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MAHAWELI AUTHORITY OF SRI LANKA

BRIEF ON ACCELERATED MAHAWELI PROGRAMME

Monitoring and Progress Control Unit  
October 1980.

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Prior to 1977, Sri Lanka experienced marked fluctuations in its economic fortunes. Growth was retarded and there were low levels of investment. The relatively closed economy, with artificially administered prices which did not reflect true costs, led to production distortions and a heavy recurrent subsidy burden for the Government.

Agriculture, which accounted for one third of the gross domestic product, was unable to meet the local demand for food staples such as rice and sugar; the deficits having to be made up by importations from abroad. Unemployment, at around twenty percent, constituted a major social and economic problem, particularly as a considerable proportion of those without jobs were educated young people. There was a serious shortage of experienced managerial and professional manpower, created to a large extent by the financial attractions of the oil-rich countries of the Middle East.

In 1977, faced by these problems, the newly elected Government introduced major policy innovations aimed at remedying the situation. These were :-

Higher private sector involvement in economic development

Realistic pricing to reduce the subsidy burden

Devaluation of the rupee

Acceleration of the Mahaweli Development Scheme

Creation of the Colombo Free Trade Zone

Although there is no suggestion that all of Sri Lanka's problems will disappear overnight, there is evidence that this new approach is having the desired effect. The Annual Report of the Central Bank of Ceylon for 1979, in its review of the economy states, "The Sri Lanka economy recorded a growth rate of 6.2 percent in 1979, a rate unsurpassed in the last decade, except in 1978. This achievement, though lower than the impressive growth of 8.2 percent in the previous year, was an indication that the growth

impulses which were generated by the major economic reforms since 1977, have been sustained. Unemployment has fallen to 15 percent of the work force and the per capita income rose from 160 United States Dollars in 1977, to 217 United States Dollars in 1979.

Although the expansion of the economy has been broader based than in the pre-liberalisation era, agriculture still retains a dominant position in the composition of the Gross Domestic Product. The performance of the agricultural sector however, has been uneven. Rice declined as a percentage of total imports from 15 percent in 1977 to 4 percent in 1979 but in the latter year, the actual quantity of rice imported increased by 13 percent over 1978 and in terms of overseas exchange, cost an additional 195 million rupees. The Central Bank states that an overall decline in the annual production of rice was only averted by the considerably improved performance of paddy grown under major irrigation schemes, underscoring the importance of irrigation and water management in future development.

A further factor was the sharp rise in the cost of petroleum imports over recent years which has made the development of alternative domestic sources of energy imperative. This, coupled with the need for food import substitution creates an economic context within which, the Accelerated Mahaweli Development Programme assumes a key position in the Government's economic strategy.

The Mahaweli Ganga is the longest river in Sri Lanka, rising in the Central mountains it flows north and east to reach the sea near Trincomalee. The river basin, along with that of its main tributary, the Amban Ganga covers an area of 10,400 square kilometres - 4000 square miles - of the dry and intermediate rainfall zones. What makes this area of such key importance is that it constitutes the largest remaining unexploited irrigation and hydro-power potential in the country.

The first integrated resource survey, together with an outline development plan of the Mahaweli basin was prepared in 1961/1962. This was followed by a Food and Agriculture Organisation/United Nations Development Programme Study over the period 1965 to 1968 which culminated in the production of the Master Plan which has been the basis of all subsequent work.

The development objectives of that plan were firstly, to raise agricultural production, especially that of rice, to help attain self-sufficiency and, if possible, produce a surplus for export; secondly to create employment opportunities; and thirdly, to generate hydro-electric power to meet the increasing demand for electricity. The plan envisaged the development of 364,000 hectares - 900,000 acres of irrigated agricultural land and 500 megawatts of hydro-power within a time framework of thirty years.

Implementation of the plan commenced in 1979 and proceeded at a relatively leisurely pace. The Polgolla and Bowatenne diversion and the Ukuwela hydro-power station of 40 megawatts were completed, while the Bowatenne tunnel and hydro-power station of 40 megawatts are now nearing completion ten years later. Irrigation System H, the agricultural area using water diverted at Polgolla, is scheduled for final completion and full settlement by the end of 1981.

The incoming Government's Accelerated Programme has been set to cover a period of six years during which, Systems A, B, C and D covering approximately 125,000 hectares - 310,000 acres - and five major storage projects, Victoria, Kotmale, Randenigala, Maduru Oya and Ulhitiya/Ratkinda are scheduled for completion. Within this list, priority has been accorded to the development of Systems B and C, and the Victoria, Kotmale and Maduru Oya projects. In addition, irrigation to a further 16,000 hectares of cultivated land is to be improved and the Systems in which construction was already in progress are to be completed.

The Accelerated Mahaweli Programme is the largest investment project ever formulated by the Government of Sri Lanka. Total investment costs, excluding those for the Moragahakanda Project, the future of which depends upon the outcome of the Trans-Diversion Study presently being commissioned with the assistance of the World Bank, at 1979 prices, are estimated to be 22,550 million rupees. As of the end of last year, the cumulative expenditure to date amounted to 772 million rupees, 729 million rupees of this being incurred in 1979 itself. The Programme will absorb approximately 30 percent of the public sector investment programme and as such, is a significant measure of the Government's commitment to the project and its determination that it must succeed. The development and operation of the project is expected to have an important impact on the whole Sri Lanka economy and make a substantial contribution to the growth of this country.

To meet the manpower and financial demands of the Accelerated Programme within the new time scale, assistance has been requested from friendly overseas countries and the international lending agencies. Happily this help has been readily forthcoming. The United Kingdom Overseas Development Administration funded a study of the Victoria Dam and the downstream development of System C and has agreed to provide a grant of one hundred million pounds sterling towards the construction of the dam and Hydro-power scheme. In the same manner, the feasibility studies of the Randenigala Reservoir and the development of System A are financed by a technical grant from the Federal Republic of Germany; the Moragahakanda study has been financed by the Government of Japan. The Kotmale Dam and power-plant is being met through the Swedish Import Support Scheme amounting to approximately 630 million Swedish Kroner - 170 million United States Dollars over the next 5 years. Canada has committed 76 million Canadian Dollars in the form of a concessionary loan for construction of Maduru Oya headworks and seven million Canadian Dollars, as a grant for engineering services and construction supervision. The United States is financing a study of the environmental impact of the programme.

