

X. Gampaha District IRDP Report
Prepared by GOSL

AN INTRODUCTION TO PROJECT PROPOSALS
IDENTIFIED FOR AN I R D P
IN GAMPAHA DISTRICT

PROJECT TITLE : INTEGRATED RURAL DEVELOPMENT
PROJECT
FOR GAMPAHA DISTRICT

Prepared by : District Planning Unit,
Kachcheri,
Gampaha.

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An Introduction to Project Proposals identified
for an IRDP in Gampaha District

General :

The Island of Sri Lanka is situated within the tropics and has a total extent of 65610 sq.k.m. This is divided into 25 administrative districts, of which, Gampaha District with an area of 1399 sq.k.m., is the 21st. in size, but the second largest in population. According to the 1981 census, it had a population of 1.39 million and a density of 1007 per sq.k.m. Compared to the national average this figure is very high. The main reason for this high density of population is its location in close proximity to the Colombo District which contains the national capital.

Topographically the country can easily be divided into two major parts, the Central Hill Country with an elevation of over 1000 feet above sea level and the surrounding lowlands which gradually slope towards the sea. The Gampaha District falls entirely within the low country and occupies the south-western plain. Its topography can be described as generally flat, except for a few hillocks such as Walbotale Kanda, Kudumbikanda and Yatawaka Mukayana which rise to heights of little over 500 feet above sea level.

The Gampaha District falls entirely within the Wet Zone which receives an annual rainfall of about 2500mm., mostly from the South Western Monsoons. The eastern parts of the District which adjoin the Hill Country receive a slightly higher rainfall. Although the demarcation of the District has been done mainly on administrative grounds, it has clear natural boundaries. The Kelani Ganga and the sea form the southern and western boundaries respectively. The Central Hill Country is the eastern boundary of the District and the Maha-oya runs along its northern margin.

The Gampaha District contains 13 of the country's 161 parliamentary constituencies. Therefore the M.P.P. of the Gampaha District represent approximately 1/12th. of the country's population. The electorates in the district coincide with the divisional level administrative units which are the Assistant Government Agents' divisions.

Each division has an Assistant Government Agent co-ordinating its administration, development and welfare services. An Assistant Government Agent's Division is divided into a number of Grama Sevaka Divisions for the purpose of carrying out the rural administration. The average number of these G.S. Divisions in an A.G.A. area ranges between 20 and 40, making a total of 444 for the entire District. A G.S.S. Division generally has 3 to 5 villages, the number being greater in rural areas than in urban areas.

Regional development activities carried out under the District Budget, District Development Council and other Development Programmes are administered through these A.G.A. Divisions under the overall direction of the District Minister and his Secretary who is the Government Agent of the District.

Negombo, Gampaha and Ja-ela are the main towns in the District and they have a high concentration of population. However, Negombo is the only city that has been raised to the status of a Municipal Council. The general distribution of the population shows a heavy concentration along the coastal belt and in the two Free Trade Zone areas of Katunayake and Biyagama. The Katunayaka Free Trade Zone occupies the area around the International Airport and spreads through parts of Katana, Negombo, Minuwangoda and Ja-ela electorates. The recently created Biyagama Free Trade Zone covers a major portion of the Biyagama Electorate.

When compared to the population distribution in the Colombo District, where the urban population is as high as 78%, the Gampaha District has an urban population of only 27.8%. This low proportion of urban population is in spite of the fact that no part of the Gampaha District is more than 30 miles distant from the city of Colombo. The proportion of rural population in the Gampaha District does not deviate from the national figure of 72.2%. This high proportion of rural population is a general reflection of the lack of modern development in the District.

The need for Integrated Rural Development in the Gampaha District:

Although the Gampaha District is situated in close proximity to the Colombo District, there is a clear difference in the income levels and standards of living of the people in these two Districts. Except for some semi urban areas along the main roads and towns, including the Free-Trade Zone suburbs, the district is predominantly rural in character. The two Free Trade Zone areas of Katunayaka and Biyagama cater not only to the people of the Gampaha District but equally to those migrating from outside Districts.

Therefore, the contribution made by the Free Trade Zones for raising of the income levels and the standards of living of the people of the Gampaha District is very much limited. The concentration of a large population of youths in these factories creates additional problems. This calls for immediate action to provide improved transport, housing, sanitation and recreational facilities in the District, especially in the Free Trade Zone areas.

73% of the total land area of the Gampaha District is devoted to agriculture. Of this, coconut plantations cover 51% and paddy lands, 19%. The remaining area is used for the cultivation of rubber and other highland crops. The coconut yeild in the Gampaha District is half that of a normal healthy plantation mainly due to unsatisfactory maintenance. The paddy yeild of the District during 1984/85 was 62.7 bushels per acre in Maha, 51.2 in Yala. The main problem faced by paddy cultivation is flooding during Maha and the prevalence of drought conditions in Yala. The acreage brought under cultivation during Yala is therefore very much lower than in Maha. In the Divulapitiya Electorate which has the largest acreage under paddy, 97.5% of the land is cultivated in Maha, while only 49% is cultivated in Yala. 7000 acres of asweddumized lands in the District are left uncultivated due to these lands being water-logged. Yet another 5000 acres in the Muthurajawela area lie abandoned due to poor drainage and salinity.

Paddy cultivation in the District is carried on mostly according to traditional practices and therefore there is plenty of room for improvements provided technological advances are made use of and farmers are ready to give up traditional practices. A change agent programme introduced through the help of outside voluntary corps might help in bringing about these changes.

Although there is a fairly developed network of major roads in the District, most rural roads are poorly maintained due to insufficiency of funds. This poor state of roads affects the smooth transportation of agricultural and other products. The Electricity supply network has developed along the main roads and towns. But the distribution lines to villages, specially in rural areas, need urgent attention. This need is very clearly seen when we consider the fact that in many electorates the MPP are compelled to devote a major portion of their district budget allocation for the erection of rural electricity lines, thus preventing the use of these funds for the projects for which they are really meant.

Shallow wells are the main source of water in the Gampaha District and only a few towns enjoy a pipe-borne water supply. In the densely populated areas, pollution of well water due to various factors has created several problems. Therefore a scheme of improving the quality of the drinking water will be of help in raising the health standards of the people.

The standard of living of the people is comparatively low in most of the electorates. The electorates of Dompe, Mahara, Attanagalla, Divulapitiya, Hinuwangoda, Mirigama, Katana and Negombo have over 50% of the population living below the poverty line. In electorates like Divulapitiya and Mirigama this rate rises to over 70%. The coastal electorate of Negombo which is fairly urbanized has a high poverty rate of 55%. There is a high concentration of fisher folk in this town and most of them live at the subsistence level. Although fishing is the major occupation of the people here, the industry has not developed sufficiently to bring an adequate income to those engaged in it.

In Gampaha District 26.9 % of those of employable age are unemployed. 79 % of those unemployed have had a fair education; that is, they have studied up to G.C.E. (O.L.), although they may not have obtained 6 passes at that examination. Unemployment is especially acute in the rural electorates where poverty is widespread. This shows the urgent need for initiating technical and vocational education in the District.

Though higher education facilities are generally available, the secondary and higher education institutes in the District do not succeed in holding the entire student population within the District, mainly due to the fact that the popular and prestigious institutions in Colombo are in close proximity. There is an annual outflow of 5000 students due to the lack of satisfactory facilities at home, which compels parents to send their children to Colombo schools. Therefore the urgent need for making available at least some schools with sufficient facilities to retain such students within the District need not be over emphasized. The daily outflow of a large number of students creates problems of transport not only in the Gampaha District, but also in Colombo. Further the cost involved in an ultimate loss to the nation.

An integrated development programme for the District has, in the main, to reorganize its productive sector by introducing better technology and extension services on the one hand, while on the other, it has to reinforce the physical and social infrastructure with a view to uplifting the standard of living of its population.

The following are the identified specific development areas and the succeeding sections will make detailed proposals in respect of them.

A. Agriculture:

- i. Paddy and other field crops.
- ii. Coconut and mixed crops.
- iii. Minor export crops.
- iv. Home garden crops.

B. Animal Production and Fisheries :

- i. Animal Production.
- ii. Fisheries.

C. Water Resources :

- i. Major Irrigation.
- ii. Minor Irrigation.
- iii. Rural and Urban Water supply.

D. Productive Infra-structure :

- i. Highways.
- ii. Rural Roads.
- iii. Rural Electrification and Telecommunication.

E. Social Infra-structure :

- i. Health.
- ii. Education.
- iii. Sports and Recreation.

F. Administrative Infra-structure:

- i. Secretariat and Techniques.
- ii. Project Office and Equipment.
- iii. Training.

3.1 Agriculture:

In a development plan for Gampaha District, promotion of agricultural sector has to be given priority. The urban and industrial development in the Western part of the district mainly in Free Trade Zone area and suburbs of Colombo District, no doubt has a significant impact in the economic output and employment. But this development does not seem to bring about the expected "Spread Effects" to a major part that forms the "hinterland" of the District. This "hinterland" is the eastern part consisting of the agricultural and rural electorates of Divulapitiya, Mirigama, Dompe, Katana, Minuwangoda, Attanagalla and Gampaha. This section occupies 75 % and 74 % of the land under the two main crops of the District, coconut and paddy respectively. Further 75 % of the total land area of the District belongs to these rural electorates. Therefore, unless balanced and speedy development in this significant sector is brought about there will be increased disparity in economic standards of the two sectors of the District. Further, the undeveloped status of agriculture results on the migration of the population in search of employment towards the western part and Colombo District. This not only results in creating further problems but also leaves the agricultural sector in the same undeveloped status continuously. In this context agriculture need to be transformed into an economic activity which is attractive both in terms of income and occupation, capable of competing in equal terms with urban wage earning activities. Scope for developing the agricultural sector can be identified under the following.

- a. Increasing the rice yields through an intensive extension programme with effective training facilities.
- b. Increasing the coconut yield through systematic maintenance and fertilizer schemes.
- c. Introduction and encouragement of inter cropping and mixed farming in coconut lands.
- d. Promotion of the minor export crops and field crops
i.e. Pineapple, Bananas, Rambutan, Passion Fruits,
Ginger, Pepper, Turmeric, Coffee and Cloves.

- e. An assistance programme for vegetable and home garden crops of small-holding farmers i.e., vegetables, betel, yam, fruits, flowers etc.

The major organizations and agencies handling the activities of Agricultural Sector are the Agricultural Department, Agrarian Services Department, Minor Export Crops Department, Coconut Cultivation Board, the Agricultural Development Authority and the Agricultural Insurance Board. Each of these organizations has its Regional head in the district with Divisional Officers at divisional and village levels. Divisional level officers of all these institutions are co-ordinated at the 26 Agricultural Service Centres, distributed through out the District. The co-ordinating officers in these centres are the Agricultural Managers one for each electorate with their head the Deputy Provincial Director. District level co-ordinating functions at a monthly meeting headed by the Government Agent and participated by all District level heads in the field.

3.1.1. Paddy and other field crops :

Extension services for these crops are provided by the Department of Agriculture through the District and Segment level.

Crops and Extent

(a) Paddy :	Maha Season	17,000 ha.
	Yala Season	12,500

(b) Other field crops :

Pineapple	-	2,217 ha
Banana	-	2,400
Rambutan	-	105
Passion Fruits	-	150
Vegetables	-	750
Root Crops	-	
(Manioc, sweet potatoes and yams)	-	1,200
Ginger	-	300
Turmeric	-	250

(These crops are cultivated as inter crops in coconut growing areas)

The objectives of the proposals to have an intensive extension programme, with effective training facilities for the village level extension workers and the farmers, are to step up the present rice yield of 03 metric ton per ha to 04 metric ton per ha, within the next five years, together with the expansion of the cultivation of the fruit crops, vegetable crops and other field crops in the coconut growing areas by 50 %. In addition it is envisaged to increase the catch crops cultivated in paddy fields between the two cultivation seasons which would give economic benefits to small scale farmers.

The extension services to the farmers are performed through the "training and visits" system under the agricultural extension and adaptive research project of the Department of Agriculture. There are two main District Training Centres located at Walpita and Ambepussa, which conduct the seasonal training for staff, and short training courses for staff of the department and also farmers and representatives of village organizations. There are also three segment training centres at Mahara, Mirigama and Galahitiyawa, where officers training programmes are conducted on a bi-weekly basis. The extension training at these centres are manned by the segment agricultural officers who are assisted by the subject matter officers specialised on rice production, subsidiary food crops, horticultural crops, plant protection, home economic, nutrition, farm machinery and extension methodology.

The main short comings encountered in the proper functioning of extension services are as follows :

- (a) Lack of mobility to field staff.
- (b) Insufficient training facilities.
- (c) Lack of equipment for field staff.

The main objectives of the training centres are to transfer new agricultural technology to farmers and youths of locality through short training courses. In the past, these training centres have been conducting four month training courses regularly to school dropouts, farm youths and members of various agricultural organisations. Annually about 7000 to 8000 man days per centre of training are being conducted with limited resources available. Type of training courses will depend on the need of the District.

Improvements needed in both the training centres include construction of Lecture Halls, dormitory, kitchens, dining halls, workshops and dairy sheds and provision of field and office equipment.

Services provided by the Department of Agrarian Services in the field of agriculture :

The Agrarian Services Department covers the entire field of agriculture through Assistant Commissioners in the District who are responsible for carrying out the following functions.

- (A) Enforcement of Agrarian Services Law.
- (B) Supplying of Agricultural Services and inputs to the farmer.
- (C) Establishment and control of Agrarian Services Committees.
- (D) Co-ordination of Agricultural activities at the village level through the cultivation officers.
- (E) Construction and maintenance of minor irrigation.

There are 26 divisional Agrarian Services Centres providing these services. Each centre is looked after by a Divisional Officer and the activities are carried out from the grass-root level through 444 cultivation officers.

The Divisional Officers of all Departments and Organizations in the field of agriculture are housed in the Divisional Agrarian Services Centre. The distribution of Agricultural inputs to farmers takes place at these centres. Fertilizer, agro-chemicals, seed paddy and other types of seeds and planting materials are distributed from these centres. Lack of storage facilities, vehicles and equipment has been a hindrance to an efficient service. Provision of following facilities will enhance better service to the rural farmer.

- (A) Provision of storage facilities for seed paddy, fertilizer and agro-chemical for twenty agrarian services centres.
- (B) Provision of twenty five numbers of two wheel tractors with trailers and allied equipments.
- (C) Provision of motor bicycles under a long term loan scheme, for divisional officers.

3.1.2. Minor Export Crops :

The Department of Minor Export Crops is involved in the promotion of cultivating perennial crops such as spice crops (cinnamon, pepper, cloves etc.) beverage crops (coffee and cocoa) and other highland crops (papaw and citronella) in the wet and intermediate zones of Sri Lanka. This function is carried out through a well designed cultivation subsidy scheme (which includes both cash subsidies and free planting materials), implemented by District Level extension network of the department. The specific functions of the department in Gampaha District are :

- (A) Administration of Minor Export Crop subsidies mainly to homegardens and 'mixed-gardens'.
- (B) Provision of planting materials to highland small holdings.
- (C) Dissemination of technical information to growers through extension education programmes, which include farmer training classes and the establishment of demonstration plots.

The Department of Minor Export Crops in Gampaha District, however, is beset with many bottle-necks for the successful implementation of its field programmes. The main constraints are as follows :

- (A) Lack of a permanent District Office.
- (B) Lack of transport facilities for extensions.
- (C) Inadequacy of extension equipment.

In consideration to the above problems of DEEC Gampaha it is proposed that the following capital items are provided :

- (A) Office equipment necessary for the District Office. (The District Office can be housed in the proposed secretariat).
- (B) Vehicles for the extension staff and transportation of plant material.
- (C) Extension equipment necessary.

If these requirements are provided the proposed MEC targets under the project are as follows :

	1987	1988	1989	1990	1991	Total
MEC-MIXED GARDENS						
Coffee-based(Acs)	300	300	300	300	300	1500
Pepper-based(Acs)	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>200</u>	<u>1000</u>
Total(Acs)	500	500	500	500	500	2500

The two "models" of mixed gardens (to be introduced in 2500 acres of coconut lands) are as follows :

	Coffee-based Model (2 Acs)		Pepper-based Model (2 Acs)
Coffee :	425 plants	Coffee :	150 plants
Pepper :	125 "	Pepper :	600 "
Clove :	<u>50</u> "	Clove :	<u>50</u> "
	<u>600</u>		<u>800</u>

At full maturity, say in 1994 the above acreage is expected to yield the following annual production levels :

Expected annual production in 1994

Coffee	:	275,000 lbs.
Pepper	:	264,000 "
Glove	:	94,000 "

3.1.3 Coconut and mixed crops:

Out of a total agricultural area of 233,500 acres in Gampaha District, coconut occupies 70 % and this constitutes 113,230 blocks of mostly very small lands below 2 acres.

Extent of coconut lands: (Gampaha District)

Category	Percentage of the number of lands blocks	Percentage of the total acreage
Below 2 acres	78.0	31.0
02 - 05 acres	16.0	29.7
05 - 10 "	3.9	16.4
10 - 20 "	1.6	14.0
Over 20 acres	0.5	8.9

Distribution of coconut - according to age of trees- (Gampaha District)

Category	No. of acres	Percentage
0 - 05 years	31,920	15.96
06 - 15 "	36,440	18.22
16 - 30 "	45,860	22.93
31 - 45 "	43,140	21.57
46 - 60 "	34,840	17.42
Over 60 "	77,740	3.87

This shows that about 60 % of the total coconut plantation is in small blocks below 5 acres and within the age group of 10 - 5 years.

Coconut Cultivation Board has a Regional Office in Gampaha District with a Regional Manager as its head. Extension services are conducted under the guidance of two specialized assistant managers. Field staff consist of 18 Coconut Development Officers and 18 field officers assisting them. There are 5 fertilizer stores and 2 nurseries in the District. The Coconut Development Officers are provided with motor bicycles and there are two lorries in the Regional Office, transporting fertilizer and planting material.

Present development activities for the promotion of coconut cultivation include the following :

- i. Subsidy scheme for replanting and under planting.
This is mainly for coconut plants over 60 years of age.
- ii. Subsidy scheme for mixed crops like coffee, pepper and cocoa in coconut lands.
- iii. Subsidy scheme for new plantations and special assistance for small holdings less than one acre in extent.
- iv. Subsidy of 12 % loan facility through commercial Banks for fertilizer.
- v. Instructions to the planters through the extension service of the Coconut Cultivation Board.

A project assisted by the Asian Development Bank was in operation during the period 1982 - 1986 and provided the office buildings for the CDB, residential facilities and buildings for fertilizer stores. Further the finance for the subsidy scheme of replanting mixed cropping and rehabilitation was provided under this project and it also provided financial assistance to modernize coconut processing industry in the District.

Proposals for the development of coconut in the District :

Promotion of mixed crops in coconut lands specially in small holdings has to be taken up as an urgent necessity. The trend in coconut prices from 1985 onwards does not encourage the growers to invest in fertilizer and other development works. This results in gradual decrease of their income. Therefore an additional income by way of well planned mixed crops only can stabilize their position and provide facility an environment

necessary to keep the plantation at least in a fair condition.

The major portion of the coconut lands falling within the age group of 60 - 45 years and covering 44.5 % of the total coconut plantation in Gampaha District, is suitable for mixed crops, pepper, coffee and ginger. It is proposed to set up nucleus farms in selected lands capable in developing as nurseries supplying planting material for the next year to the surrounding parts. The selected farms can set the example in spreading through surrounding coconut land until all coconut lands within the group come under mixed crops. Initially those selected farms have to be provided with financial assistance on a suitable basis. The number of farms selected in the first year can be around 200 - 300 with a gradual increase in the following years. In addition to this financial aid the present subsidy scheme for mixed crops, also must continue.

The products of small holding coconut growers change hands among a large number of buyers and sellers acting as intermediates, until it reaches the level of semi finished product. This happens because there is no organization for these small holding farmers. The District has only 149 copra producing units, 15 oil mills, 28 DC mills. In the copra processing centres traditional and age old methods are still used and the processing in many centres are limited to one item. For example while copra is produced husks and shells are again sold to others who again process them as fibre or coconut char-coal in isolated places. This process of changing into several hands result in bringing very poor income to the growers. Mostly the middle-men get much more than actual farmers.

Therefore, it is proposed to organize the small scale farmers in producer societies and set up copra processing centres and coconut shell char-coal producing centres with a considerable capacity. In addition to the present 130 units of copra production, 75 more such centres are proposed to be established through the producer societies with financial assistance being provided. Modern technology for these products have to be provided by the Coconut Development Authority, Coconut Research Board and the Coconut Cultivation Board.

The societies of the small scale producers have to be co-ordinated to form larger scale producer societies and the latter to maintain modern and large scale processing mills to obtain the economies of scale. Presently there is only one such large scale society in Gampaha District, Dunagaha Coconut Producing Society and it helps its membership to obtain a very good price for their products. Under the project this mill can be modernized with technical and financial assistance, and it is proposed that at least one more such mill be set up by incorporating the small scale producer societies.

Improvement in the Extension Services :

Considering the large number of 113,230 coconut land blocks, the 18 coconut developing officers find it difficult to attend the need of instruction and information expected. Therefore, it is proposed to increase the number of this staff by creating additional 15 posts. Further senior coconut development officers have to be trained and appointed as development agents. This can be done by training and promoting five such officers each year. Improvements of transport facilities to this extension staff also is a requirement identified at the moment.

3.1.4 Home Garden Crops :

Home garden type of self employed farming is a traditional human activity in many parts of the district. These parts include mainly the rural electorates mentioned above. Farming is done in small holdings ranging from half acre to 2 or 3 acres. The crops grown are betel, vegetable, yams, fruits, and sometimes flowers in the more urban areas. In addition to these crops they generally cultivate little paddy and coconut. These paddy is mainly for consumption and where coconut it will be in very poorly maintained condition.

There is a very close and assured market for vegetables and fruits in the industrial and urban sector adjoining Free Trade Zone and the neighbouring parts of the Colombo District. Betel has continuous market and Gampaha District is the main producer through out. Recently it has been even extended to export level through the agencies like Consol Expo, Mark-fed and the C.E.S.

It is estimated that 50 % of the agricultural population in the mentioned electorates are totally or partly engaged in this category of farming and hence it has a significant influence over the rural living standard. Presently there is no agency directly assisting this category of farming, and the possibility of an intensive development programme with irrigation facilities, mixed cropping and developed methods of seedlings and fertilizian, has to be studied carefully. If such an intensive development programme is introduced this farming can be raised from subsistence level to one of profit earnings. A development plan for these farmers will have to include the following.

- A. Credit facilities to be provided to the farmers for the installation of a hand operated pump unit with pipe line. Presently the entire process is with hand water by the members of the family and the possibility of extension is therefore limited. Help of a pump can easily double or treble the growing extent in holdings where land is available. A loan scheme can be implemented through farmers committees under the guidance of the agricultural service centres or the project office.

- B. Credit facilities for agricultural equipments and fertilizer on a suitable basis.

- C. Extension of services of agricultural officers trained in the field of intensive type of home gardening agriculture. It may be that no single pattern of development is applicable to all farmers, depending on the nature of the soil, drainage, and other physical conditions. An intensive development programme can also include introducing the growing of mushrooms, bee keeping, poultry and cattle farming at small level.

In this context kind co-operation of voluntary organizations like "Japanese Organization of Co-operative Volunteers" will be of immense value in transforming the traditional and undeveloped home gardening to one of profitable and interesting ventures.

3.2 Animal Products and Fisheries :

3.2.1 Animal Products :

Animal husbandry plays a significant role in the economic life of the lower level of the population. Rearing of cattle is traditionally done for the multipurposes of agricultural help, fertilizer and milk. Poultry in the same way is an additional source of income for low income groups.

With the rapid growth of urban population and the expansion of tourist industry and concentration of a wage earning population around Free Trade area there is heavy demand for wide range of food products and therefore the potential for further development of livestock for eggs, meat and milk is high.

Whilst supplying a wide range of food products livestock industry will make available farm yard manure to help crop yields. Yet another possibility is the generation of bio-gas, which is being experimented by various agencies.

Presently the Asia Development Bank has a development project in the district providing the infra-structure for the animal production industry. It includes a training institution, milk collecting centres and the central markets. Therefore, the necessity left out is a programme of assistance to the individual producers to improve their production.

The development approach in the sector can be in the form of assisting, through a loan scheme to the small scale farmers, and can be implemented through the agricultural authority and the department of animal productions and health. The selected assistance must be for milk cattle breeding, piggery and poultry.

3.2.2. Fisheries :

Basic facilities have been provided by the Ministry of Fisheries with the assistance of the Government for the development of the sea water fishing industry. Boat yards, service stations, fisheries roads, fisheries community centres, fisheries sales depots, primary co-operative societies, fisheries extension service societies etc. have been set up to provide facilities to the fishermen.

As for providing welfare facilities to fishermen fisheries housing schemes have been set up. Wells to provide the water, toilets, beacon lamps etc. have also been provided. However, as there are over 5,000 families within the Negombo District Fisheries Extension Division, facilities provided so far have been inadequate. There are at least 1000 persons who are engaged in the fishing industry.

No of boats within this district.

1. 3 1/2 tons boats (28'-32')	346
2. 17'-23' Fibre glass boats	1763
3. Local boats with outboard motor engines	136
4. Local boats (Canoes)	1572
5. Barges	38
6. Theppam	801

Out of these 3 1/2 ton boats, 17'-23' boats and barges are taken to other parts of the island to be utilised for fishing.

The annual fish production of this district is as follows :

1980		20136 tons.
1981		18327 "
1982		21979 "
1983	Almost	20750 "
1984	"	22050 "

Proposals :

(1) Fisheries houses.

- (i) Construction of the remaining 10 houses in the Negombo Mankuli Fisheries housing scheme.
- (ii) Construction of the 70 houses in the proposed fisheries housing scheme at Siriwardena Place, Mannakkoriva, Negombo.

(2) Water Supply.

Due to the non-availability of pure drinking water almost 1000 families who reside in the Talahena Peruwa Village Council in the Negombo electorate, face severe hardships. Under the water supply scheme of the Negombo Municipality presently drinking water is supplied only to Duwa and Pitipana villages. It would cost Rs.500,000 to improve the water supply scheme.

(3) Fisheries Community Centres.

Construction of a community centre to provide facilities for the fishermen of Pitipana fishing village, fisheries office, pre-school for children of fishermen, co-operative retail shop and a common hall for the benefit of the fishermen could be housed in this community centre.

3.3. Water Resources :

3.3.1. Major Irrigation.

3.3.1.1. Attanagalu Oya Scheme :

In Gampaha District, irrigation has been used for paddy cultivation, mainly in the Attanagalu Oya basin, since 1930's. The Attanagalu Oya Scheme is the largest irrigation scheme in the Western Province covering about 3870 ha. (9550 acres) and consisting of 23 sub-schemes with independent systems. Water sources of the Scheme, Attanagalu Oya and its tributaries occupy a catchment area of 760 km., where water supply is enough for double cropping of paddy. Paddy cultivation in this basin extends in the low-lying area stretching along the river course and the scheme has been developed by constructing 10 main anicuts, 22 pickup anicuts and related main canal systems as shown in Fig.9.

Most of the structures and canals in the scheme are about 50 years old, and therefore, are outdated and not suitable for efficient water management. Furthermore, downstream cussions of most of the anicuts are undermined or starting to undermine. The canal system is not functioning efficiently due to scours which are one of the biggest drawbacks to achieve effective water management. In addition it has been observed that some more pickup anicuts are needed to maintain the intake water level and provide irrigation water to relatively elevated paddy fields.

In addition to the rehabilitation of the Attanagalu Oya Scheme, the Oruthota-Yagoda Scheme which is located in the A.G.A. Division of Gampaha could be improved. Most of this scheme area of 485 ha. (1200 acres) have not been cultivated for over a period of 12 years due to inundation. The cause of this inundation is artificial. Due to lapsed operation of the Welikada Anicut located 7 km. downstream of the Oruthota area, from single cultivation (Maha) to double cultivation (Maha and Yala), Yala cultivation of paddy in the Oruthota area became impossible.

When the possible benefits and the area extent is considered priority has to be given to the rehabilitation of these two schemes, Attanagalu Oya, and Oruthota-Yagoda. In the case of Oruthota-Yagoda Scheme, however, certain investigation and study will be necessary in connection with the operation of existing anicuts located downstream of the Oruthota area. Taking the strong and urgent needs in Gampaha District into consideration, a quick measure (temporary) to solve the problem is proposed by providing pumping equipment to farmers who are cultivating elevated land in order to lower the intake water level of existing anicuts located downstream of the Oruthota area.

3.3.2 Drainage Schemes :

(i) Sepala Nathawa Ela:

This is essentially a drainage scheme to drain out the low lying fields in Biyagama, Kelaniya, Mahara and part of Wattala electorate. The main drainage canals draining this area are Mudun Ela which is 6 miles 7 chains long and Nathawa Ela branch off at 3 miles 49 chains of Mudun Ela. The length is 1 mile 36 chains. The minor drainages that drain into these main channels are:-

- (1) Sepala Ela.
- (2) Makola South.
- (3) Sapugahawela.
- (4) Eruja Ela.
- (5) Naga Ela.

This drainage scheme is to benefit 4500 acres of paddy land which are presently abandoned due to poor drainage.

(ii) Kalu Ela - Dandugan Oya Drainage and Reclamation Scheme.

Dandugan Oya carries part of the run off for 284 sq.miles of the Attanagalu Oya catchment. It crosses the Colombo-Minuwangoda Road between the 16th and 17th mile posts and flows in a great meander into the Negombo Lagoon. Kalu Ela takes off near

the point where Dandugan Oya crosses the Colombo - Minuwangoda Road and falls into the parent stream again near Seeduwa.

The scheme area is drained by the Dandugan Oya which discharges into the Negombo Lagoon. The flood waters of Dandugan Oya are held up considerably due to the deltaic nature of the land and meandering stream. Drainage to about 1600 acres of paddy lands (reconed above + 1.0' m.s.l.) on both sides of Dandugan Oya and additional highland is considerable due to the sluggish flow caused by the existing conditions. The bed of the river is also badly silted up. These lands are subjected to inundation twice a year and the duration of the flood is sometimes about one month.

There is a rock out-crop in the river bed about 1/2 mile upstream of the Seeduwa Bridge. Immediately downstream of the Seeduwa Bridge the banks of the river have been encroached by heavy growths including bamboo. This growth should be cleared back to the line of the original banks.

The Kalu Ela about 2 1/4 miles long and 15 ft. in bed width was constructed years ago to ease the flow of Dandugan Oya. The Kalu Ela helps the Dandugan Oya waters to pass about 8 miles of a meandering trace and it also helps to ease the drainage difficulties of the paddy tracts around it. The Kalu Ela is now heavily silted up and is in a very bad condition.

The secondary canal running north from the river to the International Airport, parallel to railway line requires desilting and subject to lowering of the invert of a culvert.

At present, the first investment promotion zone under the Greater Colombo Economic Commission is being set up at Katunayaka in close proximity to the the Katunayaka International Air Port. About 30 industries are already being set up and it is expected that this will increase to over 60 within the next year or so. The waste water from the respective industries would be discharged into a common sewer and led into a sewerage treatment plant which has been designed by the National Water Supply and Drainage Board. It is expected that about one million gallons of treated waste water will be discharged into the Dandugan Oya per day. The drainage canals in the scheme have to be so deepened and widened as to be capable of coping up with this discharge. It should be ensured that this discharge from the industrial zone into the Dandugan Oya does not contain anything that could be harmful for the growth of the paddy plant.

