benefits. The ultimate criterion for evaluation is whether or not living conditions of the rural poor are directly improved.

Introduction and extension of water management at the on-farm level and of systematic farming technology will promote improved yield and more intensive use of land including triple cropping of paddy field and intercropping in coconut fields. The present paddy yield of 3.1tons/ha will increase to 4.5tons/ha, and in addition, upland crops may also be cultivated in the paddy fields. Introduction of intercropping of minor export crops is aimed at income and employment generation. The combined effect of these programs is envisioned to result in an increase in the present annual net income of Rs. 5,240 to Rs. 9,553 for the average farmer in Gampaha cultivating 0.48ha or 1.2 acres of farmland. This would release such farmers from dependency upon off-farm employment.

Development of livestock and inland fisheries will also improve the cash income, as well as the nutritional standards of the area, making a significant contribution to improvements in rural living standards.

Through improved school facilities and establishment of an advanced vocational training center, local manpower will be trained to take advantage of the opportunities in Gampaha, the most industrialized district in Sri Lanka. Workers with competitive skills represent potential small entrepreneurs who can establish their own enterprises, thus stimulating economic development at the grassroots level.

Extension of minor export and upland crops will result in the creation of approximately 25,000 new jobs in the agricultural sector. Private employment for supporting services and post-harvest activities such as quality control and marketing will also be increased. The same effect is envisioned in the livestock and inland fishery sectors as well.

Improvement of the transportation network, electricity supply and telecommunication facilities will provide both direct and indirect benefits to area

residents. These infrastructures will expedite urbanization and industrialization and improve agricultural production, thereby vitalizing the regional economy, particularly in areas of accelerated urbanization such as Gampaha.

The infant mortality rate will decrease while general health conditions in the area will improve with the improvement of shallow wells and the consequent elimination of water-borne diseases. A further increase in health standards is envisioned with improvement of the medical services provided by the Base Hospitals and Divisional Health Centers.

The reliability of the labor force greatly depends upon general health conditions. Improvement of health standards in Gampaha will thus attract investors to establish local manufacturing plants, in turn generating more employment.

9. Selection of Priority Schemes

The first priority of Gampaha's IRDP should be placed on increasing rural income. In order to raise agricultural income, development of agricultural production and crop diversification are required.

The development schemes towards this end are:

Minor Export Crops Promotion Scheme

Agricultural Technology Demonstration and Transfer Scheme

Morenna Model Irrigation Scheme

Scheme for improvement of agriculture supporting system

Scheme for improvement of agriculture training system

These schemes will demonstrate new technology at the site. However, in order to extend said new technology throughout the district, it is recommended that existing farmer supporting services and extension and training systems be strengthened.

These five agricultural schemes would be effective even if implemented singly. However, the multiple effects that would be generated if they are implemented together are highly desirable and as such the first priority project is a combined model scheme for agricultural production improvement incorporating all of the above schemes.

A broadly effective scheme for creating employment opportunity in rural areas awaits further survey. However, leveling up of scientific education standards for the youth will contribute to better employment opportunity, and a priority scheme is formulated under human resources development for improving educational facilities towards this end.

The social infrastructure schemes are based on basic urgent human needs and improvement of base hospitals and improvement of domestic water supply are selected as priority schemes.

Priority schemes are thus as follows:

- (1) Model Scheme for Agricultural Production Improvement
 - a) Agriculture technology demonstration and transfer scheme
 - b) Minor export crop promotion scheme
 - c) Scheme for improvement of agricultural supporting system
 - d) Scheme for improvement of agricultural training system
 - e) Morena model irrigation scheme
- (2) Development of Human Resources

Scheme for improvement of core schools
- (3) Development of Social Infrastructure
 - a) Scheme for improvement of base hospitals
 - b) Scheme for monitoring and improvement of shallow wells

10. Implementation Program of the Priority Schemes

Components and estimated cost of the priority schemes are as follows:

Components and Estimated Cost of Priority Schemes

Priority Scheme	Component Scheme	Estimated Cost (Rs)
Model Scheme for Agricultural Production Improvement	Agriculture Technology Demonstration and Transfer Scheme	42,275,000
	Minor Export Crop Promotion Scheme	53,683,000
	Scheme for Improvement of Agriculture Supporting System	19,044,000
	Scheme for Improvement of Agricultural Training System	63,516,000
	Morenna Model Irrigation Scheme	39,214,000
	Sub total	217,732,000
Scheme for Human Resource Development	Scheme for Improvement of Core Schools	28,356,000
Scheme for Social Infrastructure Development	Scheme for Monitoring and Improvement of Shallow Wells	19,600,000
	Scheme for Improvement of Base Hospitals	34,237,000
	Sub total	53,837,000
Total		299,925,000

Note: Construction cost for the Project Office is estimated at Rs 6,062,000.