An initial concessional loan of ten million United States Dollars is being provided by USAID to finance the designs, tender documents and downstream irrigation works for System B, with an additional concessional loan in the amount of 85 million dollars being earmarked to finance the construction of these works. The Netherlands provided grant funds for the implementation strategy study and the hydrological Crash Program. The Asian Development Bank, European Economic Community, World Bank and United Nations Development Programme are funding consultants to assist in preparation, review, planning and various other aspects of the Programme. The Accelerated Programme is therefore truly international. Nor is the country totally dependent upon outside help but is using local funds to meet shortfalls in foreign assistance, the restoration of village tanks and all project local costs.

Such a complex programme requires a well structured management organisation with all of the necessary power and authority to control and direct the multiplicity of institutions, consultants and agencies involved. Originally, the programme was the responsibility of the Ministry of Irrigation, Power and Highways but following a ministerial restructuring in 1978, the Accelerated Programme became a separate Ministry of Mahaweli Development and part of the portfolio assignment of the Minister of Land and Land Development. The Minister thus combines political responsibility for the key Departments of Land, Settlement, Surveys, Forestry and Irrigation, with that of implementing the Accelerated Programme of Mahaweli Development.

The principal component of the Ministry of Mahaweli Development is the Mahaweli Authority of Sri Lanka, established by legislation in April 1979 and charged with overall policy determination and financial control of the Mahaweli Programme. All funds voted for the Programme by Parliament, International aid and borrowings, are credited to the Mahaweli Authority Fund for disbursement by the Authority. The Authority has a five member Board comprised of the

Chairman/Director-General, the Secretaries of the Ministry of Finance and the Ministry of Mahaweli Development and two executive Directors responsible for Headworks and Downstream development respectively. It has over-riding powers over a number of Statutory authorities and within the Mahaweli Project area has delegated power in respect of 14 legislative acts crucial to agricultural development. The Authority also has power to create specific purpose corporations under its aegis, to carry out functions in which participation and share-holding by the private sector can be encouraged.

The Mahaweli Authority has working for it the Central Engineering Consultancy Bureau (CECB for short), responsible for engineering design, contract supervision and the planning of major headwork projects.

The Mahaweli Development Board (MDB for short) is responsible for all physical planning, downstream engineering and construction works.

The Mahaweli Economic Agency, still in the process of establishment, will be responsible for the planning, operation and administration of all other aspects of the new rural settlements such as settler selection, agricultural production, credit and marketing. Initially it will concentrate its efforts in Area H5 and System C and System B. Control will be exercised through Project Managers and Project Co-ordinators, responsible directly to the Managing Director.

Examining the components of the Accelerated Programme in more detail and their progress to date, we look firstly, working downstream from Kotmale, at the headworks whose capital cost accounts for some 70% of total projected expenditure.

The Kotmale Project, one of the first to be implemented under the Accelerated Programme, was the subject of Government studies in 1961, funded

by USAID and from 1964 until 1968 funded by UNDP/FAO. A Feasibility Study was carried out by Water and Power Development Consultancy Services (India) Ltd. during the period 1973 to 1976 and in 1978, Sir William Halcrow and Partners in association with Messrs Kennedy and Donkin were appointed to provide consultancy services in collaboration with the Central Engineering Consultancy Bureau.

The Project envisages the construction of a 350 feet - 140 metres high, and 2000 feet - 800 metres - long, rock-filled dam at Kadadora Village in Nuwara Eliya district, across Kotmale-Oya, a right bank tributary of the Mahaweli Ganga. The dam will create a reservoir with an effective capacity of 331,000 acre feet - 400 million cubic metres. The impounded water will be taken four and a half miles through a tunnel system to an underground power house near the neighbouring Atabage Oya Valley, where hydro-electric power will be generated by three, sixty-seven megawatt turbines. In addition to the generation of electricity, the regulated flow of water into the Mahaweli Ganga will improve the pattern of inflow at the existing Polgolla diversion dam, twenty-four miles downstream. This in turn will enhance the power benefits from the existing Polgolla power plant when completed, and will also increase the water supply from the Bowatenna Dam to System H for irrigation purposes.

The cost of the project, based upon estimates prepared at the end of 1979, will be five thousand million rupees. The initial works contract valued at 570 million rupees was let to SKANSKA, a Swedish firm of contractors, as of September 3rd 1979 and is scheduled for completion as of September 2nd 1981.

The Victoria Dam was the subject of UNDP/FAO studies in 1968, and although accorded priority status in the Mahaweli Master Plan, no further studies were carried out until the inception of the Accelerated Programme in 1977.

Since then, rapid progress has brought this project to the stage where the preliminary surveys and designs have been completed by the consultants, Sir Alexander Gibb and Partners, and the contracts for the construction of the Dam and the Tunnel have been awarded to Balfour, Beatty, Nuttal, British contractors. Both contracts commenced with effect from April 10th 1980.

Completion date for the dam contract is December 31st 1984 and for the Tunnel, March 31st 1984. Other contracts for electrical and mechanical plant, the power station buildings and penstock and gates will be awarded before the end of this year.

The dam will be located between the confluence of the Hulu-ganga and the Mahaweli Ganga, and the Victoria Rapids, with a catchment area of one thousand, eight hundred square kilometres - seven hundred square miles. The dam itself will be a double curvature, concrete arch, four hundred feet high and one thousand six hundred feet in length at the crest. The useful storage capacity of the reservoir will be seven hundred million cubic metres. From the reservoir, the water will flow through a twenty feet diameter tunnel, sixteen thousand feet in length, to the power house where three, seventy megawatt turbines will generate 210 megawatts of electrical energy worth some two hundred and forty million rupees annually. The first generator is scheduled to be commissioned in mid 1984.

From the power station, the spent water will discharge into the Randenigala Reservoir prior to being used to irrigate forty-five thousand hectares of undeveloped lands in Systems B and C.

A township, initially with two hundred houses, fully equipped with water, sewerage, electricity and telephone services is being constructed at Digana. Although intended for use by the construction personnel and their families, once the project has been completed, Digana will become a satellite town to Kandy. A further forty-six houses will be constructed at Adhikarigama

to be eventually occupied by the operations and maintenance staff of the Ceylon Electricity Board.

