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THE MAHAWELI ECONOMIC AGENCY  
ORGANIZATION,  
STAFFING AND FUNCTIONS

Report to the U.S. Agency for International Development  
Colombo, Sri Lanka

May 12, 1980

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# MASI DEVELOPMENT SERVICES

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May 12, 1980

Mr. Edward Thomas  
PDC Branch  
Services Operations Division  
Office of Contract Management  
Agency for International Development  
Washington, D.C. 20523

Dear Mr. Thomas:

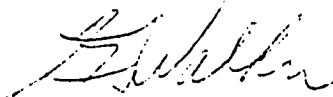
MASI is pleased to transmit herewith fifteen (15) copies of the report "The Mahaweli Economic Agency - Organization, Staffing and Functions" in accordance with the terms of IQC AID/SOD/PDC-C-0157, Work Order No. 2.

We will also send two courtesy copies to Mr. Michael P. DeMetre, Project Officer, Asia PD.

A draft copy of the report was presented to the USAID Mission before the author departed Sri Lanka. This final version incorporates suggestions by Mission reviewers and has been expanded on the basis of information obtained for the draft version.

The MASI consultant, an officer of the company, worked closely with a World Bank Appraisal Mission and USAID personnel from whom he received excellent cooperation. MASI would be pleased to participate in any future development activities related to this assignment.

Sincerely,

  
Gaylord L. Walker  
Vice-President

GLW:kmv

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## I. INTRODUCTION

This report is submitted according to the provisions of item D of the Scope of Work set forth in PIO/T 383-0056-1-00006.

### Scope of Work

A. Analyze and prepare a report on the capability of the Mahaweli Economic Agency (MEA) to carry out its assigned functions. The analysis will include statutory authority, financial resources, internal organizational set-up, external relationships to other agencies, and staffing plans and requirements. The report will present the economic agency's plans for each of these areas, note any deficiencies and contain recommendations to overcome these weaknesses. The report should identify the appropriate rate of settlement that could successfully be implemented, given the current organizational plan and rate that could be achieved if the consultant's recommendations were implemented. The report must include a complete staffing pattern necessary for this organization to carry out its functions. The analysis will be coordinated with the analysis which will be prepared at the same time by the World Bank staff and other consultants.

B. The consultant will similarly analyze and report on the capability of the Mahaweli Development Board to carry out its role in the Accelerated Mahaweli Program (AMP) and on all other organizations including those in other Ministries and Government of Sri Lanka (GOSL) agencies included in the Mahaweli program.

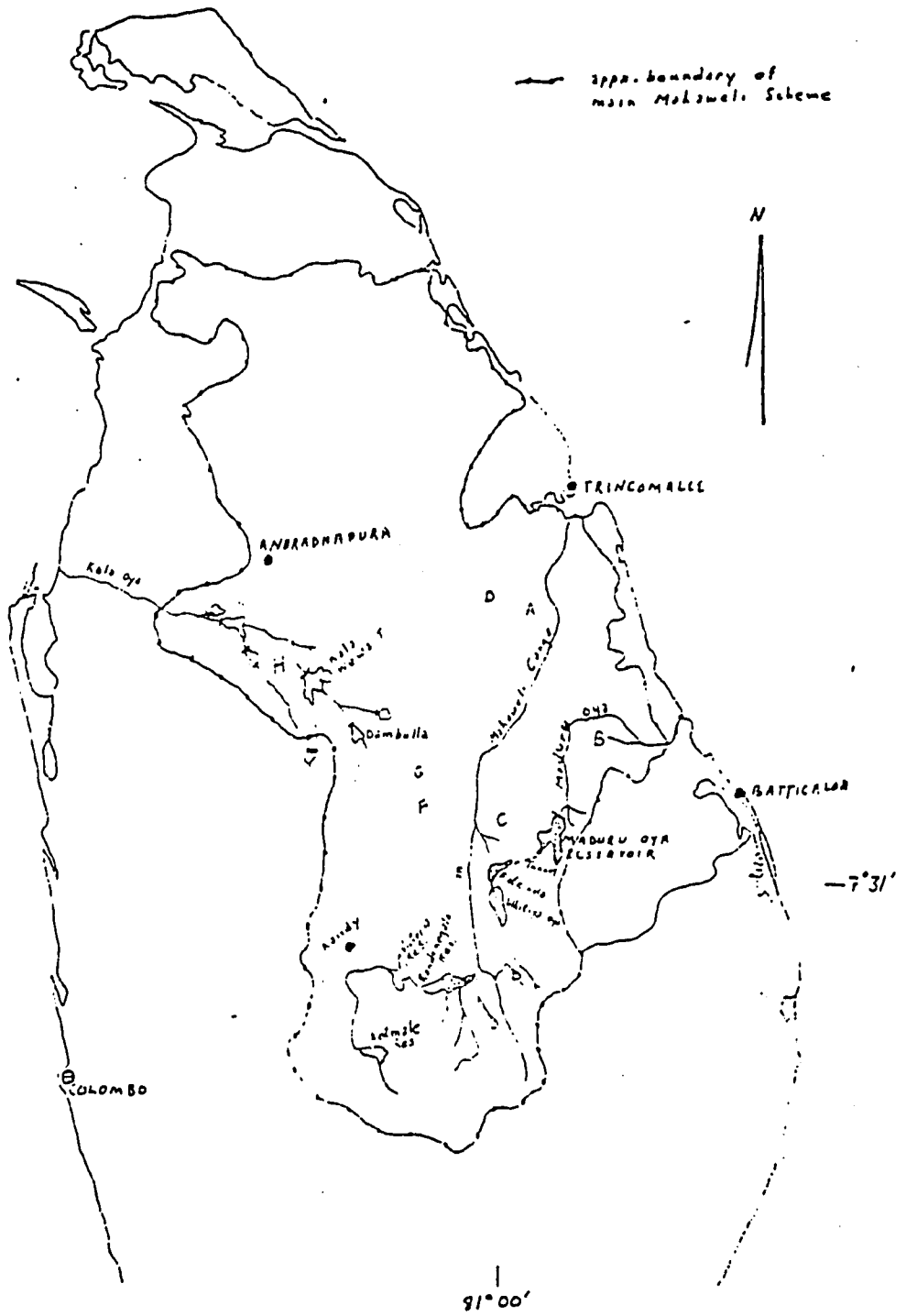
C. The consultant shall identify and prepare job descriptions for expatriate staff which the consultant believes would be necessary to enhance the capability of the above organizations and include a suggested timetable for the assistance, including a budget for this assistance.

D. The consultant will prepare a draft report of the findings in ten (10) copies and provide this to the USAID Mission seven (7) days before departing from Colombo, will be available to discuss the report with USAID/Colombo and the GOSL and will consider comments of both in preparing a final report to be delivered in fifteen (15) copies to AID within thirty (30) days of departing Sri Lanka.

## II. BACKGROUND

A. The purpose of the Mahaweli Scheme is to develop new lands for irrigation, allocate the land, primarily to farmers from other parts of Sri Lanka, and help them settle on their new farms, improve water supply to existing irrigated land and provide electric power. Major objectives are to increase agricultural production and provide additional power and employment. The Mahaweli program is located in the northwestern part of Sri Lanka (the dry zone, see map, Figure 1) and is based on a Master Plan prepared by a UNDP/FAO team and Sri Lanka engineers in 1965-1968. In 1977, the Government of Sri Lanka (GOSL) decided to accelerate the plan and received support from a number of donor countries and lending institutions. The accelerated program is scheduled for completion in 1990.

Figure 1  
Map of Mahaweli Scheme



The Accelerated Mahaweli Program (AMP) consists of a series of reservoirs and headworks (including Kotmale, Victoria, Randenigala, Madura Oya, Ulhitiya and Ratkinda); link, main and branch canals; land development (irrigation, drainage, land preparation and leveling); settlement of immigrant farmers and resettlement of some of the resident population; and provision of agricultural, social and municipal services to project residents. The program is divided into various Systems (A, B, C, etc.) which in turn are divided into irrigation zones for purposes of physical development, and into Blocks and Units for settlement and administrative purposes. See Figure 4.

Considerable construction and settlement has already occurred in System H (See Figure 1) under the Mahaweli Development Board (MDB). The general plan in System H is for distributing irrigation water (primarily from Kala Wewa and Dambulla tanks) through right and left bank canals. The original Kala Oya river channel collects drainage and runoff water for impoundment in minor reservoirs and tanks downstream, from which it can be reused. Water is distributed to fields via a system of branch canals, distributories and farm ditches. The same general pattern will be followed in the other systems. System B will be supplied primarily from the Madura Oya Reservoir on the river of the same name. The Madura Oya Reservoir is connected to the upper reaches of the Mahaweli Ganga system via tunnel and link canal.

The GOSL, through its various agencies, is involved in numerous activities beyond the construction stage. Briefly, this involves selecting settlers for the newly developed areas; assigning farm

lands and house plots; assisting farmers to clear and develop their lands; providing food, shelter and other necessities during their initial tenure; assuring the availability of necessary social, physical and economic infrastructure (for example: roads, health and education services, temples, markets and retail shops); and providing technical advice for crop production and water management. Organizing farmers into production groups and cooperatives is to be a major activity.

B. Several major investigations and feasibility studies have been completed or initiated in the Mahaweli scheme. An Implementation Strategy Study for the AMP as a whole was conducted by NEDECO, a Netherlands consulting firm. They concluded that there was adequate irrigation from Kotmale, Victoria and Madura Oya reservoirs for new areas proposed for development under the accelerated program. This would permit water from Randenigala and Moragahakonda reservoirs to be used elsewhere in the dry zone. NEDECO also concluded that surplus Mahaweli water could be conveyed to other North Central River Basin lands at lower cost than the conveyance system proposed in the original Master Plan.

A feasibility study of System C has been conducted by Hunting Technical Services, Ltd. and a similar study is underway for System B (main report complete) by Acres International, Ltd. TAMS is conducting an environmental assessment study for System B, with particular emphasis on the endangered species of wildlife in the area which will be affected by development.



Implementation plans and strategies for System C are being developed by a team including MDB and Hunting Technical Services. The Mahaweli Economic Agency (MEA) will participate officially as soon as they are legally established. The team approach to system design/implementation planning is envisioned for other systems, probably with the participation of different consulting firms. (System design/implementation planning is done zone by zone within the systems. For regional planning, MDB has a unit called Regional and Physical Planning with various technical subcommittees and panels on subjects such as health, education, transportation and postal, police and other services).

C. The Mahaweli Economic Agency (MEA) is, as of this writing, not a legally constituted organization. Enabling legislation (a Bill to Establish the Mahaweli Authority of Sri Lanka - February 1979, hereafter referred to as The Act) has been passed and an incorporation order under the enabling legislation has been drafted for establishment of MEA. The incorporation order must be, and has yet to be, approved by the Cabinet. Organization patterns and a core staff exist for MEA but most staff appointments are presently under the Mahaweli Authority (MASL) or the Mahaweli Development Board (MDB). It is anticipated that these staff will be transferred to MEA about June 1, 1980. MEA will also take over a large number of staff from MDB when they assume most of the functions now under the additional GM (Op). See Figure 8.

MEA is (to be) a public corporation responsible for the production phase of development in the Accelerated Mahaweli Program (AMP). MEA functions and authority are laid out in the Draft Incorporation

Order, Annex 1. The Central Engineering Consultancy Bureau (CECB), established in 1957, is responsible for headworks and upstream development while the Mahaweli Development Board (MDB), established in 1970, is responsible for construction and maintenance of the downstream works such as canals, roads and buildings. The River Valley Development Board (which predates MDB) does design and construction work for the Mahaweli scheme on contract. A description of Mahaweli development plans can be found in the Agency for International Development project paper for Maduru Oya System B Design and Supervision (Project 383-0056). The project paper also discusses financing for System B by Canada, the government of Sri Lanka (GOSL), and AID. The latter is considering a 10 million dollar concessionary loan for design, supervision and related technical assistance and training in connection with System B. Additional USAID loans will be considered for System B construction.