Summary of Proposals :

- 1.1. Construction of 4 new anicuts at Kotugoda Bolanda, Ellowita, Karandawela and Polgaswatta.
- 1.2. Rehabilitation of 10 main anicuts including downstreams protection and replacement of gates.
- 1.3. Supply of machinery and equipment for maintenance and rehabilitation of canal systems.
2. Supply of irrigation pumps (Diesel driven) for elevated area of about 200 ha. near Welikada anicut.
3. Drainage Schemes.
 - 3.1. Desilting of Sepala Nathawa.
 - 3.2. Drainage and reclamation of Kalu Ela (Dandugan Oya).

3.3.3. Minor Irrigation :

Minor irrigation work in the district is handled by the Department of Agrarian Services. Although greater importance is given to major irrigation network within the Attanagalu Oya, the paddy cultivation of the rest of the district is entirely based on the rain water reserved through minor irrigation. There are over 100 such minor tanks, connected canals and over 500 anicuts and retaining walls to be constructed and maintained by the Department of Agrarian Services. The proper maintenance of these minor irrigation work is hampered owing to lack of funds. Following are the urgent needs of the minor irrigation network in the district.

1. Urgent repairs to anicuts.
2. Fixing screw gates to anicuts.
3. Desilting channels and tanks.
4. Construction of new anicuts.
5. Construction of channel bunds.
6. Cutting of new channels.

Following assistance will be needed for the technical officers who do the maintenance and repairs under this scheme.

1. Necessary equipment like Thiodolite, survey equipment, cupboards and drawing boards, letter drawing sets and drawing sets.
2. Transport facilities for the duties such as inspection, obtaining measurements estimating, inspection of work by way of providing motor bicycles.

3.3.4. Rural and Urban Water Supply :

Water supply in the District of Gampaha mainly depends on shallow wells except for the few towns where pipe borne water is available.

National Water Supply and Drainage Board has now undertaken to provide Western coastal area with pipe borne water under World Bank assistance.

It is also proposed to provide water supply schemes to Veyangoda, Pugoda, Minuwangoda, Nittambuwa and Malwana under 'UNICEF' assistance.

Although following Water Supply Schemes have been identified as very important, these schemes could not be undertaken due to lack of funds. Hence it is proposed to undertake the following schemes under the I.R.D.P.

1. Mirigama Water Supply Scheme.
2. Divulapitiya Water Supply Scheme.
3. Yakkala Water Supply Scheme.
4. Katunayaka - Seeduwa Water Supply Scheme.

3.4. Productive Infra-structure.

3.4.1. Highways.

Maintenance of roads in Gampaha District has been carried out by the Road Maintenance Contractors under the technical and financial control of the Road Development Authority. The network of roads in Gampaha is well developed and most roads are asphalt paved. However some of the existing roads have deteriorated beyond economical repairs due to insufficient funds for maintenance. Since Gampaha District is within the wet zone constant rain fall seems to hamper good maintenance.

Total mileage of the highways in the Gampaha District could be classified in the following manner.

1. 'A' Grade roads	109 miles.
2. 'B' Grade roads	294 miles.
3. 'C' Grade roads	260 miles.
4. 'D' Grade roads	262 miles.

Maintenance and improvement of the above roads have not been carried out systematically due to lack of funds. As a result the condition of the roads have been deteriorated. The improvement of deteriorated roads is a key to upgrade the living standard of Gampaha people and to promote an uninterrupted transport of products such as coconut, paddy etc. to main towns.

Proposals.

1. Improvement of above roads including widening where-ever necessary.

2.1. Construction of a bridge at Mutuwadiya.

2.2. Reconstruction of the following 6 bridges.

Seeduwa - Udugampola Road, Bridge No. 1/2.

Katunayake - Veyangoda Road, Bridge No. 1/6.

Palliyawatta - Lansiyawatta Road, Bridge No. 4/1.

Veyangoda - Ruwanwella Road, Bridge No. 1/1.

Veyangoda - Kal Eliya Road, Bridge No. 1/2.

Kirindiwita - Ganemulla Road, Bridge No. 1/8.

3. Supply of equipment, materials and machinery for road maintenance and improvements.

- 3.1. Motor Grader - 01 No.
- 3.2. Jeep - 01 No.
- 3.3. Motor Cycles - 02 Nos.
- 3.4. Metal Crushers - 02 Nos.
(small size)
- 3.5. Materials such as bitumen.

3.4.2. Rural Roads.

Rural roads extend over a very large area in the eastern and rural electorates. Most of these roads are gravelled and are running to a length of about 400 miles and maintained by the 37 sub offices of the District Development Council.

The condition of these roads affect the rural farmer because the in and out transportation of their products is mostly done through these roads. Further they have an influence over-all economic, social and cultural activities of these people.

Due to the limitation of funds the District Development Council is not in a position to maintain these roads properly. Therefore, assistance from the project is an urgent need to improve the condition of these roads. The following equipment and machinery are necessary to the District Development Council for the improvement of the rural roads.

- 1. A Motor Grader.
- 2. Two trucks for the transportation of gravel to the interior areas.
- 3. Two Road Rollers for the continuous maintenance.
- 4. One Loader.

3.4.3. Rural Electrification.

The Gampaha District falls under the over-all purview of the North Western Division of the Ceylon Electricity Board and the 13 electorates lie within the areas of four Area Engineers, viz, Kelaniya, Ja-ela, Gampaha and Negombo.

The District of Gampaha is served by the National Electricity Grid of the Ceylon Electricity Board. A greater part of the 13 electorates falling within the district boundaries is covered by the Sub-transmission and High Tension Distribution System at 33 KV and 11 KV respectively.

The following features of the existing transmission and sub-transmission network within the Gampaha District may be noted.

- (a) 220 KV main transmission line running through the district and serving two Grid Sub-stations, one at Biyagama (capacity 2 x 250 MVA) and other at Kotugoda (capacity 2 x 250 MVA).
- (b) 132 KV transmission line running through the Dompe electorate.
- (c) Extensive network of 33 KV sub-transmission lines serving a large number of consumer sub-stations feeding individual consumers, distribution sub-stations for Local Authorities and sub-stations for Rural Electrification Schemes.
- (d) Localised networks of 11 KV High Tension Distribution Lines originating several Primary Sub-stations and serving local consumers as in the case of (c) above through a series of step down transformer Sub-stations.
- (e) 80 MW Diesel Generating Station at Sapugaskanda for Thermal back up of the CEB System.

Most of the areas in the District are within reach of the existing sub-transmission and High Tension Network and a greater part of the developed Urban Areas are served. Some of the rural areas have been provided electricity through Rural Electrification Schemes undertaken by the Ceylon Electricity Board from time to time.

RURAL ELECTRIFICATION

The Gampaha District has been included in the Rural Electrification Project funded by the Asian Development Bank. Funds released from the Decentralised Budget are also utilized to carry out smaller Rural Electrification Schemes. Schedule 'A' (attached) provides a list of Rural Electrification Schemes

included in the on-going ADB/RE Project under three headings viz. Schemes completed up to end of 1985, Schemes in hand and Schemes which have been planned for execution in 1986 - 87. The estimated cost of the first two categories is also indicated. In addition, the schedule gives the approximate value of Small Rural Electrification Schemes (mostly extensions to low tension distribution lines) which have been completed up to the end of 1985.

CONSTRAINTS IN THE IMPLEMENTATION OF RURAL ELECTRIFICATION SCHEMES

All Rural Electrification Schemes funded by various sources are carried out by the Construction Units of the Ceylon Electricity Board attached to the North Western Division of the CEB.

Due to the heavy work load of the Construction Units, the execution of Rural Electrification Schemes has not proceeded as programmed. Steps have been taken to correct this problem by giving out part of the construction work on contract to local contractors who have been selected on the basis of open tender. With this arrangement in operation it is expected that the present programme of work could be completed by 1987.

PROPOSALS UNDER IRDP.

It is suggested that a suitable number of villages be selected for electrification under the IRDP. Village areas for Rural Electrification proposals undertaken as part of the Integrated Rural Development Project have to be initially identified by the Project Authorities as part of the Integrated Programme envisaged for the District. Such proposals should ideally form part of the infra-structural input to support the overall development proposals contained within the IRDP.

3.5. SOCIAL INFRA-STRUCTURE.

3.5.1. HEALTH.

The health status of the people in Gampaha District as measured by the standard indices such as crude birth rate 16.1 (1984), crude death rate 5.8 (1984), maternal mortality 0.3 (1980), infant mortality rate 24 (1980), neonatal mortality rate 16.5 (1980) and life expectancy of 66 compares favourably with those of other districts that have satisfactory health status. Yet variations in health status of the people of different health areas in the district are evident.

The rate of acute malnutrition is around 7.7 while chronic malnutrition stands at 13.4. On studying the morbidity and mortality patterns during the year 1965 - 1984 it is noticed that major causes for morbidity and mortality are infectious and parasitic diseases, diseases of the respiratory system, complications of pregnancy and child birth, acute myocardial infection, slow foetal growth, foetal malnutrition and immaturity.

The disease pattern also shows an emergence of diseases that are present with development, industrialization and urbanization such as cardio vascular diseases, occupational diseases, insecticide poisoning, accidents etc., while at the same time diseases due to poor environmental sanitation, lack of safe water, malnutrition and poor housing still remain in the fore front.

<u>Table 1</u>	<u>Gampaha District</u>	<u>Sri Lanka</u>
Crude birth rate	16.1 (1984)	26.2 (1983)
Crude death rate	5.8 (1984)	6.1 (1983)
Infant mortality rate	24.0 (1984)	34.4 (1983)
Maternal mortality rate	.35(1984)	.8 (1983)

Though the health status indicates in Gampaha District in general show a satisfactory state, there are pockets of populations where the health status needs improvement. Such areas include the electorates of Divulapitiya, Pirigama, Attanagalla, Domppe, Gampaha and Minuwangoda. As such this project concentrates on the upliftment of the health status of the section of the population that needs it most.

Health Service Provision in Gampaha District:

There were 132,007 indoor patients and a total of 2,373,776 O.P.D. visits in the 48 health institutions in Gampaha District during 1985.

Table 2.

Hospital Statistics : 1985

Health Institutions in the selected areas of Gampaha District.

<u>Name of Hospital</u>	<u>Bed Strength</u>	<u>Total indoor patients</u>	<u>Total Outdoor patients</u>
Base Hospital, Gampaha	337	27,884	237,302
B.H., Watupitiwala	333	28,847	164,842
B.H., Negombo	333	25,778	242,750
Dist. Hospital, Divulapitiya	98	8,177	110,294
D.H., Mirigama	188	12,175	130,426
D.H., Minuwangoda	75	8,358	85,518
D.H., Dompe	108	8,879	118,300
Peripheral Unit, Radawana	64	2,943	50,115
P.U., Akaragama	12	615	17,218
Central Dispensaries & Maternity Homes	164		

Table 3.

Manpower facilities in the District

1985

	<u>Actual number</u>	<u>No. per 1000 population</u>
Medical Officers (Inclusive of Specialists & Medical Officers of Health.	65	.04
Assistant Medical Practitioners	65	.04
Staff Nurses	336	.22
Public Health Nurses	21	.01
Public Health Inspectors	68	.04
Family Health Workers(Public Health)	281	.18
Family Health Workers (Institution)	117	

	<u>Actual</u> <u>number</u>	<u>No. per 100</u> <u>population</u>
Pharmacists	17	
Medical Laboratory Technologists	16	
Dispensers	29	

Problems/Deficiencies in health care delivery systems:

- (1) Coverage of the entire population of the selected areas with essential health care is not satisfactory. Population increased from 300 per sq.km. to 600 per sq.km. during the last 10 years but the improvements in health care delivery during the same period could not cope to this situation.
- (2) Compared to other areas, health services provision in these areas are low. Targets to be achieved under immunisation, anti-natal care during the year 1985 could not be accomplished.

Table 4:

Immunisation Coverage

	<u>Targets</u>	<u>Achieved</u>
Kochchikade M.O.H. (Divulapitiya)	82 %	65 %
Kirindiwela M.O.H. (Dompe and part of Attanagalla)	82 %	75 %
Mirigama M.O.H.	75 %	73.9 %
Gampaha M.O.H.	90 %	65 %

- (3) Mortality and morbidity from diarrhoeal diseases are high in these areas:

	<u>Patients</u>	<u>Deaths</u>
Kirindiwela M.O.H. area	173	1
Mirigama M.O.H. area	81	8
Gampaha M.O.H. area	182	1

- (4) In the selected areas even the private sector health facilities available are inadequate. It is also reported that there are few unqualified practitioners and untrained midwives practising in these areas.
- (5) Administrative divisions that are the A.G.A. Divisions do not correspond to the M.O.H. Divisions in the present system leading to many administrative problems.

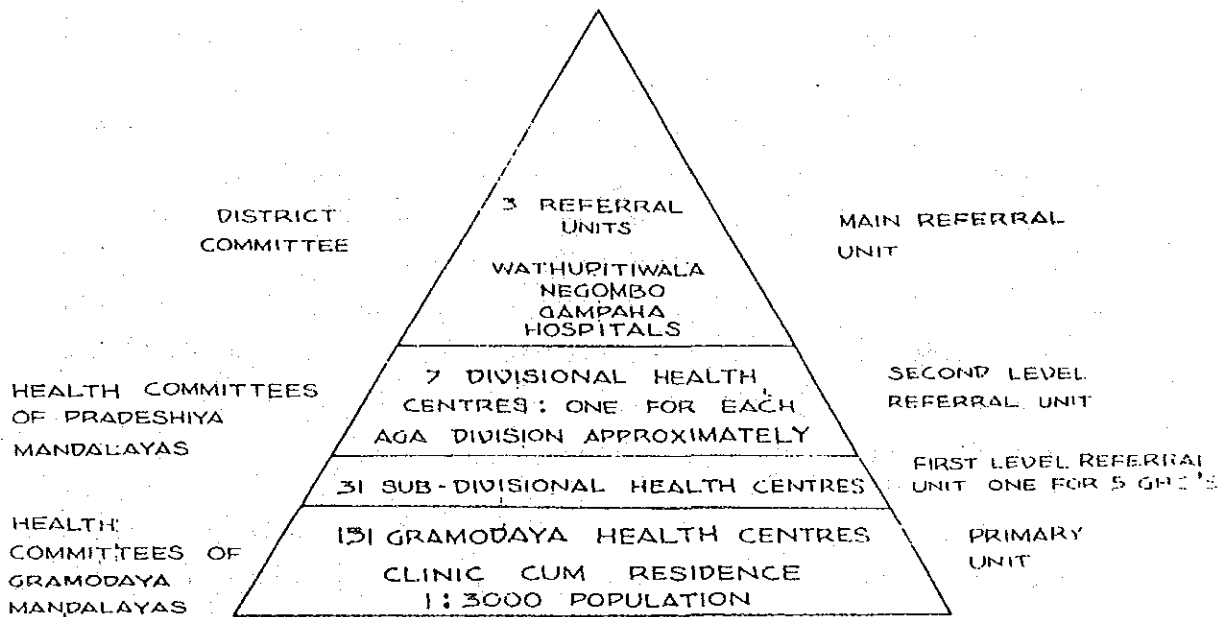
- (6) Co-ordination between preventive and curative services is inadequate.
- (7) Due to absence of a proper referral system the utilisation of smaller institutions is suboptimal. Patients often by pass these institutions leading to overcrowding of major institutions.
- (8) Promotive and preventive aspects of health care do not receive adequate attention though 50 % of patients seen at outdoor and indoor are suffering from preventable diseases.
- (9) Social resources and community participation are not fully utilised.
- (10) Inadequate supervisory and logistic support.

In order to correct the above deficiencies in the selected areas this proposal attempts to restructure the health care delivery system through.

- i. Establishment of a number of Gramodaya Health Centres to provide one unit for a cluster of villages of about 3000 people, so that the essential health care is available to all people close to their homes.
- ii. Promotion of community participation through tapping of community resources.
- iii. Promotion of inter-sectoral co-ordination at local levels including co-ordination with NGO s.
- iv. Strengthening the network of divisional and sub-divisional health centres so as to ensure logistic supervisory and referral support to Gramodaya Health Centres and
- v. gradual functional integration of curative and preventive with emphasis on its preventive component.

THE PROPOSED "THREE-TIER" PHC COMPLEX

Fig. 1



Major Components :

The project proposal has the following major components :

Restructuring the health care system by -

- a. establishing primary health complexes (7) comprising (a) upgraded (5) and new Divisional Health Centres (2) Sub-Divisional Health Centres (31) and (b) new Gramodaya Health Centres (151)
- b. provision of required personnel suitably trained and re-orienting the existing personnel at the PHC complexes.
- c. provision of essential equipment, supplies and transport for the health facilities.
- d. improvements in 3 base hospitals to cater to referrals.
- e. involvement of community organization and non-governmental associations in health development work.

DESCRIPTION

Improvement of the present health care delivery system:

In order to eliminate the weaknesses in an otherwise good network of health facilities, and specifically to establish a more rationally organised health care system which improves the access of the entire population to essential health care, the project aims to accomplish the integration of the divisional, sub-divisional and village level health facilities into a composite primary health care complex - the central object of the new national P.H.C. model. To this end it is proposed to establish Gramodaya Health Centres (GHC) as the basic peripheral institution for each Grama Sevaka area (administrative sub-division of the Assistant Government Agent (A.G.A.) division includes group of villages) with an average of 3000 people, or about 600 house-holds. The GHC will be supported by the existing Central Dispensaries which are to be upgraded into sub-divisional health centres by adding physical facilities and staff, and new sub-divisional health centres to serve a population of 20,000. The SDHC s will serve as the first referral tier and supervisory tier for the GHC s.

Similarly, one divisional health centre is to be established upgrading the existing rural hospital peripheral unit or by establishing new centres, in each of the A.G.A. divisions, to serve a population of 50,000.

At the base of the pyramid will be the Gramodaya Health Centre (GHC) manned by a FHW (PHN). It is stipulated that there will be one GHC for each Grama Sevaka area. The aim of providing the GHC is two-fold. Firstly, it will provide a work-place for the FHW within the community. At present, the FHW attends to a fewer number of home deliveries, and in the absence of a residence, does not usually stay within the community. The resulting absenteeism, compounded by poor supplies, equipment supervision and referral system, seriously discredits the peripheral facilities. The provision of housing will remedy this.

Secondly, the GHC will provide the much needed base from which PHC services will flow to the community with its active support and participation, through further development of Village Level Volunteers (VLV) and Village Health Committees (VHC).

Sub Divisional Health Centres (SDHC)

This institution will be under an AMP (Sub-divisional Health Officer) and will have two PHII, and FHW and one dispenser on its start. These personnel will work both in the institution and in the field. The SDHC will provide supervision and referral support to the Gramodaya Health Centres, its specific functions are presented in figure 2.

Within the basic principle that no facilities will be downgraded, to begin with all existing Rural Hospitals, Central Dispensaries cum Maternity Homes and Central Dispensaries will be converted into Sub-divisional Health Centres. Eventually, each A.G.A. Division will have five SDHCC totalling to about 31 within the selected area.

Divisional Health Centre (DHC)

One Divisional Health Centre will be established in each A.G.A. Division. These centres will have inpatient facilities (about 60 beds) and will provide an integrated curative and preventive services. Presently working peripheral units and small District Hospitals will be converted into DHCC by strengthening them appropriately. Eventually there will be about 7 DHCC at the rate of one in each A.G.A. Division.

The Divisional Health Centre is needed by a Divisional Health Officer. The DHC will not only serve as a referral unit for the SDHCC in its ambit, but also provides supervisory, logistic and technical support to the HDHCC and the GHCC. The staff of the DHC will move into villages to provide and supervise any health care in support of those being provided by the staff of SDHCC and GHCC.

The causative factors behind the morbidity and mortality in the country are seemed to be closely related to poor sanitation, mal-nutrition, unsafe water and diseases resulting there from are diarrhoeal diseases, communicable diseases, infections and parasitic diseases, anemias, immaturity etc. The services directed towards such health problems have been identified and directed towards the susceptible population.

The main features of these proposals as presented are :

1. A three tiered referral system at the community level which will form a PHC complex.
2. The provision of an integrated health care services, and
3. An infra-structure more amenable to better management.

The essential support service system such as health information, planning and management, supplies and logistics are being strengthened by the on going project for strengthening District Level planning and management system and procedures in support of PHC development.

3 : 5 : 2 : Education.

Gampaha District covers 13 electorates and has 17 Education Circuits of which 9 are in the Gampaha Region and the rest are in Minuwangoda Region. According to 1981 census the district had a population of 1,389,400 of which 72.2 per cent was rural. This district has a higher participation rate in education than the District of Colombo. In 1981 88.7 per cent of the population of the Gampaha District in the age span 5 - 14 attended school. The corresponding percentage for the Colombo District and Sri Lanka were 87.1 and 84.8 respectively. The District also has a wide net work of schools reaching out to the remotest village in the area. In all, there are 46 Pirivenas and 596 schools which include 38 - 1 AB (schools with Advanced Level Science facilities) 99 - 1C (schools with Advanced Level arts and commerce) 273 with classes up to General Certificate of Education (Ordinary Level) and 86 primary schools, with a total student population of 299,565. However, parameters such as population density and transport facilities confer advantages associated with urbanization in some areas of the District. As a result the size of the school vary. Small schools are generally located in the remote and uncongenial areas where the social economic and educational levels of the inhabitants are relatively low. The disadvantages associated with poor environments are reflected in schools which have inadequate infra-structural facilities resulting in comparatively low standard of education. It has been observed that the number of grade repeaters and drop-outs too is high in the remote village schools. Due to the lack of facilities in the schools in the District nearly 5000 students daily travel to Colombo (Ref. Ministry of Education 3/PP/P/4 dated 25.04.1984).

Hence if immediate steps are not taken to avert this situation the problem will be aggravated in the years to come. According to the Three Year Investment Plan

prepared by the Department of Education, Gampaha, after a very close study of this situation the following problems were identified.

1. The students flow from this District to Colombo.
2. The students flow from rural to urban schools within the district itself.
3. The education wastage due to the following facts :-
 - (a) Due to the flow from rural areas to urban areas some rural schools are depleted.
 - (b) The high rate of drop-outs, grade repeaters and the non-school goers.
4. The poor management of some Principals as First Line Managers.
5. The lack of facilities in schools.

With a view to solving these problems the following proposals are presented.

- (1) To establish an institute of Technology at Yakkala.
- (2) To raise at least three schools in the District to the level of prestigious schools in Colombo by providing buildings, equipment and other facilities.
- (3) To establish 4 fully equipped primary schools to be on par with the prestigious primary schools in Colombo.
- (4) To establish 8 Divisional Education Offices.
- (5) To develop 13 core schools of the school clusters.
- (6) To develop 3 Pirivenas.
- (7) To establish an Education Management and Research Centre.

The details of these proposals have been prepared by the Regional Director of Education, Gampaha.

3 : 5 : 3 : Sports and Recreation :

Gampaha District has always excelled in the field of sports. It has produced many of the members of the National Sports Teams. But it is really regretting to note that the District has very poor facilities available in the field of sports.

In this context a prime requirement for the District is a Stadium in a central place. At present we do not have at least a 400 metre common track for our athletes. However, there are two 400 metre tracks belonging to two schools but at two extreme ends of the district, and available only for the use of students of the respective schools. Therefore, a Stadium with modern facilities within the capital town and two or three spacious play grounds to serve the youths in interior electorates like Divulapitiya and Dumpe will be of great help in uplifting the social life of the rural people.

There is a District Sports Officer attached to the Kachcheri and Divisional Sports Officers in the Assistant Government Agents Divisions. Although these officers are full time engaged in training and directing the young population to achieve the benefits of sports and athletics, a difficulty faced is the non availability of sufficient sports material. Therefore, a scheme to provide sports goods specially, to Sports Clubs in rural areas has to be considered as an urgent need.

For the promotion of cultural activities in the District we suggest that a cultural centre with a large hall be constructed along with the Stadium. It should include facilities for the training of local artists.

3 : 6 : Administrative Infra-structure :

Being recently created as a new administrative unit, Gampaha District has very limited resources available in the functioning of its administrative machinery. Therefore, an integrated development plan for the district must necessarily incorporate measures for the development and improvement of the administrative infra-structure and the personnel, in order to avoid a possible implementation gap.

When the District was formed from a part of the former Colombo District under the Constitution of the Democratic Socialist Republic of 1978, the administrative offices were located in various available buildings around Gampaha town and most of them still function from these isolated buildings. Departments of Survey, Buildings, Local Government, Housing, Land Registry, Minor Exports, Co-operatives, Irrigation and institutions like Agricultural Development Authority, Land Reform Commission and Highway Authority are thus scattered away from the District Ministry. And the District Offices of Health and Fisheries are stationed at places as far as 20 miles in Maligawatta and Negombo respectively. This situation inevitably creates problems of communication and inability of exchanging mutual benefits. Therefore, housing the key Administrative Offices together in one Secretariat is of high priority.

This Secretariat should include as a part of it an air conditioned Record Room to store the documents of vital importance like the records pertaining to births, deaths, marriages and duplicates of legal documents pertaining to lands. At present about 126,700 such records and annual intake of about 20,000 to 32,000 are kept unprotected, exposed to excessive heat and humidity facing the danger of decay. Further in order to keep pace with the modern technological development, modernization of the administrative process is essential. A computer unit with photo copying facilities, housed in the Secretariat can serve all the Department Offices and help in saving vast volumes of man power spent on documentation and other paper work. Similarly a printing unit with modern technique

will help most of these offices to get their printing done without rushing to Colombo and other places. It has been estimated that the volume of printing work in the District Ministry, the Development Council, Election Office, Education Department and other offices annually require, is more than sufficient for the running of the press.

The Project Office constituting a part of the main Secretariat should contain the necessary equipment and facilities for officers engaged in the implementation. In this respect it has to be stressed that the District does not possess the benefit of accumulated resources over a long period like vehicles, residential quarters, communication facilities and other equipment, which the other districts enjoy.

Summary of Proposals for the development of Administrative Infra-structure is given below :

1. A four Storyed Secretariat to house 15 District Level Offices with space area of 4 x 27,000 sq. ft. including the following :
 - i. Computer Unit.
 - ii. Air conditioned space of 4,000 sq. ft. for the Record Room.
 - iii. Printing Press - medium scale to handle the printing work of the 15 Departments with necessary equipments.
2. The Project Office with necessary equipment.
3. Residential Quarters for Project Officers.
4. Vehicles for the Project Staff.
5. Telecommunication facilities for the officers in the project.
6. Training facilities for the Project Staff.

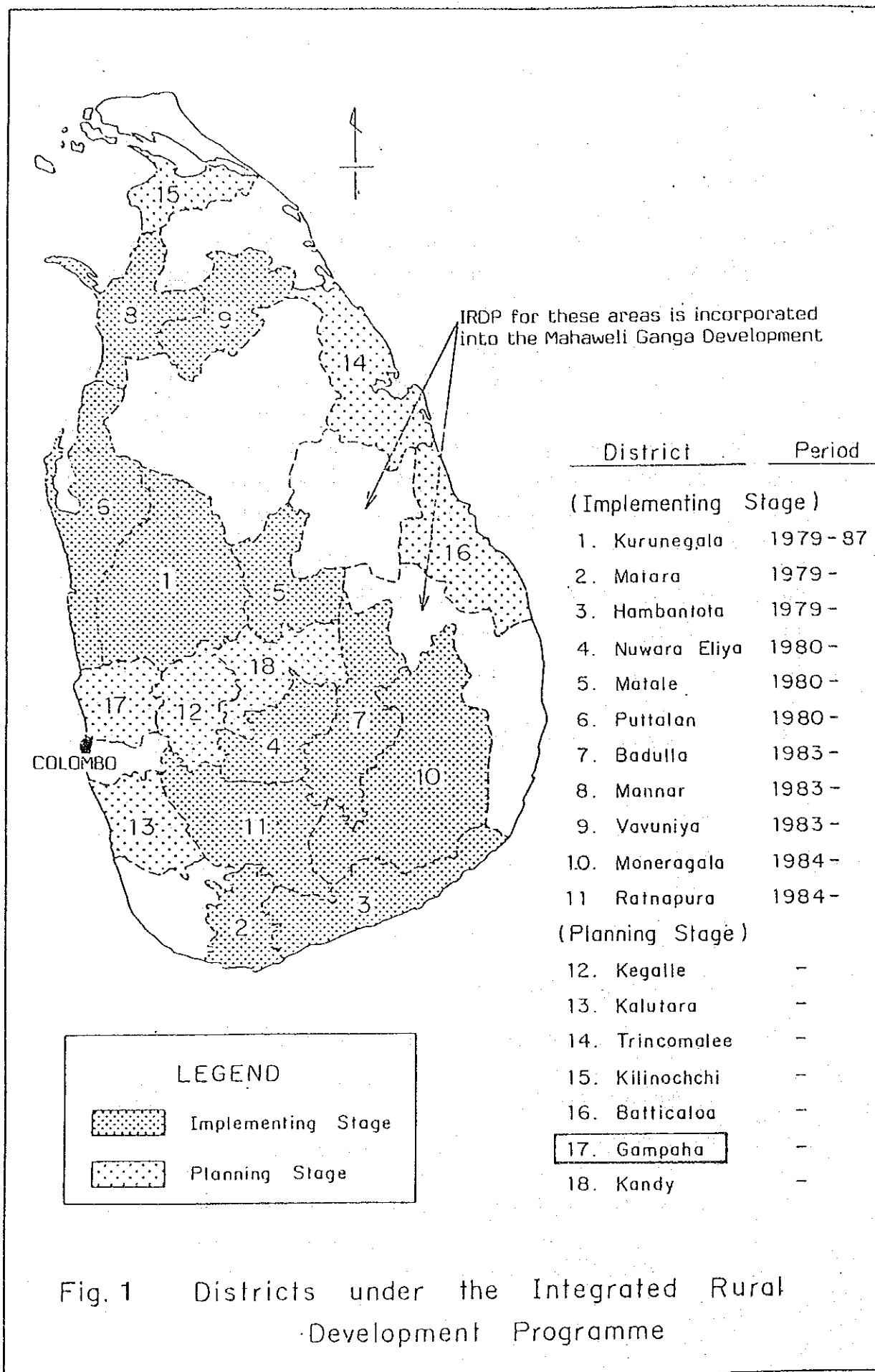
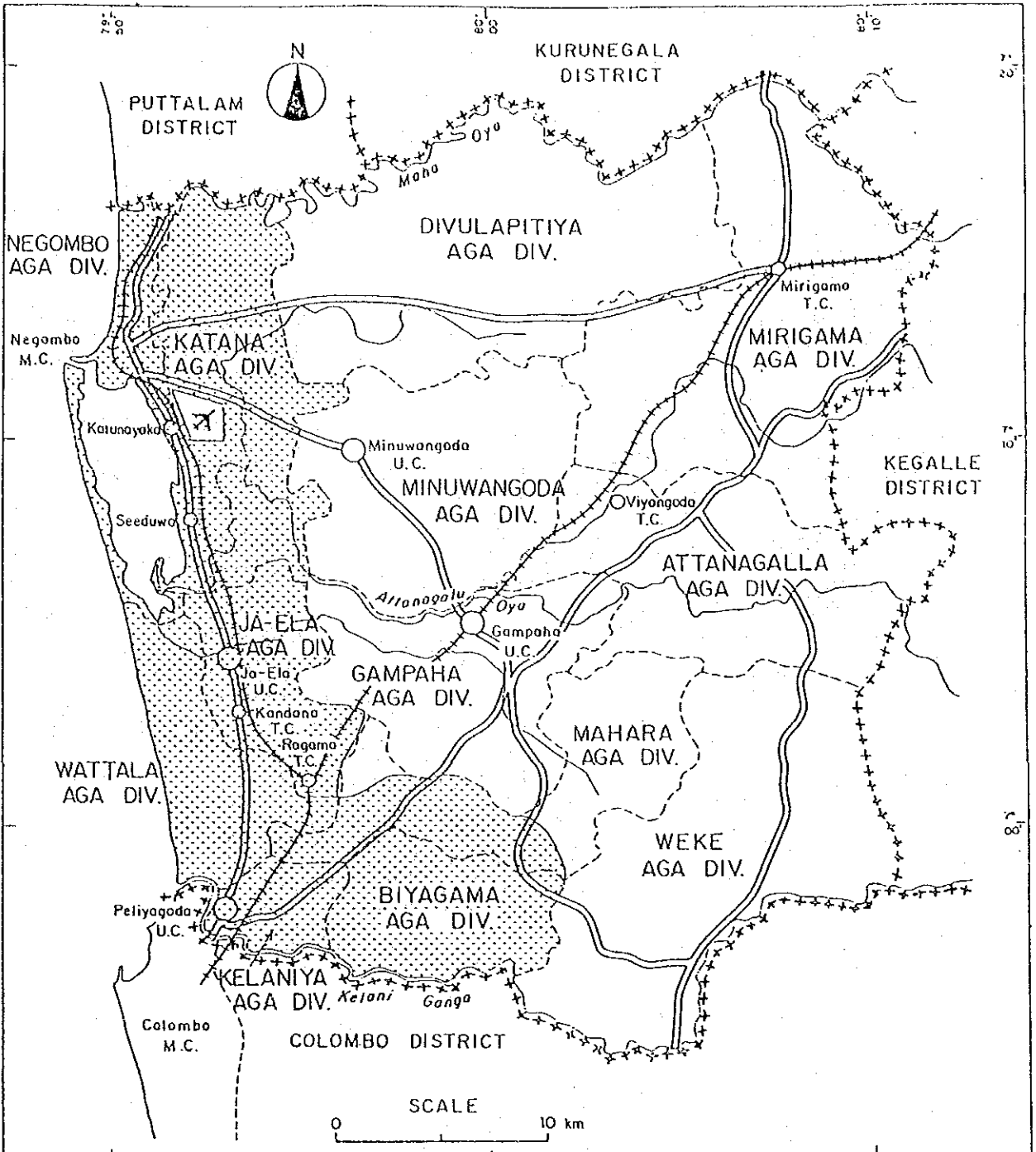