The total cost of construction, at 1979 prices, is estimated to be one hundred and thirty-seven point five million pounds sterling. The dam and tunnel contracts already let are valued at one thousand four hundred and sixty seven million, six hundred and twenty five thousand rupees and six hundred and forty-five million, three hundred and ninety thousand rupees respectively. The construction of the housing has been let separately to a number of local contractors.

The Randenigala Reservoir Project will be situated directly below the Victoria Reservoir and six miles upstream from the Minipe Anicut. The Project envisages a rockfill dam 90 metres-300 feet in height, and 650 metres - 2100 feet in length, enclosing a reservoir with a capacity of 860 million cubic metres. Although the reservoir will assist in the regulation of downstream irrigation supplies, its primary benefit will be the generation of 100 megawatts of electricity. The tentative estimated cost is expected to be in the vicinity of 125 million United States Dollars.

Using a grant of thirty four million rupees from the Federal Republic of Germany, a joint venture involving the Ministry of Mahaweli Development, two German firms of consultants, Salzgitter Consult and Agra-un-Hydrotechnik and a Swiss firm, Electrowatt Engineering Services, has undertaken studies of all data pertaining to the proposal. Surveys and site investigations have for the most part been completed. The testing of the hydraulic models is being carried out by the Irrigation Department, while the CECB in association with the joint venture consultants is preparing detailed designs and tender documents.

Construction of the project is presently scheduled to commence in 1982 for completion in 1986.

The new Minipe Anicut replaces the existing structure, which serves the Minipe-Yoda-Ela, the left bank canal - irrigating 16,000 acres of land. This structure will provide better facilities both for the diversion structure, as well as the first reach of the Right Bank Canal which is running through difficult terrain with steep slopes. The new structure will be in concrete two hundred metres - seven hundred feet long, and includes scour sluices, head sluices, and silt ejectors with hinged leaf type gates, radial gates and lifting gates.

The Minipe Right-Bank Transbasin Canal will supply water from the Mahaweli Ganga at Minipe, to a new reservoir on the Ulhitiya Oya from whence the water will be used to irrigate the land in System C, and to augment supplies in System B. Along the course of the canal it will receive supplies of water from the **tributaries** of the Mahaweli and will in turn supply existing minor irrigation offtakes which lie along its route. The major structures which form part of the project are, inlet structures at Loggal Oya, Heppola Oya, Diyabana Oya and Ulhitiya Oya, outlet structures at Loggal Oya, Heppola Oya and Diyabana Oya, 25 drainage undercrossings using culverts; six road bridges and two irrigation over-crossings.

Excavation of the initial 4.7 kilometres of the canal began early in 1978 using local contractors. In late 1979, the Mahaweli Development Board, with Sir Alexander Gibb and Partners as consultants, undertook a review and other preparatory work up to international tendering level, for the remaining length of twenty six kilometres of the canal. The contract was awarded in August to Vianini SDA, an Italian firm.

The completion date for this project, which is critical to the development programme of Systems C and B remains October 1982. Drainage and control of water will be an important day-to-day construction consideration, particularly during the wet season, to allow water to escape and avoid damage to partially

completed structures. Substantial dry season flows, or exceptionally prolonged floods at any time, if serious enough, could inhibit completion on time.

The estimated cost of the project is 75 million United States Dollars. It is anticipated that financing will be made available by the World Bank.

The combined Ulhitiya-Ratkinda Reservoir envisages a total useful storage capacity of one hundred and fifteen thousand acre feet. The Ulhitiya Oya Dam will be four point seven kilometres in length and the Ratkinda Dam one point two kilometres. The maximum height of both will be twenty five metres. The major sluices will be at Ratkinda serving an area of twenty thousand hectares - fifty thousand acres. On the eastern end of the Ratkinda Reservoir, is the tunnel which will feed the Maduru Oya Reservoir.

The reservoirs are being constructed using local funds and local contractors. The River Valleys Development Board undertaking Ulhitiya and the Ceylon Development Engineering Company, Ratkinda. Both are scheduled for completion by the end of 1981. Work on both reservoirs is proceeding.

Cost of the twin reservoirs is estimated to be 40 million rupees.

The Maduru Oya Reservoir on the eastern side of the Mahaweli Basin is one of the main components of the Accelerated Programme. The 1964 to 1968 UNDP/FAO study advised that the water resources of the Mahaweli Ganga were more than sufficient to meet the needs of the Mahaweli Basin and that surplusses could be diverted for the irrigation of adjoining basins. Accordingly, and as previously outlined, the Maduru Oya will receive additional water through the Minipe Right-Bank Transbasin Canal and the Ratkinda-Maduru Oya Link Tunnel, thus enabling the irrigation of forty-six thousand hectares of existing paddy land in the System B area.

The project envisages a reservoir with a useful capacity of three hundred and seventy eight thousand acre feet - 460 million cubic metres - impounded by a rockfill dam 40 metres - 100 feet - at maximum height, and 1000 metres - 2500 feet in length along the crest. The Right Bank irrigation outlet will have a capacity of one thousand, two hundred and fifty cusecs and the left bank outlet, one thousand seven hundred and forty cusecs - both outlets will be provided with turbine generating units, together producing 5 megawatts of electricity. The downstream development will be in the form of a fifty-five kilometre, left bank main canal servicing twenty-seven thousand hectares and a fifty-two kilometre right bank main canal for the remaining twenty thousand hectares.

The total cost of the project is estimated to be one thousand seven hundred million rupees of which forty percent will be the cost of headworks.

Construction of the dam will be concentrated in the years 1980 to 1981 ending with the final closure works in 1982. The electro-mechanical equipment will be installed during the last two years of construction and testing is scheduled for completion as of January 1983.

The contract for the project was let to a joint venture of the Foundation Company of Canada Ltd., Atlas Gest International Incorporated, Fitzpatrick Construction Ltd., and Janin Construction Ltd. (FAFJ) on April 7th 1980. Crippen Consultants of Canada have been appointed as the consultant engineers.

Preparatory work on accommodation, access roads, and the supply of services have been carried out by CECB and other local agencies.