### III. DESCRIPTION

#### Function

Broadly stated, the function of MEA is "to plan, operate and administer all aspects of the rural settlements created in the Mahaweli Ganga Development Scheme, with the exception of the construction and maintenance of works and buildings. It will also administer the Pilot Project in System H. At a later stage the Agency's jurisdiction may be extended to other Systems."

Official functions of MEA are set out in the first schedule of the Incorporation Order (Annex 1).

In order to better explain the detailed functions of MEA, the progressive activities of System development are listed below. MEA is responsible for all activities except design, construction and maintenance or except as otherwise noted.

1. Design of irrigation, drainage and road systems, layout for civil system -- hamlets, villages and towns, primarily by MDB contractors and consultants.
2. Construction of above, primarily by MDB and by their contractors and consultants.
3. Settler selection from farmers and landless agricultural workers outside the Mahaweli area. This is done by Government Agents (Ministry of Public Administration - MPA) according to MEA criteria. Reportedly, MEA will deal directly with Government agents without going through the chain of command of the MPA. Current policy is to select groups of farmers who are already acquainted so that settlers in production units can be more readily organized in the new environment.
4. Allotment of project land among existing farmers and new settlers. MEA intends to bring new settlers into the project area two or three cropping seasons before their land is ready for occupation and production. This will provide a labor pool for MDB construction, and allow ample time for settlers to become oriented to their new surroundings and begin improving their fields and homesites.

5. Provide living quarters, food and other necessities to new settlers during their pre-production tenure.

MDB is already constructing dormitory type housing for settler workers (70 persons per unit) in System C. Negotiations are underway with the UN World Food Program to provide basic rations to settler-workers. Cooperatives and private traders are expected to open shop in the settlement areas before arrival of settlers.

6. Assist project farmers to settle and prepare their land for cultivation. This involves administration of various allotments (such as food aid and funds for home construction and land clearing), subsidies and other forms of assistance such as credit, input supply and health facilities. MEA intends to provide credit in kind (seed, fertilizer, etc.) through commercial banks such as Hatton. Since this will involve numerous small loans, the banks cannot be expected to supervise each loan individually. Therefore, MEA field personnel (Unit Managers and Field Officers) are expected to be involved with credit administration and probably marketing of farmers' crops as well. MEA plans for credit and marketing are not yet finalized.

Although MEA expects to have the necessary authority to generate income by selling inputs and by buying and processing crops, they do not have plans for doing so.

7. Assisting farmers to organize for water management and agricultural production. The farmers are expected to organize by committee in each turnout area and appoint one or more of their most respected members as official contacts with MEA field officers.
  
8. Assist settlers with community development. Civil organization for Systems B and C is expected to conform roughly to the Unit/Block system. See Figure 4.
  - Hamlets of 200-300 families or roughly one hamlet per unit.
  - Villages - about two villages with commercial facilities for each block.
  - Town - about one town with commercial and civil facilities such as post office, police station and hospital for each two blocks.
  - There will probably be three regional centers in System B.

Cluster development, wherein population is centered near farmland in compact villages and towns, is currently preferred over ribbon development because it is more conducive to farmer cohesiveness and organization and provision of services such as power and water. The advantage of ribbon development, where houses are located along existing roads, is that it facilitates logistics and transport to some extent.

Community services mentioned in connection with this activity are:

- Operation of a Community Development Center for meetings, training and other community functions.
- Land administration - taxation, settlement of boundary disputes, etc.
- Public amenities - water wells, roads, etc.
- Welfare and other community services
- Women's services - educational, handicraft instruction
- Youth and children's services - sports programs, special education
- Religious facilities
- Health services
- Environmental and municipal services
- Posts, telecommunications and transport
- Law and order.

Although MEA would not be the source of many of these services such as postal and law and order, they would presumably be involved in their administration, at least in the earlier

stages of settlement. MDB is responsible for construction of wells, roads and community buildings.

9. Assistance to farmers for agricultural production includes:

- Organization for agricultural production - field layout and leveling, cropping patterns, etc.
- Extension services
- Distribution, allocation, and water management at various levels from canals to fields
- Collection of water rates
- Procurement and distribution of agricultural inputs
- Provision of credit and credit management
- Collection, initial processing and marketing of crops.

The last three activities may be accomplished through cooperatives in later stages.

GOSL policy regarding user charges for irrigation water are not yet well-defined. The current nominal charge is expected to increase to cover canal maintenance costs.

10. Assistance in investment and business development is also to be a MEA function in settlement areas. This involves sponsoring and/or participating in subsidiary private sector economic activities to support the new settlements and provide off-farm employment opportunity. Such business might be plantation- or ranch-sized agricultural enterprises or small-scale crafts, trades or retail businesses. MEA participation in private sector economic activities is provided for in the MASL act. The final Incorporation Order will presumably authorize MEA to participate in agricultural and commercial activities. See paragraphs 3 and 10 of the Third Schedule of Draft Incorporation Order (Annex 1).

#### Organization

Figure 2 is a chart showing how MEA fits into the overall organization for Mahaweli development.

Although separate from the Ministry of Lands and Land Development (MLLD), the Ministry for Mahaweli Development (MMD) is headed by the same Minister. MASL is the policy making body of the Ministry for Mahaweli Development. MEA is intended as a line organization of MASL at the same level as CECB and MDB.

Figure 2 shows the working relationships among the various agencies so far as they are related to Mahaweli Development. Lines of authority are not clear from the chart as the organizations are variously designated as ministries, authorities, boards, bureaus and agencies. Some are fairly autonomous, such as the Central



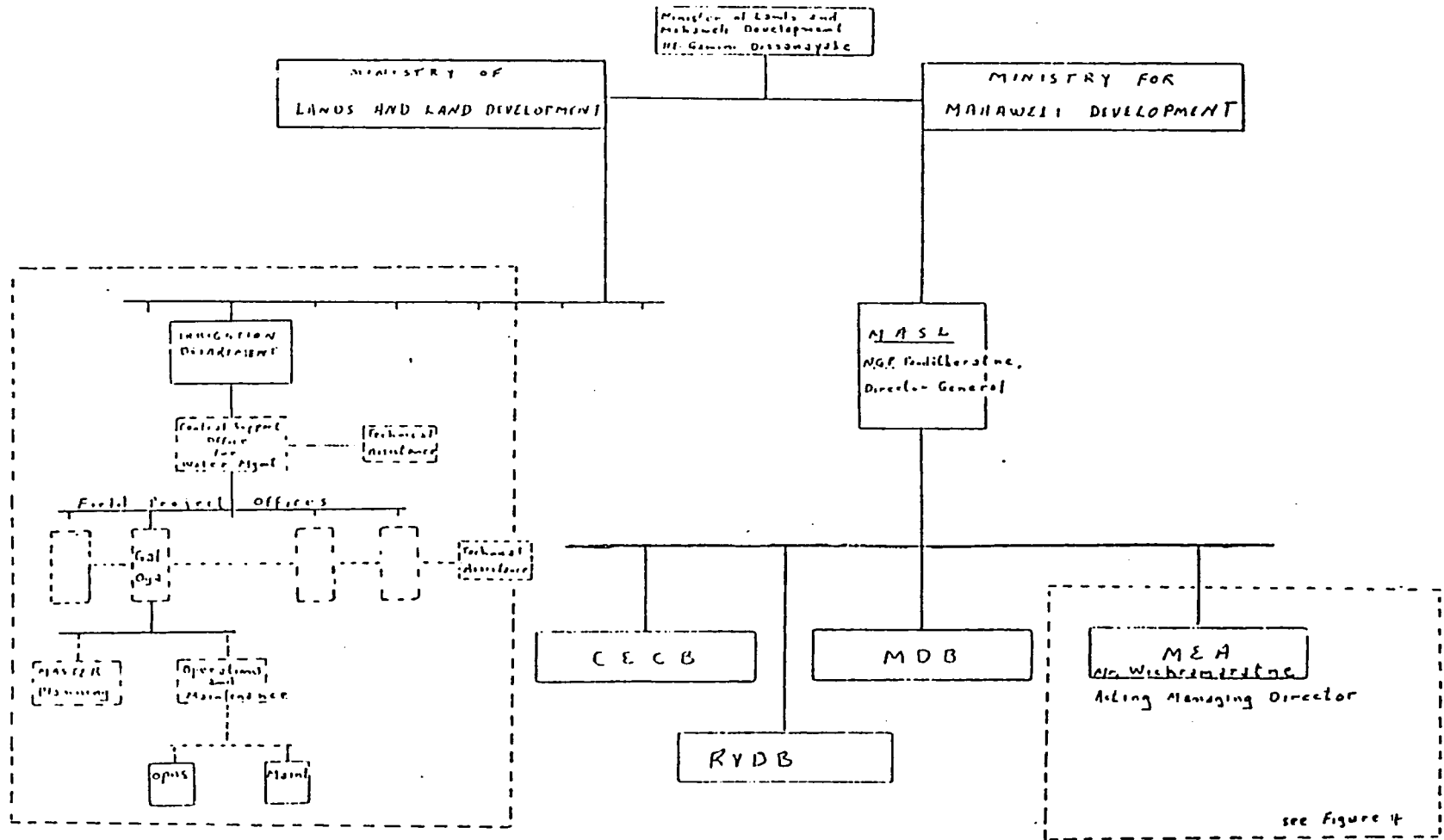


Figure 2. Overall Organization for Mshaweli Development

Engineering Consultancy Bureau (CECB). The River Valley Development Board (RVDB) is administratively linked to the Ministry of Lands and Land Development. MASL and MEA are forms of public corporations. The act creating MASL does, however, clarify the matter by giving MASL authority over various Boards and Departments in GOSL with respect to Mahaweli development. (The act is shown in Annex H of the USAID Project Paper for Sri Lanka "Mahaweli Basin Development Phase 1", Project No. 383-0056. See section 21 page 9.)

Mr. Perera of MEA (Acting Project Coordinator for System C) feels that MASL and MEA relationships with other ministries are very good. He says that other ministries like to try out new ideas in Mahaweli and they know Mahaweli is a good source of funds. MASL helps them get funds through foreign assistance and from GOSL. Mr. Perera cited the recent appointment of an additional Secretary (Mr. D. Wijesinghe) in the Ministry of Health to be in charge of the development of health services in Mahaweli. The Ministry of Health has presented a detailed proposal to MASL entitled "A Proposal for Health Service in the Operational and Accelerated Mahaweli Areas" (March 1979).

Obviously, major activity in Mahaweli development will be phased; upstream and headworks construction is currently in progress under the supervision of CECB, downstream construction is the second phase under MDB and finally MEA overseeing third-phase settlement and production in the various systems. (MDB carried out third-phase development to date in System H.) In addition, construction and settlement in the various systems will also be phased to some extent.

Current plans allow for slightly differing organizations of MEA in its settlement phase and production phase, the functions of which were discussed previously. Figures 3 and 5 were provided by MEA and its consultants from the British Overseas Development Ministry and the Commonwealth Development Corporation. It was pointed out that the organization for the settlement phase would evolve into its second stage primarily by a process of contraction as the need for settler services will diminish over time and a need for assistance in agricultural extension and water management will build up (but will require a lower ratio of field officers per farmer).

Figure 4 is an organizational chart for the settlement phase drawn by this consultant. It is a fleshed-out version of Figure 3, based on additional information provided by MEA and their consultants. Figure 5, by MEA, is intended to show both lines of authority and lines of communication of the MEA structure during the production phase.

Current planning is for an average of one field officer\* (bottom level in Figures 4 and 5) for 70 farmers during the settlement phase. Their functions, as well as the function of the Unit Manager, will be to organize Farmer Committees or turn-out groups, help farmers obtain credit and other production inputs, adjudicate boundary disputes and provide the various other settler services

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\* Field Officer is now the preferred terminology for workers at this level. They have previously been referred to as Production Unit Assistants.

