

# Institutional Arrangements Between The Health and Irrigation Sector!:: Present Status and Suggestions for Improvement

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## Introduction

Water resources development in Sri Lanka dates to about 300 BC when an extensive network of irrigation tanks (reservoirs) was built in the northern and northeastern parts of the country. Many of these facilities, which had fallen into disuse and ruin, have been reconditioned and incorporated into new irrigation systems over the last century. Currently, these tanks irrigate around 360,000 hectares of land and efforts are continuing to expand this area.

The reservoir projects have been classified according to command area as major, medium, and minor-scale schemes. Generally, major irrigation schemes are defined as reservoirs having a command area of over 400 hectares.

In addition to reconditioning the ancient tank network, in recent times a number of multi-purpose water development projects have been undertaken. Among these are the Uda Walawe, Gal Oya, Ingimitiya, Kirindi Oya, Muthukandiya, and Mahaweli Ganga Development Projects. The principle objectives of these projects are to generate additional employment and increase agricultural and hydro-electric power production to meet the growing needs of the population.

## Agencies Concerned with Irrigation Development in Sri Lanka

There are a number of agencies under different ministries, directly or indirectly concerned with the development of irrigation in the country.

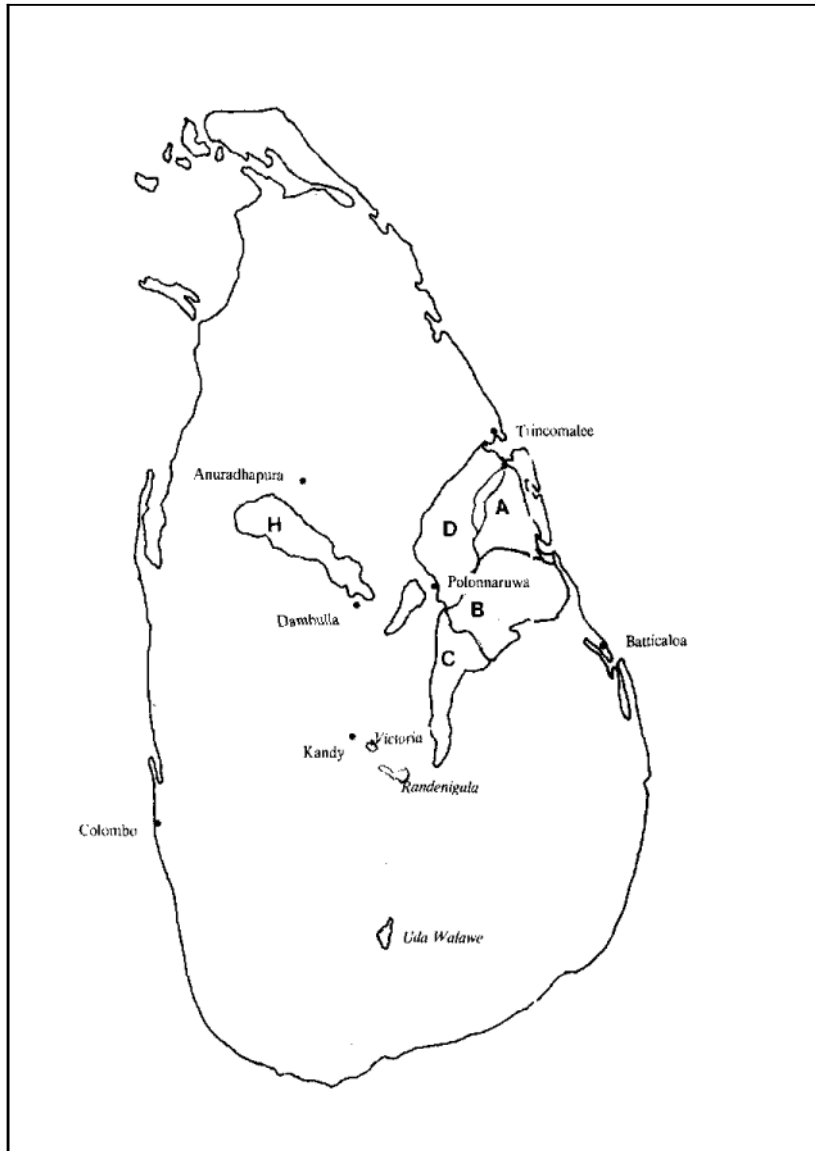
*Department of Irrigation.* The Department presently functions under the Ministry of Lands and Land Development. It is responsible (with some exceptions) for irrigation and drainage development and for the operation and management of schemes over 80 hectares in extent. Department activities include identifying and formulating projects; investigating and preparing plans for developing river basins, feasibility studies, and designs for major irrigation schemes, lift irrigation works, and flood protection and drainage schemes; constructing major and minor irrigation works; maintaining existing irrigation works; and controlling and issuing water.