System H, is an area of 43,000 hectares, one hundred and six thousand acres - of which thirty five thousand acres previously irrigated, benefitted from the Mahaweli diversion at Polgolla and other associated works completed with World Bank Assistance in 1976.

Using its own funds, Government commenced work on 29,000 hectares (seventy one thousand acres) of new land in areas H1, H2, H7, H9, H4 and H5 in 1974. Assistance was also forthcoming under credit agreements with the World Bank, CIDA, the Netherlands, the United Kingdom, USAID and the EEC for work in the balance of the area. Although originally scheduled to take five years as of January 1st 1978, under the Accelerated Programme completion has been brought forward to the end of 1981.

Actual settlement as of August 31st 1980 amounted to 16,888 farming families with a further 7,737 families still to be settled. Settlers for Block H 404, a special trials area, have come from the Kotmale valley where they were displaced by the construction of the proposed reservoir and power project.

By the end of June 1980, 361 school buildings had either been completed or were at a stage where substantial progress had been achieved. In the case of health facilities, similar progress accounted for 56 buildings, post offices 49, police stations 76, agricultural 305 while offices, quarters and stores amounted to a further 511 buildings.

Community development activities have concentrated on general health matters and in particular malaria prevention, as a result of which, there was a marked decrease in the incidence of malaria during the second quarter of 1980. Visiting clinics are working with the mothers and children and officers of the family planning organisation and the Nursing School Anuradhapura have

had sessions with the farmers in all areas to impress upon them the consequences of excess population.

A total of 180 community wells and 466 private wells have been constructed in a drive to improve the domestic supplies of potable water. This is an on-going programme which, with UNICEF assistance, aims at an eventual target of 4000 wells being sunk in the System H area.

During the Yala season 1980, 15,800 acres were brought under cultivation and due to the intensive efforts of the agricultural extension staff there was also a marked increase in the cultivation of crops other than paddy, such as pulses, chillies and vegetables. Despite the preceding drought conditions some 5000 acres of non-irrigated upland crops were grown. With the assistance of UNICEF the training of staff and 660 contact farmers has intensified.

To lessen dependence on mechanisation, on-farm development such as bund formation and levelling is being carried out more and more by the farmers themselves working on a contract basis. A grant of up to 3500 rupees per ..... is made available for this purpose.

As an important next step in its Accelerated Mahaweli Programme, the Government as of January this year commenced the development of System C, Zone 2. Settlement will initially take place in a pilot area in and around the new township of Giranduru Kotte in the centre of the Zone.

Prior to 1956 permanent settlement in the area was restricted to land below the ancient tank of Horabora Wewa and limited areas along the Mahaweli Ganga. Shifting cultivation has already destroyed the forest cover south of Horabora and was moving north. By 1979, encroachment had extended north.

beyond Ulhitiya-Oya.

Present agricultural activities are almost all confined to Zone 1 around the three tanks, Horabora, Mapakada and Dambarawa. A fourth tank, Nagadeepa, though outside the boundary of the system, irrigates some land inside. It is estimated that there is an existing 2300 hectares - 5700 acres of wetland rice within the System to which must be added 1800 hectares - 4500 acres of rainfed rice. The MDB Socio-Economic Survey of 1979 estimated the population of System C to be twenty nine thousand, seven hundred and seventy six persons of whom seventy eight percent are located in Zone 1 and seventeen percent in Zone 2.

The gross area for development in Zone 2 is sixteen thousand four hundred hectares - 40,600 acres - the majority of which will be used for irrigated rice production. The development proposals are based upon a feasibility study submitted in December 1979 by the overseas consultants, Hunting Technical Services Ltd., in association with Sir Alexander Gibb and Partners. The Implementation Plan has been prepared for the Authority by a team which included representatives of the Authority, the Mahaweli Development Board and the consultants.

The 1980 target is to select and introduce to the pilot area around Giranduru Kotte fifteen hundred settlers, who will include existing inhabitants and persons displaced by the construction of the Transbasin Canal. These Settler/workers will be initially housed in 13 dormitories and employed on a variety of preparatory activities such as land clearance, conservation measures and the digging of the distribution canals, field canals and the drainage channels. They will be engaged on a contract basis in groups of around thirty-five. It is hoped that this communal work will weld the groups

into units which will eventually each settle in a single irrigation turnout area where they must effectively cooperate in water management and other agricultural activities. In 1981 a further 2500 settlers will be introduced.

The Project aims to ensure the timely provision of the basic social infrastructure to meet the needs of the settlers. A development centre will be built at Giranduru Kotte for project staff and farmer training, settler orientation and to stimulate the participation of both staff and settlers in the solution of their mutual problems.

It is the intention to introduce to this Programme a new style of management in an effort to improve the efficiency of post-settlement implementation. Emphasis will be placed on a project approach rather than a division of the management between agencies. At the levels of the production unit, zone and system, the activities of all the personnel and agencies involved being co-ordinated by a single manager. It is the intention that the project will be closely monitored in order that the experience gained can be drawn upon and applied to the remainder of the zones within System C and to adjacent systems.

The total cost of the development of System C, including the Transbasin Canal is estimated to be 4,380 million rupees spread over seven years. The European Community has accepted an invitation from the Government to assist with the financing of the initial pilot project with funding expected to commence as of January 1981. In the case of zones, three to six, it is hoped that financing will be available through the agency of the World Bank.

System B, is located in the eastern part of the dry zone. Its overall area is some 130,000 hectares - 321,000 acres, within Polonnaruwa and

Batticaloa districts, with a small section in Amparai district. The Maduru Oya basin is separated from the Mahaweli Ganga Valley by a north south line of hills, a spur of this range crossing the basin in a generally south-easterly direction. The gap in the hills through which the Maduru Oya flows on its northerly course, forms the site of the new dam. The irrigation area lies along either side of the Maduru Oya, downstream from the damsite.

There is considerable evidence of ancient settlement in the form of developed bunds, tanks and ruins. The forests have been heavily exploited over a long period and shifting cultivation has left significant scars on the landscape. These activities have turned the originally lush, dry-zone forest into scrub jungle and large park-like areas.

Areas of human activity are scattered with concentrations in the Pimburettawa, Vakaneri and Puvanai schemes and in settlements and minor tanks associated with low-lying areas. Only sixteen percent of the total area can be considered as associated with intensive human activity.