Executing agency will be the Ministry of Plan Implementation (MPI), which will chair the National Project Steering Committee (NPSC) at the national level, the District Coordinating Committee (DCC) at the district level and the Operation Committee at the project level.

The Project Office will be established under the Regional Development Division of the MPI, and be located in the Gampaha Kacheri.

Implementation schedule will require approximately 1.5 years, including 2 dry seasons.

Operation and maintenance will be undertaken by the related line departments. Multi- and inter-departmental schemes will be operated and maintained under the guidance prepared by the above mentioned coordinating committees.

Incremental staffing and recurrent cost required for the priority schemes is tentatively estimated at approximately Rs. 2 million per year.

11. Conclusions and Recommendation

Gampaha district's rural area is characterized by suburban hinterland in relation to Colombo, and the GCEC industrial promotion area. The said rural area may be described as follows:

- the areal and sectoral disparities are large due to accelerated urbanization and population concentration;
- the unemployment rate is high, especially among women and the younger generation;
- the productivity of agriculture lags far behind the national average, despite dependency of the poorer population upon the agriculture sector and the agro-based industries for their livelihood; and
- the popular consciousness regarding such crisis is clear, and potential social unrest is anticipated unless appropriate measures are taken in the immediate future.

The Gampaha district IRDP is envisaged to address the above delineated problem situations. Failure to resolve these problems will place constraints on the desired development of neighboring Colombo, and the nation as a whole.

The present Master Plan intends through intensified use of agricultural land to expand employment opportunities and improve income of the marginal farmers and part-time farmers who constitute the poorest group in backward areas. In order to successfully achieve Project goals, it is essential that such target group be invited to participate in the Project.

It is recommended that the potential of rural industry be further assessed on the basis of proposals in the master plan to alleviate the high unemployment rate which cannot be entirely resolved within the agriculture sector alone.

It is recommended further that the feasibility study on the Attanagalu oya irrigation and drainage scheme be undertaken to improve the overall agricultural productivity of the district. Flood control and improvement of environmental balance are expected to derive from the scheme and will have a large beneficial impact on the district.

It is understood that the service level of the social infrastructure is skewed in favor of the urbanized areas in the district. Facilities in rural area are generally superannuated. Rehabilitation of said facilities and maintenance of equitable service levels are accordingly proposed for urgent implementation.

The Master Plan consists of long term targets and the short term schemes. The priority schemes out of the short-term schemes are programmed in detail for prompt implementation, while the rest of the short-term schemes should be elaborated further at the feasibility level or detailed design level. The long-term targets also require future elaboration, and further specific projects should be formulated.

It is recognized that the model scheme for agricultural production improvement will not only demonstrate a model for future suburban agriculture, but also indicate a model for agricultural extension through well organized coordination among the specialized departments concerned.

In addition to the coordination of the relevant departments it is also important to introduce advanced agriculture technology. It is, therefore, recommended that expertise be invited from a country where experience has been accumulated on crop diversification and intensified utilization of paddy field.

For the success of the project, it is vital that the prime executing agency, which at present lacks technical capability, be strengthened with expatriate engineers specialized in rural development planning, civil engineering, etc. by inviting them on a technical cooperation basis.