# M. E. A MANAGEMENT CHART FOR THE SETTLEMENT PHASE

FIGURE 3

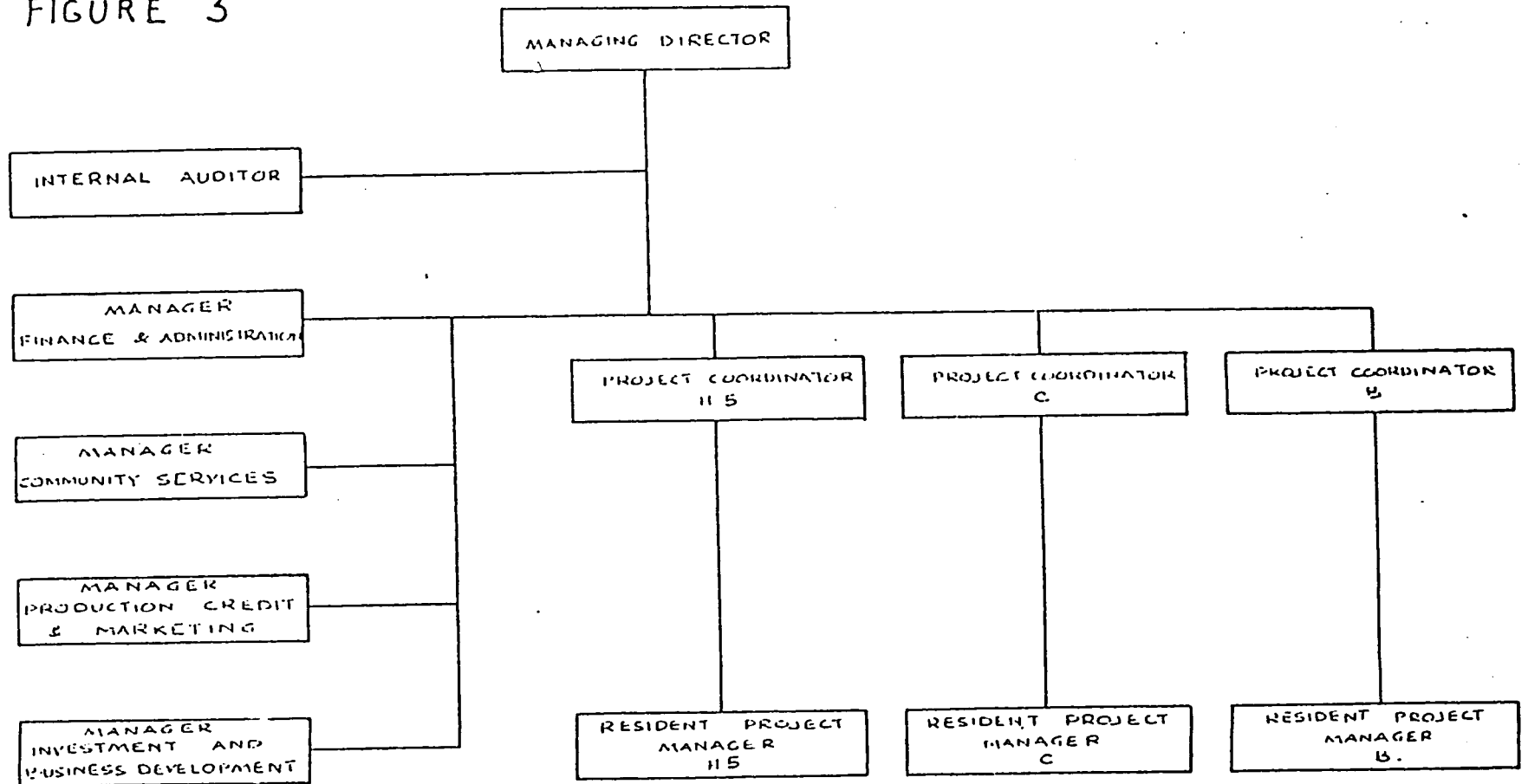


Figure 4. Organization Chart - MEA - Settlement Phase

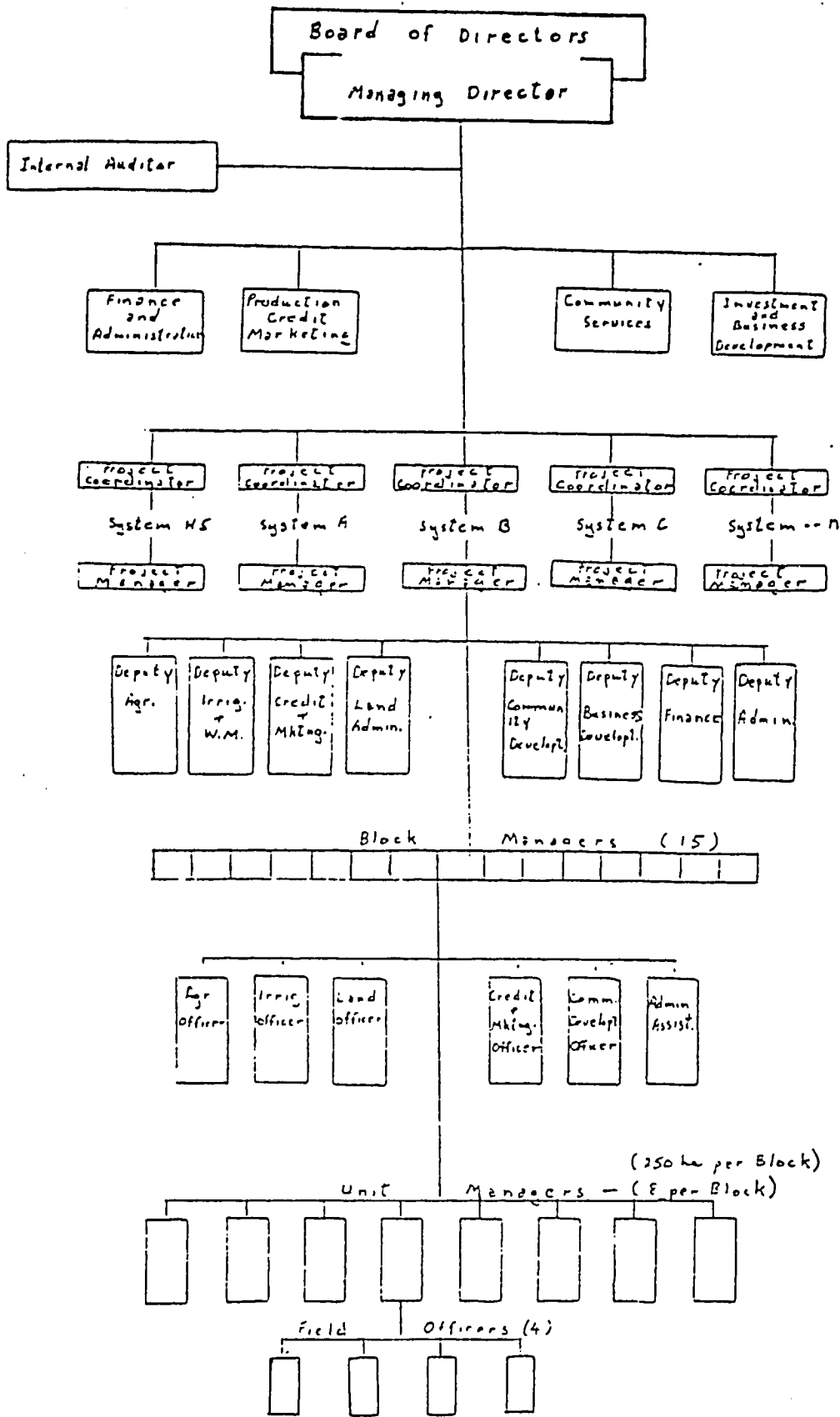
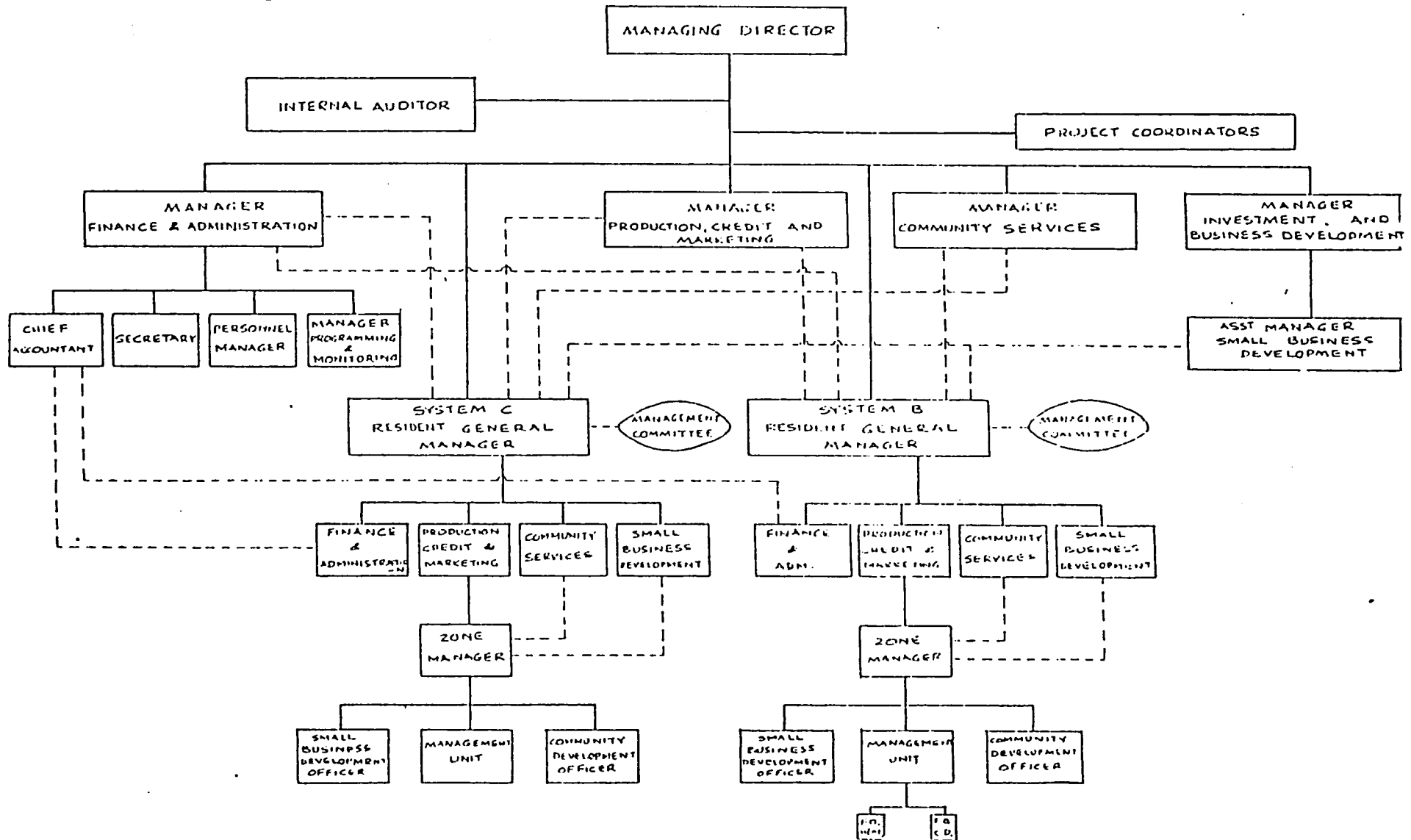


FIGURE 5 M. E. A. MANAGEMENT CHART - Production Phase



which will be required during the first year or so the farmers are on their land.

The next level of organization above the Unit level is the Block level, the function of which is to provide technical and administrative guidance and support to the Units. At the Block level, there will be five Technical Officers and one Administrative Officer under a Block Manager. The Agricultural Officer will provide guidance in matters of agricultural production in close cooperation with the Irrigation Officer. Major functions of the Irrigation Officer will be to assist in drawing up irrigation schedules at various levels and monitoring maintenance activities. The Land Officer is mainly responsible for allocating lands and settling boundary disputes. His function will diminish with time and the office may be phased out in later years. The Credit and Marketing Officer will oversee activities in his field, but his functions have not been completely defined as yet. It is likely that his function will also decrease with time as Farmer Committees and Cooperatives are formed to deal with credit and marketing.

The functions of the Community Development Officer will be greatest during the initial stages of settlement. He will, partly through Unit Managers and Field Officers, see that basic community needs are provided. He will be concerned with community health, education, water supply and transportation. He will be responsible for organizing youth and women's groups and other special activities. He will be concerned with the establishment of retail stores, repair shops and other community services.