*Mahaweli Authority & Sri Lanka* The Ministry of Mahaweli Development was created to coordinate and implement the Mahaweli Development Project.

*Mahaweli Development Project,* The Mahaweli Ganga is the longest river in Sri Lanka and flows for its major part through the dry zone which has extensive land resources, and soils and climate suited to cultivation. Therefore, the development of this river is important for the future development of agriculture in Sri Lanka.

In 1968 a FAO/UNDP Master Plan for the development of the irrigation and hydro-power potential of the Mahaweli and its tributaries envisaged the development of 360,000 hectares of land in the Mahaweli and adjacent basins and the generation of 508 megawatts of hydro-electricity, with the potential for an additional 460 megawatts. Work on the Mahaweli Development Programme, which was originally scheduled for completion in 30 years, began in 1972.

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**Figure 1.**  
Map showing Accelerated Mahaweli Program Arca, Sri Lanka.

In 1977, the Government decided to implement a major portion of this program within a 6-year period, in order to derive the benefits of increased employment, power, and food production. The accelerated program involves the construction of five major multi-purpose reservoirs to provide 470 megawatts of power and irrigation to around 144,000 hectares of land in the irrigation systems designated "A - D," "G," and "H." Nearly one million people were to be settled under the project. A map of the Accelerated Mahaweli Development Project is provided in Figure 1.

**1. Administrative arrangements.** The Mahaweli Authority of Sri Lanka (MASL), created by an Act of Parliament in 1979, is responsible for planning and implementing the Mahaweli Development Project. A description of the functions of the MASL, as designated by the Mahaweli Authority Act Number 23 (1979), is provided in Annex 1. The MASL has the power to direct and control all agencies and institutions involved in the Mahaweli Development Programme. This high degree of autonomy invested in a single agency facilitates the decision-making considered essential for the implementing the development program.

The MASL has two subsidiary bodies: the Mahaweli Engineering Consultancy Agency (MECA), which is responsible for constructing irrigation and social infrastructure in the downstream settlement areas, and the Mahaweli Economic Agency (MEA). The MEA is responsible for settlement of new families and for the agricultural, social, and economic development in the downstream areas. This includes arrangements for delivering health care, as well as matters concerning the protection and management of the environment. The organizational structure of MEA at headquarters level is shown in Figure 2.

At project level (Figure 3), each project is headed by a Resident Project Manager (RPM) responsible for implementing and monitoring the settlement program. The RPM has the following specialists attached to his office: Land Officer, Water Management Engineer, Marketing Officer, Agricultural Officer, Community Development Officer, Accountant and Administrative Officer.

Each project area is further divided into blocks containing about 2,500 families and administered by a Block Manager representing the same functional areas as the RPM's staff. Finally, each block