PHOTOGRAPHS

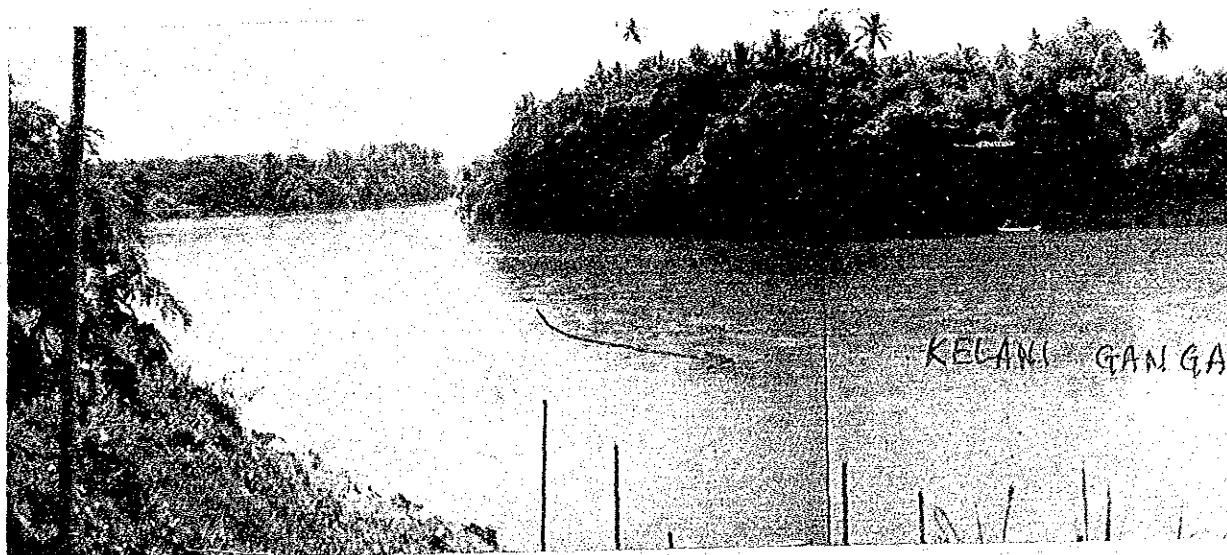
Maha Oya



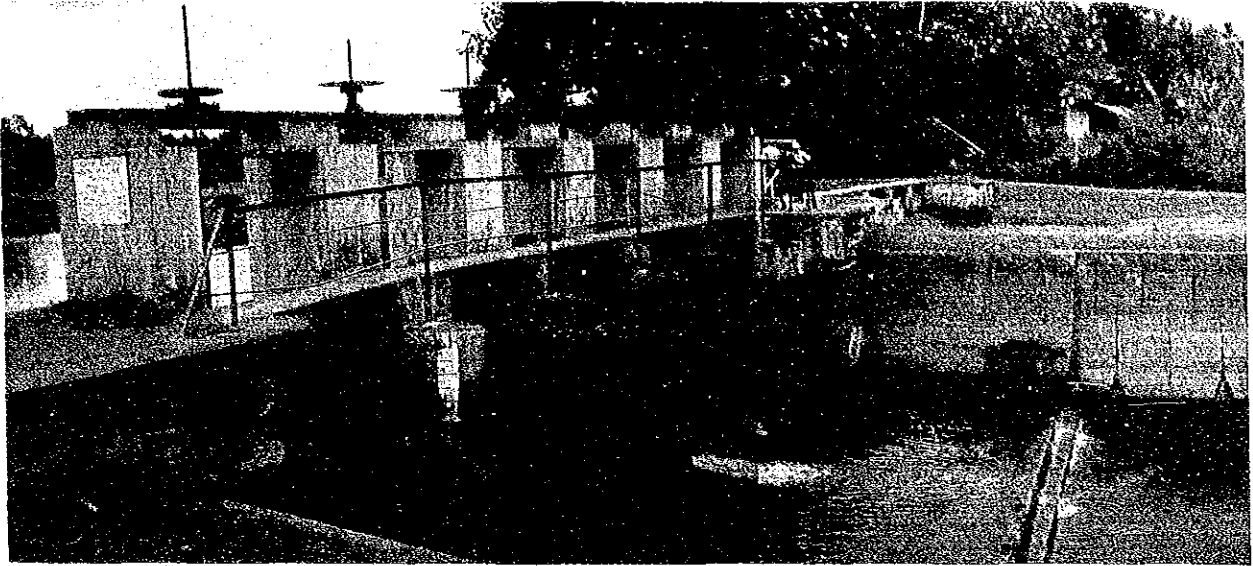
Attanagalu Oya



Kelani Ganga



Morenna Anicut



Irrigated Paddy Field(Morenna area)



Paluoya Anicut



Minor Export Crops Nursery Farm(Delpitiya)