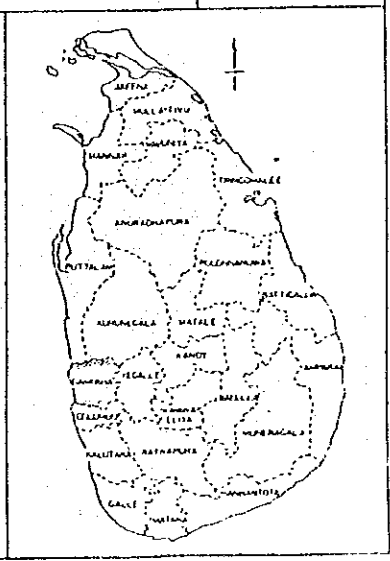
Fig. 1 Districts under the Integrated Rural Development Programme

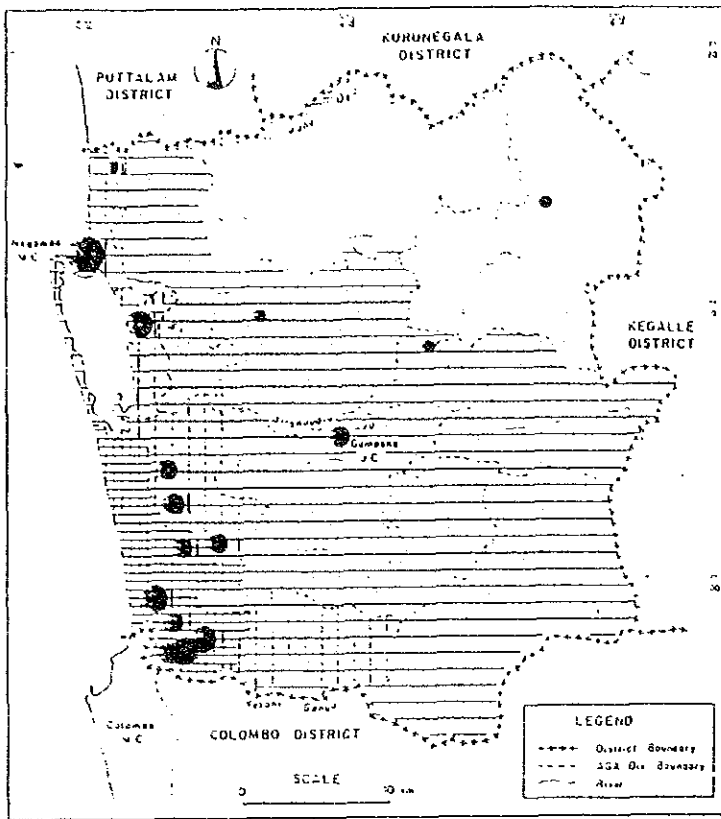


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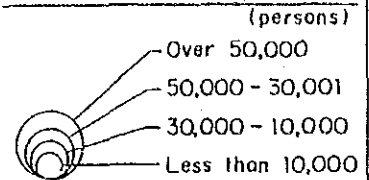
- ++++++ District Boundary
- AGA Division Boundary
- ~~~~~ River
- ==== Main Road
- +++++ Railway
- ▨ Free Trade Zone

GENERAL MAP OF GAMPAHA DISTRICT





Population of Municipal /Urban/
Town Councils in 1981



Density of Population in
Rural Area in 1981

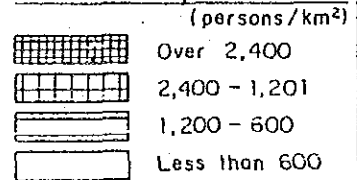
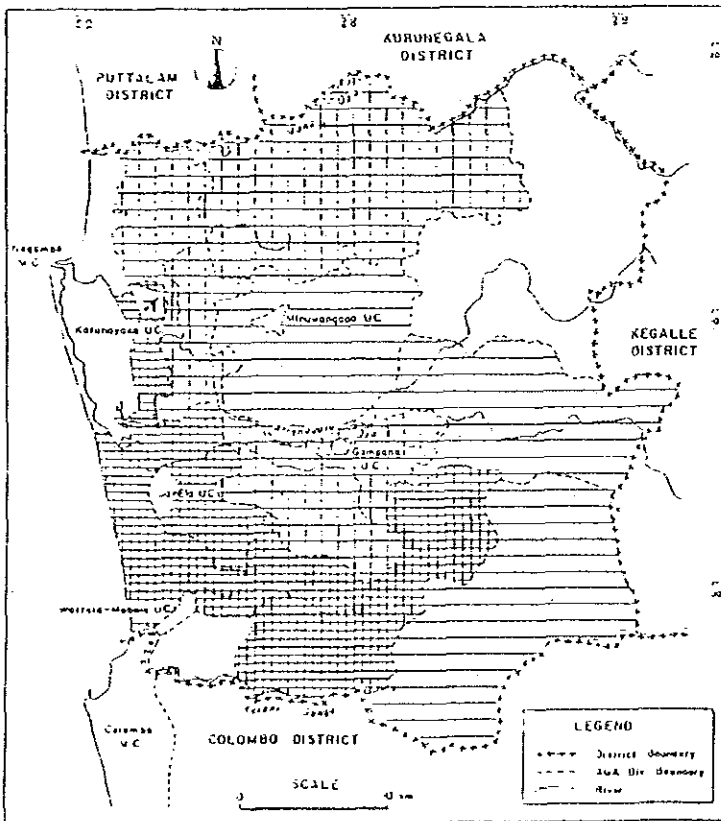


Fig. 2 Distribution of Population in Gampaha District (1981)



Population Growth Rate
1971 - 1981

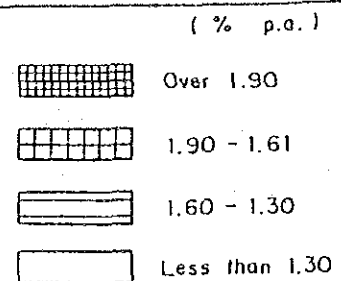
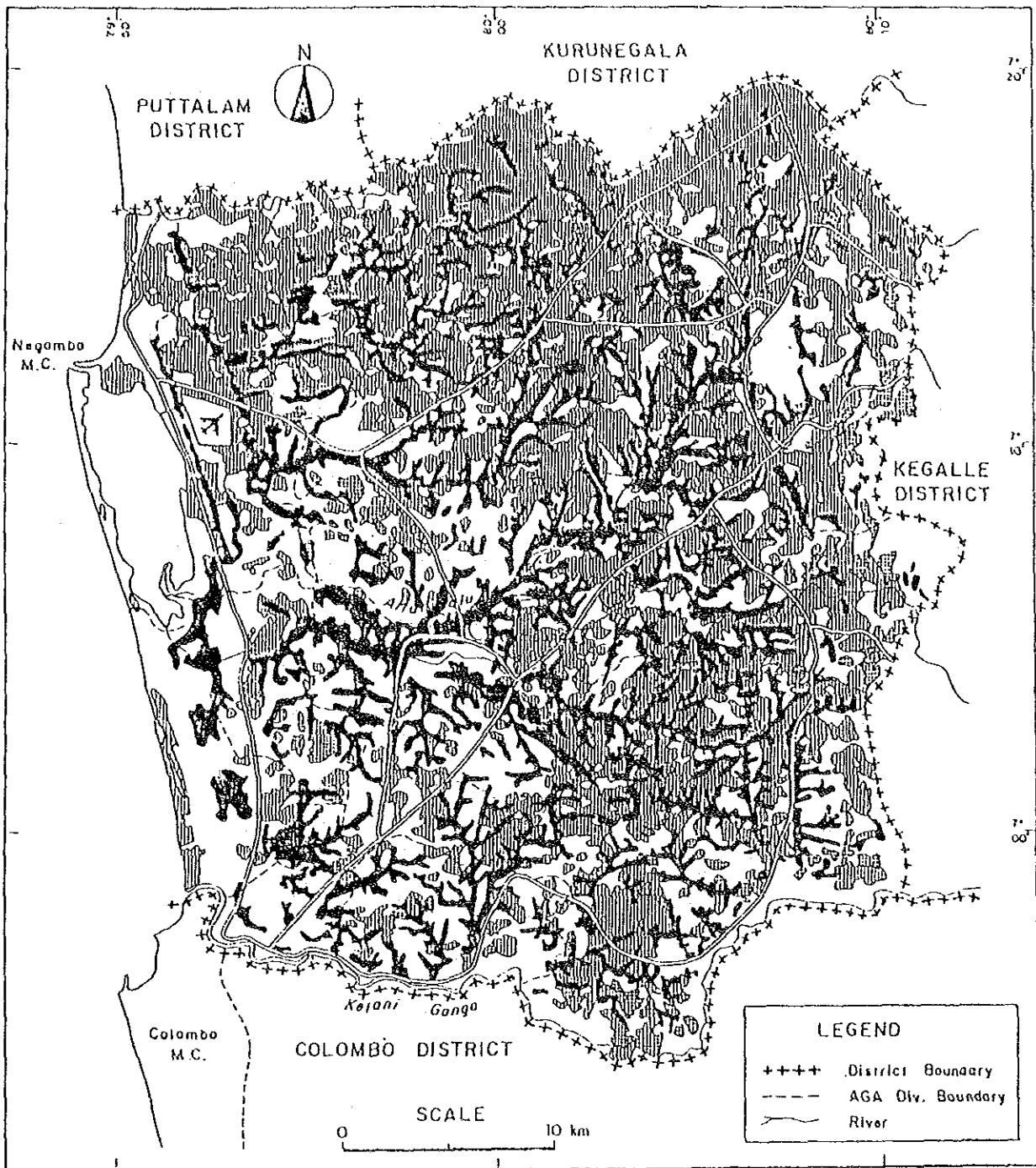


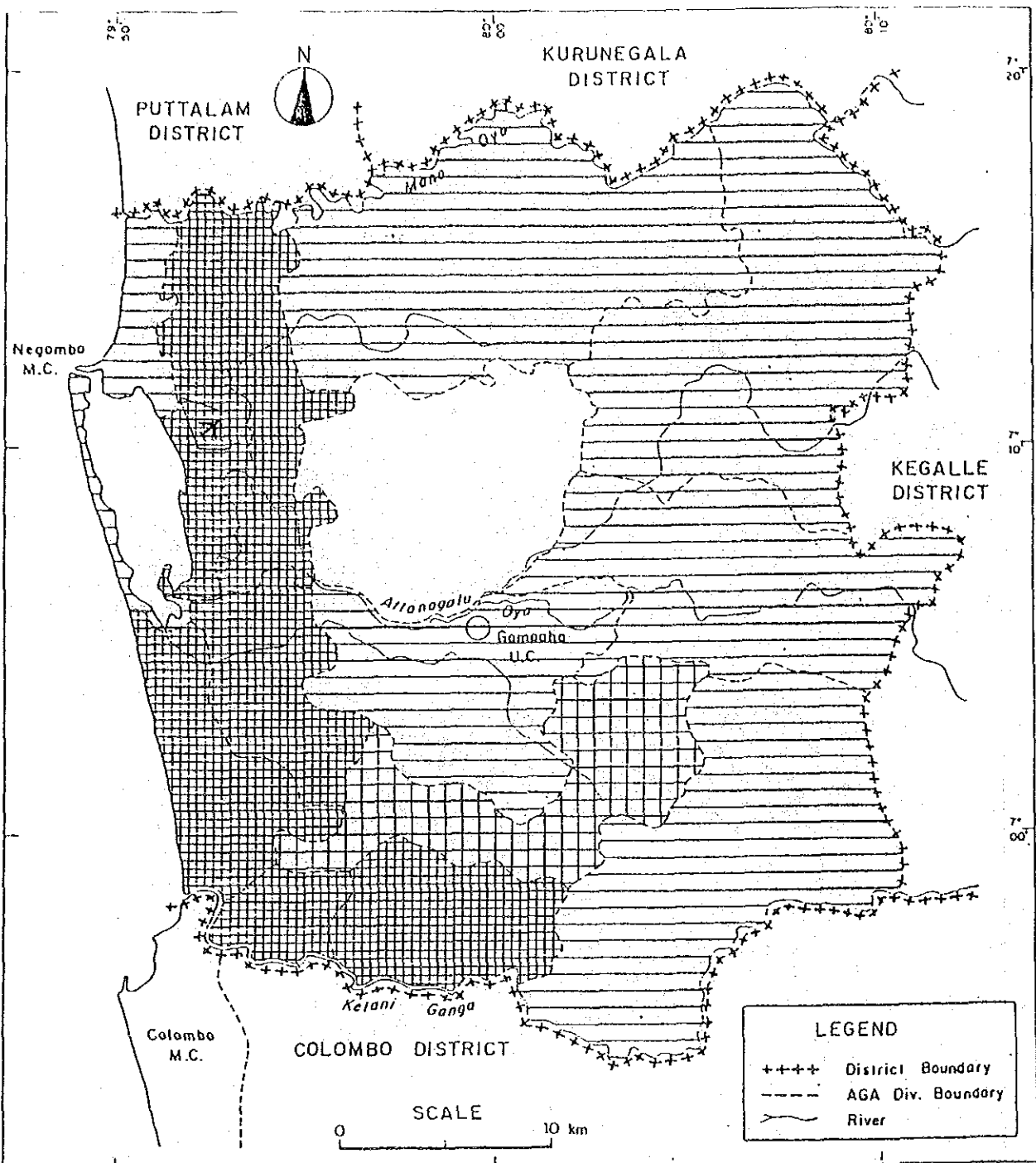
Fig. 3 Population Growth Rate in Gampaha District (1971 - 1981)



LEGEND	
++++	District Boundary
---	AGA Div. Boundary
~~~~~	River

Land Use	Symbol
Coconut	Vertical hatching
Rubber	Horizontal hatching
Paddy	Stippled pattern
Homestead Garden	White box

Fig.4 Agricultural Land Use Condition in Gampaha District



Share of Agricultural Land (1980)  
(% to Total Division Area)

	Over 85
	85 - 76
	75 - 65
	Less than 65

Fig. 5 Share of Agricultural Land in Gampaha District (1980)

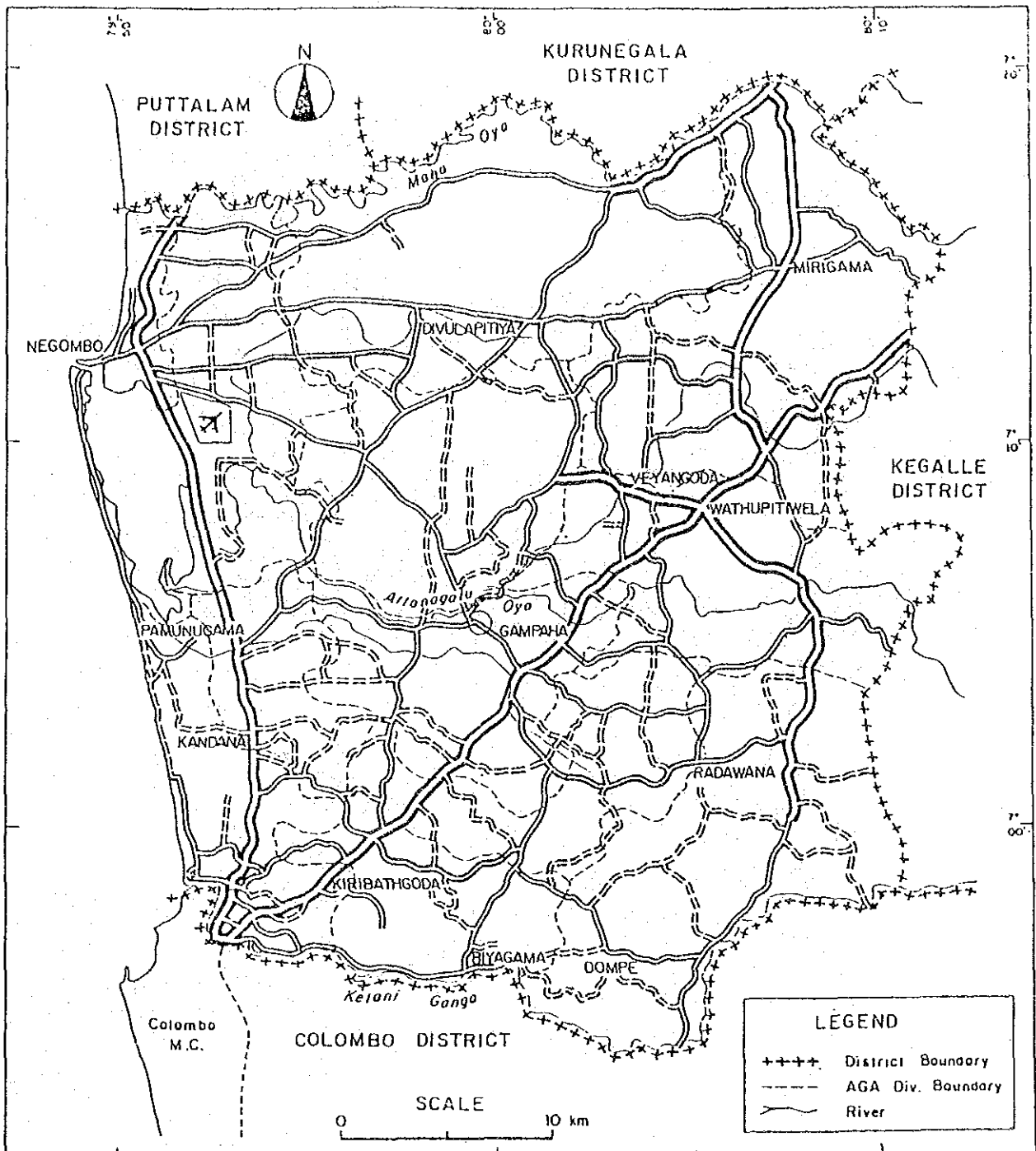
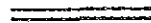
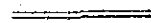
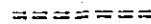
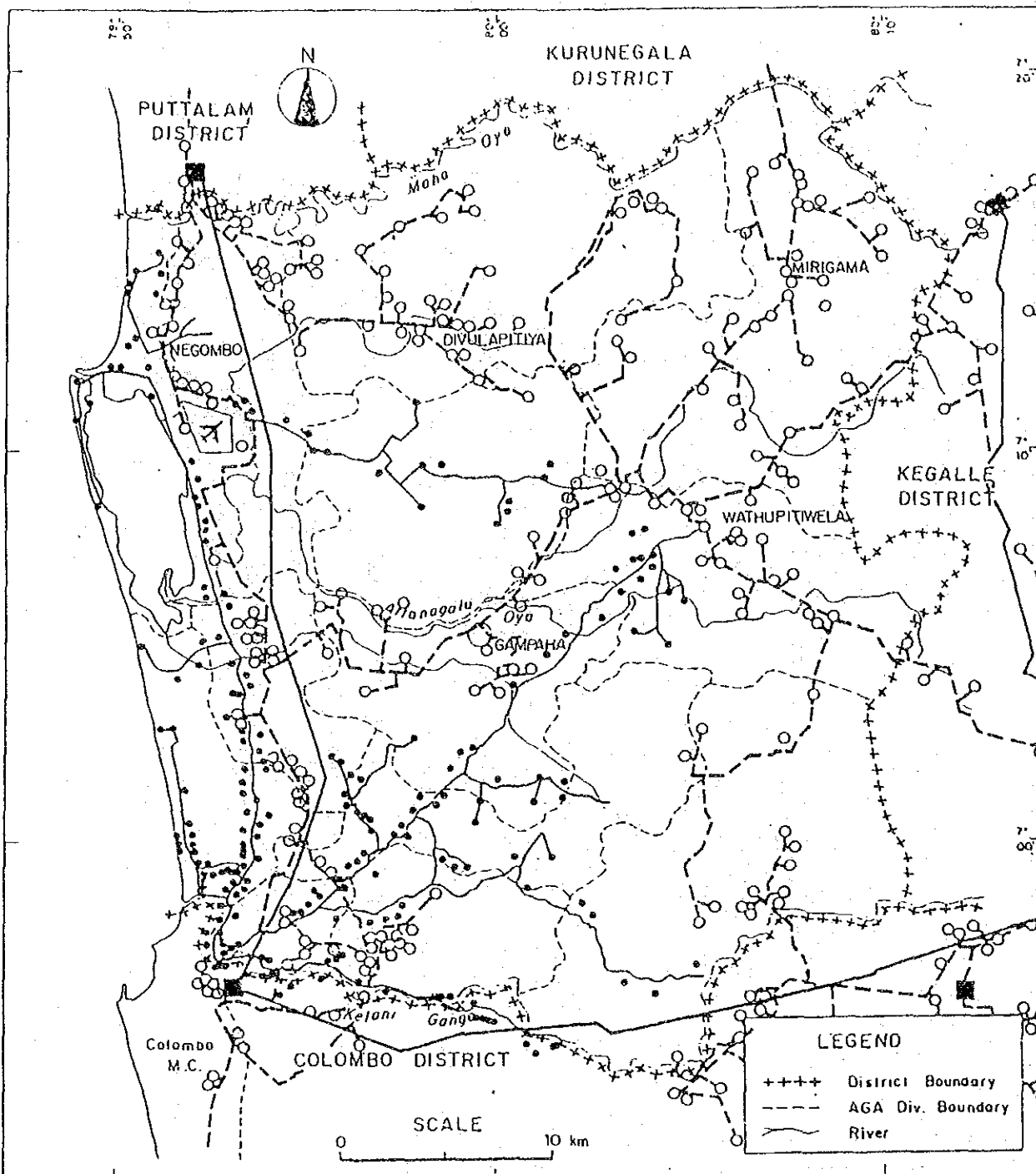


Fig. 6 National Road Network in Gampaha District

National Road

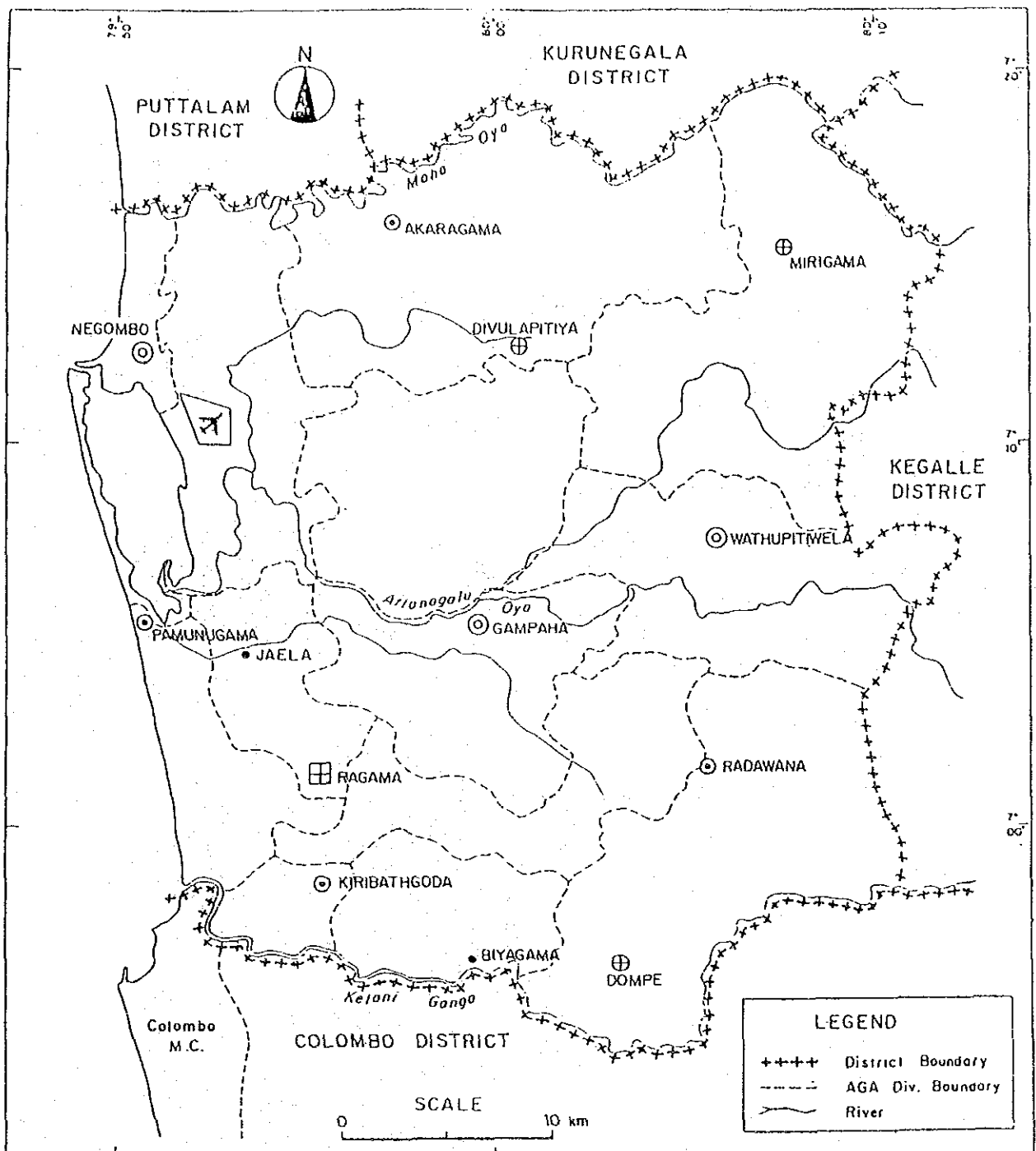
- 
 Class A - connecting Capital
- 
 Class B - connecting class A roads and major roads
- 
 Class C - connecting class B roads and major towns



Distribution	Line	Station
	132 KV	132 KV Sub Station
	33 KV	33 KV Sub Station
	11 KV	11 KV Sub Station

Fig. 7 Distribution Network of Electricity in Gampaha District





**LEGEND**

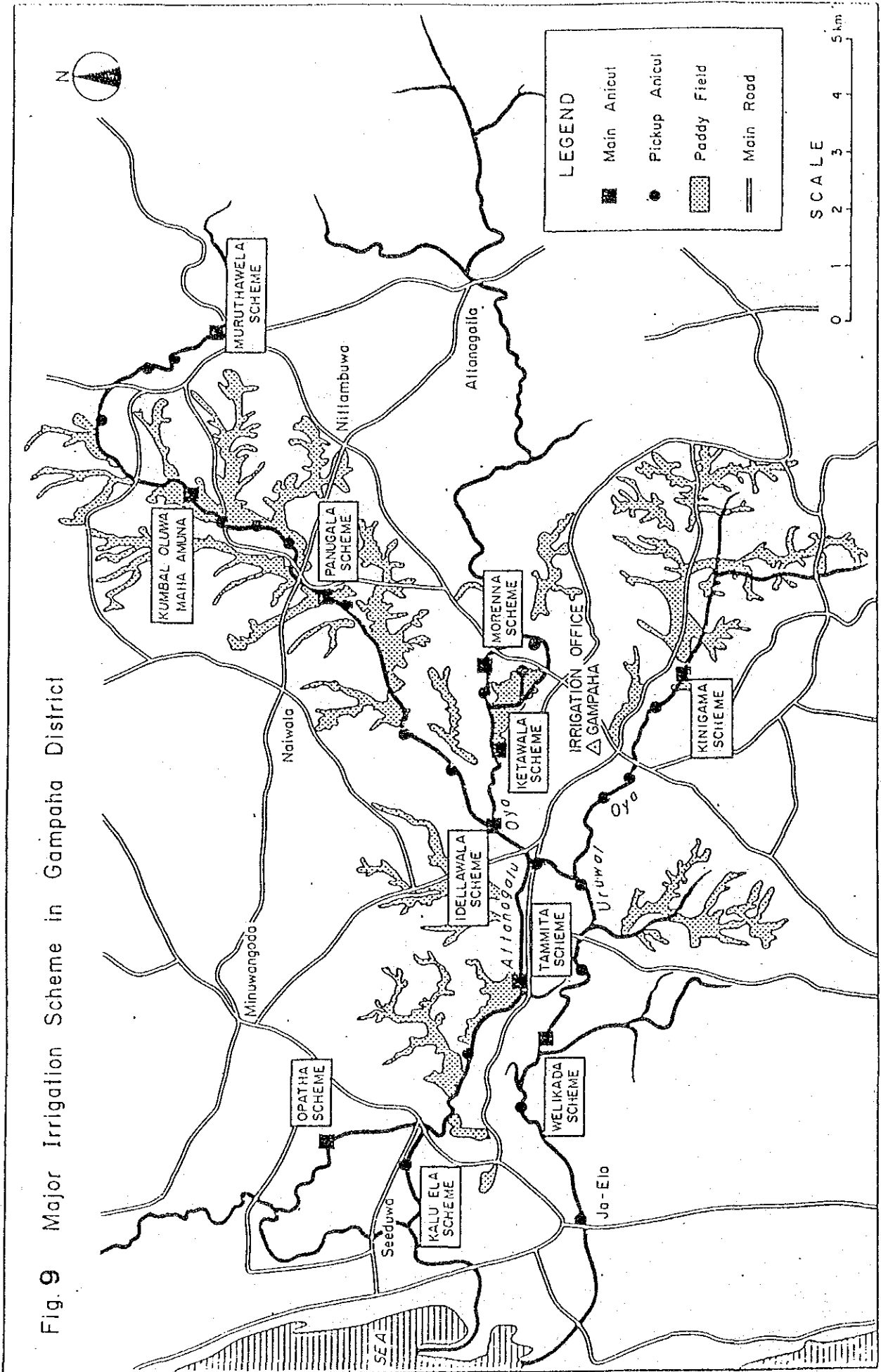
- ++++ District Boundary
- ..... AGA Div. Boundary
- River