The next level above Block, and the highest field level in MEA, is the System or Project Manager level. Each Project Manager will have five deputies which correspond to the Technical Officers at Block level. In addition, there will be deputies for Business Development and Finance and Administration. The functions at this level will be more supervisory than supportive. The System level officers will also be responsible for seeing that policies developed at higher levels are carried through to field levels.

At the Managing Director level, located in Colombo, four special units (Finance and Administration; Production, Credit, Marketing; Community Services; and Investment-Business Development) headed by senior officers are envisioned. These units would receive and transmit technology and performance data. They would participate in policy deliberations with the board of directors and have responsibilities for keeping the Managing Director informed through reports. They would be expected to make trips to field locations and would have responsibilities in the monitoring and evaluation process.

It is proposed that the Board of the MEA should consist of one Government Director and six shareholder Directors, of which three will be nominated by the MASL and three will represent other shareholders. "Other shareholders" will probably be the Commonwealth Development Corporation of the U.K. and, at some future date, participant farmers and/or commercial interests (this will be discussed further in a following section on financial arrangements). It is expected that both the Chairman and the Managing Director will be appointed from among the three Directors nominated by the Authority. There is no provision in The Act or draft copy of the incorporation



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order requiring the Board to report to any government agency. However, all Directors nominated by the MASL are required to follow the directions of the Minister of Mahaweli Development.

For System B there would be a total of about 120 units of 15 to 20 turnout areas\* each. Each turnout area would consist of 10-20 farms. There would be eight to ten Units in each of about 15 Blocks in System B.

As farmers become settled into their new routine and begin to concentrate on agricultural production, their requirements are expected to shift to an increasing need for extension and water management advice. It is expected that one field officer can service about 125 farmers during this phase, which is a reasonable expectation in view of experience in other developing countries, provided that the agents are adequately trained and properly supported. It is anticipated by MEA that some of the field officers will shift their emphasis and specialities during this transition and others will be promoted and/or moved on to newly-settled areas. At any rate, the organizational structure will shrink, as indicated in Figure 5. Project coordinators have been taken out of the direct line of authority in the production phase, Project Managers are called Resident General Managers and Block Managers have been redesignated

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\* "Turnout area" refers to the agricultural area served by a turnout from the distributory channel or last branch of the irrigation system. The Hunting report referred to turnout areas as Production Units.

as Zones Managers. MEA indicates that the number of Zones for administrative purposes is not yet fixed and will depend on experience in Systems H and C.

Not shown in the organization charts are the following bodies which are in the planning or discussion stage:

- Community Center
- Demonstration Farm
- Upland Research Station (integrated farming systems research)
- Water Allocation and Management

Community Centers and Demonstration farms are visualized at Block level for farmer contact, training and extension education.

The Upland Research Station, to be located near Pimburettewa Tank in System B, is being considered to evaluate crops other than rice for production in the Mahaweli scheme, primarily System B. There may be similar stations in other areas. UN/FAO is considering the provision of technical assistance and financing for the Upland Research Station and have agreed to provide a copy of their project proposal to USAID.\*

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\* According to telephone conversation with Mr. Kim of UNDP/ Colombo on April 11, 1980.

The Water Allocation and Management Unit will operate throughout the scheme from the headworks to turnouts from "D" channels. Little attention has been given to this indispensable function, but Mr. Wickramaratne, Acting Managing Director of MEA, has asked Dr. Stanley Baker of IBRD and this consultant to prepare a paper on possible organization and function of such a body.

### Staffing

As mentioned in the background section, MEA has only recently begun appointing staff at headquarter's level in Colombo and for System C. Recruiting and staffing for System B is scheduled to begin six to eight months before commencement of settlement activities.

According to the USAID project paper, the first harvest from the initial 4700 ha of cropland in System B is targeted for October/November 1983. Current MEA planning is for this first harvest to be one cropping season sooner - April/May 1983. Figure 9 shows that MEA recruiting and staffing should begin in April 1980 or October 1980, depending on which target is used. The MEA schedule will be difficult to adhere to, especially if settlers are brought in two seasons early as laborers.

A list of MEA staff (whose appointments are temporarily under MASL or MDB pending official sanction of MEA) was provided by Mr. Austin Perera on March 28, 1980. The list may not be complete and recruitment is an ongoing activity. These positions may be related to the organization chart in Figure 4.

Managing Director, MEA	Mr. Wickramaratne
Director-Production, Credit, Marketing	Mr. W. Jayasuriya
Director-Investment and Business Development	Mr. D.P.D.M. de Silva
Chief Agriculturalist	Mr. J. Kotalawala
Project Coordinator - System C	Mr. Austin Perera
Assist. Proj. Coordinator - System C	Mr. S.B. Niyangoda
Project Manager - System C	Mr. Werawardene
Block Manager - System C	Mr. Devasiri
Assistant to Block Manager	Mr. Misanguratne
Community Development Officer	Mr. Subawickrama
Project Coordinator - System B	Mr. Warnasuriya

Mr. Perera indicated that recruiting emphasis is currently for field staff. In addition to the above management level employees, at least 23 people have been selected at the Unit Manager/Field Officer (diploma-agriculture) level. He expects them to be appointed in mid-April 1980.

As of about March 17, 1980, MEA assumed control of a number of MDB staff in Block 5 of System H. MEA intends to operate this area (Pilot Project) on an experimental basis to gain experience to be used in carrying out their responsibilities in Systems C and B.

Estimates of MEA personnel requirements at full strength have been made on the basis of information from the Acting Managing Director.

	Head quarters	System C	System B
Managing Director	1		
Internal Auditor	1		
Manager - Finance and Administration	1		
Manager - Community Services	1		
Manager - Investment and Business Development	1		
Project Coordinator	1		
Department Chiefs	17		
Assistant Department Chiefs	15		
Senior Examiners	3		
Examiners	6		
Section Controllers	4		
Accountants	4		
Financial Analysts	2		
Senior Agriculturalists	2		
Bookkeepers	14	25	36
Draughtsmen	2	7	10
Dispatchers	4		
Secretaries	31	120	180
Typists	8		
Record Clerks	5	3	4
Project Clerks	3	3	4
Messengers/Watchmen	10	5	5
Drivers	12	30	45
Storekeepers		120	162
Storekeeper Assistants		25	36
Project Manager		1	1
Deputy Project Managers		8	8
Technical Assistants		2	2
Block Managers		11	15
Technical Officers (Asst. to Block Mgr.)		55	75
Unit Managers		88	126
Field Officers		176	252
T O T A L	<u>149</u>	<u>679</u>	<u>961</u>

Additional personnel may be required as follows, depending on MEA's involvement in machine hire and marketing operations:

Tractor Drivers	up to 400
Thresher Operators	400
Mechanics	200
Buying Clerks (seasonal)	800

About 800 of the above will be technical field personnel and about 40 will be senior officers at headquarters. It will be difficult for MEA to fill these positions within the next four to five years.

Since development is phased from zone to zone within each system and has not been scheduled, no estimates of personnel requirements by year can be provided. However, a rough idea of personnel requirements can be obtained by taking the ratio of field personnel to settlers (refer to Section IV E of this report).

<u>Year</u>	<u>Field Personnel (cummulative)</u>
1980	32
1981	112
1982	337
1983	752
1984	1234
1985	1534
1986	1640

#### Financing

The initial share capital of the MEA is specified in the Incorporation Order (Annex 1) as ten million rupees of which six million shall be payable by MASL. Through interviews, consultant has been informed that the Commonwealth Development Corporation (CDC) is expected to subscribe to 30 percent of shares and that the remaining ten percent are reserved for later issue to farmers or private business interests. Share capital is to be used to finance only basic requirements of the headquarters of MEA. The various activities of MEA are to be financed by special allocations from MASL and from loan and grant funds. CDC, friendly governments and other international lending institutions will be major sources of operating funds.

CDC does not expect a return for its share capital investment but regards it as an entrance fee for becoming involved in MEA decision-making and commercial activities.

The Commonwealth Development Corporation (CDC) was formed on corporate principles in the U.K. shortly after World War II. It is an extension or successor to the Colonial Development Corporation. The CDC can borrow from the British government, but has to operate according to sound business principles similar to IFC and IBRD. CDC is empowered to participate in private sector development activities as well as with governments of developing countries. They are involved with urban housing developments in Singapore and with the Federal Land Development Authority (FELDA) in Malaysia.

#### Role of Women

Religion, culture and tradition are strong in Sri Lanka and all discriminate against women to some extent. Some Moslem women are still in Purdah (Wallegedera area) and Buddhist women cannot aspire to the highest state. Tradition generally dictates women roles subordinate to men. Dowery, or bride price, is still practiced in Sri Lanka. However, by the general laws of Sri Lanka, women are equal to men on matters of contract, tort and inheritance. There has been universal suffrage in Sri Lanka since 1931. Abortion is illegal except for the purpose of saving the life of the mother.

There are various civil laws applicable in Sri Lanka (Moslem or Shariat law, Thesawalamai, Roman-Dutch). Most of these discriminate against women to some extent. Moslem law permits polygamy although

it is seldom practiced. Roman-Dutch law, where applicable, is said to discriminate against women on property matters. Divorce is fairly liberal except under Moslem law which favors the husband.

Women exercise their right to vote, but political participation by women is otherwise low. Working women receive lower pay than men, according to pay scales of Wage Boards and in the plantation sector.

Education is now a powerful force for "liberating" women. About 40 percent of University students are women and almost half of the public school enrollment is female. Urbanization is perceived as providing new opportunities and scope for developing a more dynamic role for women.

The role of women in settlement areas has not been studied extensively, but some observations are provided by TAMS.

- a. Women tend to become more isolated than in their previous environment because they are fewer in number and their community is less cohesive. (The same could probably be said about men).
- b. Women have more responsibilities (which should help create a more dynamic role).
- c. Women are not recognized as joint owners of land with their husbands, but can inherit.



#### IV. ANALYSIS

##### A. Ministry for Mahaweli Development

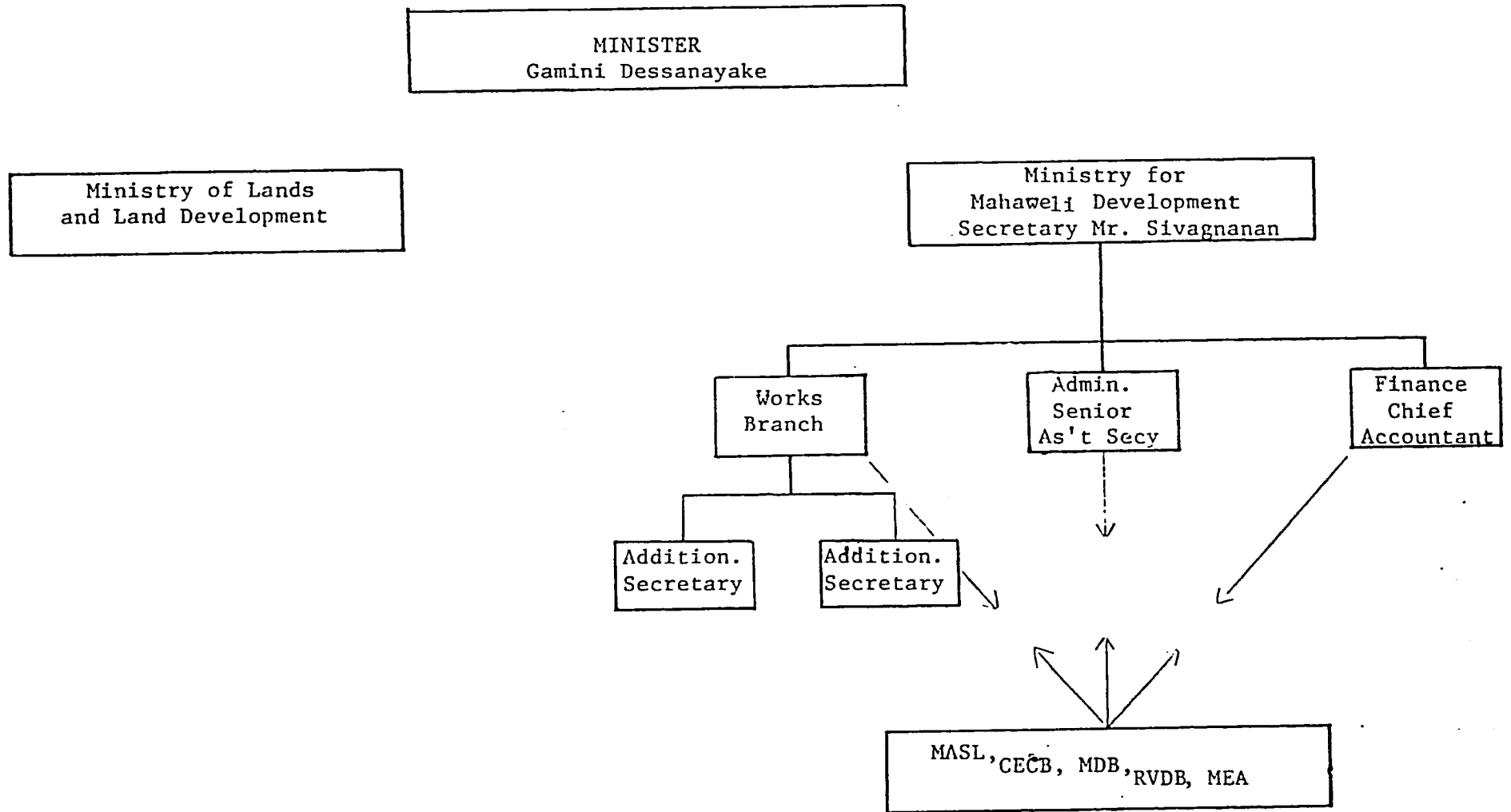
The Ministry for Mahaweli Development (MMD) is a separate ministerial portfolio assigned to the Minister of Lands and Land Development. The Secretary for Mahaweli Development, supported by various additional Secretaries (System B, System C, Victoria Project, etc.), reports to the Minister, who has political responsibility for Mahaweli development and related functions in MLLD such as land development, irrigation and forestry. (See Figure 6.)