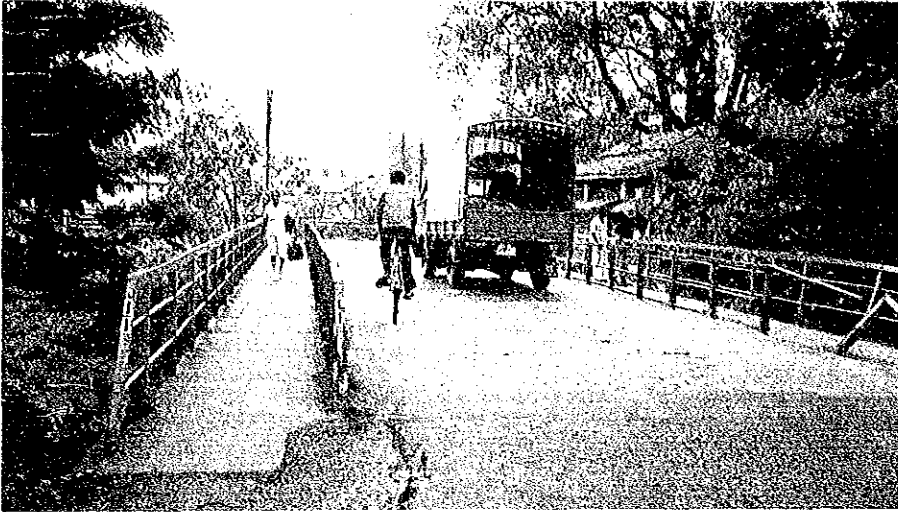
District Training Center at Walupita



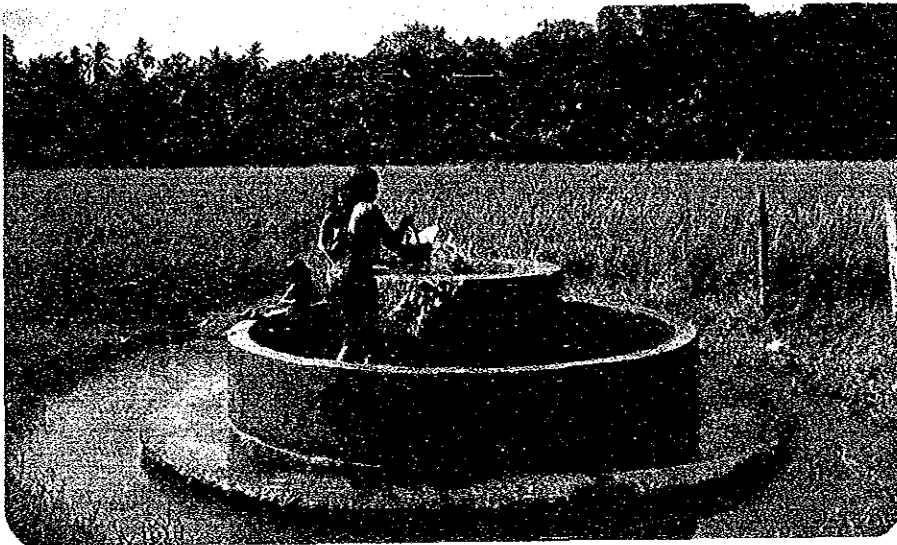
District Training Center at Ambepussa



Seeduwa Bridge



Shallow well



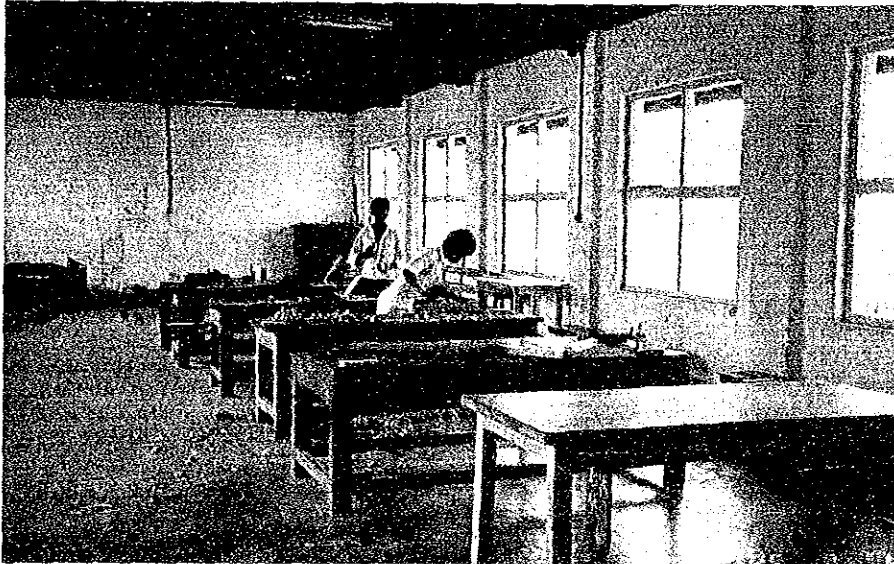
Shallow well



Vocational School for the Handicapped



Carpentry Center



Core School