**Hospital**

- ⊞ General Hospital
- ⊙ Base Hospital
- ⊕ District Hospital
- ⊙ Peripheral Hospital
- Rural Hospital

Fig.8 Distribution of Hospital in Gampaha District

Fig. 9 Major Irrigation Scheme in Gampaha District



**XI. List of Direct Participants and Support  
Personnel of the Master Plan Study**



LIST OF DIRECT PARTICIPANTS AND  
SUPPORT PERSONNEL OF THE MASTER PLAN STUDY

A. LIST OF MEMBERS OF JICA STUDY TEAM, JICA ADVISORY  
COMMITTEE AND SUPPORT PERSONNEL

JICA Study Team

Mr. Fumio TAMURA	Team Leader
Mr. Kimio SAKATA	Rural Development Expert
Mr. Tadashi MOCHIZUKI	Hydrologist
Mr. Kuniki IWATA	Irrigation and Drainage Engineer
Mr. Hideo HIRATSUKA	Design Engineer
Mr. Tetsuo DOKIYA	Astronomist
Mr. Hiroshi YASUDA	Agricultural Machinery Expert
Mr. Hiromasa MINAKAMI	Agro-Economist
Mr. Akira NAOTSUKA	Water Supply Engineer
Mr. Kunio KURODA	Electrification Engineer
Mr. Harutomi HIASA	Social Infrastructure Planning Engineer
Mr. Hiroshi FUKAO	Fishery Specialist
Mr. Kazumitsu TSUMURA	Survey Engineer

JICA Advisory Committee

Mr. Hajime TAKEUCHI	Deputy Director, Construction Dept., Tohoku Agricultural Administration Office, Ministry of Agriculture, Forestry and Fishery (MAFF)
Mr. Yoshikazu MATSUURA	Deputy Director, Land Improvement and Consolidation Division, Construction Dept., Agricultural Structure Improvement Bureau, MAFF
Mr. Hidemitsu NANBU	Planning Officer, Construction Guidance Division, Tohoku Agricultural Administration Office, MAFF

JICA Colombo Office

Mr. Jiro HASHIGUCHI	Director/Resident Representative
---------------------	----------------------------------

Embassy of Japan

Mr. URABE	Counselor
Mr. Kazuhiko MARUYAMA	First Secretary

## B. LIST OF SRI LANKAN GOVERNMENT OFFICIALS

1. Ministry of Plan Implementation
  - Mr. Seyed M. L. Marikar Secretary
  - Mr. Dennis Ramanayake Director, Regional Development Division
  - Mr. Lalith A. Heengama Director, Employment & Manpower Planning Division
  - Mr. R. P. Morapaya Additional Director, RDD
  - Mr. P. S. Ramakrushnan Deputy Director, RDD
  - Mr. Asoka Colombage Assistant Director, RDD
  - Mr. M. D. W. Ariyawansa Assistant Director, RDD
  - Dr. Jan Olsson Advisor, RDD
2. Ministry of Finance & Planning
  - Mr. S. Weerapana Assistant Secretary, External Resources
  - Mrs. S. L. Kuruppu Additional Director, Dept. External Resources
  - Mrs. C. Kulatunga Assistant Director, External Resources
3. Ministry of Land & Land Development
  - Mr. Nanda Abeywickrema Secretary
  - Mr. K. D. P. Perrera Director, Irrigation Department
  - Mr. S. H. C. de Silva Additional Director, Irrigation Dept.
  - Mr. J. A. J. Jayasooriya Senior Deputy Director, (Design)
  - Mr. G. T. Dharmasena Deputy Director, (Hydrology)
  - Mr. D. J. D. Wijeratne Additional Director, (Personnel & Administration)
  - Mr. Nanayakkara Deputy Director, Irrigation Dept.
  - Mr. H. K. Bandusena Chief Irrigation Engineer
  - Mr. S. A. Liyanage Administration Officer, Irrigation Dept.
4. Ministry of Rural Industrial Development
  - Mr. T. Kumara Dasan Director, Planning
  - Mr. P. G. Ratnayake Director, Dept. Small Industries
  - Mr. Ariyaratne Deputy Director, Small Industries
  - Mr. W. M. Piyasena Assistant Director, Small industries
  - Mr. K. R. L. Perrera Deputy Director,
  - Mr. T. B. Weerasekera Director, Regional Development, Industrial Development Board
  - Mr. Nanda Senanayake General Manager, IDB
  - Mr. D. V. Sonnadara Regional Development, IDB
  - Mr. W. P. Wijesekera IDB

5. Ministry of Youth Affairs and Employment

Mr. D.L. Kumaradasa	Small Scale Entrepreneur Development Division
Mr. R.P.M. Amaratunga	Director, Small Scale Entrepreneur Development Division

6. Greater Colombo Economic Commission

Mr. M.P. Tuli Coorav	Manager-Appraisal
Mr. G.K. Amaratunga	Sr. Manager-Area Administration
Mr. I. Don Dickman	Planning Manager, Regional Planning Department

7. Gampaha District

Mr. Ariyaratne Javattillake	District Minister, Gampaha
Mr. Joseph Michael Perera	Member of Parliament for Ja-ela
Mr. M.S. Wijeratne	M.P. for Mirigama
Mr. John Amaratunga	M.P. for Wattala
Mr. Kamal Jayakody	M.P. for Mahara
Mr. Bennette Gunesekera	M.P. for Minuwangoda
Mr. S.D. Bandaranayake	M.P. for Gampaha
Mr. Athula de Silva	M.P.
Brigadier B. Justus Rodrigo	District Secretary & Government Agent, Gampaha
Mr. D.S.M. Solonza	Additional Gov't Agent
Mr. J.A.M. Karunaratne	Deputy Director (Planning)
Mr. Nandana K. Jayasiri	Assistant Director (Planning)
Mr. S.B. Gonagala	Assistant Director (Planning)
Mr. P.B. Rajakaruna	Deputy Provincial Director (ADA)
Dr. U.H.S. de Silva	Regional Director/Health Services
Mr. S.P.G. Wickramaratne	Assistant Director, Agriculture
Mr. P.B. Rajakaruna	Deputy Provincial Director, ADA
Mrs. P. Adikari	Assistant Director, Social Services
Dr. H.R.U. Indrasiri	DMO, Base Hospital, Watupitiwala, Nittambuwa
Mr. Ranjit S. Balasuriya	Irrigation Engineer, Gampaha

Mr. A. S. Tennekoon	Deputy Director, Department of Minor Export Crops
Mr. D. I. D. J. Abeysekera	Assistant Director, MEC, Gampaha
Mr. K. G. Leelananda	Assistant Commissioner of Agrarian Services
Mr. W. A. S. Weerasinghe	Chief Engineer, Road Development Authority
Mr. C. Hettiarachchi	Director of Education, Gampaha
Mr. E. A. Amaratunga	Regional Education Officer, Education Department
Mr. H. P. Amandakoon	Officer in charge, Fisheries Station, Pitipana, Negombo
Mr. A. P. W. Nettasinghe	Assistant Director, A. P. & H. Dept. (Western)
Mr. D. Amarasinghe	Deputy Director, National Appren- ticeship Board
Mrs. Alagiyawanna	Officer in charge, Agricultural Training Center, Walpita
Mr. S. W. U. K. Amarasekara	Technical Officer, Ministry of Local Gov't & Housing Water Supply and Drainage Division
Mr. A. K. N. Gunasekera	Senior Technical Officer, Agrarian Services Dept.
Mrs. Kulaseeli Perera	Chairman, District Development Council, Gampaha
Mr. U. A. Seneviratne	Assistant Commissioner of Agrarian Services, Gampaha
8. Private Corporation	
Mr. Sarath Fernando	Mechanical Engineer, State Engineering Corporation
Mr. D. E. N. Rajapaksa	Assistant Chief Engineer, State Engineering Corporation



**XII. Minutes of Meeting for the Draft Final  
Report of the Master Plan Study**

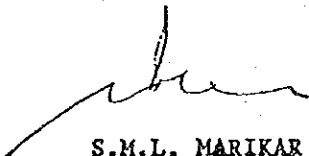


Minutes of Meeting  
for  
the Draft Final Report  
of  
the Master Plan Study  
for  
the Integrated Rural Development Project  
for  
the Gampaha District

An Advisory Committee Team and the Study Team for the Master Plan Study on the Integrated Rural Development Project for the Gampaha District despatched by Japan International Cooperation Agency (hereinafter referred to as 'JICA') and the concerned Sri Lanka authorities (hereinafter referred to as 'Sri Lankan side') held a series of meetings and exchanged views on the

Draft Final Master Plan Study Report

- 1) Both sides agreed in principle with the Draft Final Master Plan Study Report.
- 2) The Sri Lankan side indicated that subject to approval by the higher authorities, they would request further co-operation for the implementation of the priority projects and also for the Integrated Rural Development Project of the Gampaha district.



S.M.L. MARIKAR  
Secretary  
Ministry of Plan Implementation



F. TAMURA  
Leader of JICA Study Team  
for the Master Plan Study

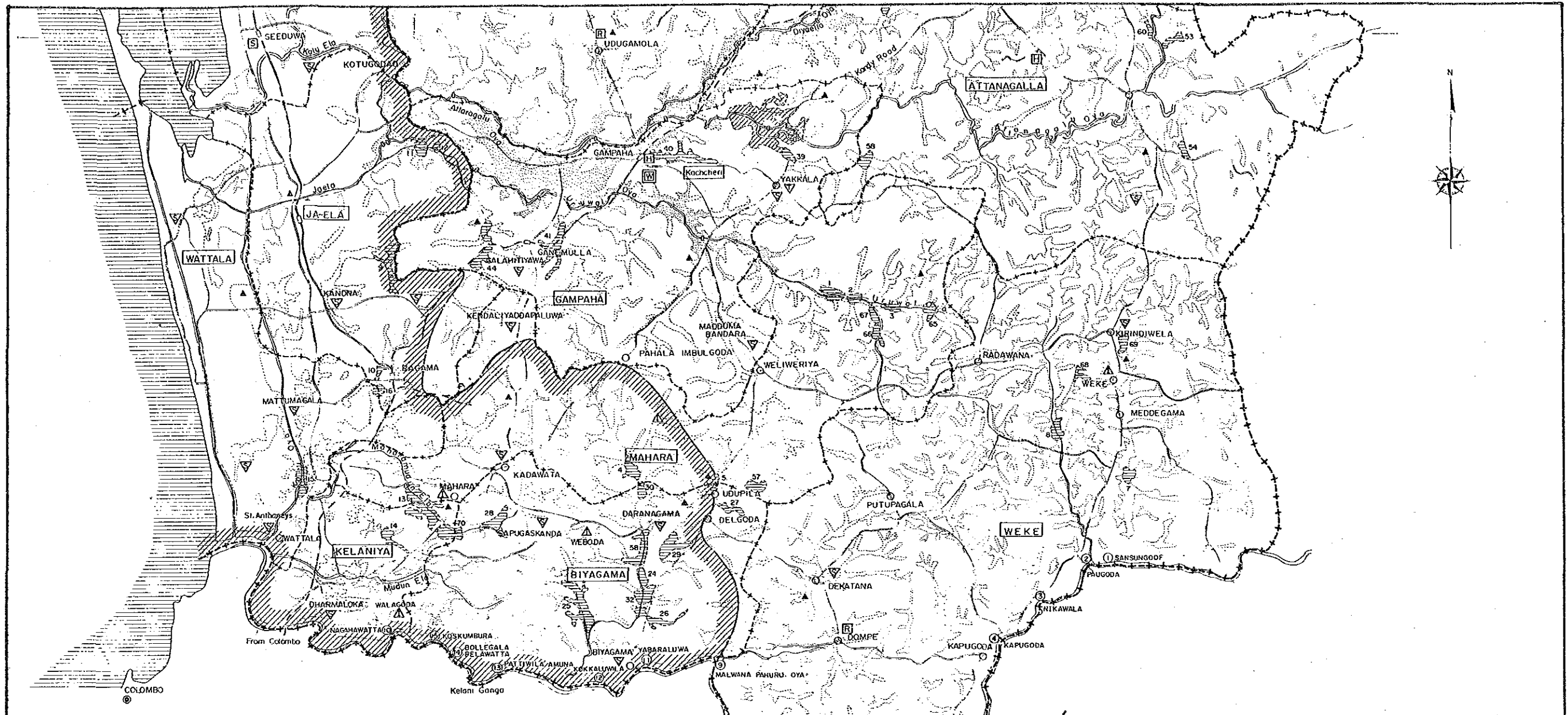


H. TAKEUCHI  
Leader of Advisory Committee  
for the Master Plan

June 25th 1987.

**XIII. Design Drawings of Master Plan for  
the Integrated Rural Development  
Project for Gampaha District**





**Development of Agricultural Production**

- ▨ MORENNA Demonstration Scheme. (392 ha)
- Agriculture Technology Demonstration & Transfer Scheme. (MORENNA)
- ⊙ Minor Export Crops Promotion Scheme. (WALPITA)
- ▲ Improvement of Agriculture Supporting System. (26)
- Ⓜ Improvement of Agricultural Training System. (WALPITA, AMBEPUSSA)
- Ⓟ Livestock Development Scheme. (DIVULAPITIYA)
- Ⓡ Inland Fishery Development Scheme.
  - Gampaha Fresh Water Fisheries Station. (1)
  - Inland Fisheries' Model Farm. (1)
  - Brackish Water Fisheries Station. (PITIPANA)

**Development of Agricultural Infrastructure**

- ▨ Attanagalu Oyo Irrigation Scheme. (3870ha)-F/S
- ▨ MORENNA Model Irrigation Scheme. (392ha)
- ▨ Minor Irrigation Scheme. (70)
- Ⓜ Minor Flood Protection Scheme. (15)

**Development of Rural Industries**

- ▨ Ceramic Center. (WALAGODA)
- ▨ Coir Center. (KATUNAYAKE)
- ▨ Artline Textile Center. (MAHARA)
- ▨ Light Engineering Industry. (WEKE, WEBODA)

**Development of Human Resources**

- ▨ Improvement of Core Schools. (26)
- ▨ Establishment of Vocational Training Center. (Yakkola)

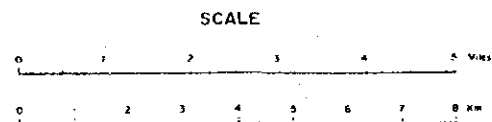
**Development of Social Infrastructures**

- ▨ Improvement of Road Maintenance System. (Dompe, Udugampola, Negombo, Nittambuwa)
- ▨ Rural Electrification Scheme.
- ▨ Telecommunication Development Scheme.
- ▨ Water Supply Scheme. (MIRIGAMA T.C.)

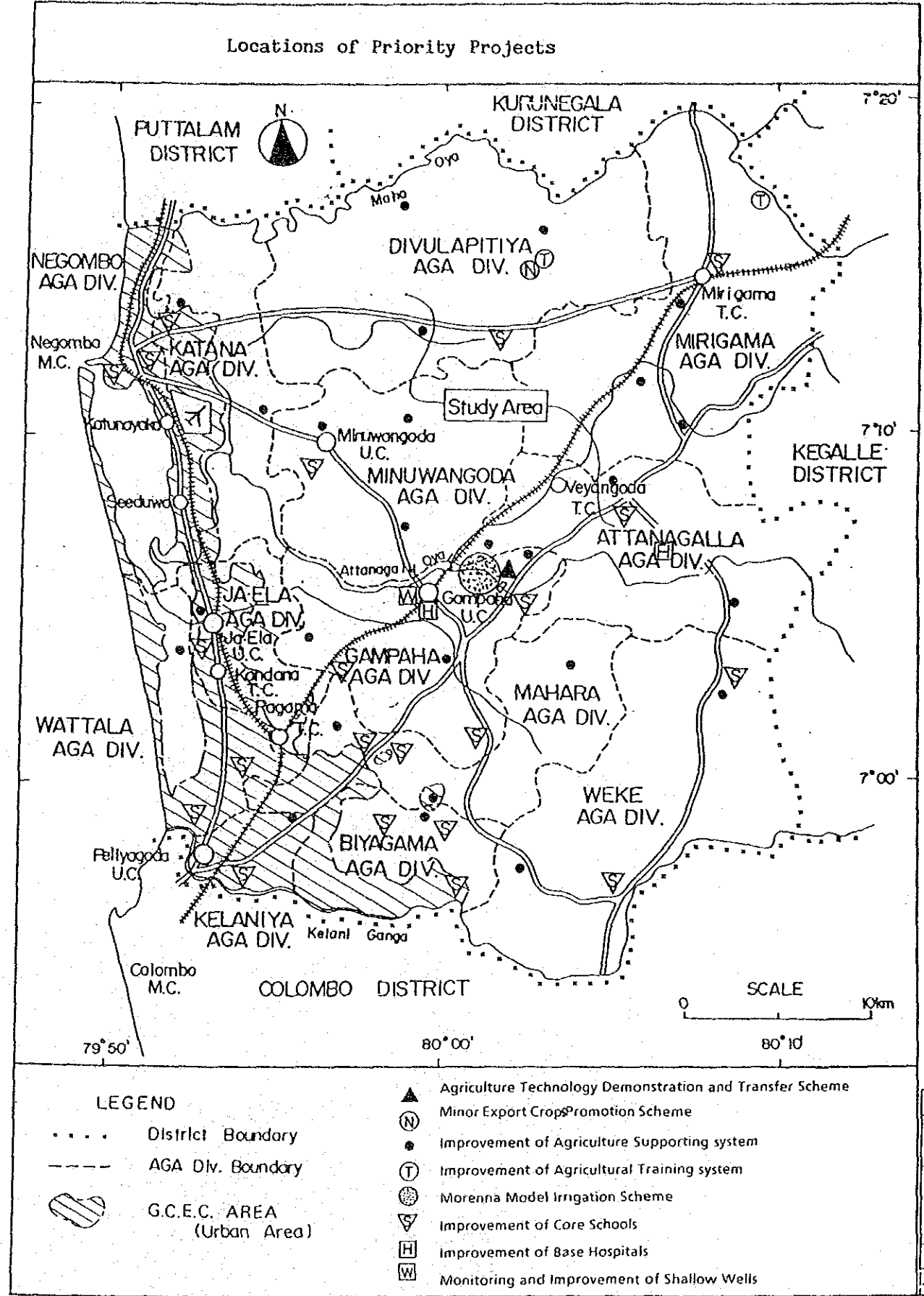
- ▨ Improvement of Base Hospitals. (GAMPAHA, WATUPITIWALA)
- ▨ Improvement of Divisional Health Care Program.
- ▨ Improvement of Social Welfare Facilities. (MIRIGAMA, SEEDUWA)
- ▨ Monitoring and Improvement of Shallow Wells.

**Legend**

- District Boundary.
- AGA Division Boundary.
- ▨ GAMPAHA AGA Division.
- GCEC Area Boundary.
- ▨ Paddy Field.



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA	
THE MASTER PLAN STUDY ON THE INTEGRATED RURAL DEVELOPMENT PROJECT FOR GAMPAHA DISTRICT	
SHORT TERM SCHEMES(2/2)	
DATE	Sep, 1987
DRAWING NO.	2
JAPAN INTERNATIONAL COOPERATION AGENCY	



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MASTER PLAN STUDY  
ON  
IROP FOR GAMPAHA DISTRICT

**Locations of  
Priority Projects**







DATE	Sep, 1987	Drawing No.	3
JAPAN INTERNATIONAL COOPERATION AGENCY			

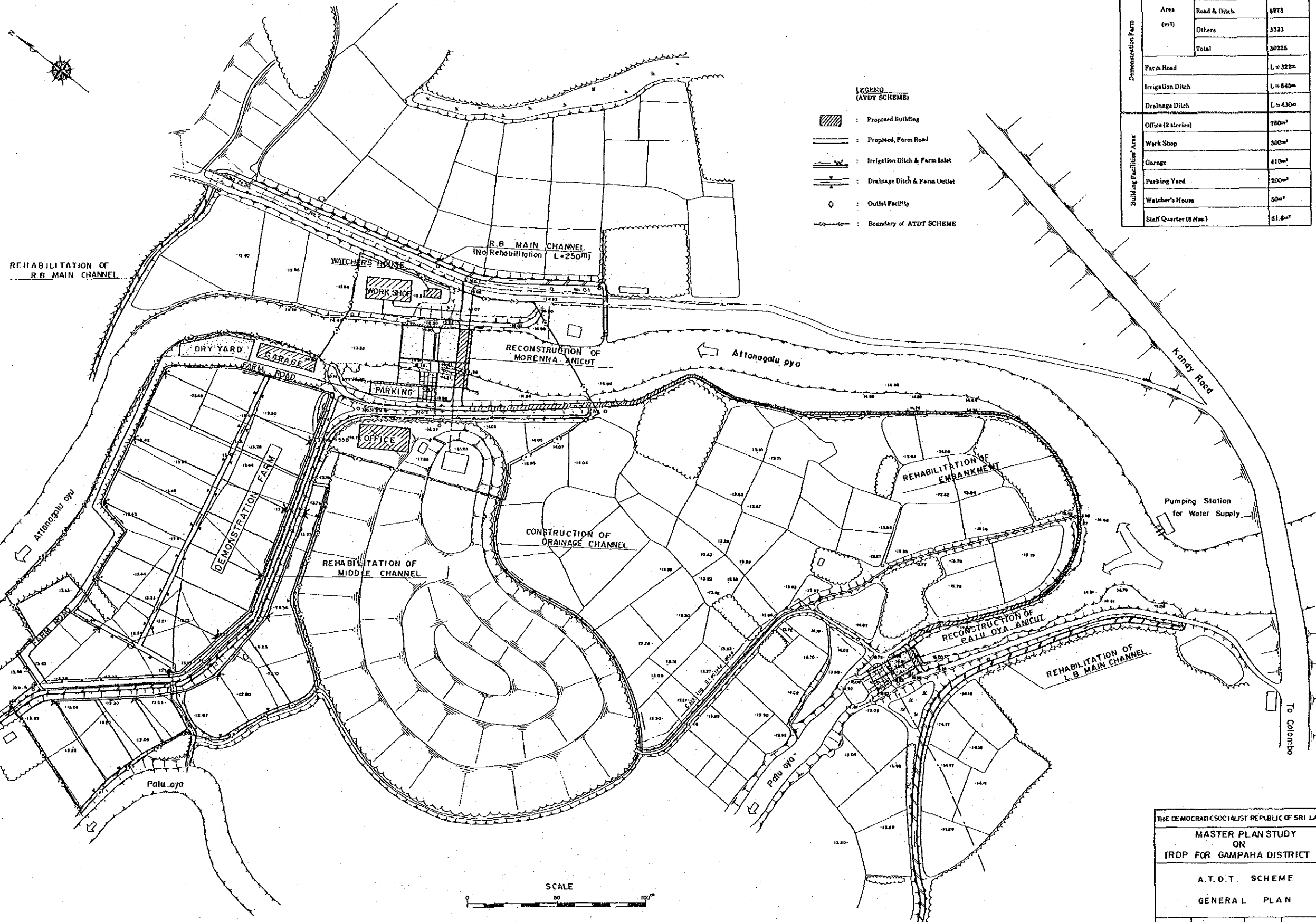


**ATDT PROPOSED FACILITIES**

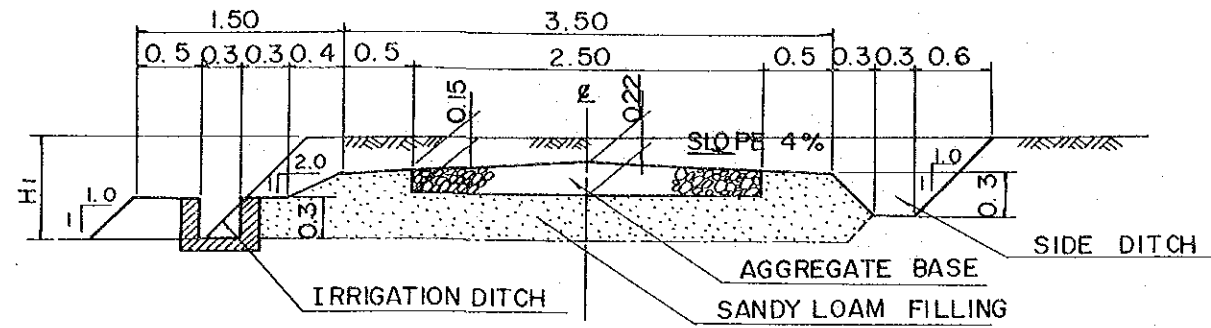
Area (m ² )	Farm Net Area	
		Road & Ditch
	Others	6873
	<b>Total</b>	<b>33225</b>
Demonstration Farm		
	Farm Road	L = 322m
	Irrigation Ditch	L = 640m
	Drainage Ditch	L = 430m
Building Facilities Area		
	Office (2 stories)	750m ²
	Work Shop	300m ²
	Garage	410m ²
	Parking Yard	200m ²
	Watchers House	50m ²
	Staff Quarter (8 Nos.)	61.6m ²

**LEGEND (ATDT SCHEME)**

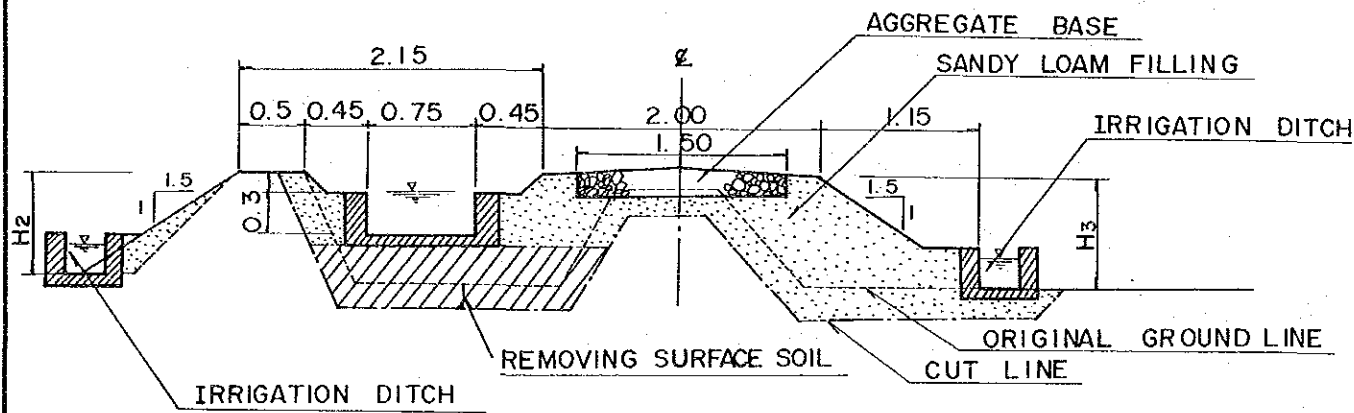
-  : Proposed Building
-  : Proposed Farm Road
-  : Irrigation Ditch & Farm Inlet
-  : Drainage Ditch & Farm Outlet
-  : Outlet Facility
-  : Boundary of ATDT SCHEME



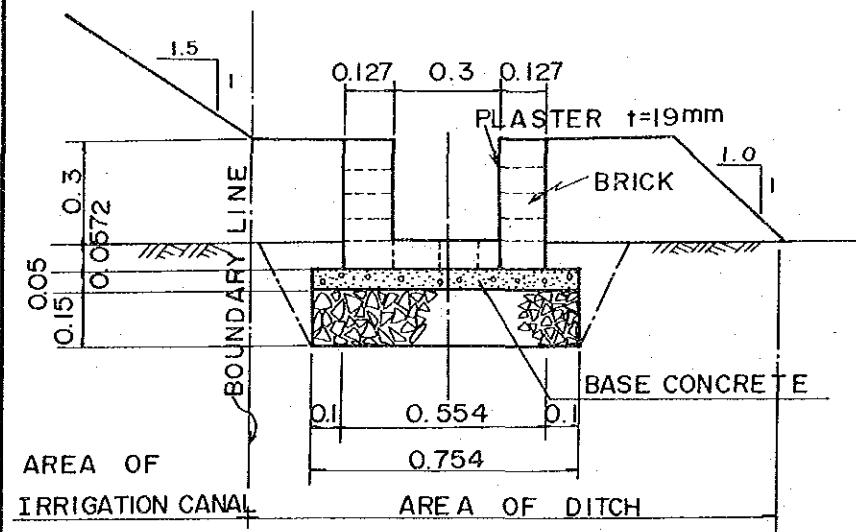
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA  
**MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT**  
**A.T.D.T. SCHEME GENERAL PLAN**  
 DATE Sep, 1987 Drawing No. 4  
 JAPAN INTERNATIONAL COOPERATION AGENCY



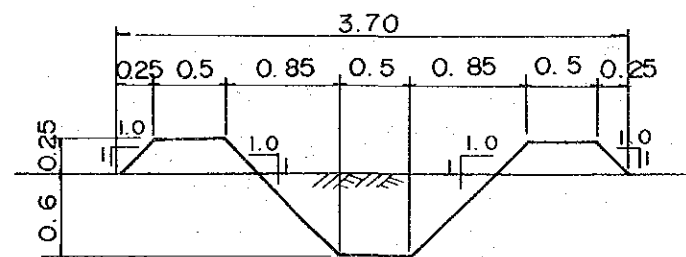
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CENTRE CANAL FARM ROAD-(B) S=1:50