**Figure 2.** Organizational structure of the Mahaweli Economic Authority (MEA) at headquarters level.

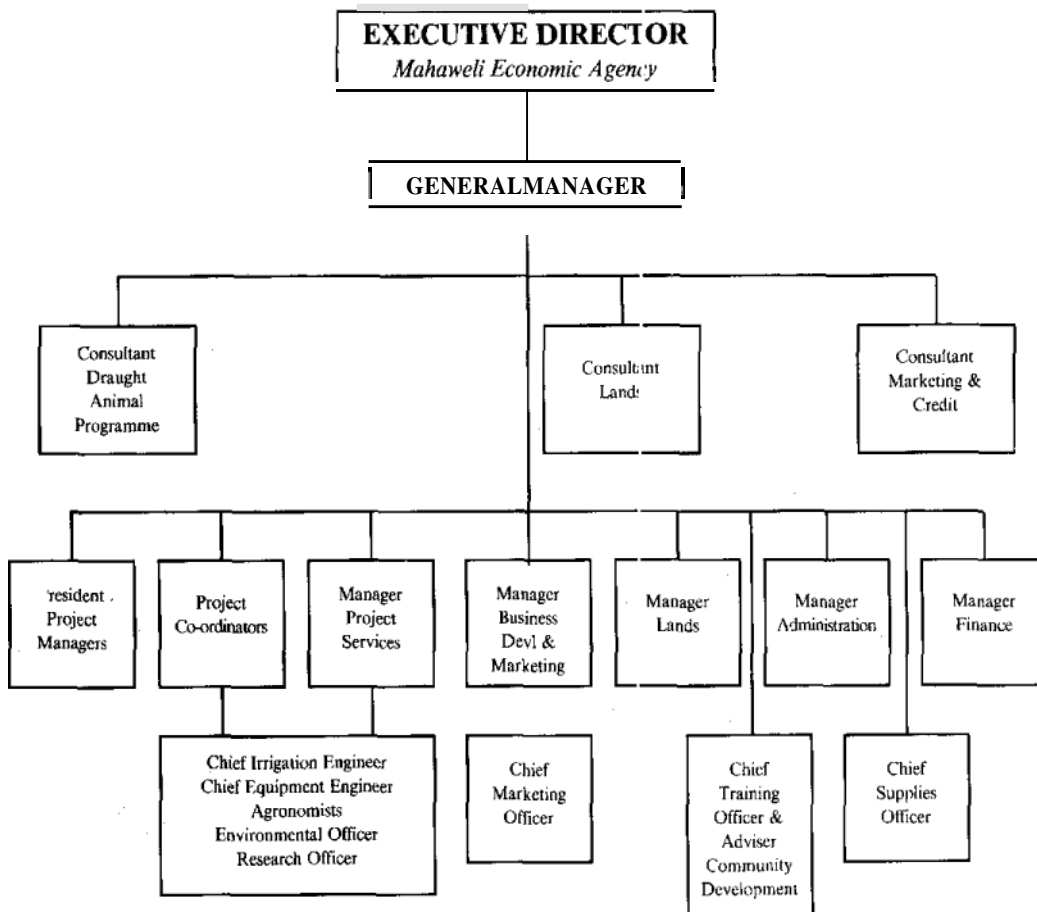
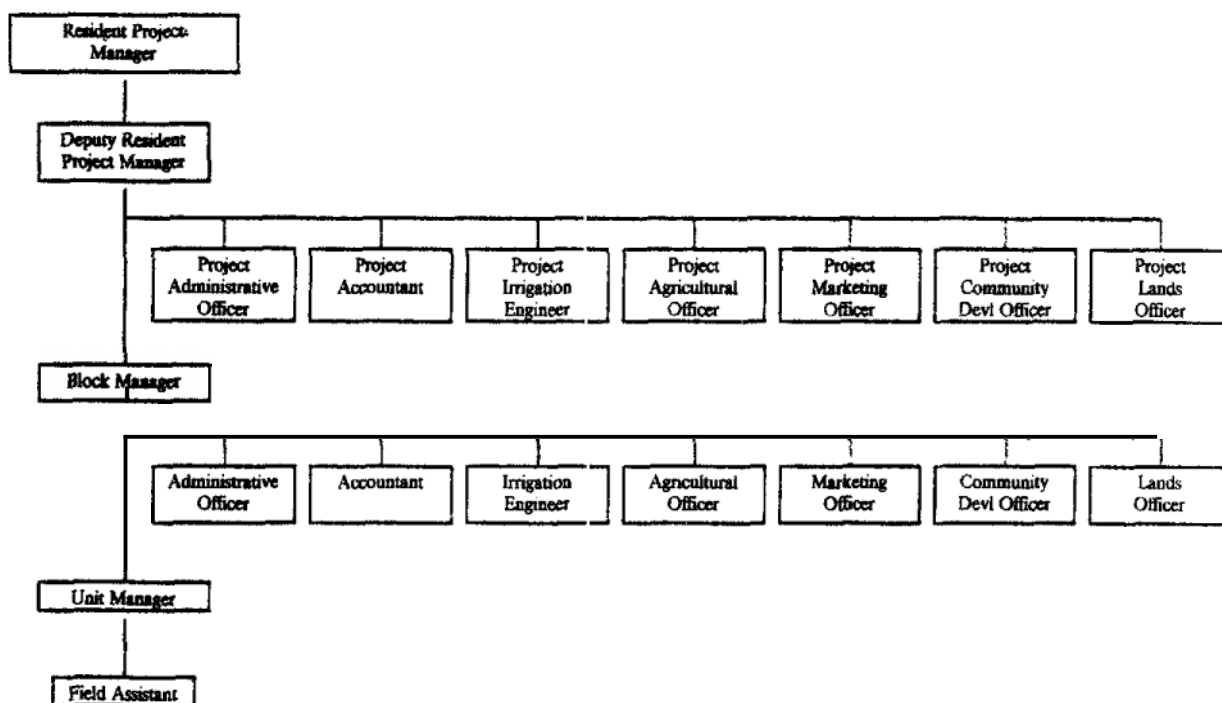