The remainder is either subject to shifting cultivation, forest exploitation, the grazing of domestic animals, or is uninhabited. The estimated present population of System B is twenty five thousand seven hundred and fifty seven persons.

The feasibility study has been completed by Canadian consultants Acres International Ltd. and their final report submitted. MDB is laying out the trace of the Left Bank Canal which has a potential irrigable area of 24,000 hectares - 70,000 acres divided into five development zones. Detailed design will be completed in phases and the award of implementation contracts will be in harmony with this phasing. Zones 1 and 5 and the first section of the Left Bank Canal are scheduled for completion by 1982 to coincide with the completion of the Maduru Oya Reservoir. The balance of the main and branch canals and the remaining zones will be completed by 1984.

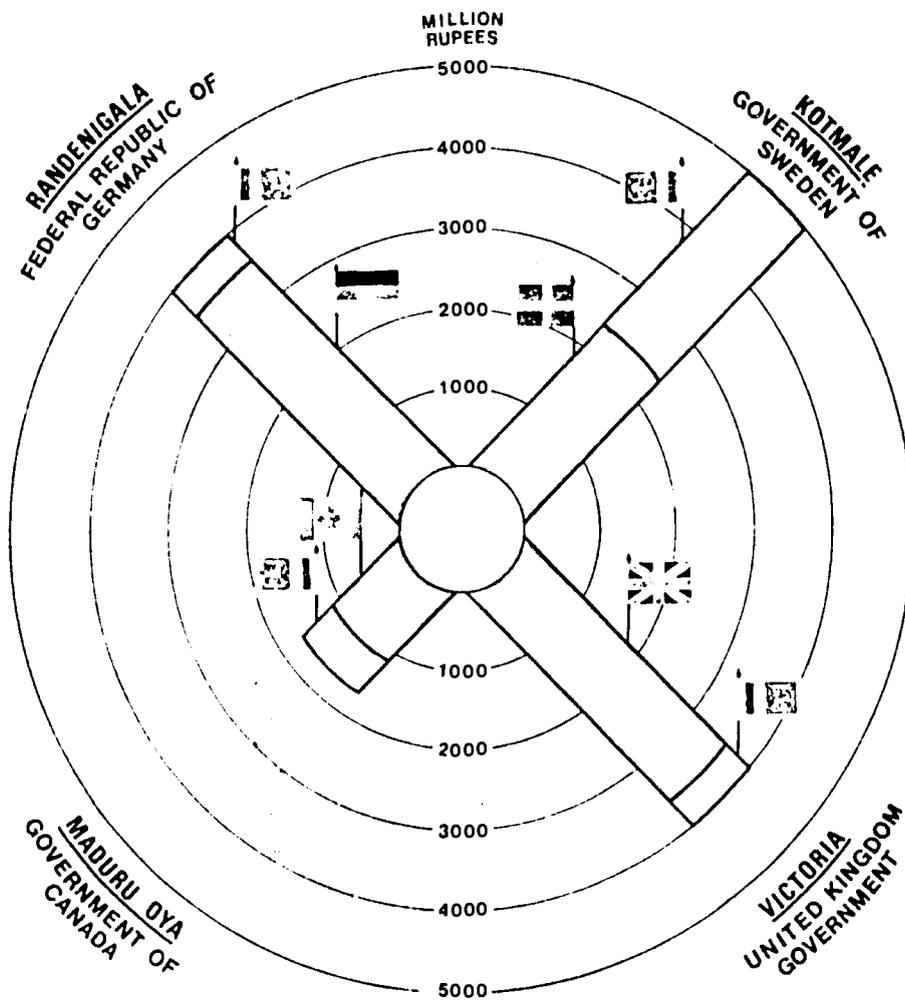
Using local funds, Government has commenced the construction of 36 village tanks which will later be incorporated into the irrigation system, and the development of infrastructural facilities at the strategic townships of Welikanda, Aralaganwila and Manampitiya. The development of the irrigation system will be undertaken with the assistance of USAID, anticipated at 95 million United States Dollars. Berger/IECO in association with Rural Development Consultants Limited of Sri Lanka have been appointed to design the Main and Branch canal systems. Asian Development Bank consultants have laid out the road system. Further assistance however will be necessary to cover the whole cost of downstream development, presently estimated at 70-80,000,000 United States Dollars.

The Randenigala Project, in addition to energy generation and flood protection benefits, will supply water for the proposed irrigation of System A. System A is already an important producer of surplus paddy for purchase by the Paddy Marketing Board (between 10 and 15,000 tonnes per annum). The yields however are low due to water and input constraints. Livestock are also a significant industry mainly for the provision of draft animals, with a potential however for the development of milk production.

In November 1979, a study carried out by NEDECO ascertained areas with generalised cropping patterns amounting to some 35,000 hectares - 86,000 acres overall. A full feasibility study of System A is now being undertaken, funded by a technical co-operation grant from the Federal Republic of Germany, by the Joint Venture Randenigala between the Ministry of Mahaweli Development, plus 2 German firms and one Swiss firm of consultants. The Feasibility Report is scheduled for submission next year. The Federal Republic of Germany has pledged 400 million Deutsche Marks - 3500 million rupees to finance the Randenigala, System A development.