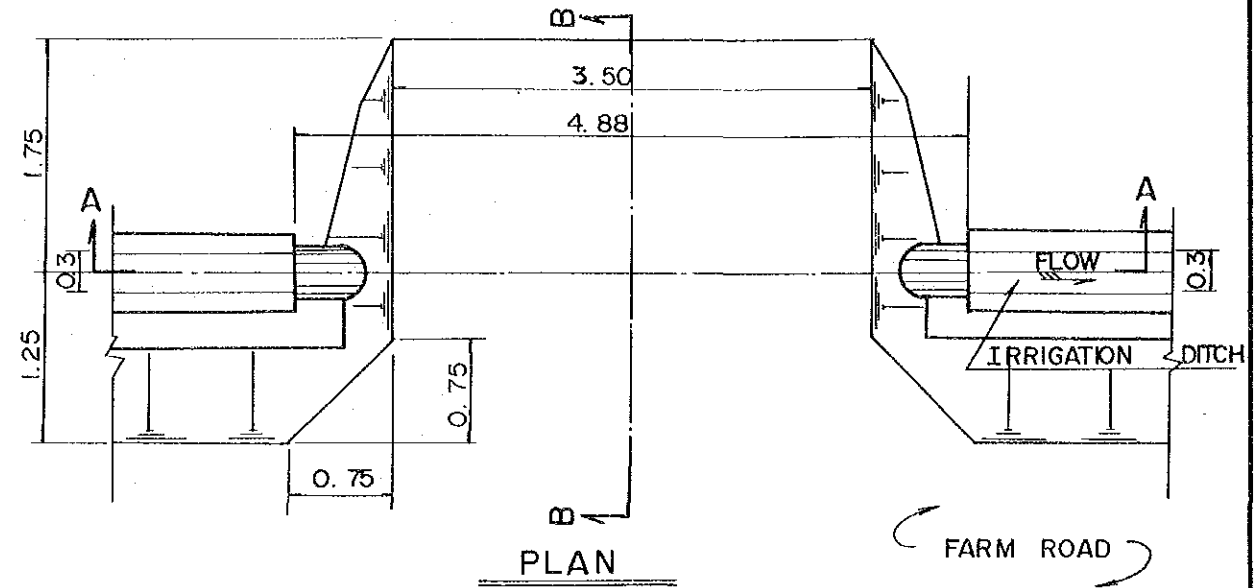


IRRIGATION DITCH S=1:20

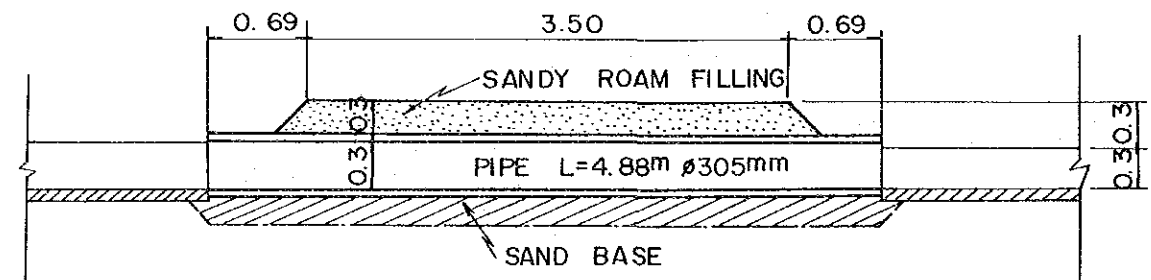


DRAINAGE DITCH S=1:50

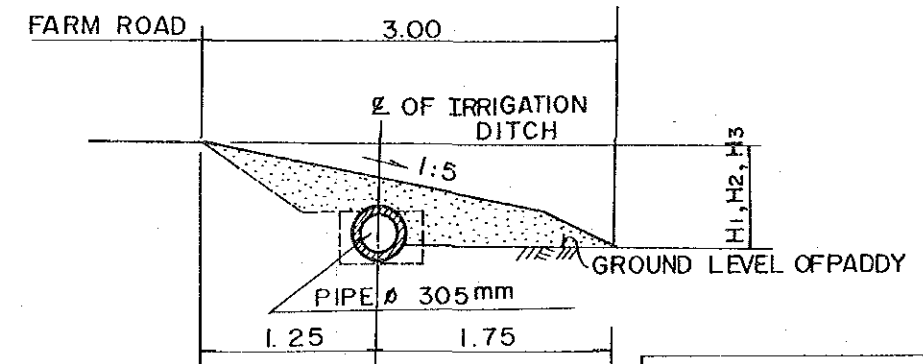
FARM ENTRANCE S=1:50



PLAN S=1:50



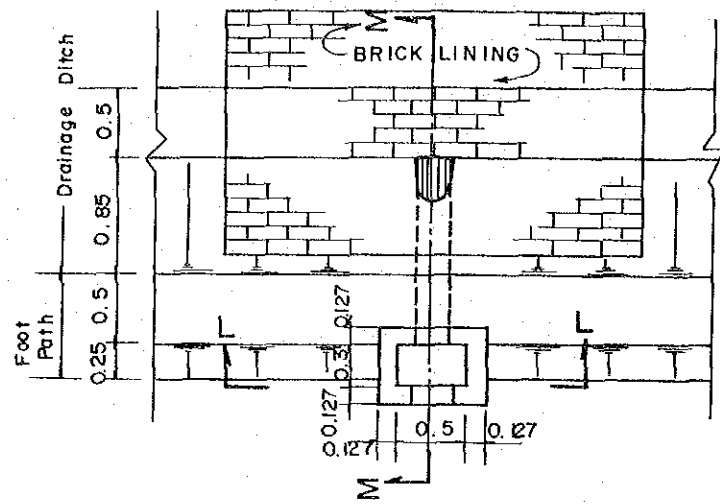
SECTION A-A



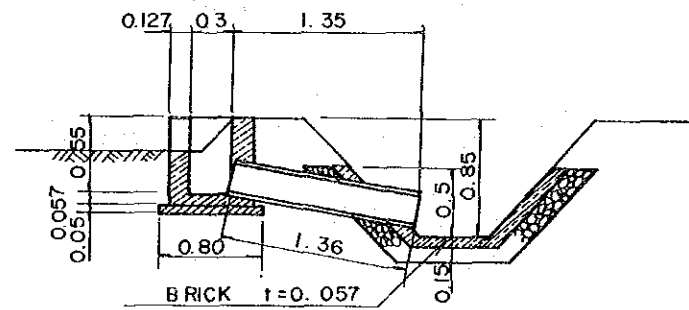
SECTION B-B

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA			
MASTER PLAN STUDY			
ON			
IRDP FOR GAMPAHA DISTRICT			
A.T.D.T SCHEME			
DEMONSTRATION FARM			
TYPICAL SECTION & STRUCTURE			
(1/2)			
DATE	Sep, 1987	Drawing No	5
JAPAN INTERNATIONAL COOPERATION AGENCY			

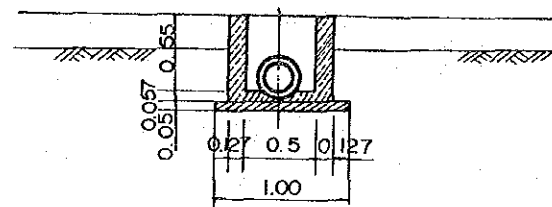
FARM OUT LET



PLAN

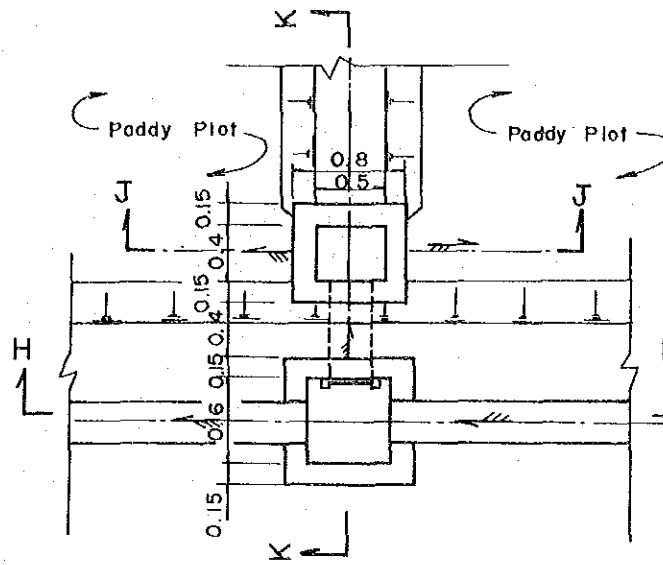


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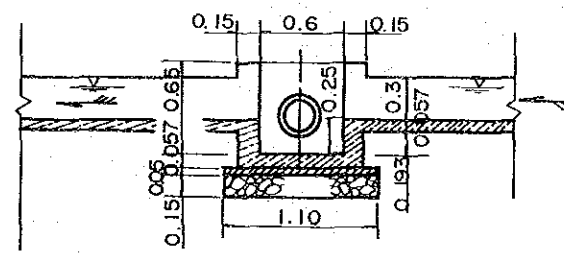


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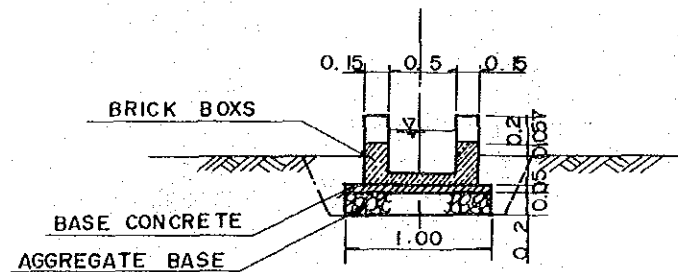
FARM INLET



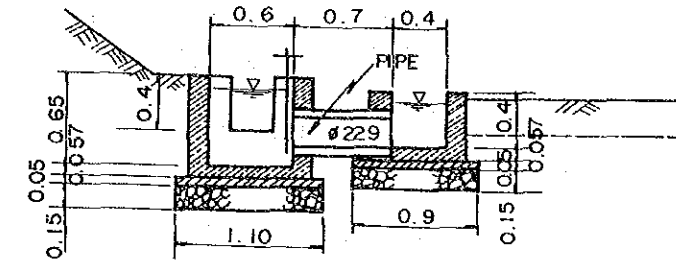
PLAN



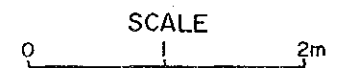
SECTION H-H



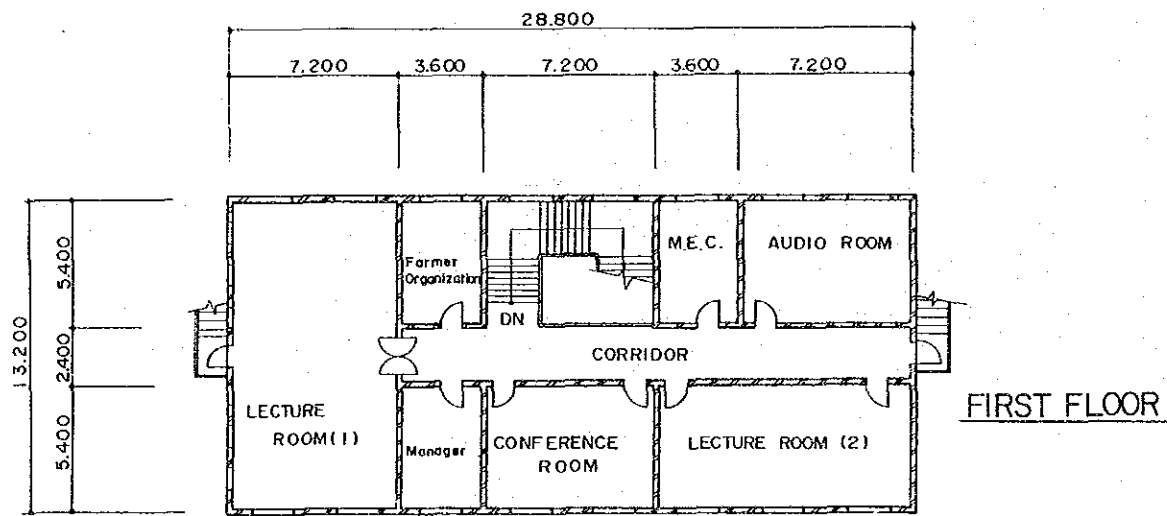
SECTION J-J



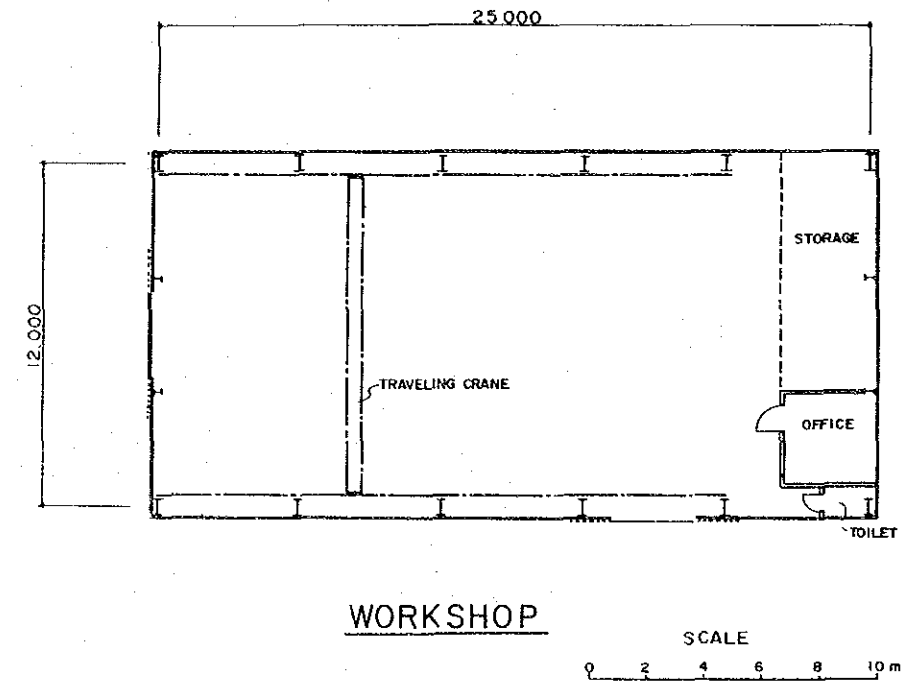
SECTION K-K



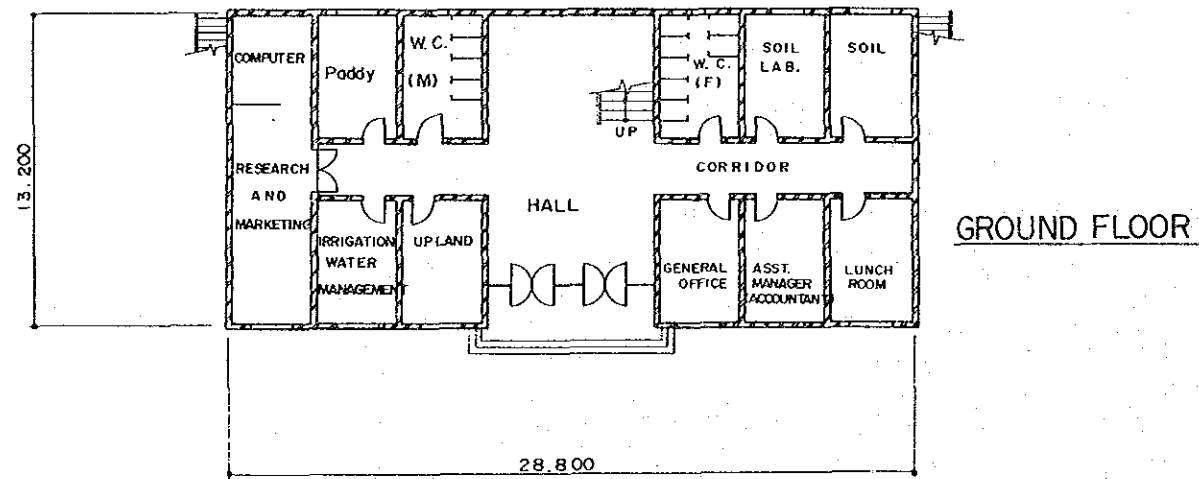
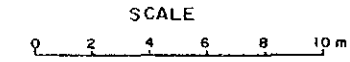
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
A.T.D.T SCHEME DEMONSTRATION FARM			
TYPICAL SECTION & STRUCTURE(2/2)			
DATE	Sep, 1987	Drawing No.	6
JAPAN INTERNATIONAL COOPERATION AGENCY			



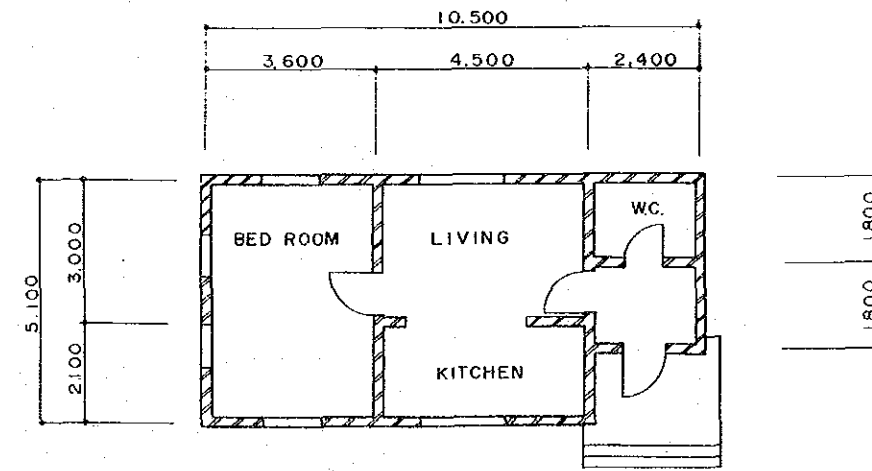
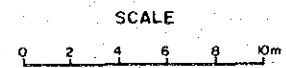
FIRST FLOOR



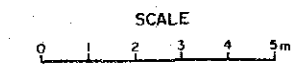
WORKSHOP



GROUND FLOOR

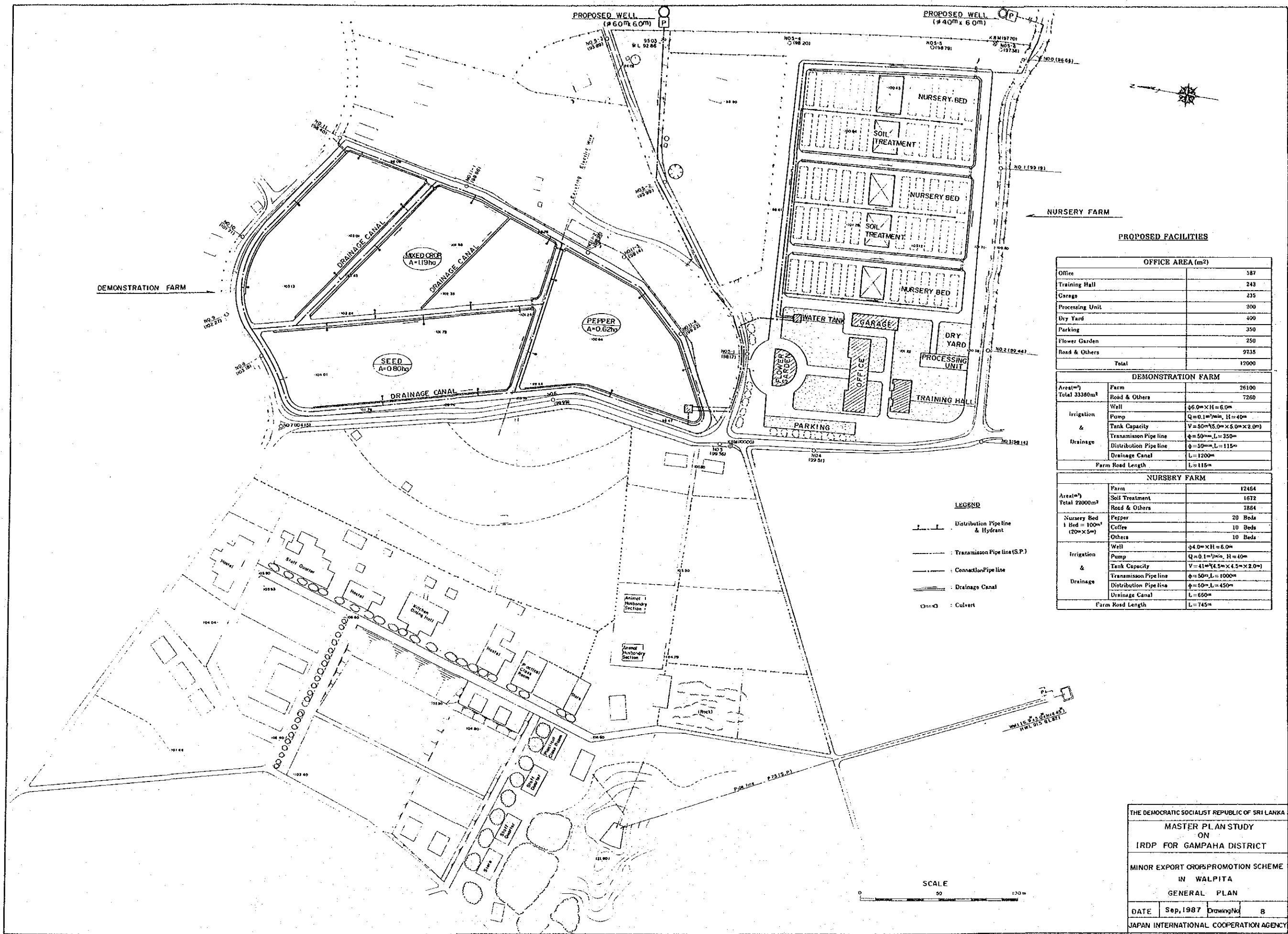


WATCHER'S HOUSE



ATDTC OFFICE

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
A. T. D. T. SCHEME PLAN OF BUILDINGS			
DATE	Sep, 1987	Drawing No	7
JAPAN INTERNATIONAL COOPERATION AGENCY			



**PROPOSED FACILITIES**

OFFICE AREA (m ² )	
Office	387
Training Hall	243
Garage	235
Processing Unit	200
Dry Yard	400
Parking	350
Flower Garden	250
Road & Others	9735
<b>Total</b>	<b>12000</b>

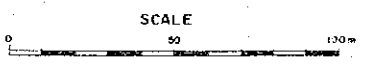
  

DEMONSTRATION FARM	
Area(m ² )	Farm 26100
Total 33360m ²	Road & Others 7260
Irrigation & Drainage	Well Ø6.0m x H=6.0m
	Pump Q=0.1m ³ /min, H=40m
	Tank Capacity V=30m ³ (5.0m x 5.0m x 2.0m)
	Transmission Pipe line Ø=50mm, L=350m
	Distribution Pipe line Ø=50mm, L=115m
Drainage Canal L=1200m	
Farm Road Length	L=115m

NURSERY FARM	
Area(m ² )	Farm 12454
Total 22000m ²	Soil Treatment 1672
	Road & Others 7854
Nursery Bed 1 Bed = 100m ² (20m x 5m)	Pepper 20 Beds
	Coffee 10 Beds
	Others 10 Beds
	Well Ø4.0m x H=6.0m
Irrigation & Drainage	Pump Q=0.1m ³ /min, H=40m
	Tank Capacity V=41m ³ (4.5m x 4.5m x 2.0m)
	Transmission Pipe line Ø=50mm, L=1000m
	Distribution Pipe line Ø=50mm, L=450m
	Drainage Canal L=650m
Farm Road Length	L=745m

- LEGEND**
- Distribution Pipe line & Hydrant
  - Transmission Pipe line (S.P.)
  - Connection Pipe line
  - Drainage Canal
  - Culvert



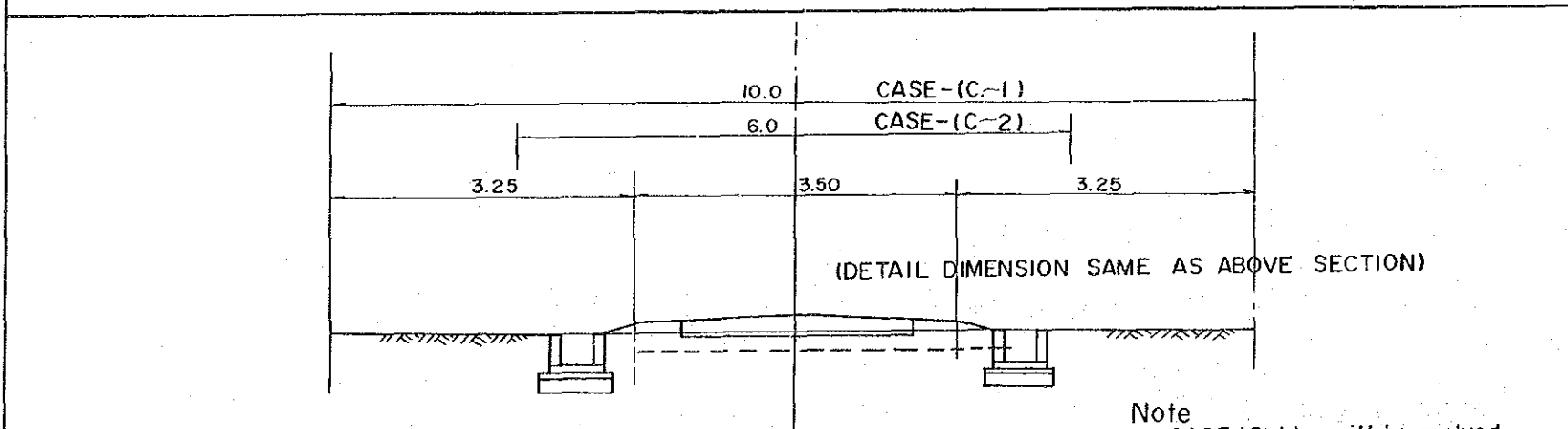
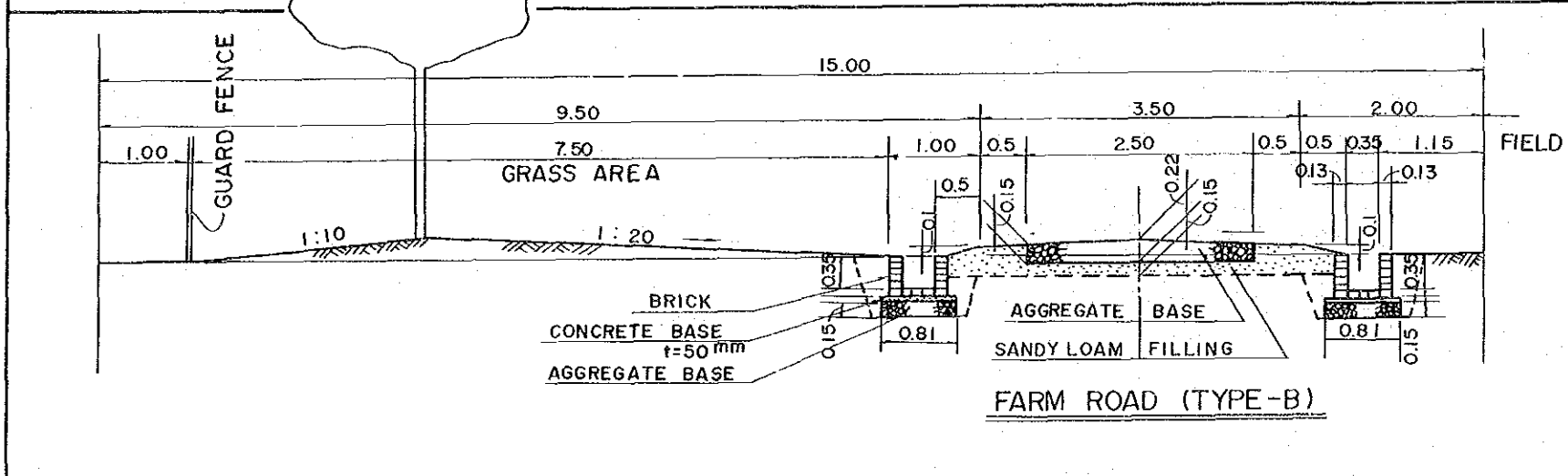
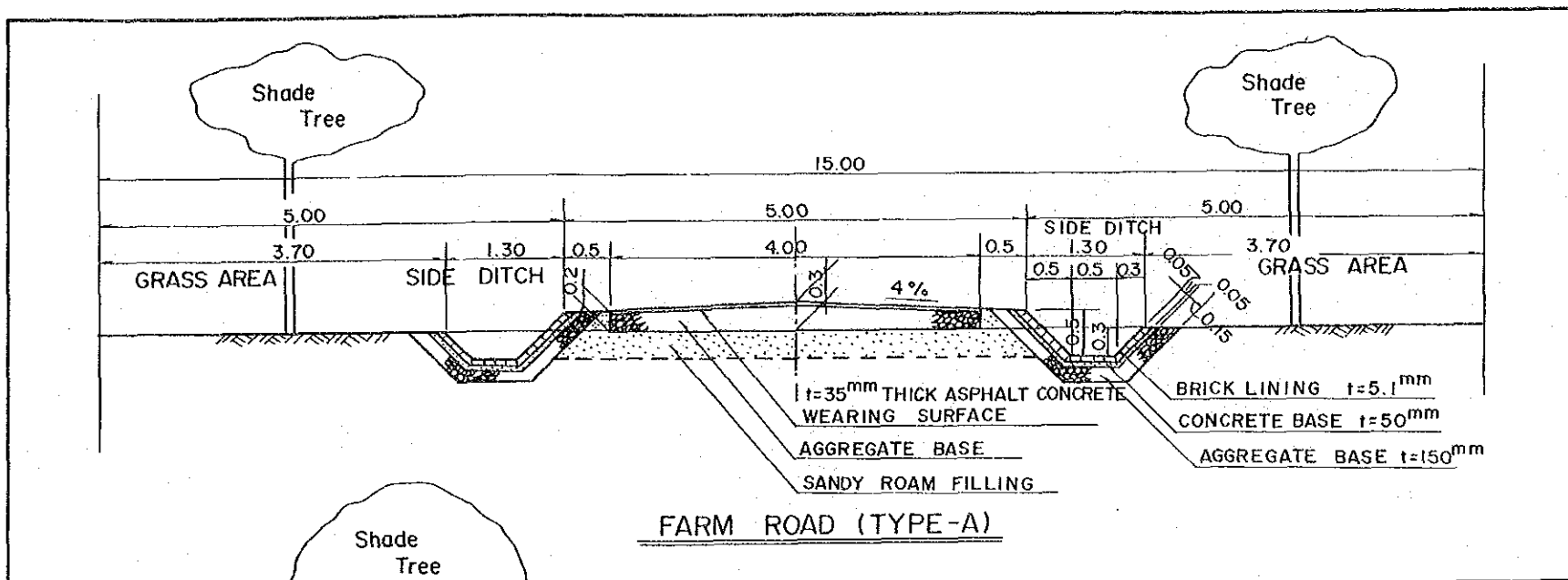
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MASTER PLAN STUDY  
ON  
IRDP FOR GAMPAHA DISTRICT