Figure 3. Organizational structure of the Mahaweli Economic Authority (MEA) at project level



is divided into units of 200 - 250 families, headed by an Unit Manager supported by a Field Assistant. In the project areas, the MEA staff provides most services normally provided through other ministries.

Besides MECA and MEA, the MASL also funds the Central Engineering Consultancy Bureau (CECB), which is closely associated with the project. The CECB is the agency responsible for constructing the headworks at the Kotmale, Victoria, Maduru Oya, and Randenigala reservoir projects, and collaborates with the expatriate consultants at each of these projects.

**3. Other agencies** A number of other agencies under different ministries are also involved, either directly or indirectly, in irrigation development. One of these, the Department of Agrarian Services under the Ministry of Agricultural Development and Research (MADR) is responsible for operation and maintenance of minor irrigation works falling under the command area of 80 hecatres. The

Plan Implementation Division of the Ministry of Finance and Planning implements integrated district rural development programs under a decentralized budget.

Non-governmental and donor agencies provide additional institutional and financial support for the development of water resources in Sri Lanka.

### Health Services

The health services provided throughout Sri Lanka are administered primarily by the Ministry of Health (MOH) through Regional Directors of Health Services. This Ministry provides both curative and preventive health services through a hierarchy of institutions which are organized regionally. Each region consists of a central provincial hospital surrounded by a network of district hospitals, each of which services a number of peripheral units.

The MOH consists of three fairly independent components: the medical or curative care services, public health services, and laboratory services. The vector control services of the MOH are offered through the Anti-Malaria Campaign (AMC) and Anti-Filariasis Campaign (AFC).

To conform with the objectives set by the "Health for All by the Year 2000" program designed in cooperation with the World Health Organization (WHO), the MOH is restructuring the health care delivery system. The objective of this program is to provide health care at the lowest possible management level. To accomplish this the Ministry recruits from the population one Volunteer Health Worker (VHW) per 50 families. The VHW will provide simple medical treatment, preventive treatment of malaria, and health education.

Institutionally, the restructured health care system consists of three tiers. The most peripheral unit of the system is the Gramodaya Health Center, where health care for a population of **3,000** will be provided by a Family Health Worker (FHW). First and second referral units will be at sub-divisional (for a population of **20,000**) and divisional (for a population of **60,000**) health centers, respectively. The existing district and provincial hospitals will provide higher-level referral services. The health care delivery system will also promote community participation for health and sanitation, as well as the gradual functional integration of curative and preventive care. However, insufficient numbers of trained health personnel and limited financial resources are constraints on the provision of adequate health services.