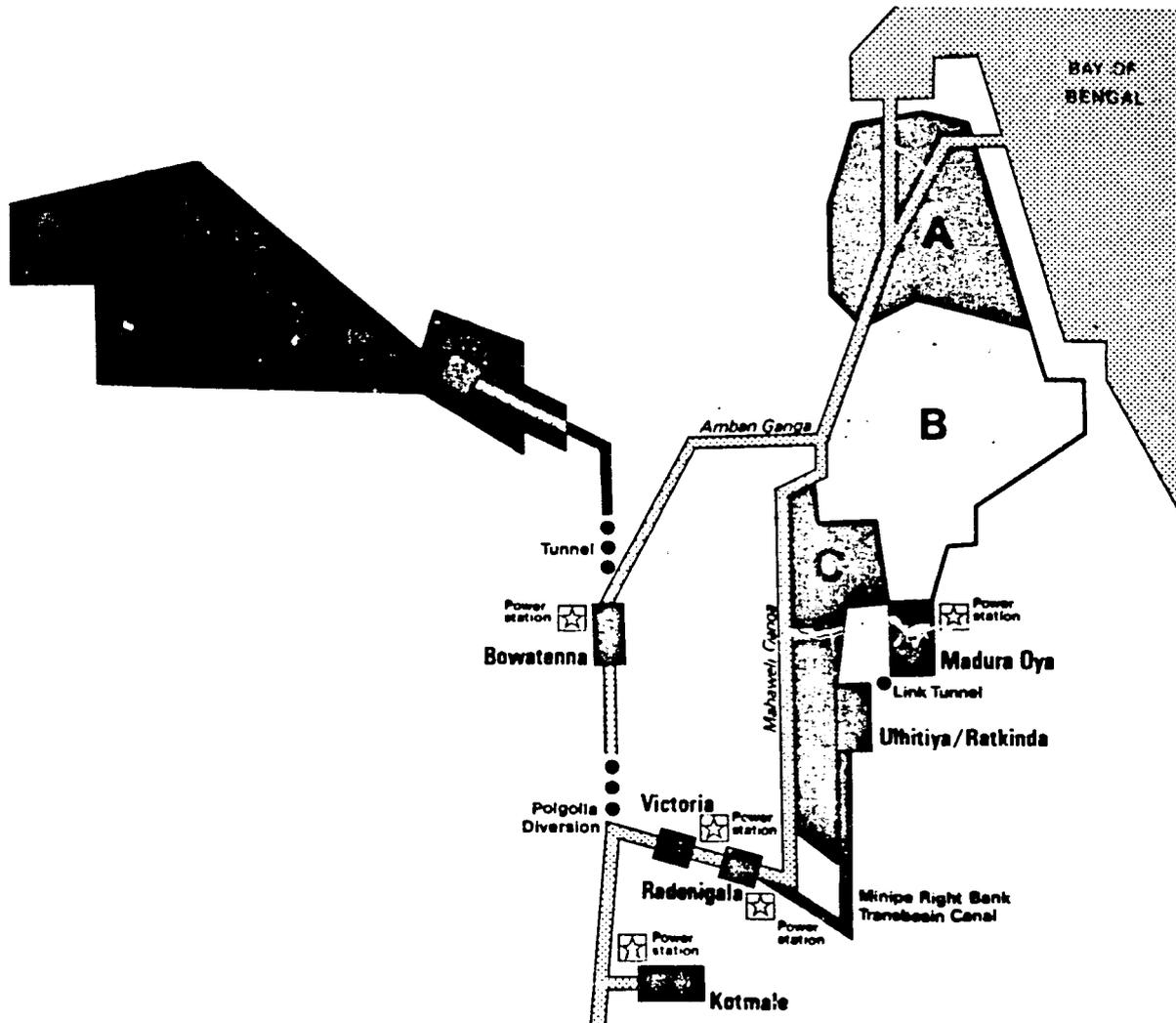
# INTERNATIONAL COMMITMENTS TO MAJOR HEADWORKS PROJECTS



 INTERNATIONAL COMMITMENTS  
 SRI LANKA COMMITMENTS

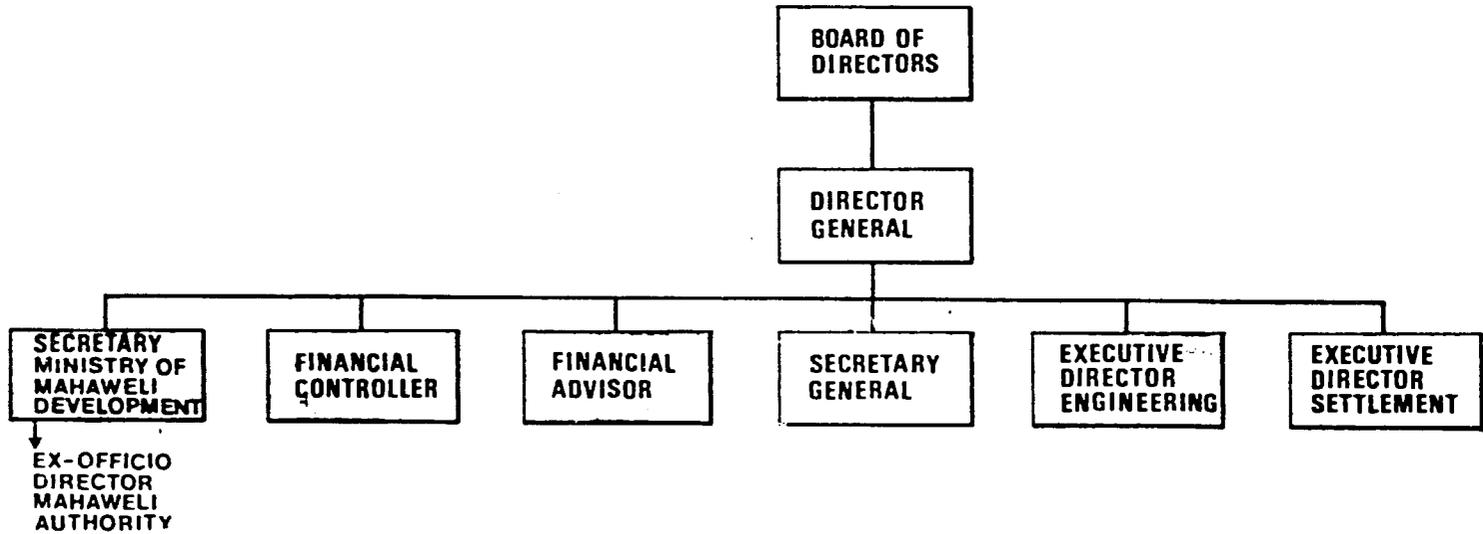
Source: Mahaweli Authority