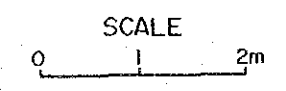
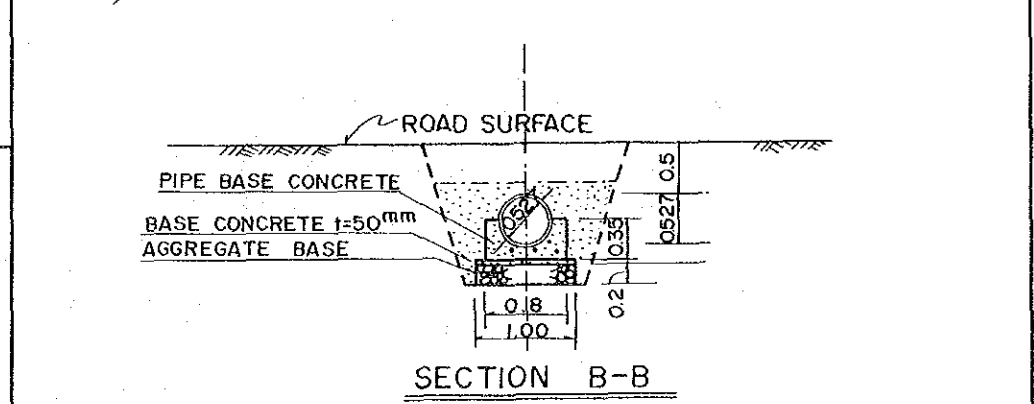
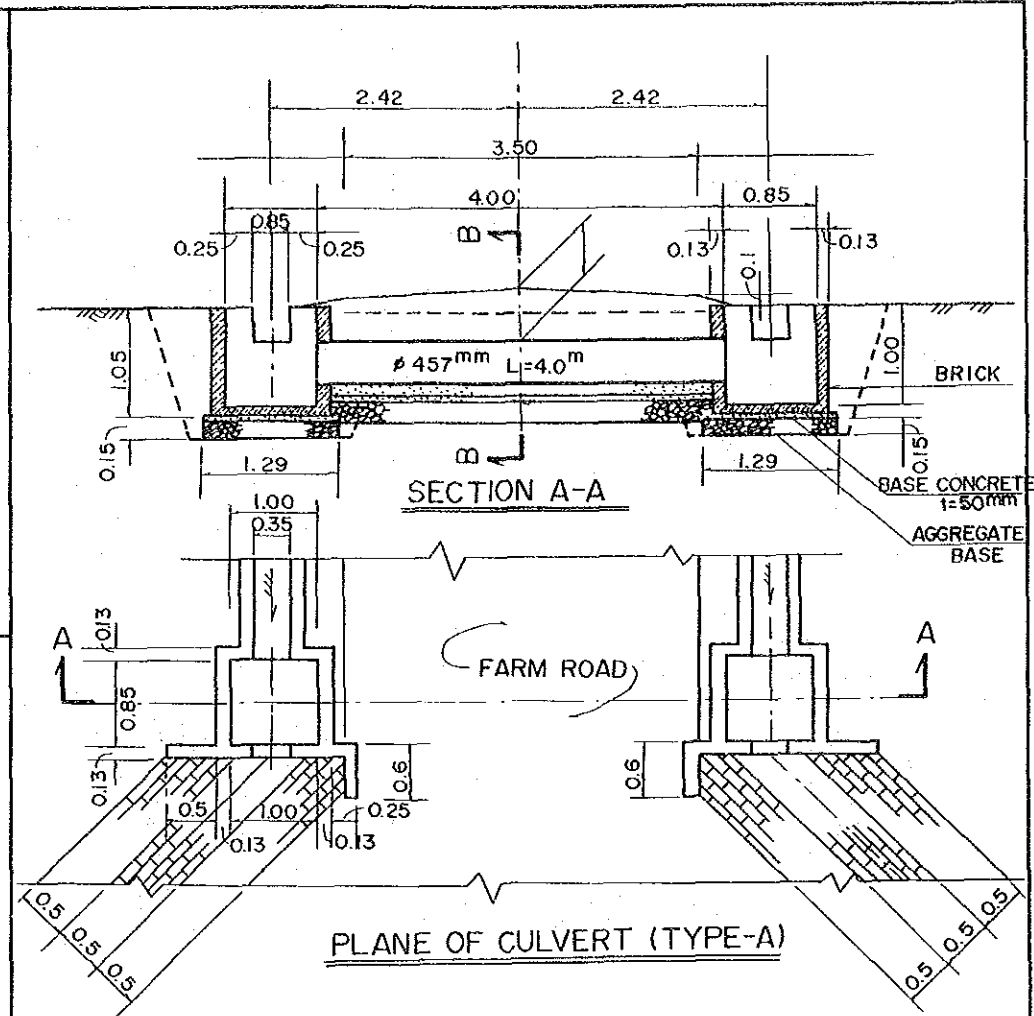
MINOR EXPORT CROSPROMOTION SCHEME  
IN WALPITA  
GENERAL PLAN

DATE Sep, 1987 Drawing No 8

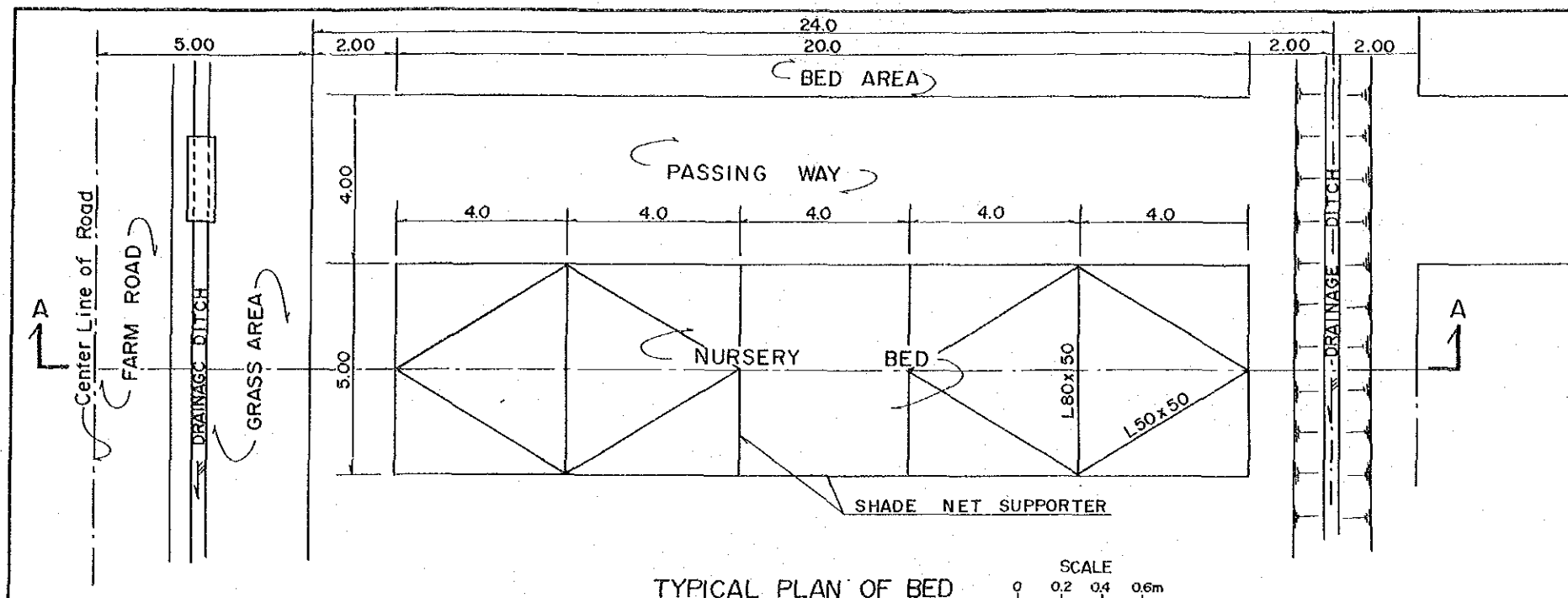
JAPAN INTERNATIONAL COOPERATION AGENCY



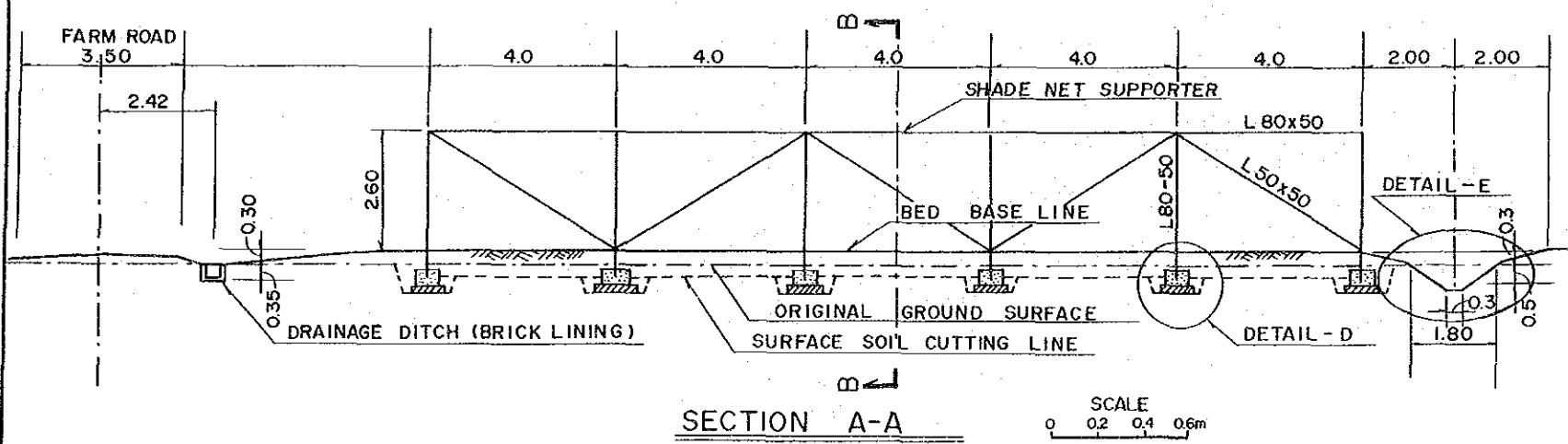
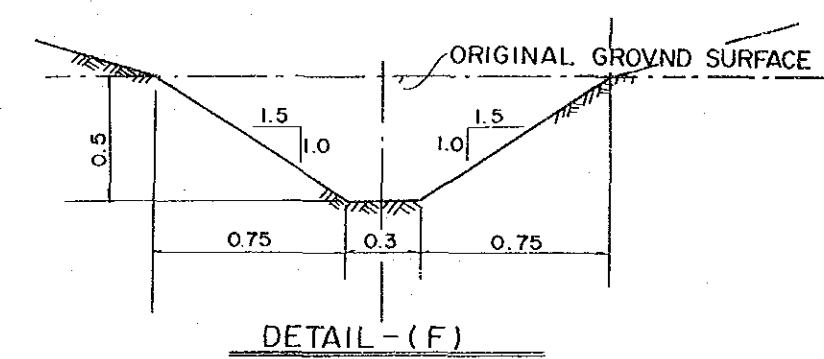
- Note
- 1) CASE (C-1) will be applied to side road
  - 2) CASE (C-2) will be applied to intermediate road
  - 3) Detail Dimension in same as above section (TYPE-B)



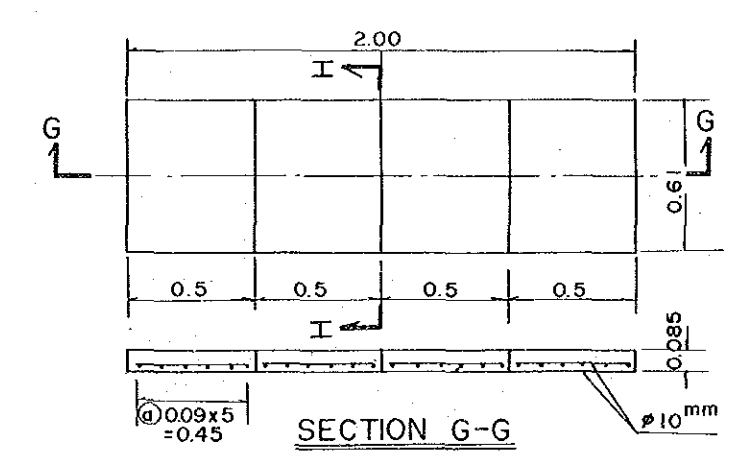
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
MINOR EXPORT CROP PROMOTION SCHEME IN WALPITA			
PLAN OF NURSERY FARM TYPICAL SECTION & STRUCTURE (1/2)			
DATE	Sep, 1987	Drawing No	9
JAPAN INTERNATIONAL COOPERATION AGENCY			



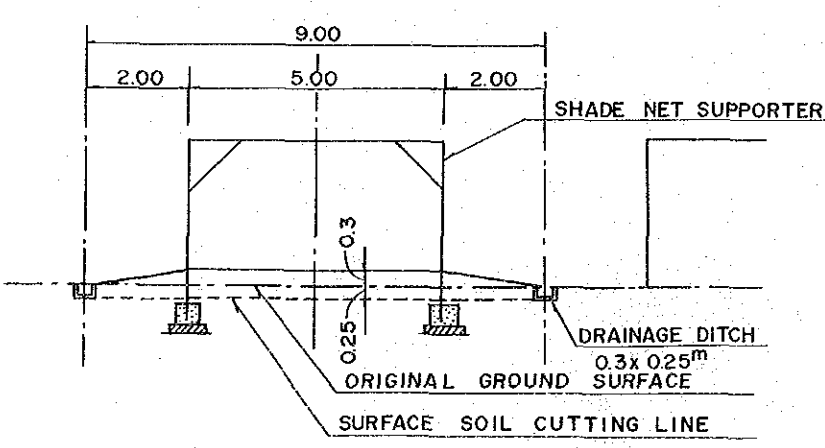
TYPICAL PLAN OF BED SCALE 0 0.2 0.4 0.6m



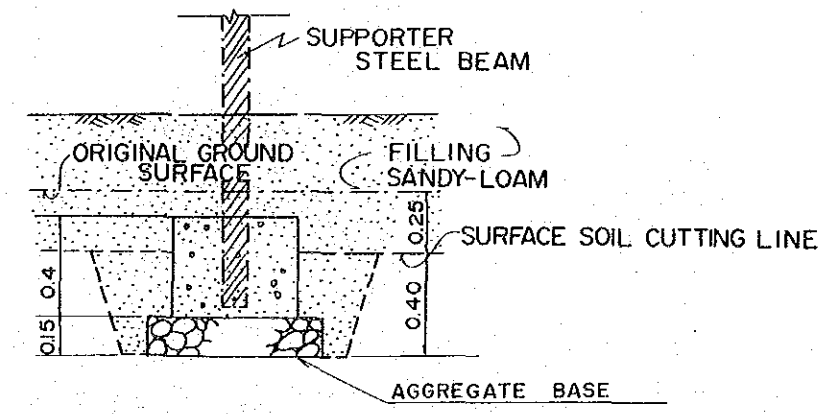
SECTION A-A SCALE 0 0.2 0.4 0.6m



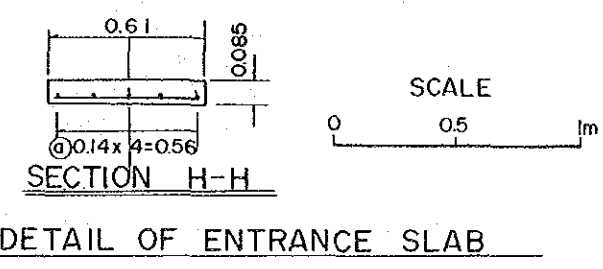
SECTION G-G



SECTION B-B SCALE 0 1 2 3m

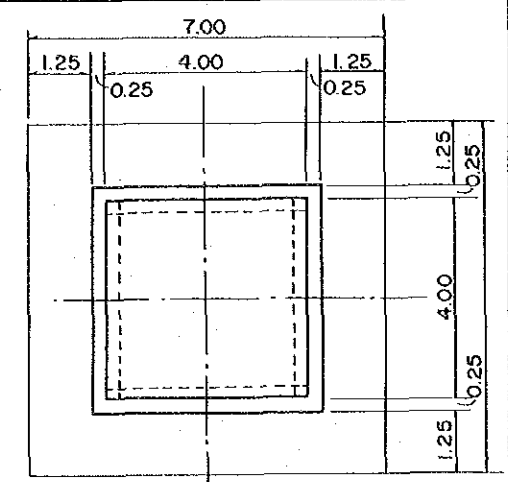
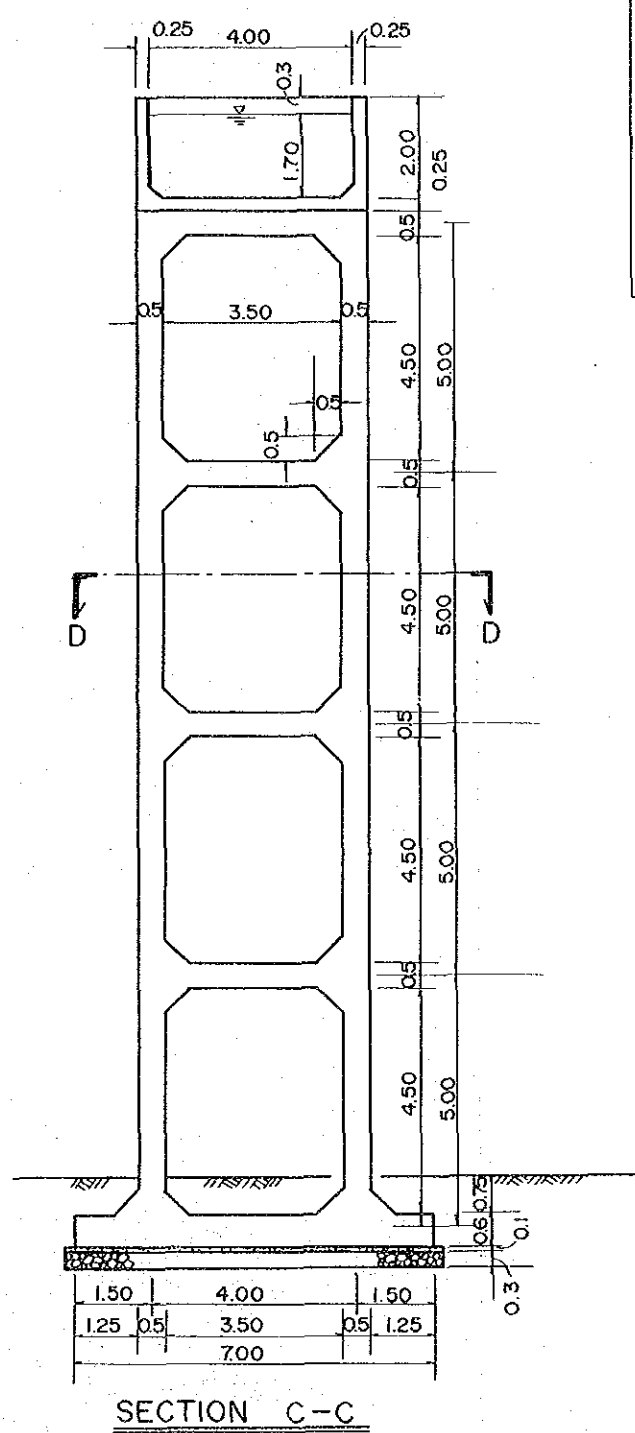
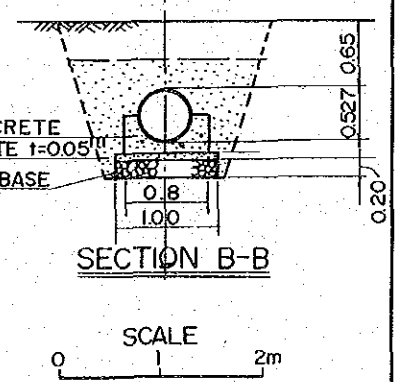
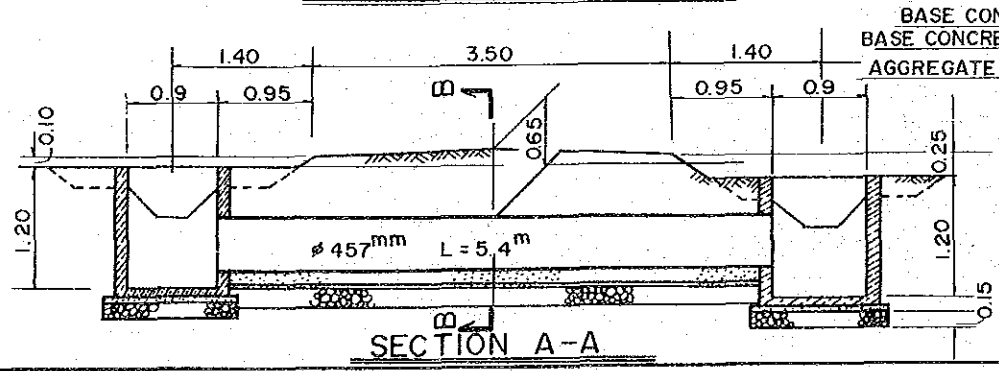
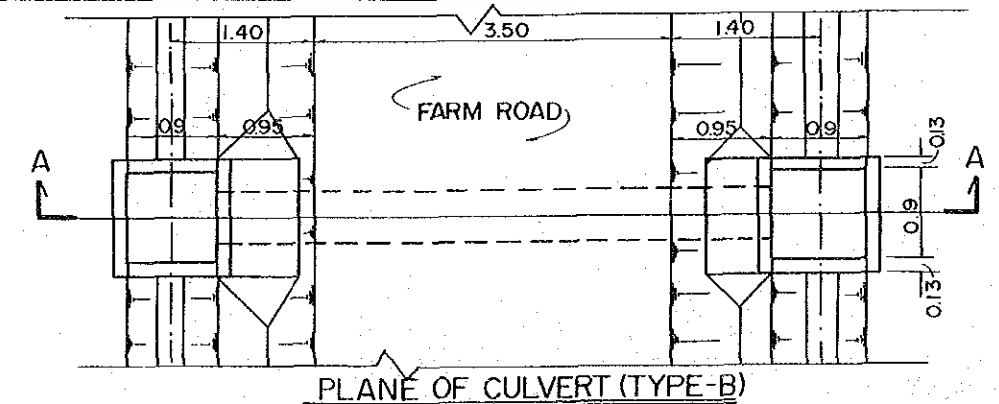
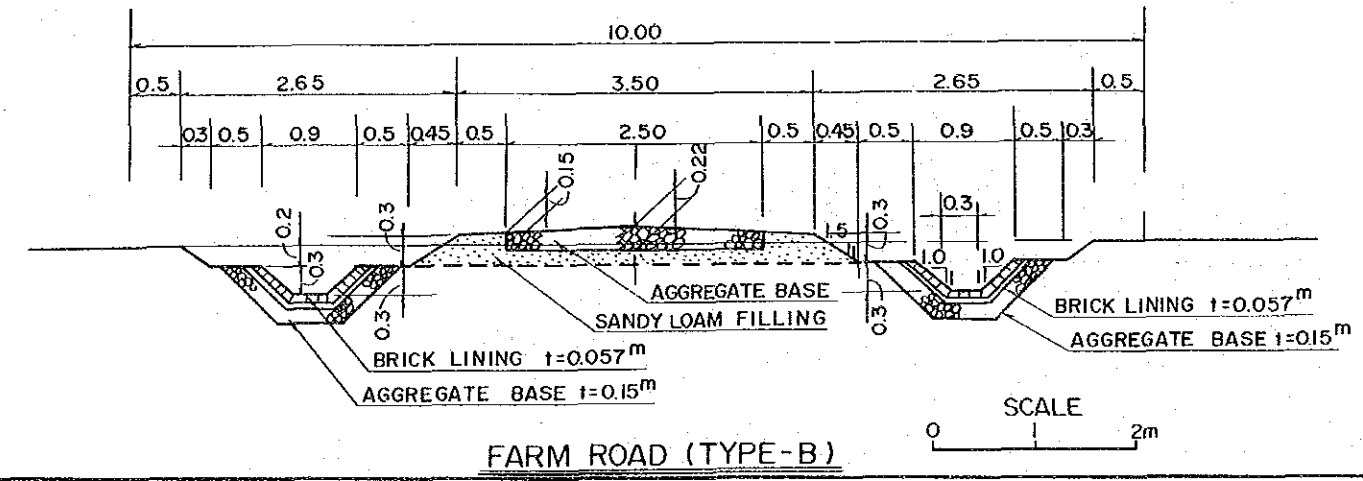
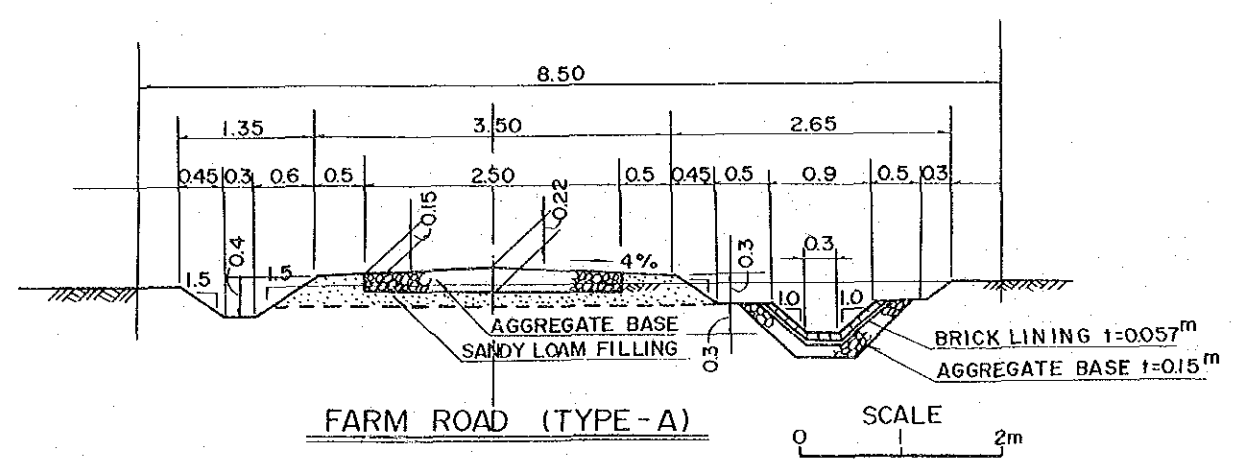


DETAIL - (D) SCALE 0 0.2 0.4 0.6m

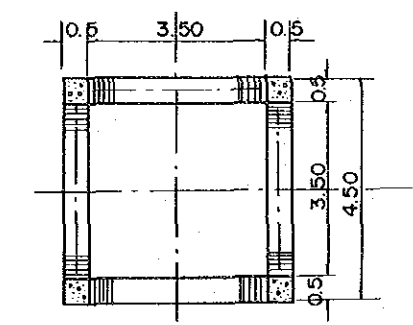


SECTION H-H SCALE 0 0.5 1m

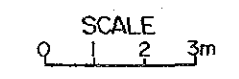
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA			
MASTER PLAN STUDY			
ON			
IRDP FOR GAMPAHA DISTRICT			
MINOR EXPORT CROPS PROMOTION SCHEME			
IN WALPITA			
PLAN OF NURSERY FARM			
TYPICAL SECTION B STRUCTURE (2/2)			
DATE	Sep, 1987	Drawing No	10
JAPAN INTERNATIONAL COOPERATION AGENCY			



**WATER TANK PLAN**

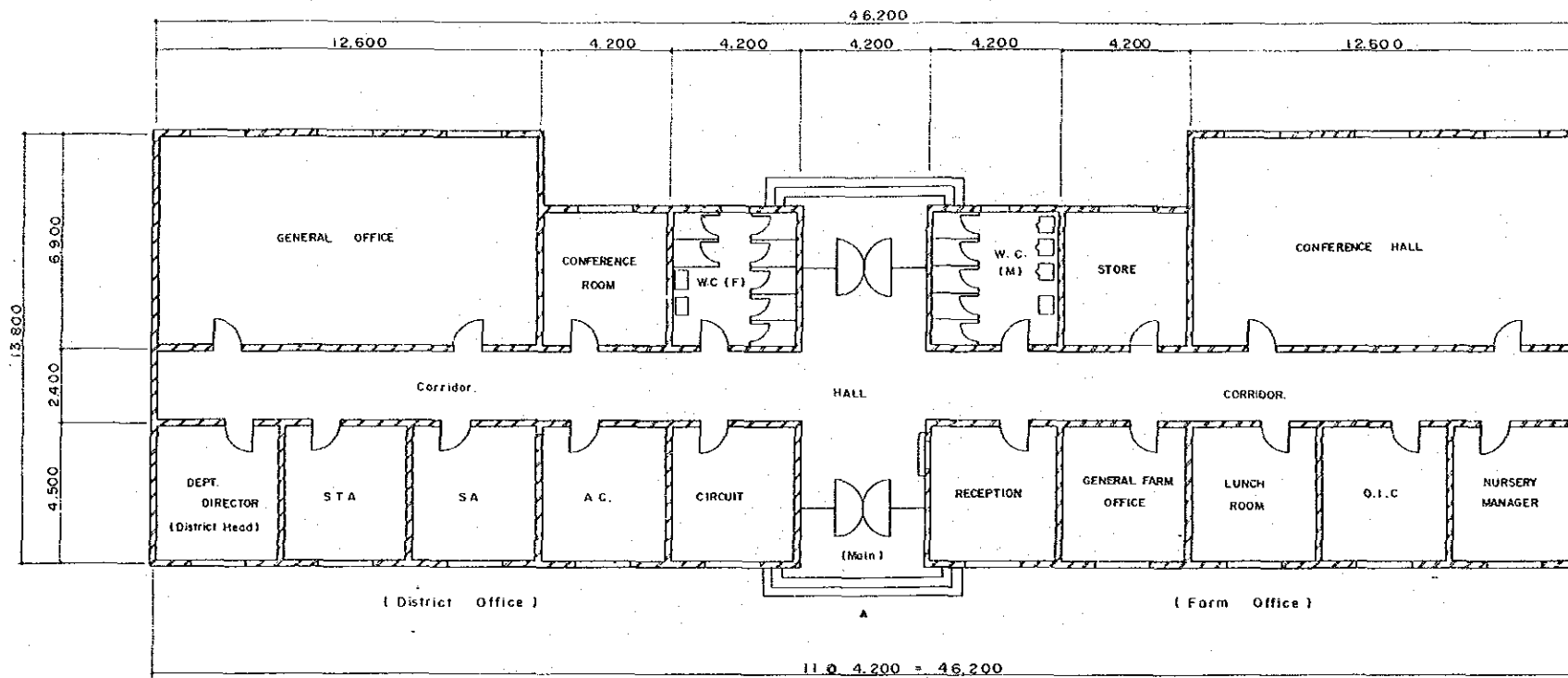


**SECTION D-D**

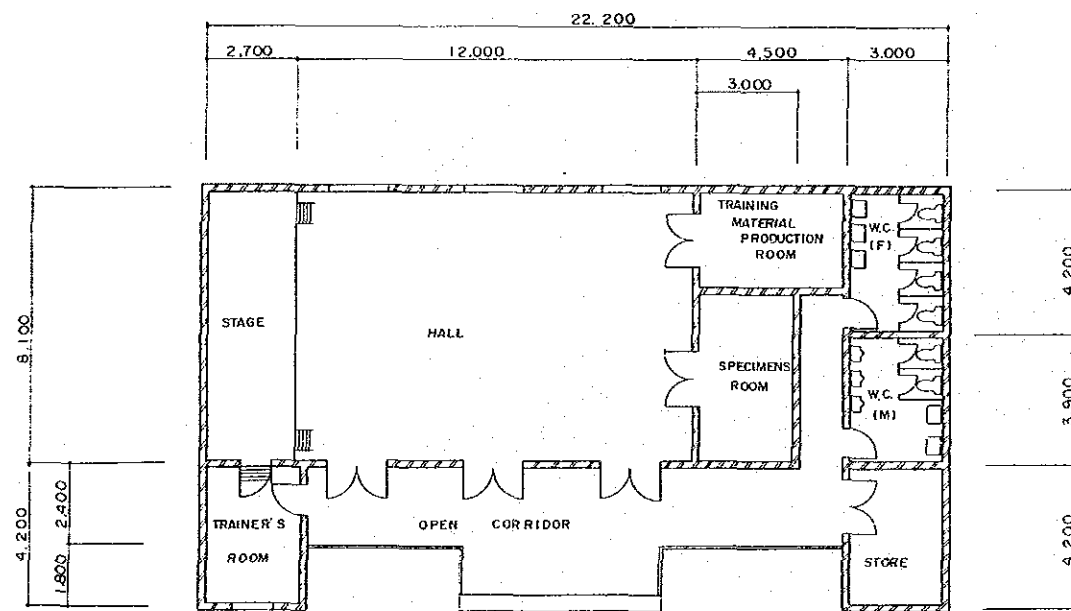


THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA  
 MASTER PLAN STUDY  
 ON  
 IRDP FOR GAMPAHA DISTRICT  
 MINOR EXPORT CROSPROMOTION SCHEME  
 IN WALPITA  
 DEMONSTRATION FARM  
 TYPICAL SECTION & STRUCTURE  
 DATE Sep, 1987 Drawing No 11  
 JAPAN INTERNATIONAL COOPERATION AGENCY