The Ministry for Mahaweli Development and the Mahaweli Authority of Sri Lanka operate almost as a single unit with regard to Mahaweli development. The Ministry retains most accounting and administrative functions while MASL is more into planning and policy-making.

##### B. Mahaweli Authority - MASL

This Authority has been created in response to high national priorities and given broad powers to carry out its assigned duties. The Act creating MASL has been reviewed by consultant and by T.H. Yoon, leader of the World Bank Appraisal Mission who is also a lawyer. Both agree that legally, MASL is in a very strong position. Note that paragraph 2 of Section 2 of The Act provides for a corporate structure which can sue and be sued in accordance with the laws of the land.

Figure 6 Organization of Ministry for Mahaweli Development



The MASL has a strong inclination to perform all functions from construction through management to settler services and production assistance in the Mahaweli Scheme. They expect assistance from other Ministries and departments, as per sections 21 and 22 of The Act, but intend to maintain authority in all matters pertaining to Mahaweli development. At present, MEA policy conforms to MASL's thinking on this subject. By various provisions of The Act, MASL is a very powerful organization, and this power will carry through to MEA via the incorporation order which is expected to be officially sanctioned by about June 1, 1980.

The concept of a public corporation is not new and has been used with varying degrees of success in many countries over a long period of time. The usual pattern of such a corporation is as follows:

1. An initial period of growth, perhaps five to ten years, characterized by eager management and staff anxious to get on with the job at hand. They are usually quite efficient, especially from the standpoint of the ratio of results to unit of staff. The "bureaucracy" is not too heavy. New methods and ideas are given fair trial - this is the most innovative phase of the corporation.

2. Non-technical problems begin to plague the corporation:

- it is inevitable that the favored status of a new corporation will provoke resentment and jealousy from established bureaucracies who feel threatened or have had their powers usurped. In time, they will mount a counter-

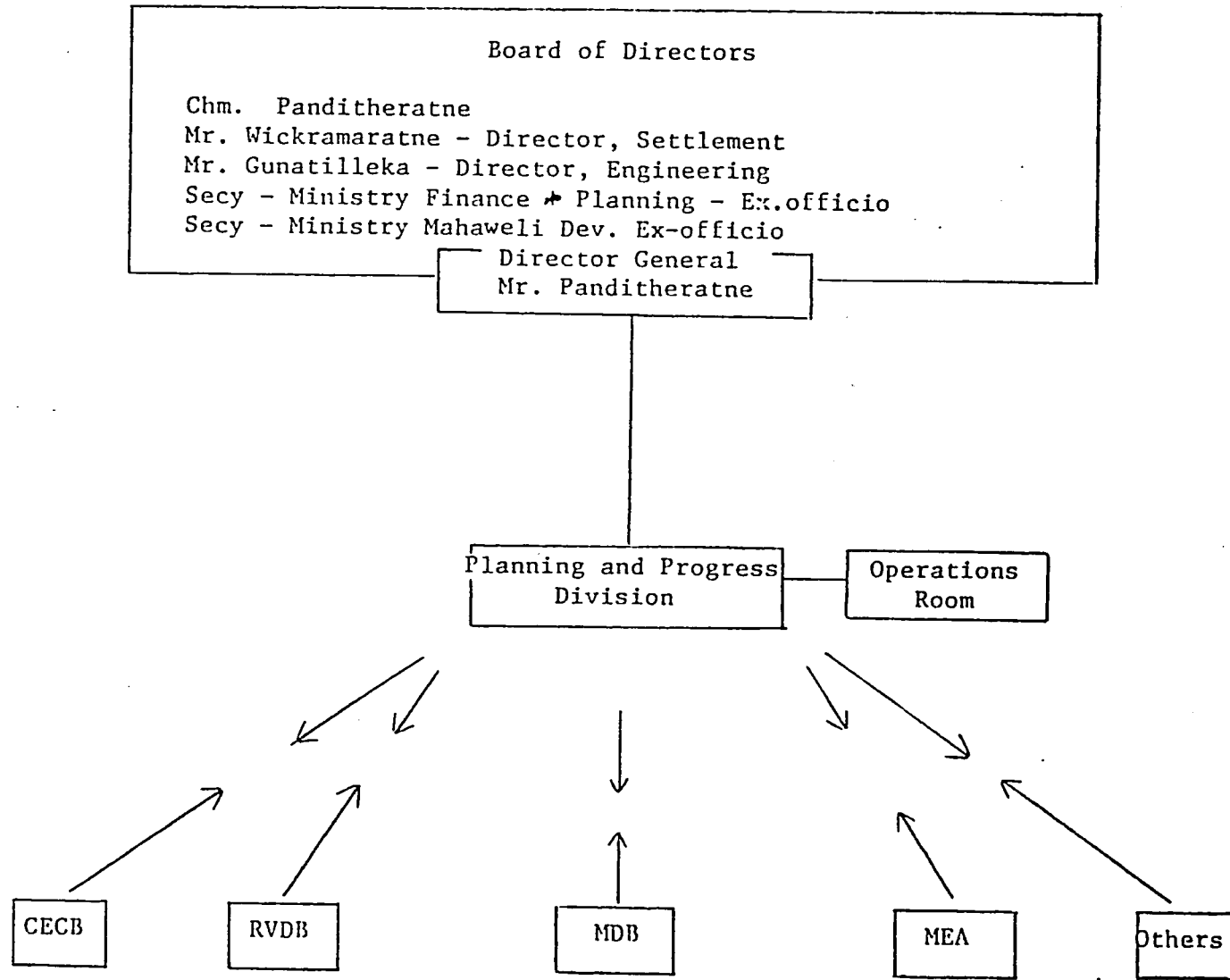
attack, usually manifested through political channels or perhaps civil suits.

- The corporation will experience "growing pains" and other internal problems. Bureaucracies devote some of their time to individualistic empire building and proliferation of function. This promotes internal squabbling and the bureaucracy begins to get too heavy. They seldom fade out even though their original function has been accomplished. However, there does seem to be a fading of efficiency and innovativeness.
3. The corporation gets whipped out by its opposition or evolves into a "normal" organization which fits into the overall bureaucratic structure without undue distinction or threat to its siblings.

MASL will probably fall into a similar pattern. Every effort should be made for it to accomplish as much of its original objectives as possible during its earlier stage.

At present, MASL and its action agencies appear to have staff, financial and physical resources, and technical assistance in reasonable supply. With expansion of its functions to System C, B and so on, these will be stretched thin, particularly local talent. Targets appear to be somewhat optimistic. MASL and its action agencies will probably suffer some embarrassment and open themselves to criticism for failure to meet some of these targets. However, the targets are not completely

Figure 7 Organization of M A S L



If MEA does not materialize, the following divisions would probably be set up under MASL as line organizations to P + P Division: Settlement, Agriculture, Credit and Marketing, Community Development.

unrealistic and in the context of present Sri Lanka enthusiasm, this consultant feels that it is better to strive for higher goals and targets than to opt for conservative, easily attainable targets which might slow the pace of development. Financial and technical assistance depend on outside aid which is undergoing some changes due to the current world financial crisis. Sri Lanka seems to be in a reasonably good position as an aid recipient, however, from its geographical location and its international politics.

#### C. Mahaweli Development Board - MDB

MDB and its sister organization, CECB, have been functioning since several years before the creation of MASL in 1979 and have shown some impressive results. In addition to the actual construction and settlement which has been accomplished, particularly in System H, these organizations show a real aptitude for coordinating outside assistance from various donors and lenders. Consultant is also impressed with their ability to evaluate the various and sometimes conflicting recommendations from different sources and their willingness to experiment where necessary. In general, their organization and management approach is not at all rigid, but retains the necessary structure and control to allocate resources according to economic determination and policy.

It is evident that Sri Lankan politics are involved in Mahaweli development. This in itself is not detrimental to development efforts except where such involvements interfere unduly with sound management and technical decisions.

MDB will pass some of its functions on to the new Mahaweli Economic Agency. Its experience in the production phase - settlement, extension, community development and water management - must also be passed along. Hopefully, this transfer of personnel and experience can be made smoothly with a minimum of the resentment and bickering that inevitably accompany such changes. Figure 8 is an organization chart of MDB. Most of the functions and personnel under additional GM (op.) will be transferred to MEA.

D. The Mahaweli Economic Agency - MEA

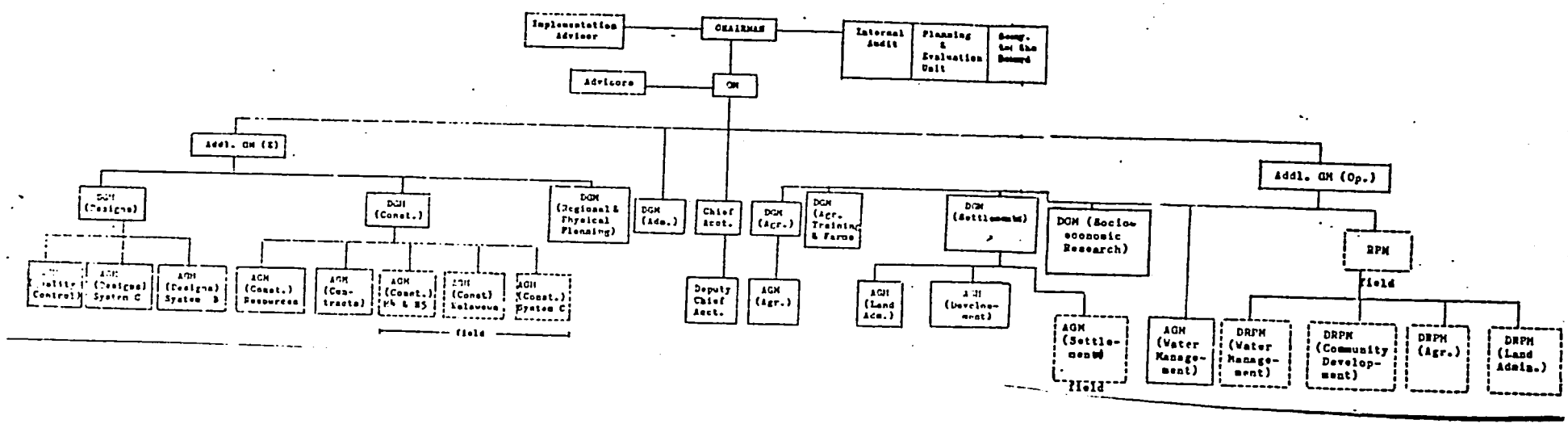
No attempt can yet be made to assess or evaluate the effectiveness of MEA, as it is not yet in operation. However, its background can be assessed and its potential evaluated.