### **Institutional Arrangements Between Health and Irrigation Sectors in Mahaweli Areas**

This paper focuses on the institutional arrangements between the health and irrigation sectors within the Mahaweli settlement areas.

Health care services in ~~the~~ Mahaweli area, as elsewhere in Sri Lanka, are administered by the MOH. However, the MEA provides additional resources with assistance offered by donor agencies.

The intention is to strengthen the health services being provided through the national programs. The contribution made by MEA to the health program is largely through infrastructure. Additional health personnel, drugs and programs for community development, and provision of some public health care services also form part of the MEA contribution.

The MOH appoints a Senior Medical Officer to be the liaison between the MEA and MECA, but collaboration is primarily on matters pertaining to health infrastructure and assignment of health personnel. In planning the health infrastructure, the MEA consults the MOH so that plans conform to the national health system. The MOH is also consulted on selection of the sites for hospitals and health centers, as well as on the type and number of buildings to be constructed. A technical subcommittee of MASL, chaired by its Executive Director, reviews and monitors policy issues. A technical subcommittee exists also at the project level.

There is a time lag between the arrival of settlers in the new settlement ~~areas~~ and the full operation of the health institutions. This applies to both infrastructure and the necessary medical ~~staff~~. Until the health institutions are fully operational, the MEA has appointed Project Medical Officers (PMO) to meet the urgent health needs of the new settlers. These officers provide preventive and curative health care services through a number of mobile clinics. Polyclinics are also conducted in a similar way by the MOH.

The Anti-Malaria Campaign moves into the development area at the commencement of settlement. It undertakes the prevention and treatment of malaria including spraying, blood-filming, surveillance, and providing prophylactics for non-immune new settlers. However, anti-malaria drugs are ~~issued~~ simultaneously and independently by the Mahaweli PMOs, Health Department officers, and AMC personnel.

Therefore, in the Mahaweli areas, health services to the settlers are being provided by the MOH, with only supportive assistance from the MEA. However, the MEA has a commitment to provide the following primary care services: 1) health education, 2) adequate nutrition and, 3) the supply of

safe water and proper sanitation. Most of these programs are supported by donor institutions.

The MEA promotes health education through the training and support of Volunteer Health Workers (VHW). The Health Education Bureau and local health personnel of the MOH is responsible for training the VHWs. The Health Education Bureau also provides training to MEA staff. The education program is tailored primarily to familiarize settler families with the basic sanitary and hygienic requirements, and the practices necessary to meet such requirements.

The MEA is also responsible, through its Community Development Officers, for the nutrition education program in the Mahaweli areas. The Department of Community Medicine, University of Peradeniya, provides the technical training to MEA officers. The MEA also runs Home Development Centers at project levels where, in addition to special courses given to young women, information on health and sanitation is available.

The program to provide safe drinking water to settlers is carried out by MEA with donor assistance. In the newer settlement areas MEA provides subsidies for constructing one well per household. Under the sanitation program, households are provided with floor-plates and subsidies for digging latrine pits and erecting superstructures. Through the education program, MEA encourages settlers to use these facilities.

The MASL has established a Technical Subcommittee on Environment, chaired by its Director General and made up of representatives of the following governmental and non-governmental agencies and organizations: the Agencies of Forest Conservation, Wildlife, Agriculture, Fisheries, Health, Irrigation, Natural Resources, Energy and Science Authority, Central Environmental Authority, and the universities. This sub-committee, which meets monthly, is responsible for advising the MASL on environmental problems and assisting in the implementation of environmental programs in the Mahaweli areas.