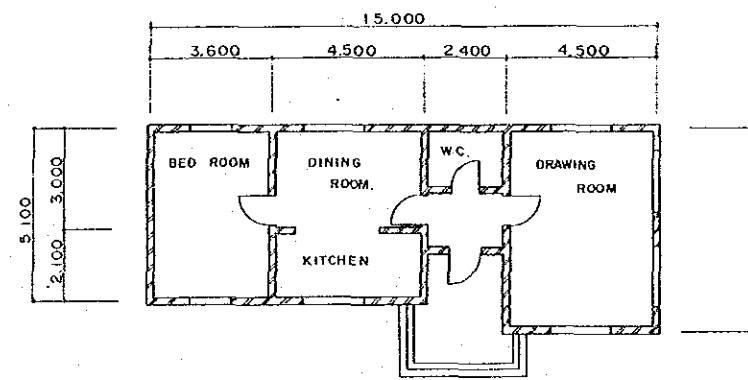




DISTRICT OFFICE & FARM OFFICE



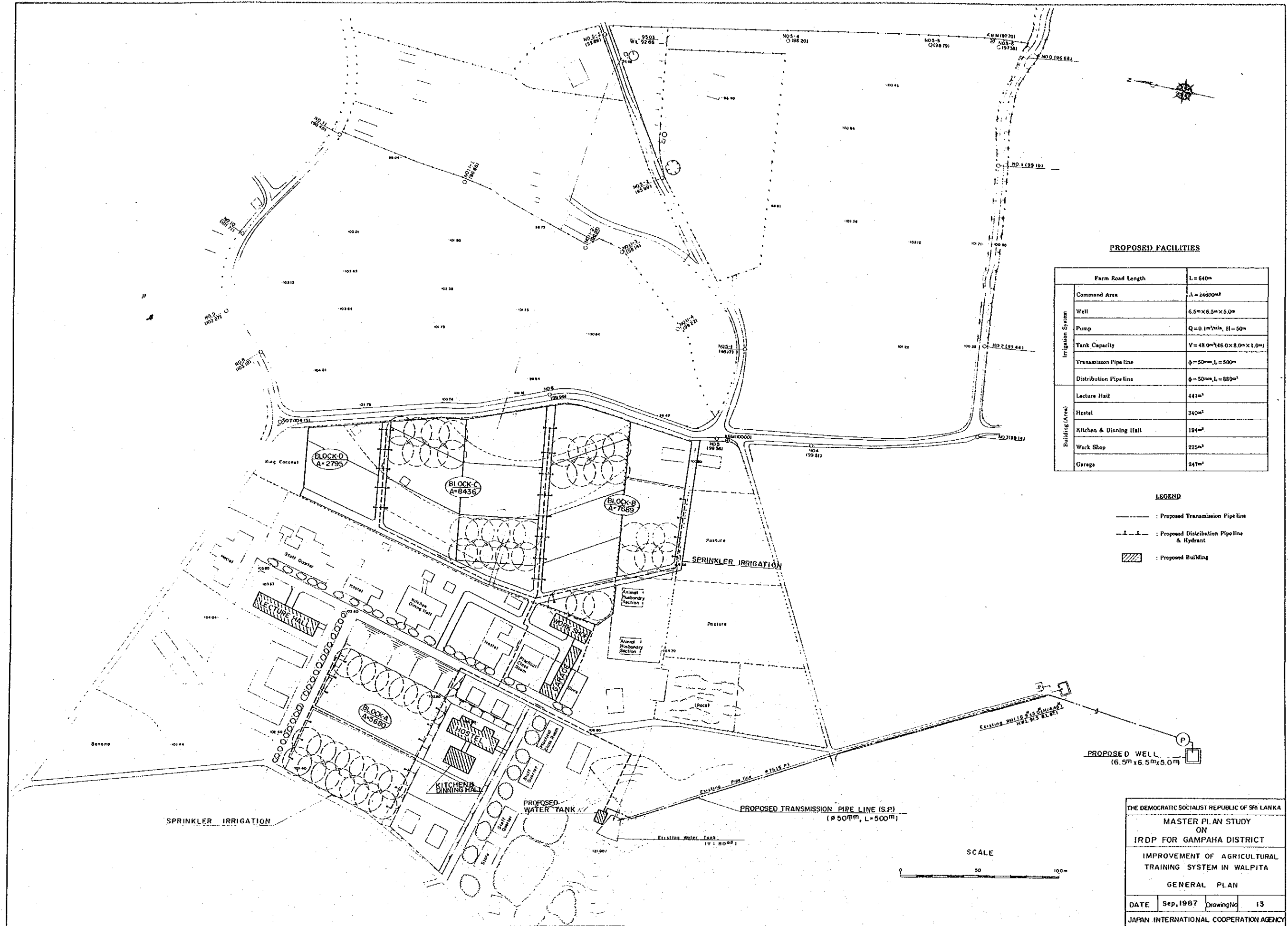
TRAINING HALL



STAFF QUARTER

SCALE  
0 1 2 3 4 5m

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
MINOR EXPORT CROSPROMOTION SCHEME PLAN OF BUILDINGS			
DATE	Sep, 1987	Drawing No.	12
JAPAN INTERNATIONAL COOPERATION AGENCY			



**PROPOSED FACILITIES**

Farm Road Length	L=640m
Command Area	A=24600m ²
Well	6.5m x 6.5m x 5.0m
Pump	Q=0.1m ³ /min, H=50m
Tank Capacity	V=48.0m ³ (4.60 x 8.0m x 1.0m)
Transmission Pipe line	φ=50mm, L=500m
Distribution Pipe line	φ=50mm, L=880m
Lecture Hall	447m ²
Hostel	340m ²
Kitchen & Dining Hall	194m ²
Work Shop	225m ²
Garage	241m ²

**LEGEND**

- — — — — : Proposed Transmission Pipe line
- . - . - . : Proposed Distribution Pipe line & Hydrant
- ▨ : Proposed Building

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

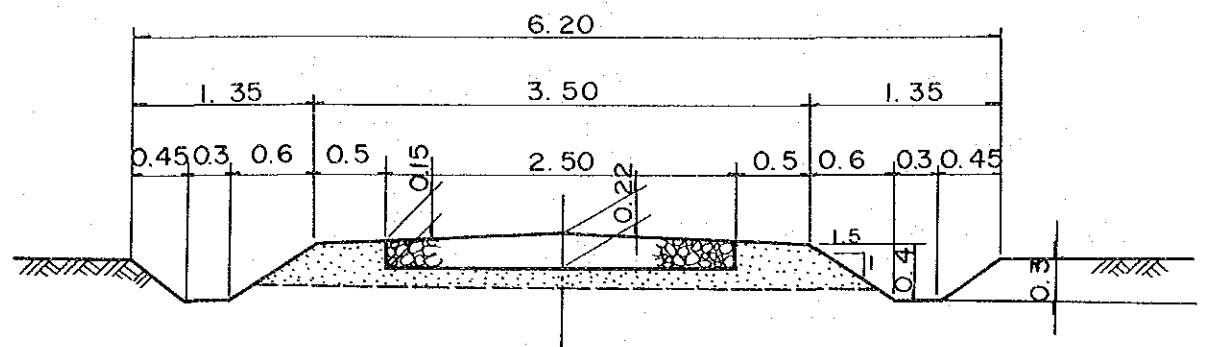
**MASTER PLAN STUDY  
ON  
IRDP FOR GAMPAHA DISTRICT**

IMPROVEMENT OF AGRICULTURAL  
TRAINING SYSTEM IN WALPITA

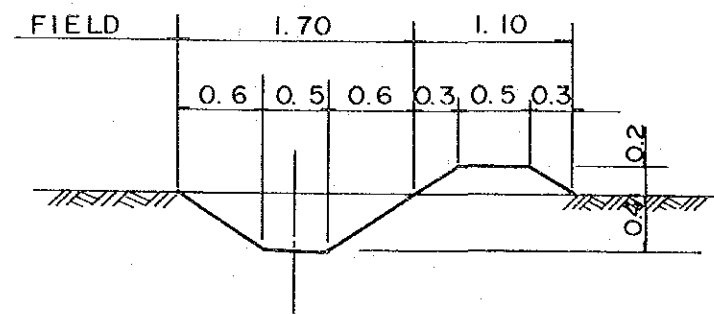
**GENERAL PLAN**

DATE	Sep, 1987	Drawing No.	13
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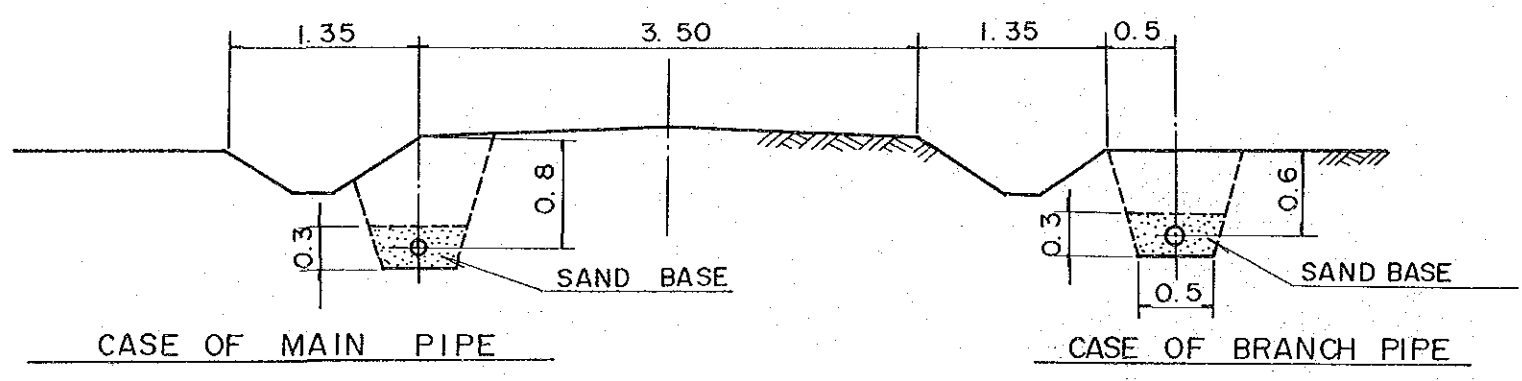
JAPAN INTERNATIONAL COOPERATION AGENCY



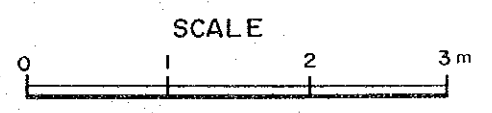
FARM ROAD



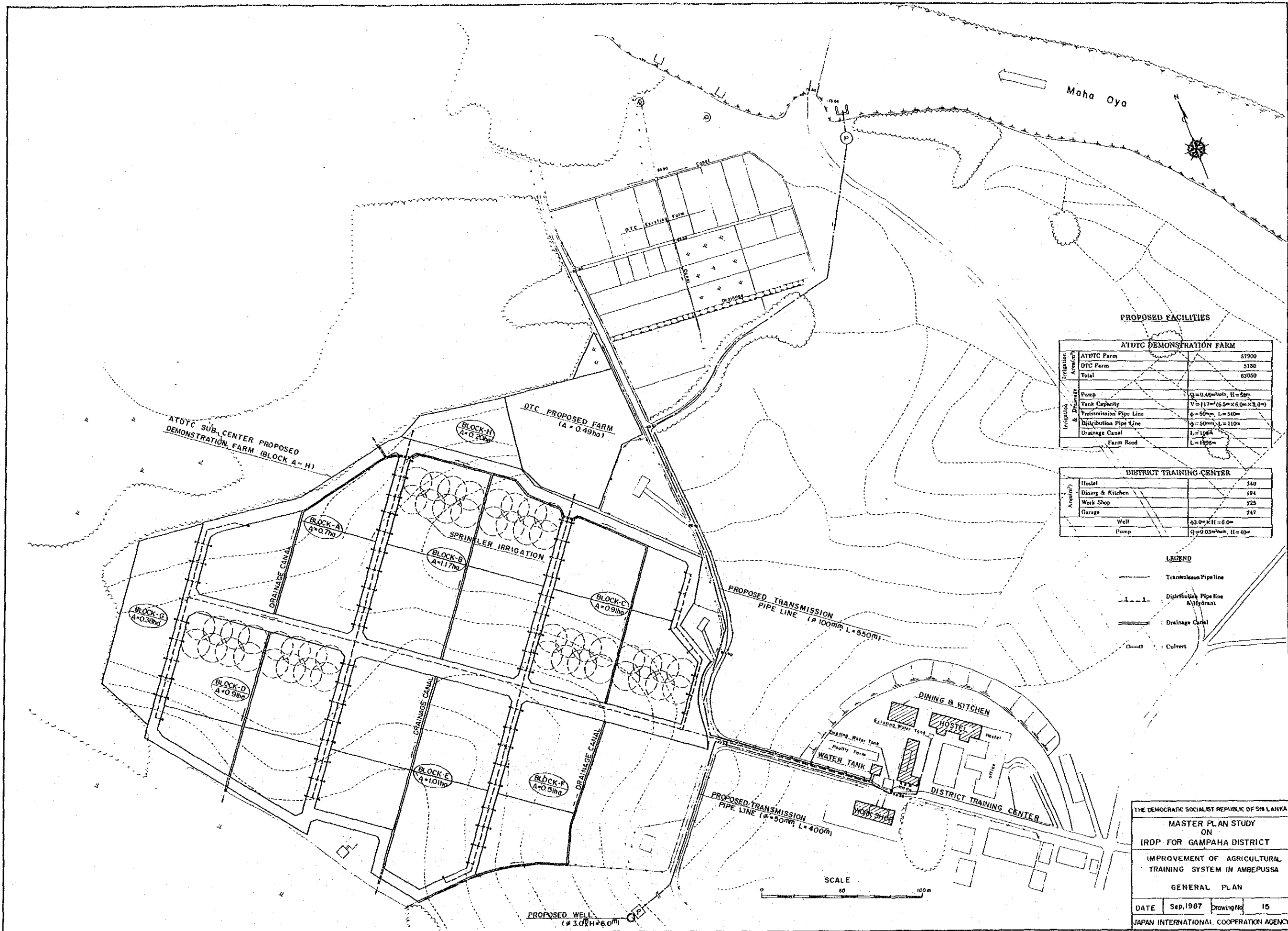
DRAINAGE DITCH



IRRIGATION PIPE LAYING



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHIA DISTRICT			
IMPROVEMENT OF AGRICULTURAL TRAINING SYSTEM IN WALPITA TYPICAL SECTION (1/1)			
DATE	Sep, 1987	Drawing No	14
JAPAN INTERNATIONAL COOPERATION AGENCY			



**PROPOSED FACILITIES**

ATDTC DEMONSTRATION FARM	
Area (m ² )	ATDTC Farm 57900
	DTC Farm 5150
	<b>Total 63050</b>
Pump	Q = 0.46 m ³ /min, H = 50m
Tank Capacity	V = 117m ³ (6.5m x 6.0m x 3.0m)
Transmission Pipe Line	φ = 50mm, L = 510m
Distribution Pipe Line	φ = 50mm, L = 110m
Drainage Canal	L = 1064m
Farm Road	L = 1895m

DISTRICT TRAINING CENTER	
Area (m ² )	Hostel 340
	Dining & Kitchen 194
	Work Shop 225
	Garage 247
Well	φ 3.0m x H = 6.0m
Pump	Q = 0.03 m ³ /min, H = 40m

- LEGEND**
- Transmission Pipe line
  - - - Distribution Pipe line & Hydrant
  - ==== Drainage Canal
  - ○ ○ ○ Culvert

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

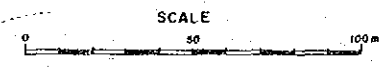
**MASTER PLAN STUDY  
ON  
IRDP FOR GAMPAHA DISTRICT**

IMPROVEMENT OF AGRICULTURAL  
TRAINING SYSTEM IN AMBEPUSSA

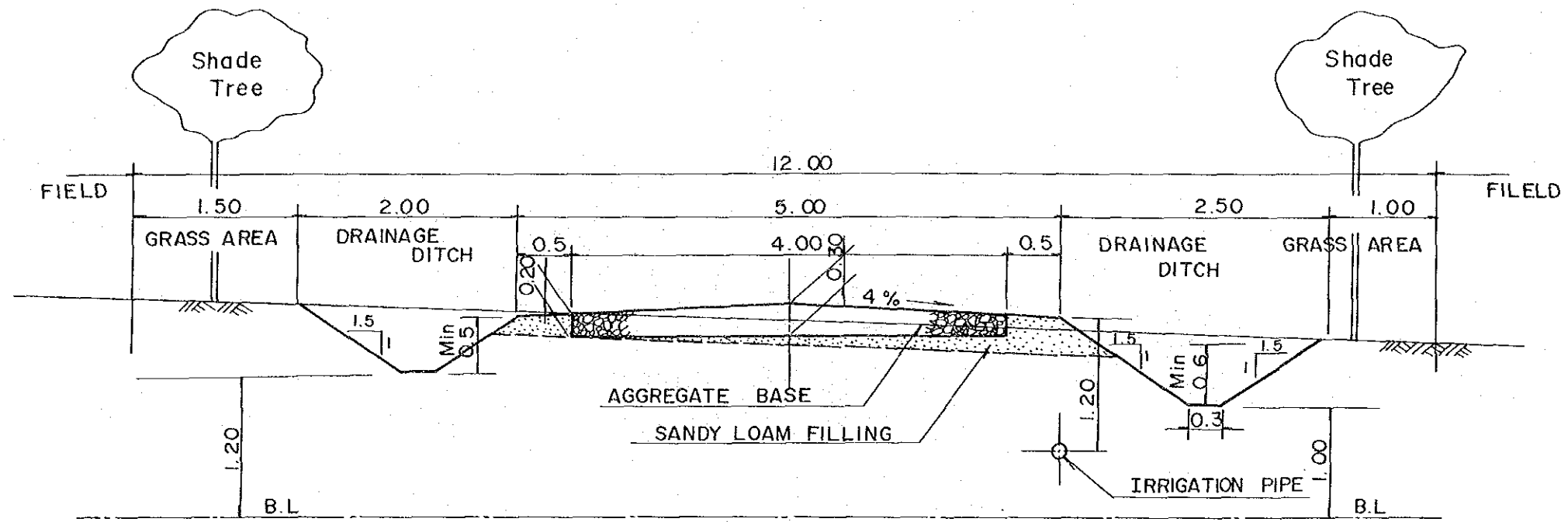
**GENERAL PLAN**

DATE	Sep, 1987	Drawing No.	15
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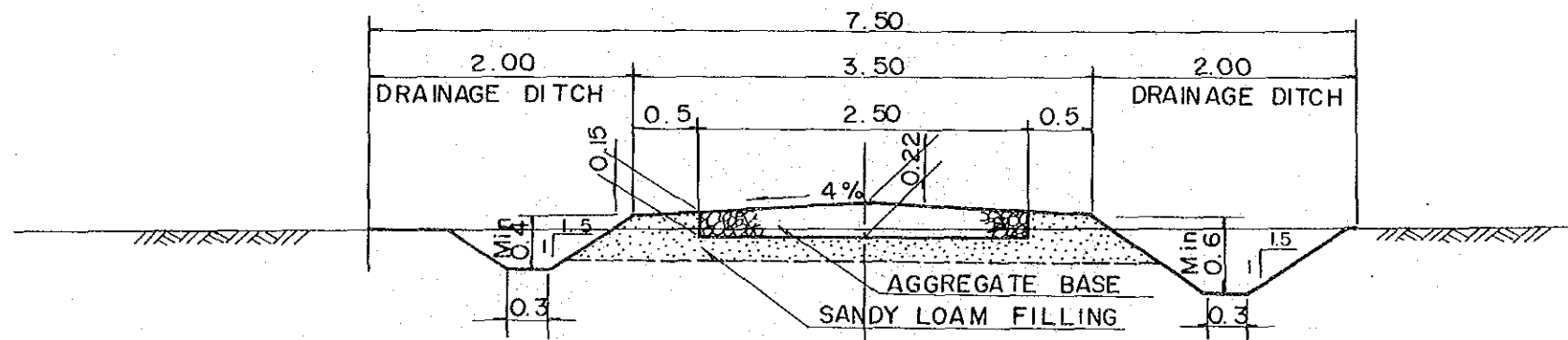
JAPAN INTERNATIONAL COOPERATION AGENCY



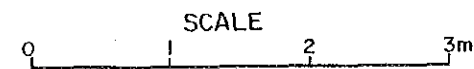
PROPOSED WELL  
(φ 3.0m x H = 6.0m)



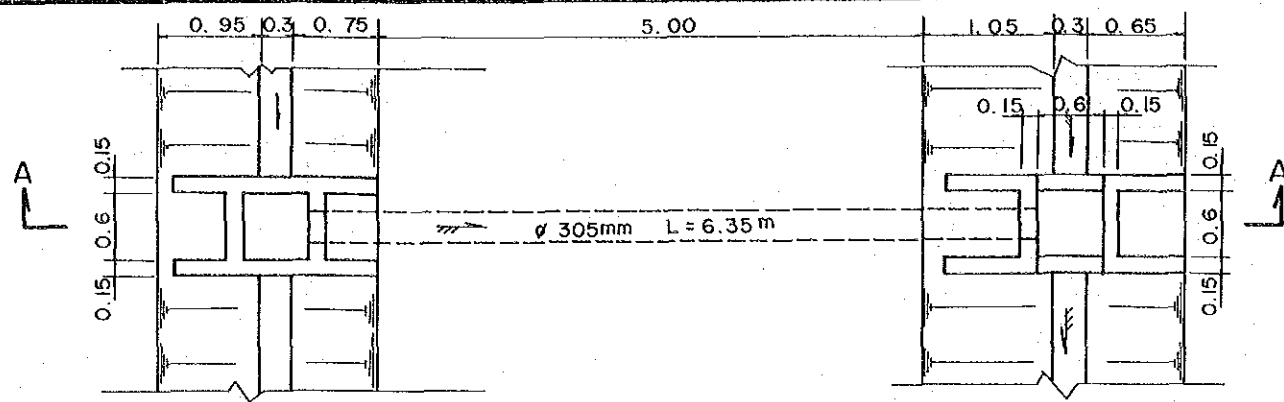
MAIN FARM ROAD



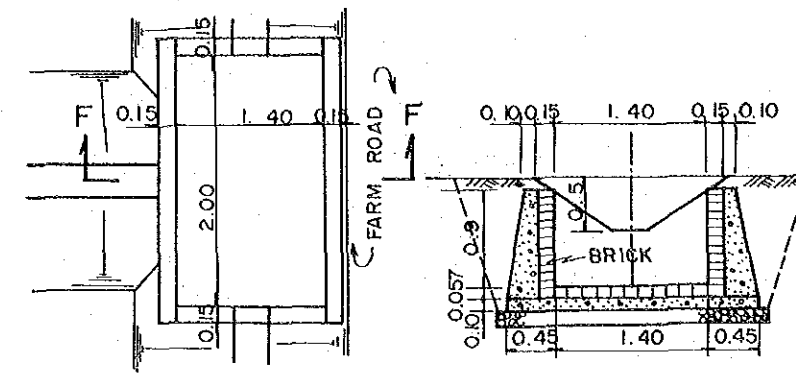
FARM ROAD



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
IMPROVEMENT OF AGRICULTURE TRAINING SYSTEM IN AMBEPUSSA TYPICAL SECTION & STRUCTURE (1/2)			
DATE	Sep, 1987	Drawing No	16
JAPAN INTERNATIONAL COOPERATION AGENCY			

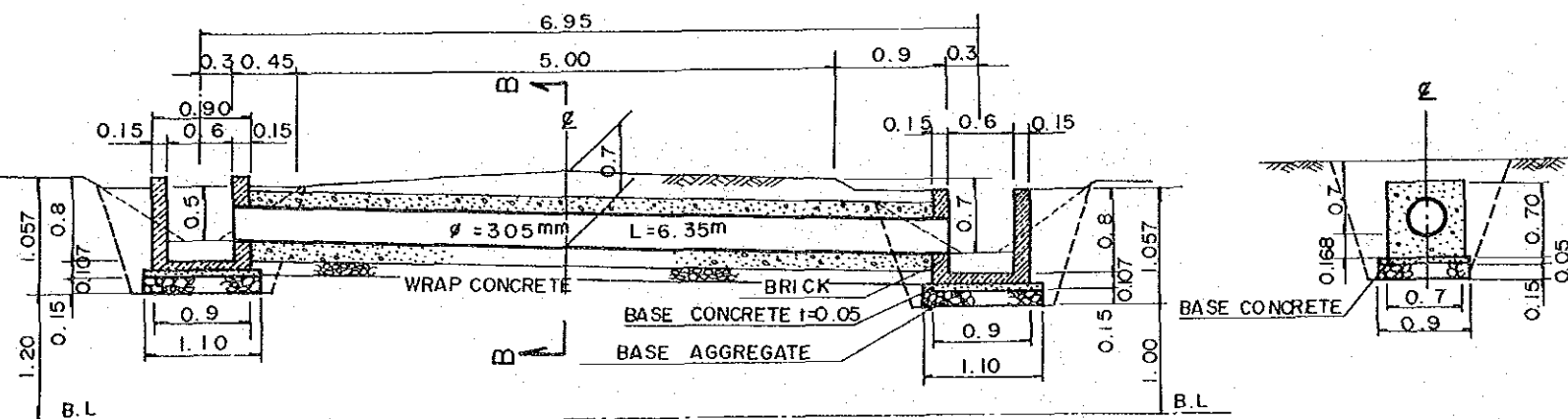


PLANE OF CULVERT (TYPE-A)



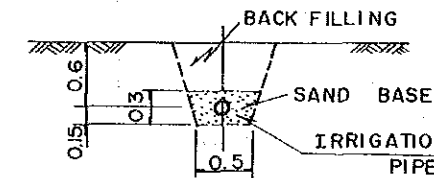
CATCH DRAIN

SECTION F-F

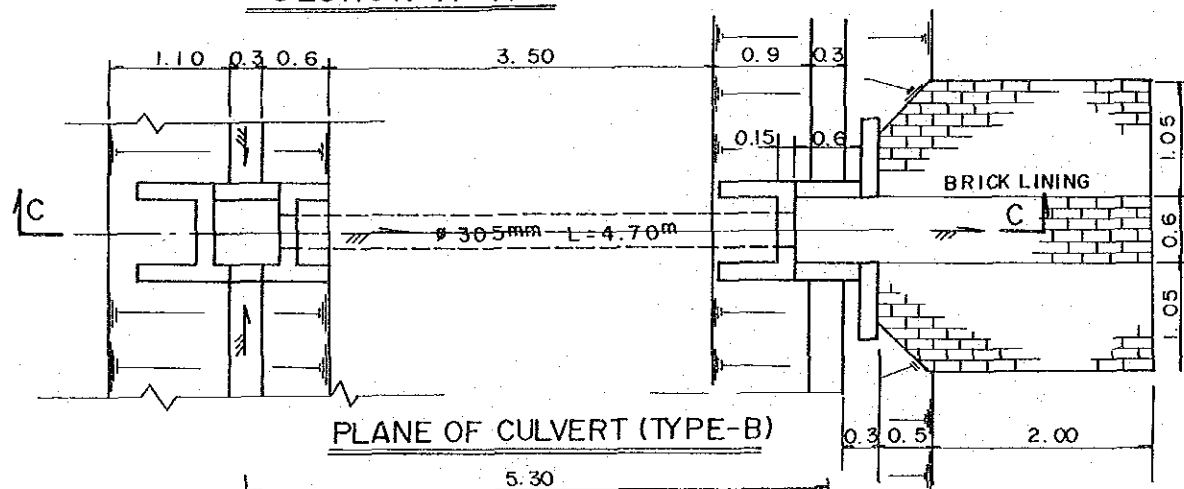


SECTION A-A

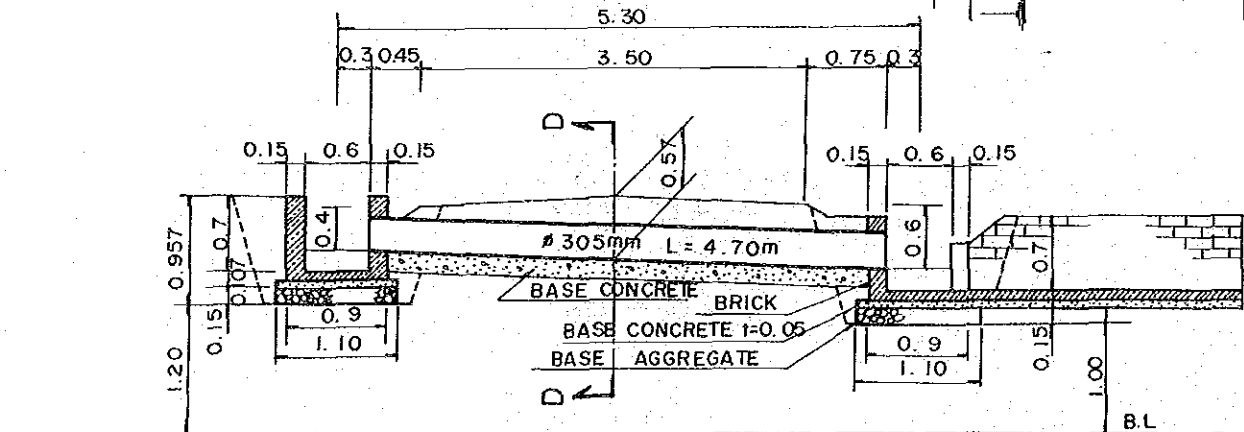
SECTION B-B



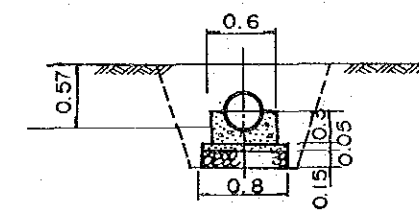
IRRIGATION PIPE LAYING



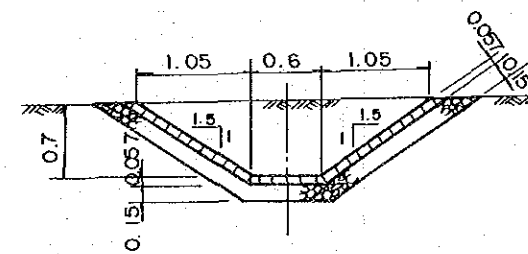
PLANE OF CULVERT (TYPE-B)