MASL and GSL are evidently dedicated to establishing MEA and providing the resources and authority required to carry out its assigned functions. This is evidenced in the Draft Incorporation Order (Annex 1) and by the resources (personnel and building) to be put at the disposal of MEA.

MEA will have little time to organize and learn - it will have to appear on the scene as a functioning organization. Its period of infancy will be very short or non-existent. Very important things are happening, however, during the gestation period.

- Managers and staff have been recruited, appointed by MASL and put to work in planning on the assumption that MEA will become a legal entity within about two months. The upper level

FIGURE 8. MAHAWELI DEVELOPMENT BOARD  
ORGANIZATION CHART



P & E Division  
April 1979.



management encountered by consultant were experienced and capable people, but as recruitment accelerates it will become more difficult to find qualified personnel.

- MEA has assumed control of an experimental development area in System H, along with former MDB staff. This gives them the benefit of experienced staff in addition to numerous domestic and consultant reports and recommendations regarding their future role in Mahaweli development. They have time to learn through experimentation before they assume their responsibilities in System C. They also have the means for conducting experiments in a settled area which would be difficult or imprudent on a larger scale. They can anticipate likely problems and devise strategies pertinent to the future of Systems C and B through experiments in the older, settled areas of System H.
- The acting management and staff of MEA seem to be competently planning and organizing with a clear view of their objectives and a realistic attitude about the resources available. Their evaluation of various consultant reports and previous experience in System H is encouraging, especially since they are faced with conflicting information and recommendations in some cases.
- They have scaled down the magnitude of the recommended organization by adopting a lower ratio of field officers to farmers during the production phase because of anticipated limitations of personnel and funds. The lower ratio is

reasonable in light of experience in other countries, although MEA plans to extend a larger package of services to farmers than is usual in developing countries.

They have decided to promote farmer organization to a great extent. There will be more emphasis on organizing farmer committees in each turnout area, according to current MEA planning. There has also been discussion regarding an extension of farmer organizations to the unit or even block levels - federations of turnout Level Farmer Committees. This may be in response to recommendations by Khan, Scudder\* and others.

They have tentatively adopted the unit approach to farmer contact in order to avoid the longer lines of vertical parallel authority of System H. In the unit approach, farmers have to deal only with the Unit Manager (or his Field Officers) for advice and services such as extension information, water management and control directions, credit and marketing assistance, etc. Under the other system, farmers might have to deal with a different person or authority in each category. Although the unit approach is more efficient in principle and certainly should be given a fair trial, it has two disadvantages. It will (1) duplicate the functions of existing organizations (research, extension, etc.) and (2) is likely to cause resentments and jealousies in established organizations.

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Khan - "A Note on RPM (K)'s Administrative Structure" - undated.  
Scudder, Thayer - "Evaluatory Report on Mission to Sri Lankan Settlement Projects: A Discussion of Some Basic Issues", May, 1979.

MEA has decided to bring farmers to the project area two or three cropping seasons before they receive their land allocation. This will provide a labor pool for construction. Presumably, there is a dearth of manual labor in some of the project areas. Consultant is not sure this action will be well received by the farmers, who are expected to leave their families behind, or by MDB who will employ the settler-workers indirectly through contractors. Field level MDB officials have already expressed some doubt as to the soundness of this procedure. There is some concern that, without their families, farmers will fall prey to gambling, prostitution and loneliness. There is doubt that these immigrants can be supplied with necessities during this initial phase of their tenure. There is some doubt that such immigrants can perform satisfactorily as construction laborers. MDB wishes to have work performed on contract and cannot accept the responsibility of supervising individuals. MEA is no doubt flexible enough to give this settlement approach a fair trial and alter it if necessary. The only apparent option is for MDB to continue to deal with construction contractors who are responsible for providing all their own labor, as was done in System H. In System H, there was, even at the beginning, a reasonable supply of labor from towns and villages in or near the area. This is not the case in Systems B and C, so contractors would have to import labor and provide for their livelihood, much as MEA proposes to do with worker-settlers. The result of contractors bringing in their own laborers would be that MEA would have no control over the welfare of laborers in the Mahaweli scheme,

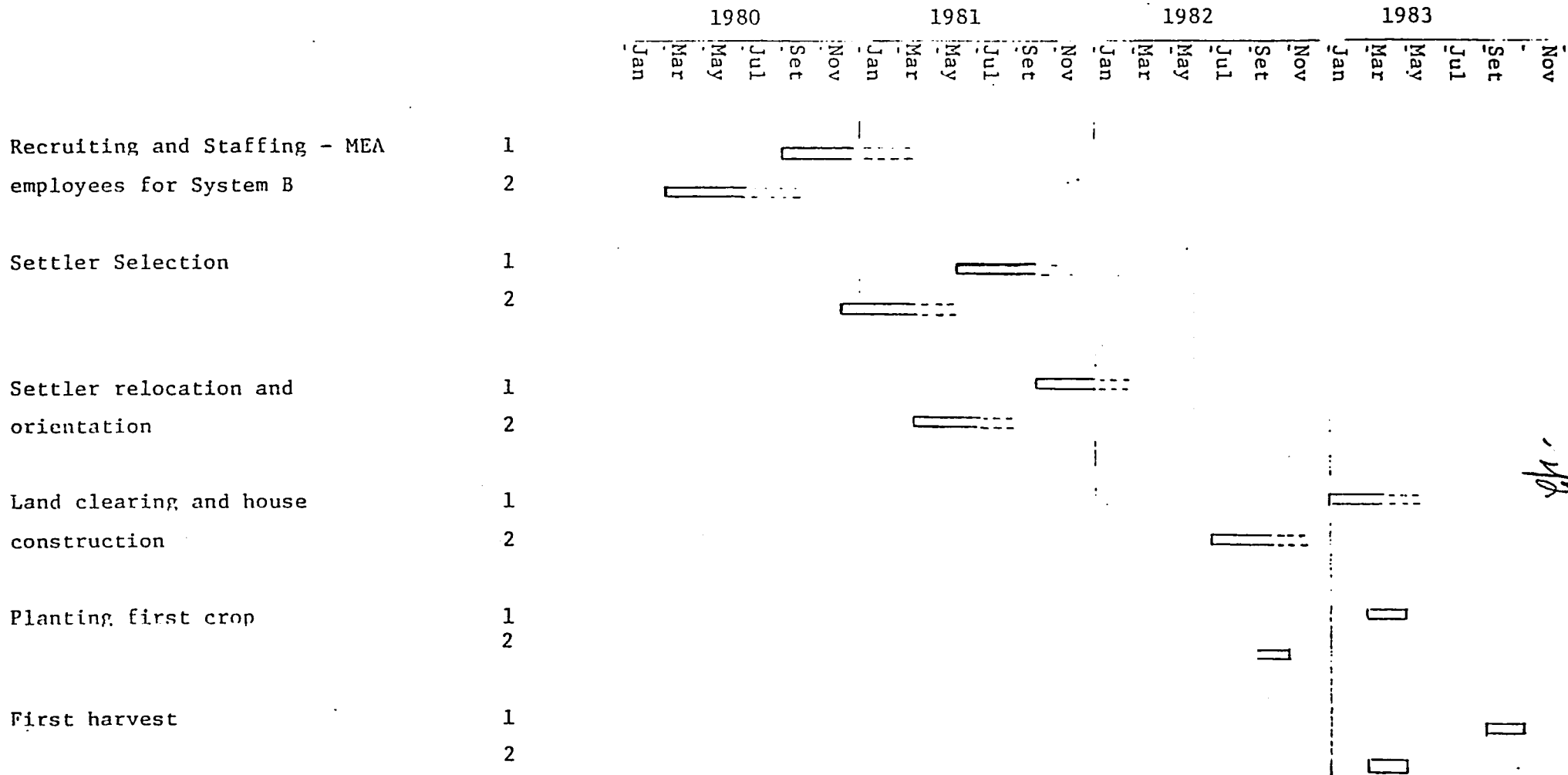
and labor costs would be higher than if there was an adequate indigenous labor force. If contractors import their labor from outside, the actual costs would probably be higher than if MEA imports settler-workers because MEA will be able to provide support on a more economical scale and will probably receive food aid from the World Food Program.

Since development and settlement of System B is scheduled to lag somewhat behind the development of System C, MEA's procedure should be more refined and efficient in System B. This points to the need for careful monitoring, evaluation and special studies, especially in the earlier stages. Figure 9 shows activity schedules for the settlement phase in System B according to two different targets. The second (accelerated) target is currently favored by MEA.

Some of the development problems to be faced are:

- Water allocation, control and management. This will probably be the greatest problem in the future. Estimates of water requirements, water availability and potential irrigated acreage are frequently overly optimistic in projects of this kind and consultant feels that the Mahaweli scheme will be no exception. At any rate, optimum use of available irrigation water must be made if project objectives are to even be approximated. Organization, research and extension are important elements for optimizing water use but will be less effective in the face of improper design and layout of the irrigation system. One problem that can hopefully be avoided is that irrigation requirements are sometimes estimated on the

Figure 9 Alternative Schedules from Recruitment/Staffing to First Harvest - System B



1 - targets according to USAID project paper

2 - targets according to Mr. Perera of MEA

assumption of almost perfectly leveled fields. A realistic appraisal, based on experience with similar projects, of the degree of field leveling which can be expected should be made for System B. This might also be an appropriate topic for investigation in the H5 Pilot Project. Studies of farmers understanding of costs and benefits of land leveling could be conducted here, as well as investigations of irrigation efficiency and degree of leveling under various incentive systems.

- Monitoring, evaluation and special studies have apparently not received adequate attention in planning. Although MEA is aware of the need, one gets the impression that they have other priority problems to deal with first.
  
- The apparent commitment to rice cultivation is somewhat puzzling. Consultant feels that a flexible attitude should be taken toward more extensive cultivation of other crops, particularly higher value crops such as onions, chillies and fruit which require less irrigation than rice. Consultant has noted a move in this direction by System H farmers despite the various official subsidies and incentives for rice. MEA and MDB officials insist that the farmers themselves prefer to plant rice because rice is the crop they are most familiar with. Also, rice is the basic food for farm families and is less risky to grow from the standpoint of possible crop failure and market uncertainty. These objections can, and probably will be overcome, in time, by experience, agronomic research and market development.

- Waterlogging and salinity have damaged or destroyed numerous irrigation and land development projects throughout the world. Since this problem is not readily apparent in the earlier stages of development, it is tempting to ignore it or defer consideration. Within MDB, the general opinion is that salinity will not be a problem because of the flushing effect of monsoon rains. Consultants generally agree, but admit that the extent of soil salinity has not been adequately determined. This consultant's impression is that this problem is not receiving adequate attention at present, even though there is some evidence of high water tables and pocket salinity in System H. (Unconfirmed reports of sodium salt pockets).

The major defenses against waterlogging and salinity are: (1) appropriate design and layout for irrigation and drainage and (2) water management. Therefore, if waterlogging and salinity are potential problems, it is prudent to plan for their control from the very beginning of the project.

Organization of MEA seems to be reasonable in view of resources available and objectives to be accomplished. While recognizing that organization is not yet complete and that personnel availability is limited, some important functions are not yet reflected in the organization charts provided to consultant.

- Monitoring and evaluation. This involves monitoring the progress of such activities as settlement, organization of farmers, land improvement and agricultural production and comparison with target schedules. Evaluation is conducted to

assess the technical, social and economic efficiency of the various activities. Consultant was informed verbally of plans for an Operations Room in MASL which may be intended to perform all or part of this activity. However, this consultant has the impression that the primary purpose of the Operations Room is to be for briefing officials and visitors. A specialized unit should be set up in MEA on sound organizational and scientific principles and given the sole responsibility for monitoring and evaluating MEA projects in the Mahaweli scheme. See Figures 10 and 11.