## Conclusions and Suggestions for improvement

1. Present arrangements between the health sector

and the irrigation sector (MASL) are primarily geared to provide curative and preventive health services. The preventive health services which are available in the downstream areas are inadequate in that they are mainly concerned with immunization and prophylactic treatment, with insufficient attention given to incorporating environmental and health safeguards for disease control, particularly for vector-borne diseases. It is essential that safeguards be incorporated at all stages of the project (planning, implementation, and operation), especially for vector control. Some of the environmental safeguards which need to be addressed are: designing irrigation systems to high flow velocities, lining canals to prevent pooling, locating settlements away from waterways to limit the contact of mosquitoes with humans, and managing irrigation systems for proper operation and water use. In this respect, the MOH should be involved from the design stage onwards. In 1984, the government made environmental impact assessments (EIA) a mandatory requirement for development projects. However, technical expertise must be strengthened in the project-approving ministries to guarantee that adequate environmental safeguards related to health are included in the EIA. Legislation is also being drafted by the Central Environmental Authority under the National Environment Act of 1980 to ensure that development agencies incorporate environmental safeguards at all stages of project implementation and operation in accordance with the EIA recommendation. In the future, Mahaweli systems such as A and D and the right bank of Maduru Oya could benefit from incorporating environmental safeguards for vector-disease control through better interaction between the sectors concerned.

2. Better coordination is necessary for effective delivery of health services to areas that are already operational. The present technical sub-committee of the MEA should meet regularly to review policy, monitor its implementation and operation, and evaluate the effectiveness of inputs. Constraints and problems could be identified so that early corrective measures could be implemented. The coordinating committee should be multi-disciplinary in nature consisting of health and community development personnel, water management engineers, agronomists, sociologists, economists, managers of MEA, design and construction engineers of MECA, health officers (including the vertical vector-disease control

programs such as AMC and AFC of the MOH), and donor groups supporting the health programs.

3. At present, the direct coordination of vector-disease control programs is ad hoc in the Mahaweli program. In view of the importance of environmental management for vector control, it is critical that a functional committee be established at project level to coordinate the implementation of control measures. This committee should include regional members from the vector control programs (AMS and AFC), as well as from MEA, MOH, and MECA.

4. Increased efforts should be directed to acquiring more knowledge about the vector control effect if environmental management is to become effective in vector control. It is suggested that the vector control campaigns, along with the MEA and MECA, identify immediate study or research needs for the area. These studies should be carried out jointly by the irrigation and health sector. This will result in a much better understanding between the different sectors and make implementation of management measures more effective.

5. Because the irrigation sector lacks knowledge and expertise in the health disciplines and trained manpower is a constraint, it is important that the irrigation sector personnel receive training on aspects of health and environmental management measures. The need for education and training on health and environmental issues at all staff levels must be recognized. The MOH should consider developing a suitable training package for irrigation personnel, including guidelines for vector control by environmental management. Similarly, health personnel should understand the water management programs being operated by the irrigation sector so that the development of effective control measures become possible. Environmental management at field level is of vital importance, and the present VHW system should be strengthened to provide a system for transfer of vector control information to the farmer.

## Annex 1

The powers and functions of the Mahaweli Authority of Sri Lanka as designated by Mahaweli Act: 23 (1979) in, or in relation to, any Special Area are:

- a) to plan and implement the Mahaweli Ganga Development Scheme including the construction and operation of reservoirs, irrigation distribution system and installations for the generation and supply of electrical energy;
- b) to foster and secure the full and integrated development of any Special Area;
- c) to optimize agricultural productivity and employment potential and to generate and secure economic and agricultural development within any Special Area;
- d) to conserve and maintain the physical environment within any Special Area;
- e) to further the general welfare and cultural progress of the community within any Special Area and to administer the affairs of such area;
- f) to promote and secure the participation of private capital, both internal and external, in the economic and agricultural development of any Special Area;
- g) to promote and secure the cooperation of government departments, state institutions, local authorities, public corporations and other persons, whether private or public, in the planning and implementation of the Mahaweli Ganga Development Scheme and in the development of any Special Area.

**Special Area.** The Act provides that the Minister in charge of the Mahaweli Development Programme could declare, with Presidential approval, any area which could be developed with the water resources of the Mahaweli Ganga, or any tither major river, as a "Special Area," after which the Authority could exercise all, or any, of its powers, duties and functions in this area.