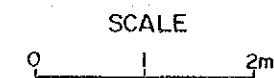
SECTION C-C



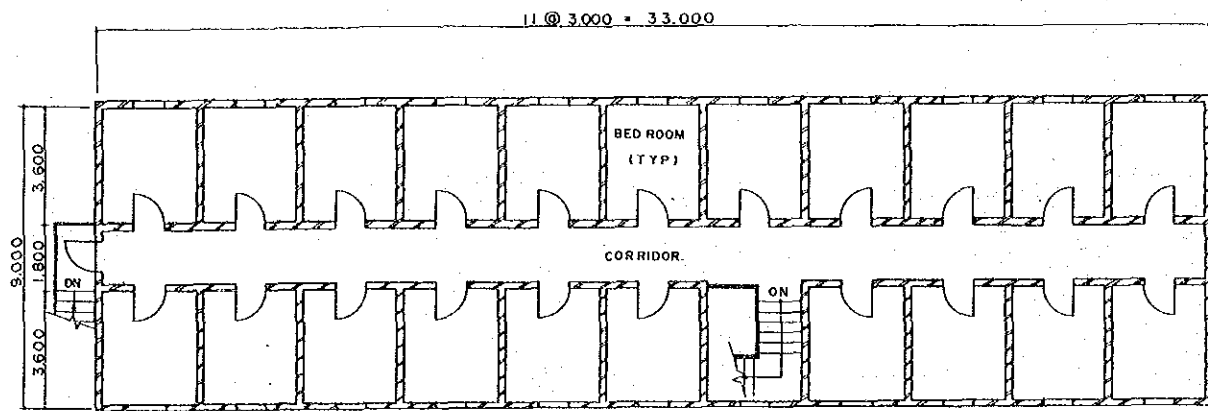
SECTION D-D



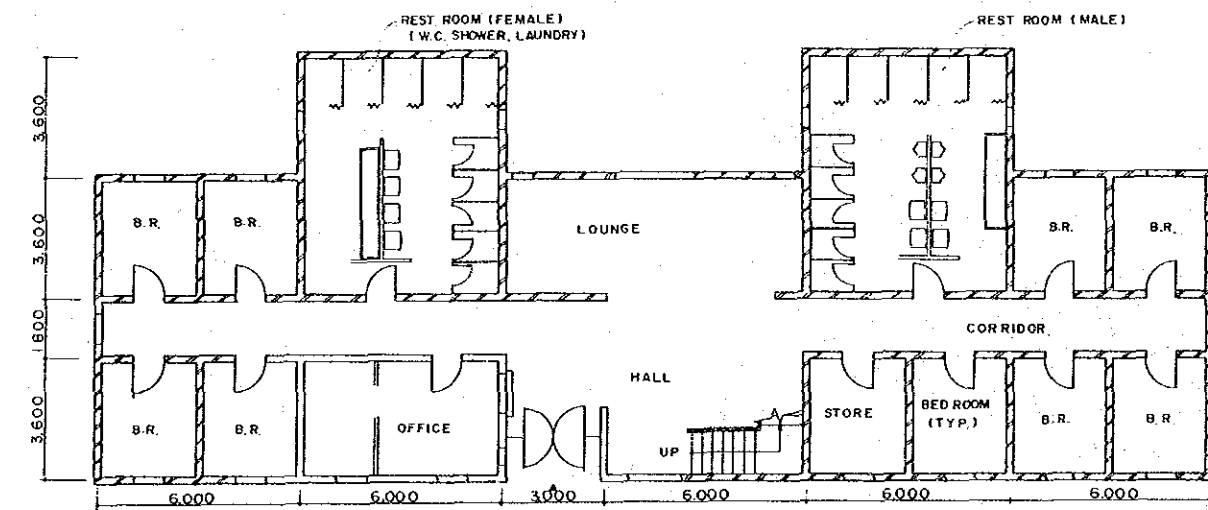
SECTION E-E



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
IMPROVEMENT OF AGRICULTURE TRAINING SYSTEM IN AMBEPUSSA STRUCTURE (2/2)			
DATE	SEP, 1987	Drawing No	17
JAPAN INTERNATIONAL COOPERATION AGENCY			

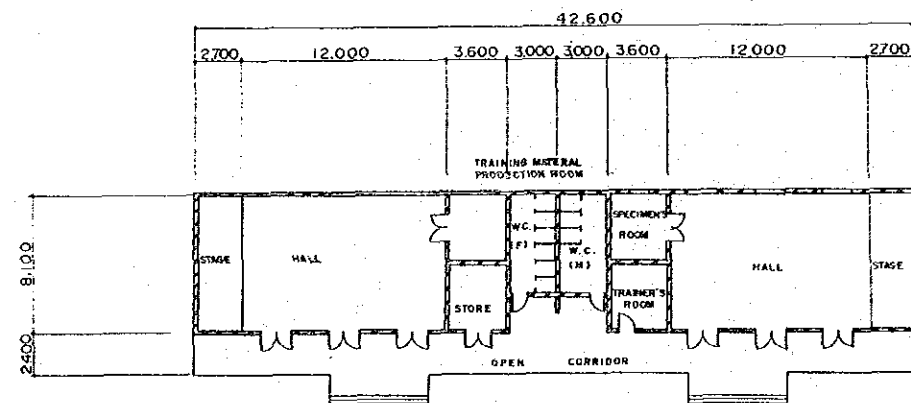
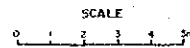


FIRST FLOOR

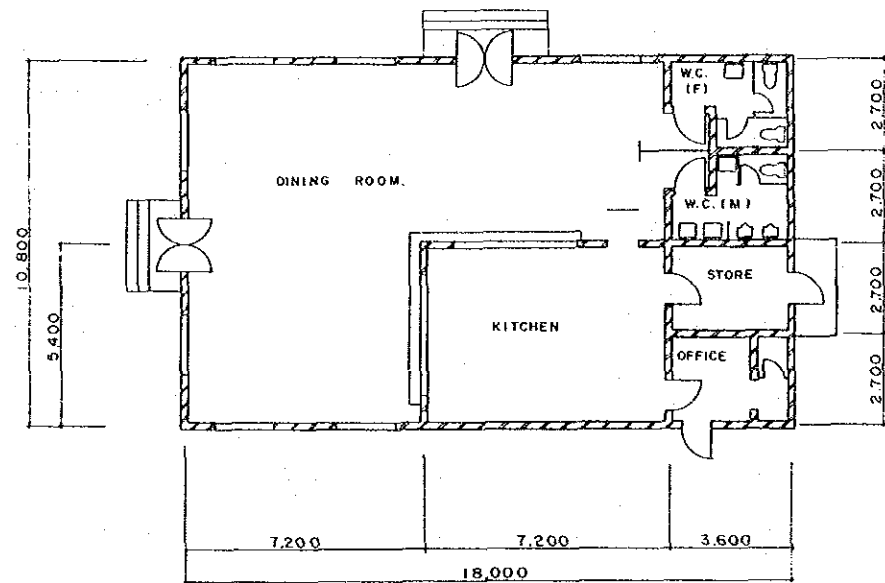
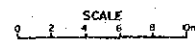


GROUND FLOOR

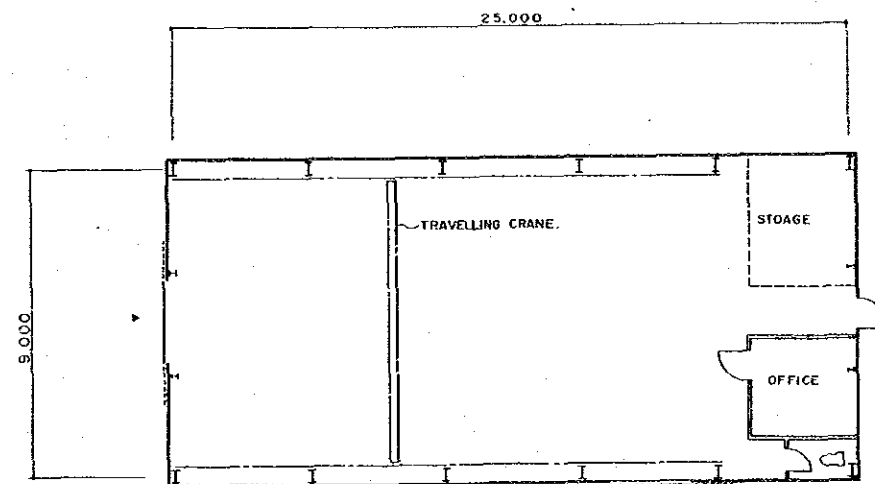
HOSTEL (60 Persons)



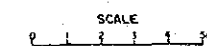
LECTURE HALL



DINING & KITCHEN



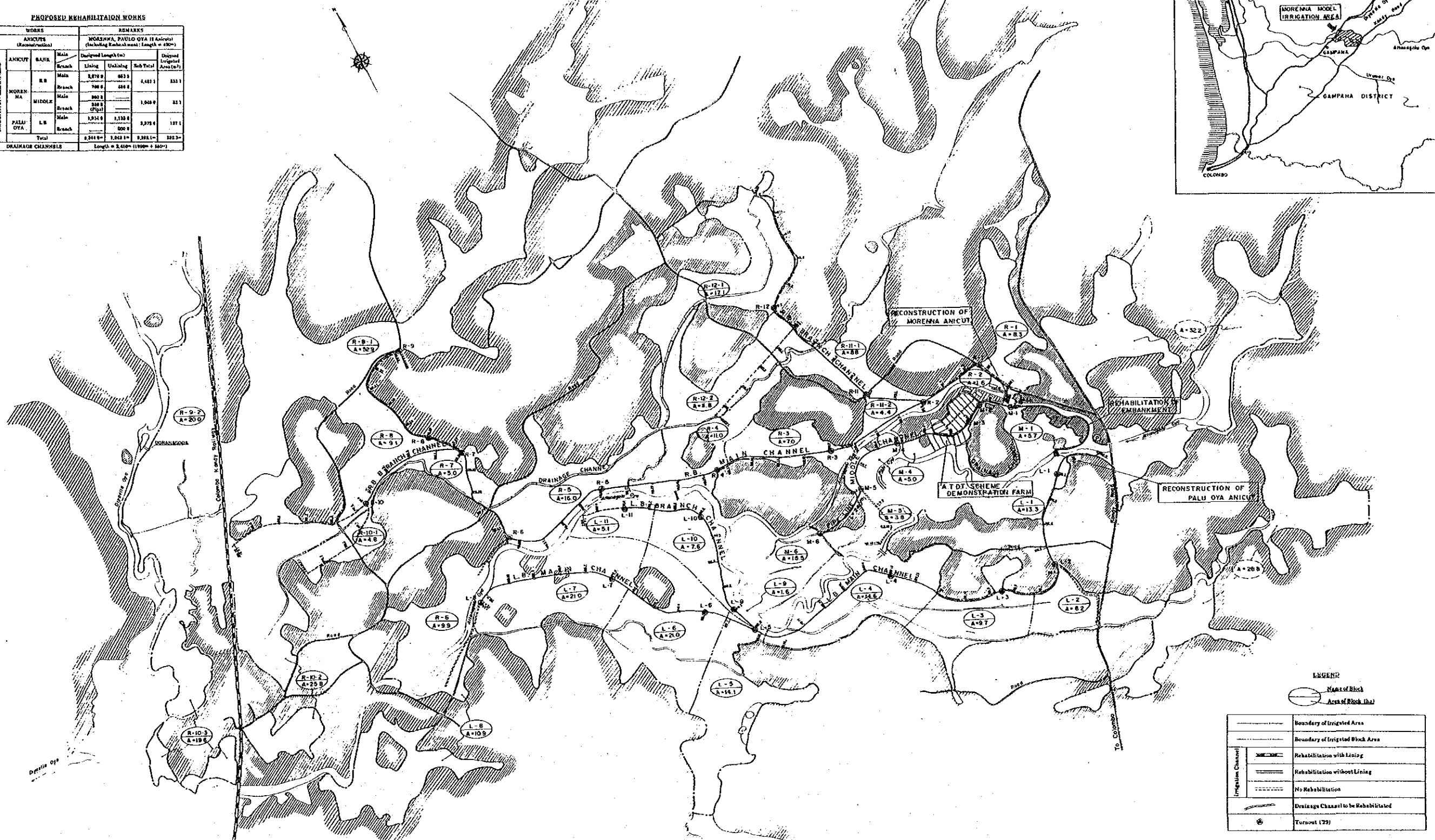
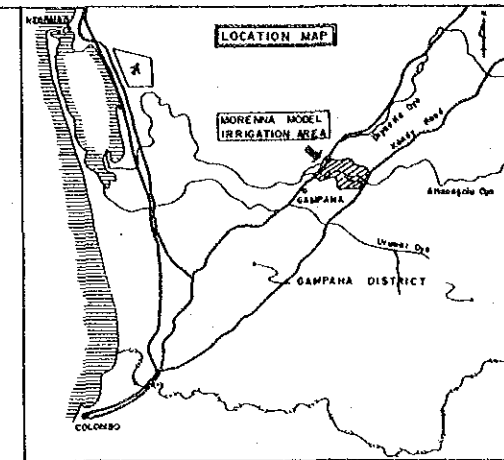
WORKSHOP



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
IMPROVEMENT OF AGRICULTURAL TRAINING SYSTEM PLAN OF BUILDINGS			
DATE	Sep, 1987	Drawing No	18
JAPAN INTERNATIONAL COOPERATION AGENCY			

# MORENNA MODEL IRRIGATION SCHEME

WORKS		REMARKS			
ANICUTS (Recon/Partial)		WORKS, PALU OYA 19 Anicut (Including Rehab. work: Length = 130m)			
ANICUT	BAZIL	Main	Sub Total	Design Length (m)	
MORENNA	MIDDLE	Branch	2,878.8	923.3	1,483.1
		Main	700.0	200.0	333.1
PALU OYA	L.S.	Branch	1,834.8	1,138.8	1,548.6
		Main	500.0	500.0	133.1
Total		5,913.6	3,862.1	3,503.3	



**LEGEND:**

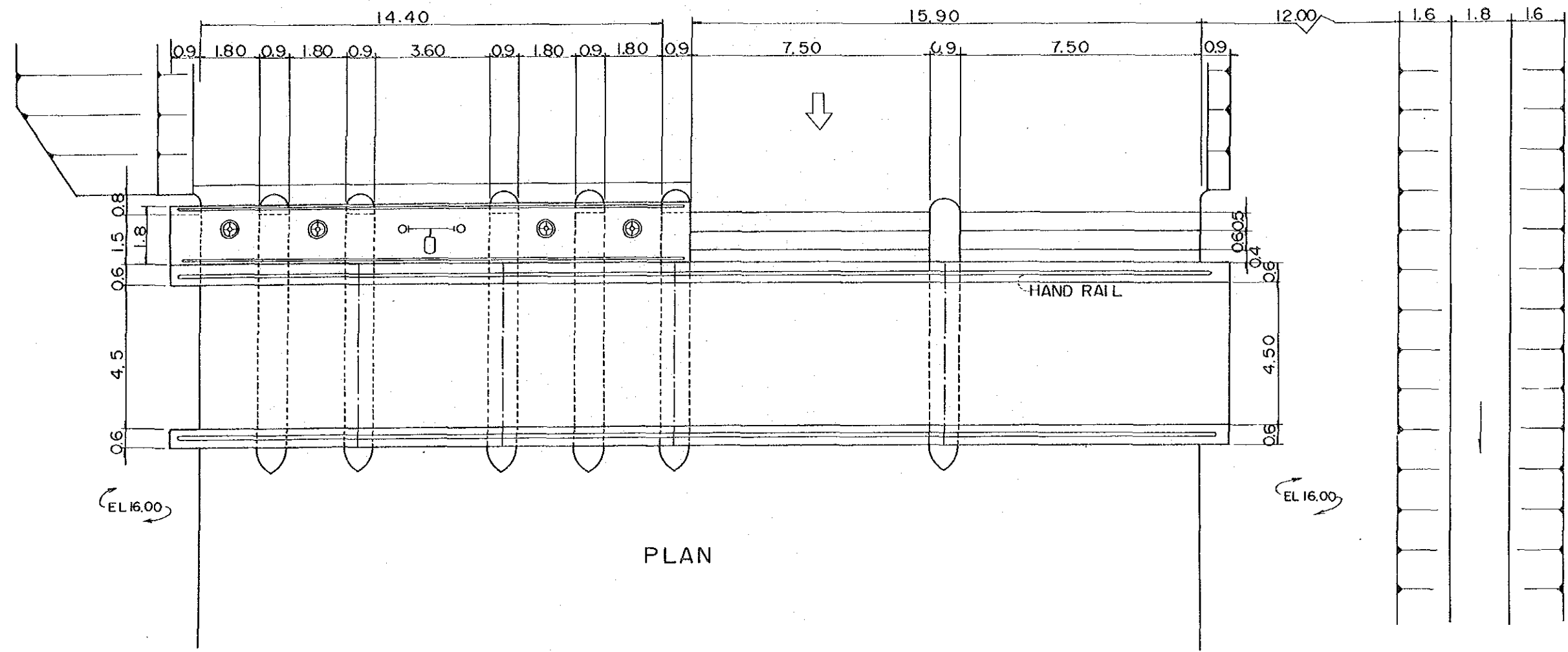
- Right of Block
- Area of Block (A)

	Boundary of Irrigated Area
	Boundary of Irrigated Block Area
	Rehabilitation with Lining
	Rehabilitation without Lining
	No Rehabilitation
	Drainage Channel to be Rehabilitated
	Turnout (T)

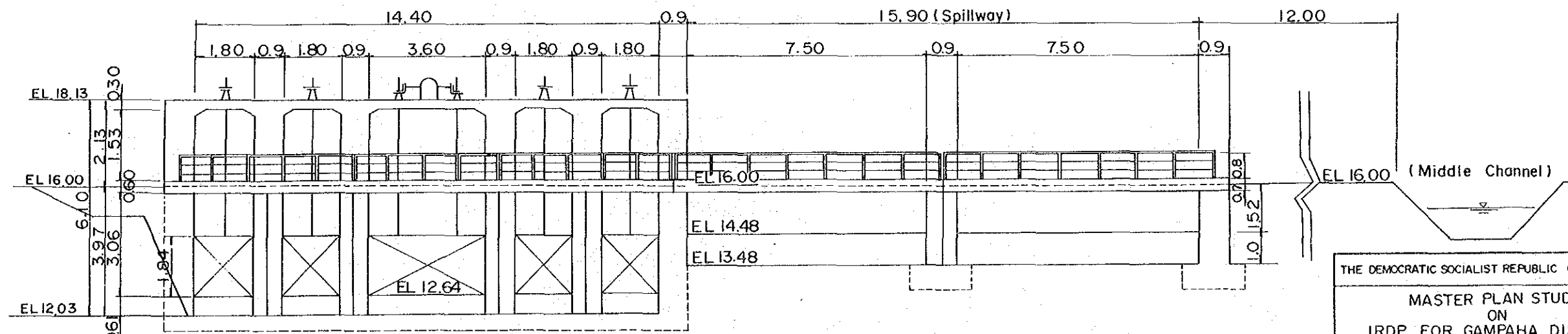
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA  
**MASTER PLAN STUDY ON  
 IRDP FOR GAMPAHA DISTRICT**  
 MORENNA MODEL IRRIGATION SCHEME  
 GENERAL PLAN  
 DATE 28.1.1987 Drawn by 19  
 JAPAN INTERNATIONAL COOPERATION AGENCY

SCALE

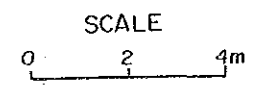




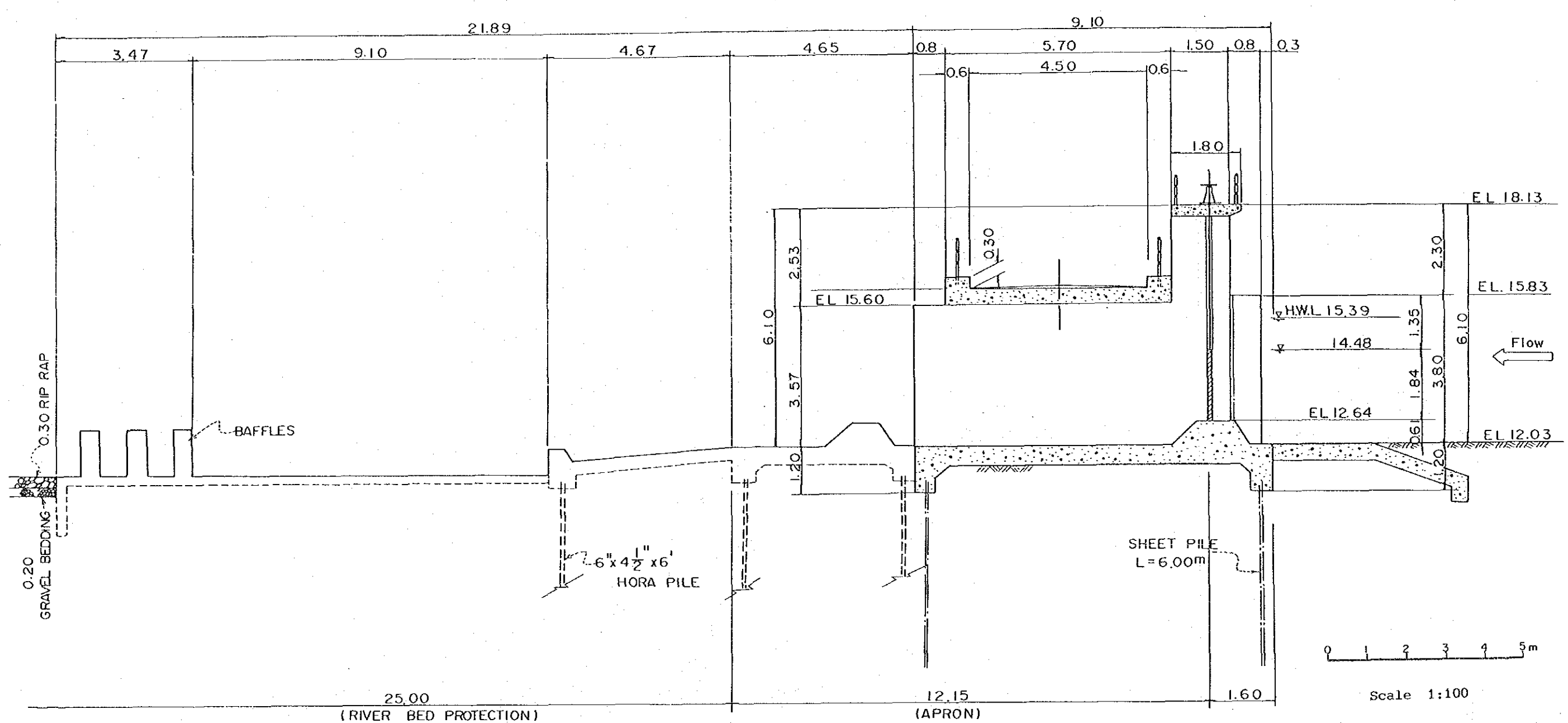
PLAN



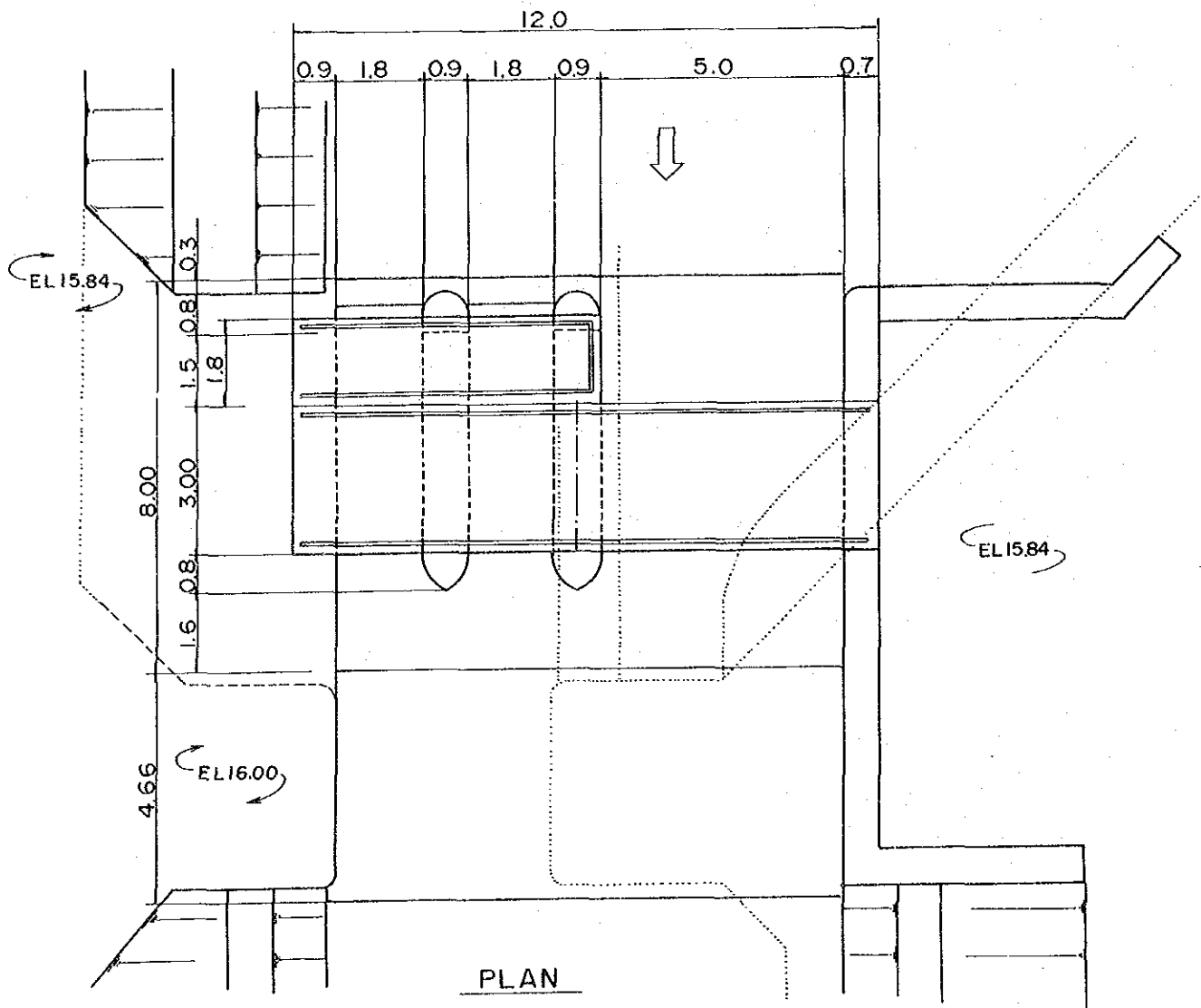
FRONT



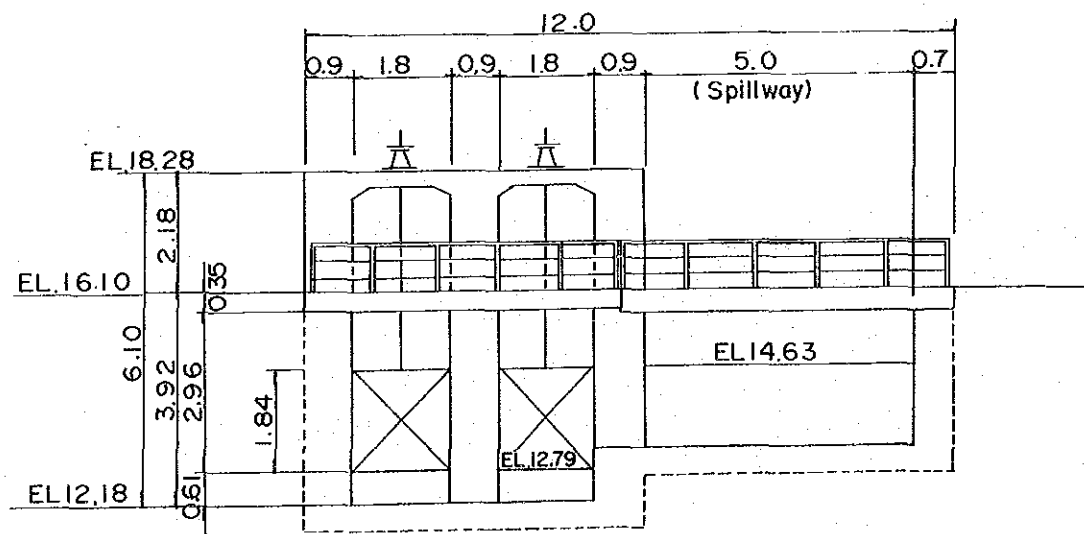
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
MORENNA MODEL IRRIGATION MORENNA ANICUT (1/2)			
DATE	Sep, 1987	Drawing No.	20
JAPAN INTERNATIONAL COOPERATION AGENCY			



THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA			
MASTER PLAN STUDY ON IRDP FOR GAMPAHA DISTRICT			
MORENNA MODEL IRRIGATION MORENNA ANICUT (2/2)			
DATE	Sep, 1987	Drawing No.	21
JAPAN INTERNATIONAL COOPERATION AGENCY			

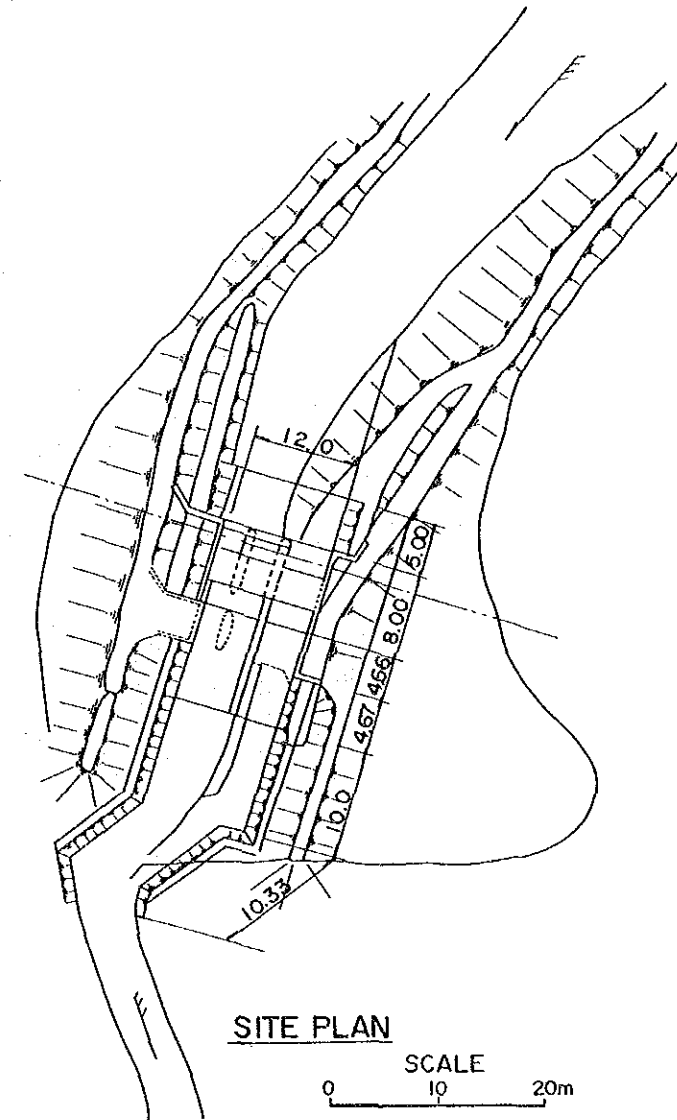


PLAN



FRONT

SCALE  
0 1 2 3 4m



SITE PLAN

SCALE  
0 10 20m

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRILANKA

MASTER PLAN STUDY  
ON  
IRDP FOR GAMPAHA DISTRICT

MORENNA MODEL IRRIGATION  
PALUOYA ANICUT (1/2)

DATE Sep, 1987 Drawing No. 22

JAPAN INTERNATIONAL COOPERATION AGENCY