According to "Mahaweli Projects and Programs" published by the Ministry of Mahaweli Development in December 1979, sample socio-economic surveys have been completed by MDB for both System B and System C. These vary in quality and the System B study is not comprehensive enough to provide adequate base-line data. More comprehensive surveys are being, or will be undertaken by MEA. Foreign assistance institutions, including AID, are particularly interested in monitoring and evaluation which is essential (1) to assure that development resources are used as efficiently as possible in the project being monitored and (2) to provide useable knowledge for development assistance in other projects and other countries. The impressive cooperation among donor institutions in Sri Lanka should enable them to come to a reasonable agreement among themselves and with GOSL regarding a suitable agency for monitoring and evaluation in the Mahaweli scheme. This agency should be supported by technical assistance, training and funding as necessary.



- Special studies will be required to assist in evaluation and will consist primarily of socio-economic surveys and other field investigations. They might include investigations of waterlogging and salinity and farmers attitudes toward the production of crops other than rice.
  
- MEA organization does not yet provide for water allocation, control and management from field level up to where it interfaces with MDB or other water allocation authority.
  
- The functional and authoritative relationships between research/extension and other MEA activities are not clear. Evidently, MEA plans to utilize agricultural personnel seconded from the Ministry of Agricultural Production and Research to some extent while training new recruits and giving them experience in agricultural extension as well as water management and community development. The functions and relationships of proposed Demonstration Farms, Community Centers and Research Stations needs further clarification.

#### E. Rate of Settlement

Hunting Technical Services and Acres International have developed settlement schedules for Systems B and C which are summarized below.

	<u>System C</u>	<u>System B</u>
1980	1000	
1981	2500	
1982	2370	4700
1983	2500	10700
1984	3400	11900
1985	2250	7350
1986	3310	
T O T A L	<u>17,330</u>	<u>34,650</u>

The above schedules were developed on the basis of assumptions which seemed reasonable at the time. The sugarcane/rice cropping pattern (under which the settlement schedule for System C was developed) is being reconsidered. Acres gave various scenarios for settlement, only one of which is shown above.

MEA generally agrees with the above schedules, but hopes to accelerate settlement in System C to some extent. They have not reached the point of seriously evaluating the schedule for System B.

The most recent schedule for System C calls for bringing in about 800 new settlers and resettling about 700 existing farmers in the second half of 1980. Settlement would be completed by end of 1984. This information was provided reluctantly by MEA because they felt that "it will change as we go along". Settlement schedules are obviously dependent on construction schedules, and experience in System H and other land development projects dictates that delay should be anticipated. (To be fair, it should be mentioned that downstream construction in System H has been almost on schedule and that slippage was sometimes due more to delays in study, design or financing than to construction problems.) However, this consultant

feels that the major difficulty in adhering to the settlement schedules will be obtaining staff, trucks, foodstuffs, building materials and other necessities to handle the flow of settlers. The following list is an estimate of the average number of settlers who would have to arrive at the projects (C and B) per day (seven days per week) if the more optimistic settlement schedule is kept.

Presumably, their families would arrive after about one year, along with personal possessions. This could mean that about nine trucks or buses (10 families per vehicle) would arrive daily at project sites in 1984, the year of peak activity.

<u>Year</u>	<u>Settlers per Day</u>
1980	4
1981	12
1982	27
1983	49
1984	43
1985	20

MEA currently hopes to complete settlement of Systems C and B by end of 1985, but settlement targets are flexible, and will no doubt be periodically adjusted. This consultant believes that settlement will not be completed before end of 1986 and probably not before end of 1987. Seventy percent completion by end of 1985 seems well within the realm of possibility, barring any unforeseen setbacks.

## V. RECOMMENDATIONS

### A. Organization

Figure 10 shows suggestions for research/extension, monitoring/evaluation and special studies interposed on an organization chart similar to that in Figure 4. These should meld into the production phase as suggested by Figure 11.

Monitoring/evaluation and special studies are envisaged as closely related organizations headed by senior technical people and attached to the office of the Managing Director. The monitoring/evaluation and special studies units would have direct communication and technical association downward at least to the project manager level.

Serious consideration should also be given to a liaison office at this level to handle administrative and technical arrangements with other ministries and departments. This office should probably also take care of liaison with international agencies to the extent permitted by law and convention.

Research stations should be attached to the office of the Project Manager (or Resident General Manager, as the case may be) with lines of communication upward to related departments and ministries through the liaison office. Downward communication and close working relationships should be maintained with Demonstration Farms and Community Centers and with technical personnel at the Block, Zone or even Unit levels.

Figure 10 - Recommended Additional Functions for M.E.A

Min. Agr. - Res. and Ext.  
 Min. Land - Irrig. Water Regult.  
 Other Ministries and Depts.  
 health  
 education  
 post and telegraph  
 police  
 etc.

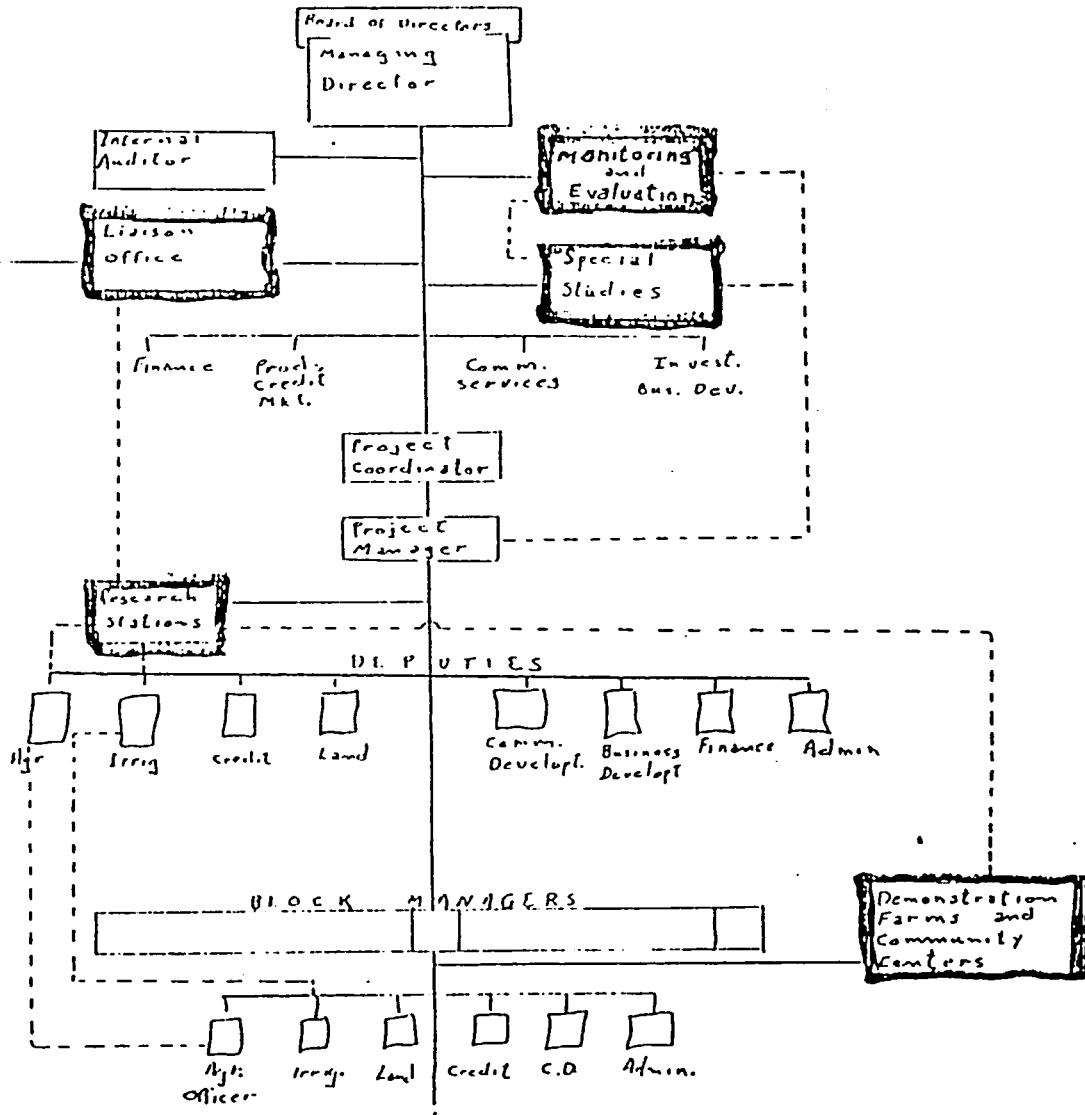
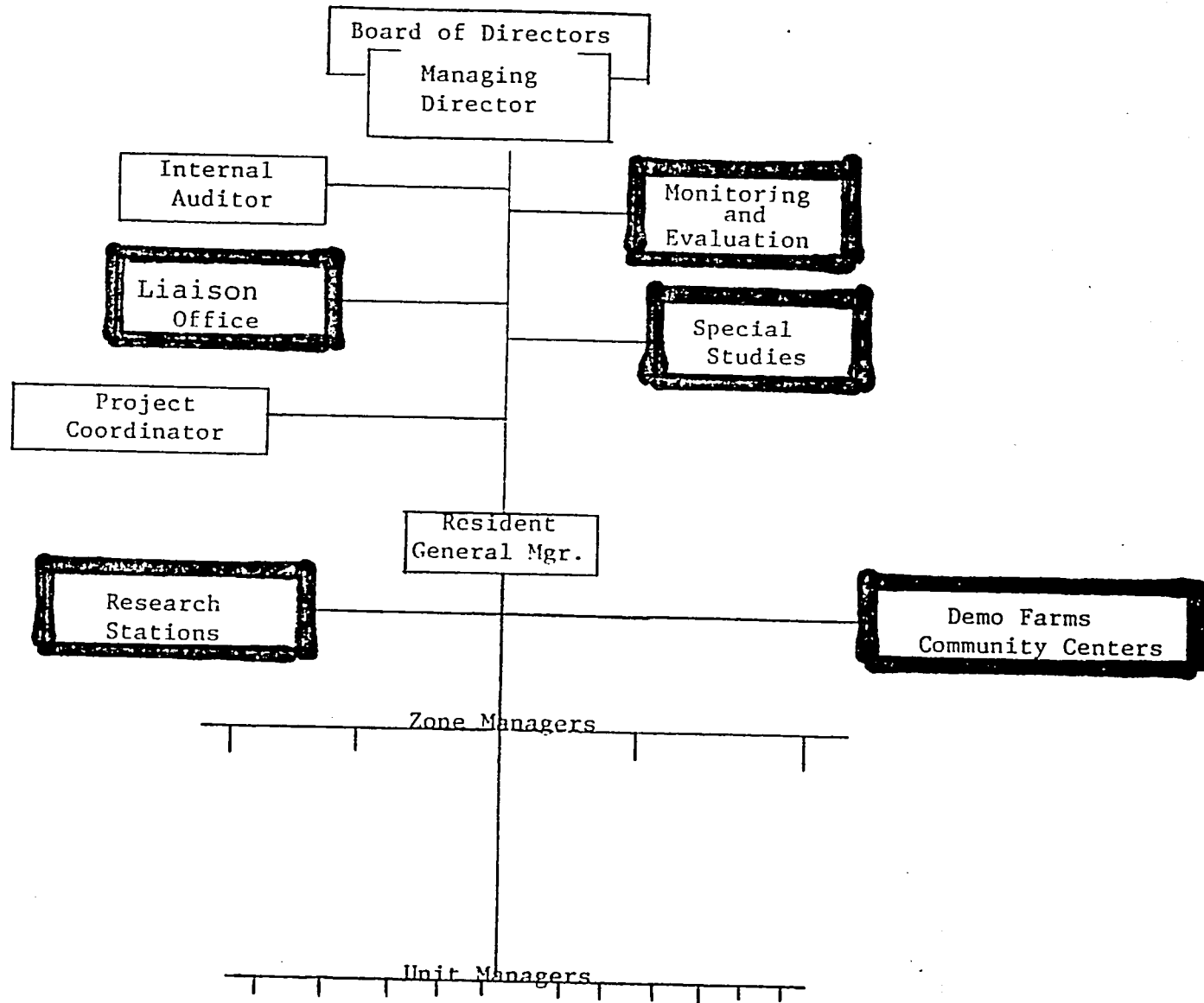


Figure 11 Recommended Changes in MEA Organization



Research stations in Mahaweli are usually referred to in the context of some specialty such as "upland crops" or "farming systems". This is partly due to reasonable priorities and to special interests of certain donors. MEA should begin to think in terms of an integrated research system responsive to changing needs with various stations and farms cooperating in agronomic, livestock, horticulture, fisheries, forestry, economic and social science research. There are some obvious benefits of tying Mahaweli research in with the national research system, especially rice, coconut, tobacco research which is already well developed in Sri Lanka.