# ACCELERATED MAHAWELI PROGRAMME - CURRENT PROJECTS



# ORGANISATION

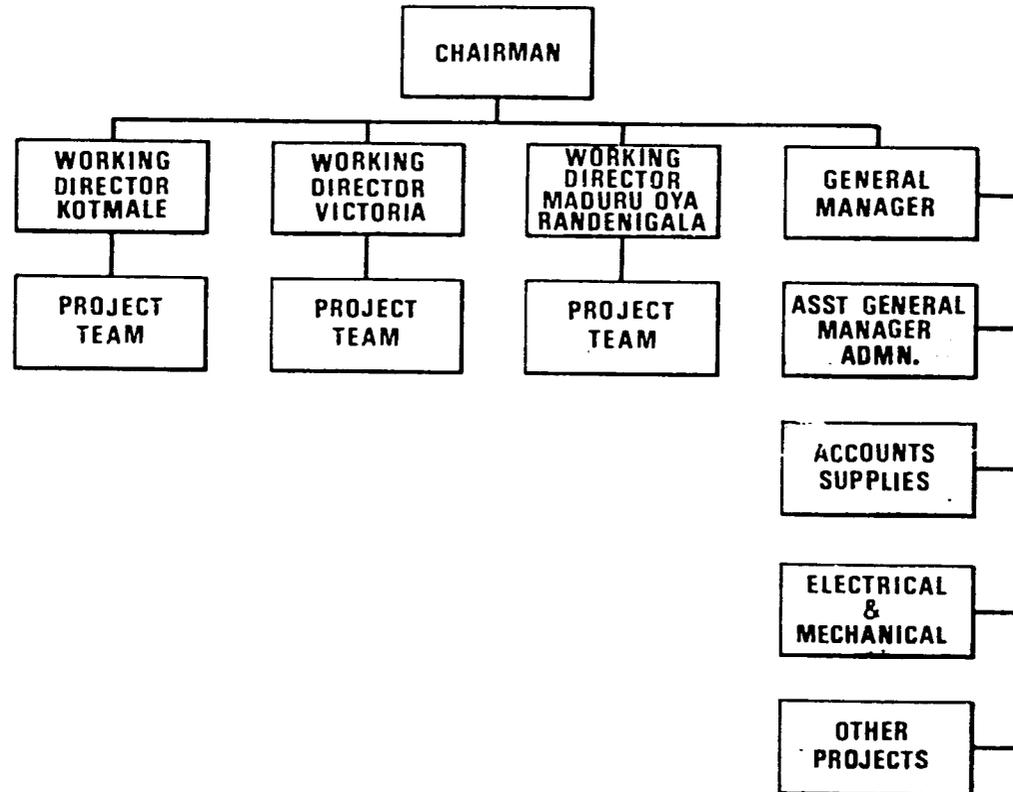
## MAHAWELI AUTHORITY



# ORGANISATION

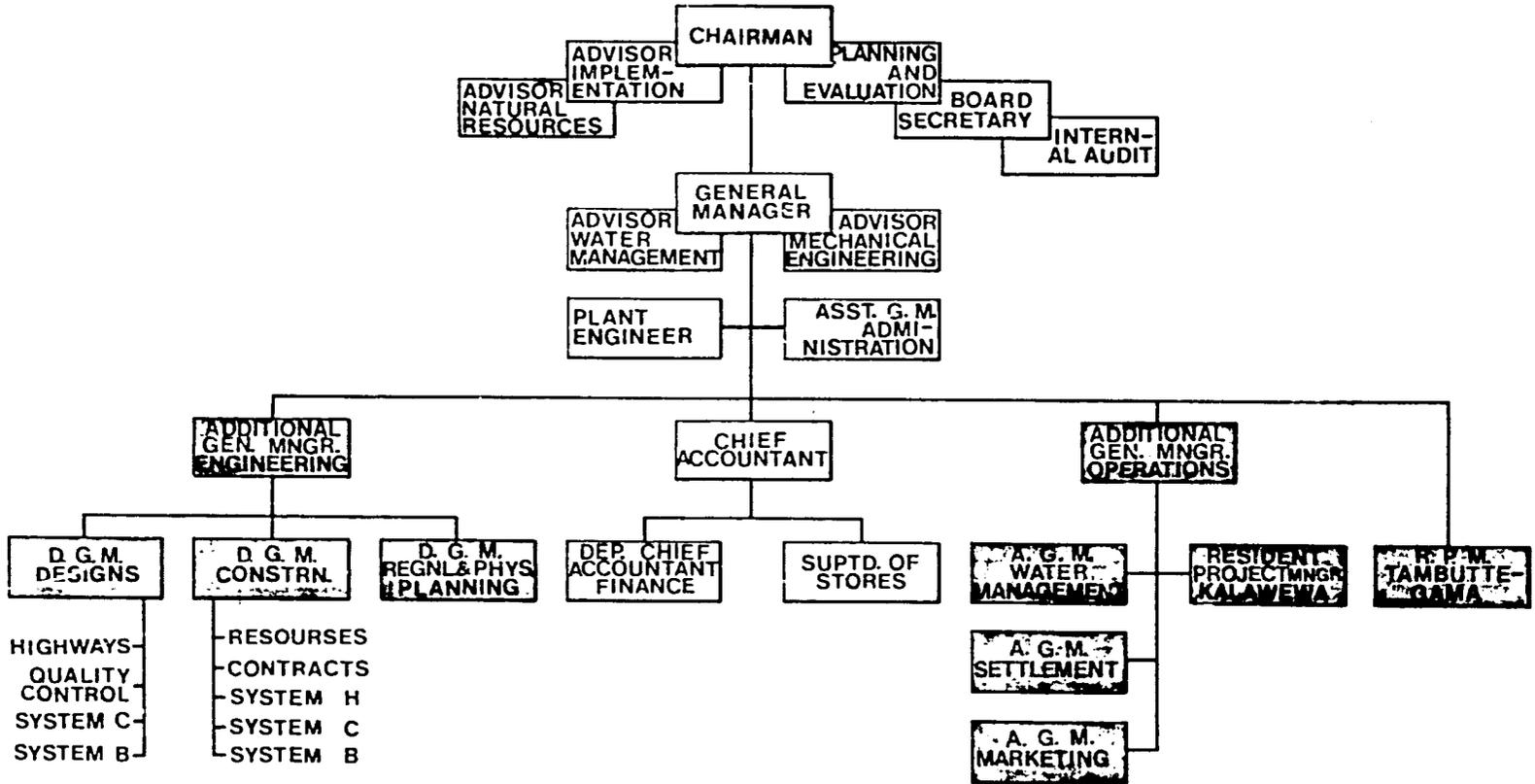
CENTRAL ENGINEERING CONSULTANCY BUREAU

C E C B