It is understood that training for officials and farmers will be an important function at the Demonstration Farm/Community Centers. There will be approximately one such Farm per Block but they may be better managed at a higher level after Units and Blocks have been reshuffled in the production phase.

Details of the internal organization of the various units mentioned above are not shown because consultant is confident that MEA officials and their regular consultants are better equipped to do this.

The need for an organization for water allocation, control and management was pointed out to the acting Managing Director of MEA, who responded by requesting more specific recommendations from Dr. Stanley Baker of World Bank and this consultant. See Annex 2.

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B. Technical Assistance

MEA will probably require technical assistance in the following areas:

- Research Stations
- Irrigation Scheduling (Master Planning)
- Evaluation and Monitoring
- System Planning

The most immediate need is for assistance in siting studies for villages and population centers, roads, agro-industries, parks and other facilities in Systems C and B. These specialists would most likely work with the implementation study teams, although they may work with the Special Studies Unit if it becomes a reality. A land use specialist/infrastructure planner and an agro-industries specialist are recommended.

Technical assistance in monitoring and evaluation will be needed within two years, but some or all of this expertise may be available in Sri Lanka. MEA will need someone experienced in the organization and techniques of project monitoring and a socio-economic survey specialist. Major monitoring activities in Mahaweli will be:

- Water measurement-recording and analysis of flows at various key points throughout the system, including farmers fields. This must be done in a manner which permits calculation or estimation of system losses, conveyance losses at various levels, field losses and irrigation efficiencies.



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- Determination of cropping patterns, yields and production.
  - Socio-economic surveys on such subjects as farm income, social adaptation, off-farm employment, generation of indirect employment and income, farm capital development, credit requirements, credit utilization, interest rates, market structure, marketing margins, socio-economic characteristics of settlers, women and environment.
  - Comparing progress in construction, settlement and farmer organization with established targets.

Most measuring and data collection activities would be done by MEA or MDB personnel, or by contractors such as the Agrarian Research and Training Institute (ARTI). The consultants would be required primarily for planning and organizing the overall effort and for establishing techniques and methodologies.

It is clear from the various consultant reports that the Mahaweli Scheme is a complex system of reservoirs, canals, tunnels, tanks, distributories and cropland. Allocating water through such a system will be a monumental task, specially if water use is to be anywhere near optimal (See Annex 2). MEA will need a Master Planning specialist who can assist in establishing an organization to control the flow of irrigation water through the system.

MEA will probably need outside assistance at its research stations, depending on the training and experience of its local employees. FAO would be a likely supplier of specialists in on-farm water management, agronomic research (alternate crops) and horticulture and forestry research.

In addition to technical assistance, donors will probably find that Mahaweli should be supported by existing or newly established training programs and that the majority of the training can be accomplished in Sri Lanka. Some of the feasibility studies discuss this need, but a more systematic assessment of training needs should be made in the near future.

1. Job Description - Infrastructure Planner

This specialist should have at least an M.S. degree in geography/regional planning with suitable experience in land development projects. He must be able to project the area needs for transportation, municipal services, recreation, etc. on the basis of project implementation plans. He would then compare these needs with geographical features and take existing facilities into account in making recommendations as to size and location of roads, villages, towns, storage facilities and parks. He would also be expected to review existing plans for siting of these facilities and recommend changes, as necessary.

The Infrastructure Planner would work closely with the Implementation Teams (See Section II-B of this report), the MDB Regional and Physical Planning Unit (See Figure 8) and the Agro-industries Specialist. He would pay particular attention to the regional aspects of infrastructure development, or to the interrelationships among systems, particularly Systems C, B and A.

This specialist will probably be required for 6-12 months, perhaps with a split tour. See Figure 12.

## 2. Job Description - Agro-Industries Specialist

The Agro-industries Specialist would assess the need for agricultural-related industries and commercial establishments, such as rice drying facilities, rice mills, input supply warehouses, farm machinery service centers, food processing plants and grain and seed storage. He would plan their location in a regional as well as system context in order to maximize their utilization. He would recommend size and scale, with appropriate modular expansion, if practical, in order to minimize costs.

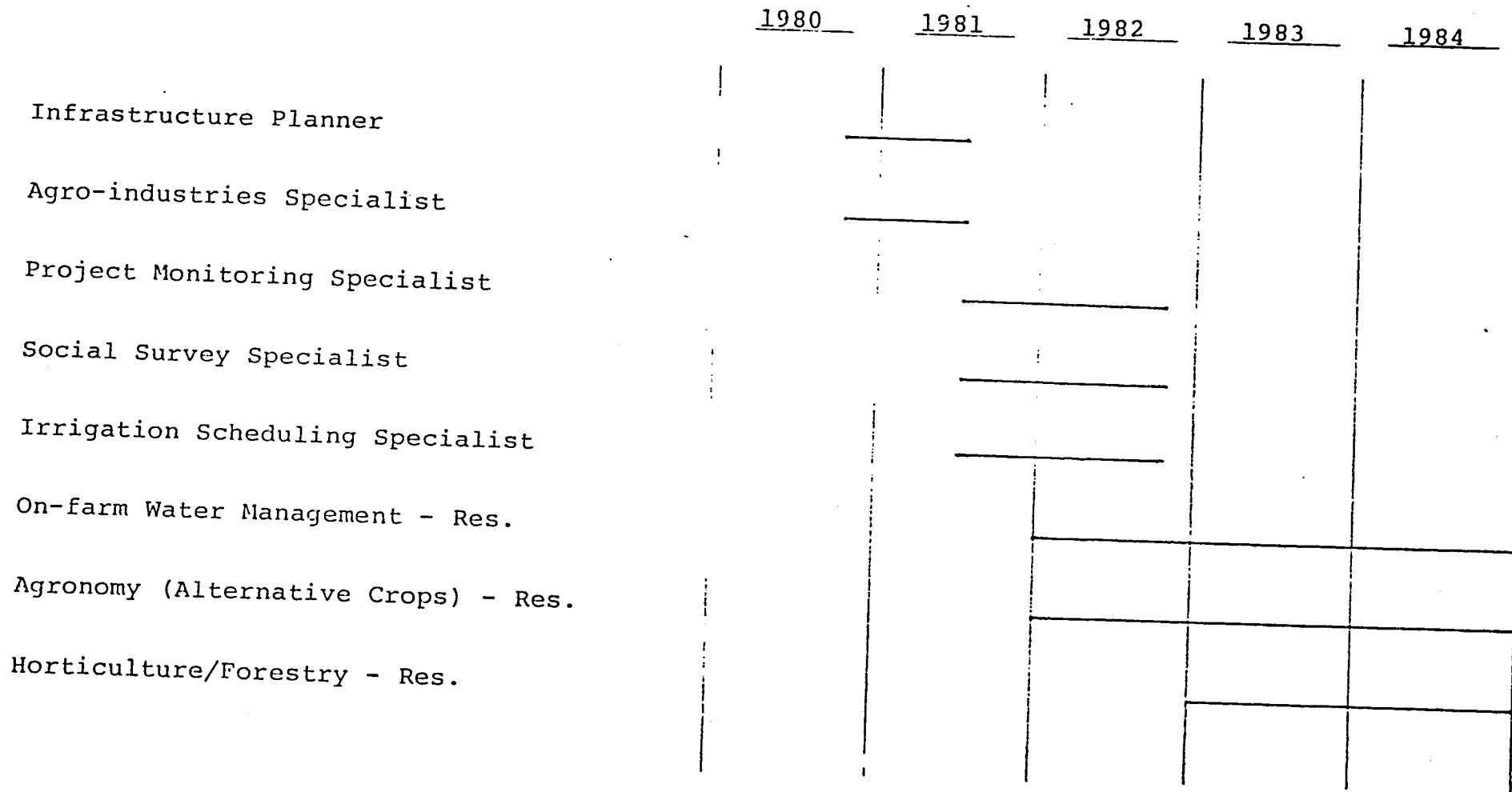
The Agro-industries Specialist would work as a team with the Infrastructure Planner and his counterparts.

Duration of input from the Agro-industries Specialist is expected to be 6-12 months, to coincide with the Infrastructure Planner.

## 3. Job Description - Project Monitoring Specialist

This person should be experienced in both management and technique of monitoring and evaluation of land development projects. He would be involved in setting up an appropriate organization for this purpose and with establishing methodology for obtaining information; establishing criteria for analysis,

FIGURE 12 - SCHEDULING OF TECHNICAL ASSISTANCE



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evaluation and reporting and with coordinating the effort of other agencies and contractors who provide information and conduct surveys.

The Monitoring and Evaluation Specialist would work within the Monitoring and Evaluation Unit (recommended in this report) in close cooperation with the Social Surveys Specialist. He would also have frequent contact with the Implementation Teams and regional planners. He would also establish a working relationship with the Operations Room of MASL.

Duration of assignment would be one to two years, depending on levels of skill and experience of Sri Lankan officials and technicians in the Monitoring and Evaluation Unit.

#### 4. Job Description - Social Survey Specialist

The Social Survey Specialist should have a research degree in agricultural economics or rural sociology with experience in the design and execution of field surveys.

This person would be responsible for designing special surveys, mostly in support of the Monitoring and Evaluation Unit. He might have inputs to base period studies of the later systems, but would be primarily concerned with bench mark, follow-up and special studies in Systems H, C and B. He would assist in research design and in the design and testing of survey instruments. He might be involved in training of enumerators and

other investigators. Farm economic surveys, household expenditure surveys, village social organization investigations and attitudinal studies of various kinds are examples of the type of information to be collected.

5. Job Description - Irrigation Scheduling Specialist

This specialist should be an Irrigation Engineer with experience in irrigation system operation and management. He should be able to supervise the development of a master plan to allocate water for power generation and irrigation in the various systems and zones. The plan should also take into account the use of reservoirs for flood control. Central to such a master plan would be a decision making device such as a computer program or programs which would hopefully be able to at least partly optimize water use on the basis of cropping patterns and production potential of the various irrigated areas, commodity prices and costs of production.

The Irrigation Scheduling Specialist would work primarily in a unit to be set up for this purpose. This unit should probably be somewhat autonomous with close ties to MDB and MEA. His services will probably be needed for about two years.

6. Technical Assistance Budget

Salaries:

Infrastructure Planner	- 9 mos. x \$3,000	\$ 27,000
Agro-industries Specialist	- 9 mos. x \$2,800	25,200
Project Monitoring Specialist	- 15 mos. x \$3,600	54,000
Social Surveys Specialist	- 15 mos. x \$2,500	37,500
Irrigation Scheduling Specialist	- <u>20</u> mos. x \$4,000	<u>80,000</u>
	68	223,700

Transportation:

Int'l Air Fares - Consultants + 6 dependents	31,200
Domestic Air Fares - Consultants + 6 dependents	4,000
Shipment of Household Effects - 3 families	<u>12,000</u>
	47,200

Other Direct Costs:

Per Diem - 200 days @ \$45	9,000
Housing Allowance	40,000
Post Differential - 20% for 60.5 mos. approx.	39,800
Miscellaneous	<u>30,000</u>
Total, Salaries, Transportation and Other Direct Cost:	389,700

Overhead, if applicable, .95 x salaries 215,515

G R A N D T O T A L 605,215  
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The foregoing budget is merely an estimate of costs to AID for 68 man-months of technical assistance hired in the United States. If source is U.S. direct hire by AID, cost will be around \$400,000. If contract, cost will be about \$600,000.

Research specialists are not included because of the likelihood that they will be provided by FAO, or that these slots can be filled by Sri Lankan researchers.