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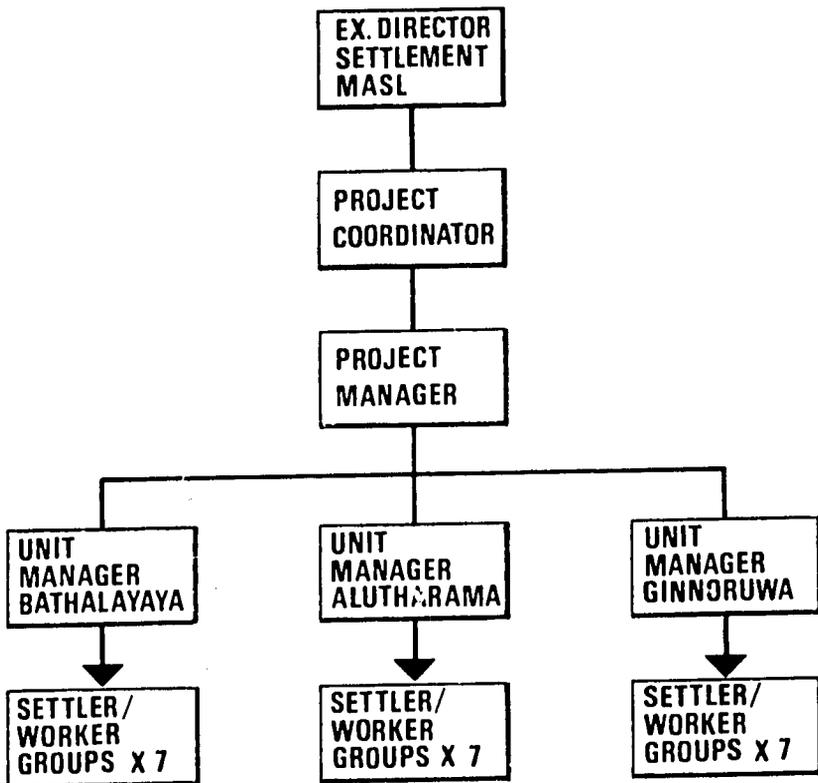
# ORGANISATION MAHAWELI DEVELOPMENT BOARD



2

# MANAGEMENT

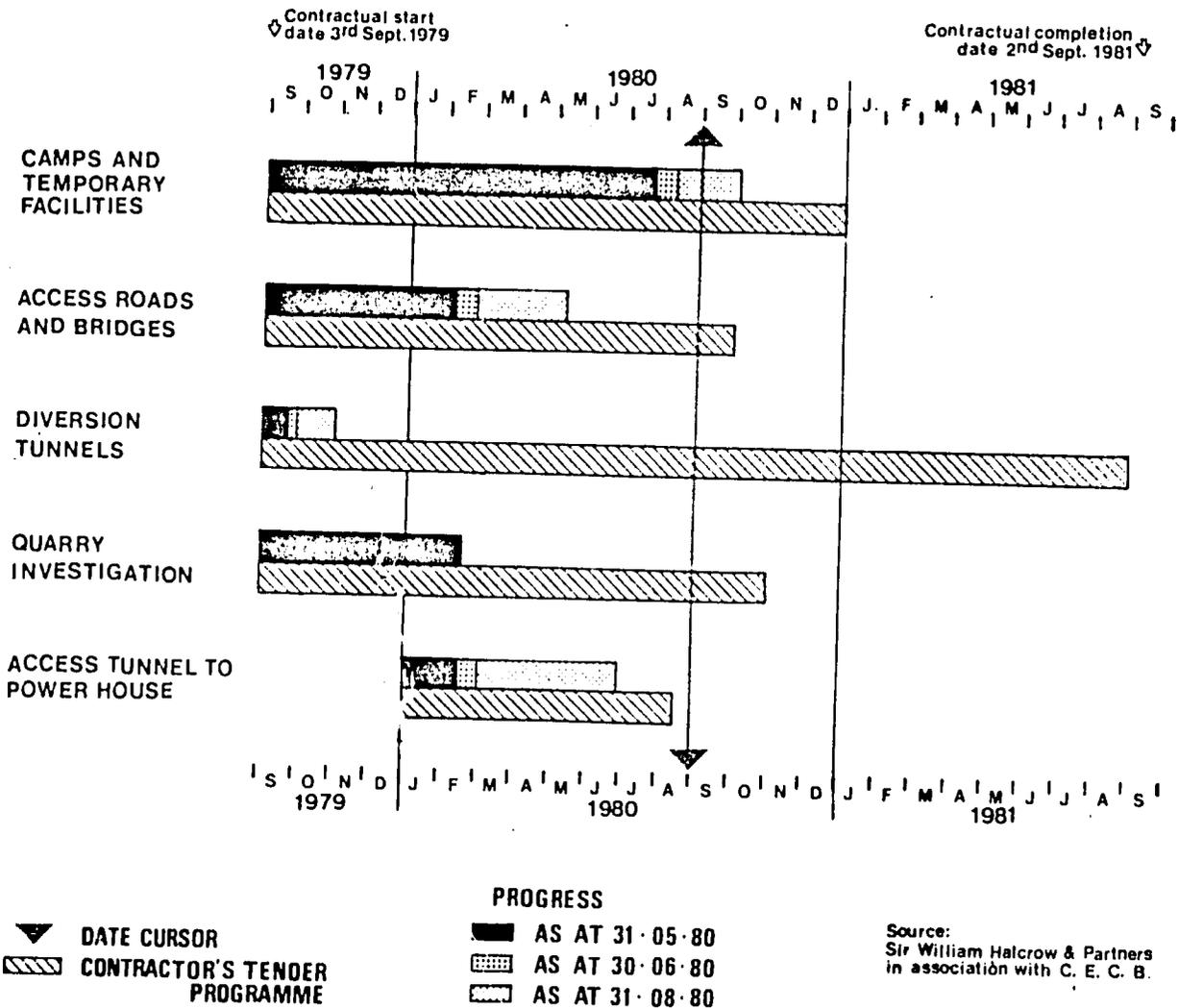
POST- SETTLEMENT PERIOD  
SYSTEM C - ZONE 2



Source: MEA

# KOTMALE PROJECT INITIAL WORK

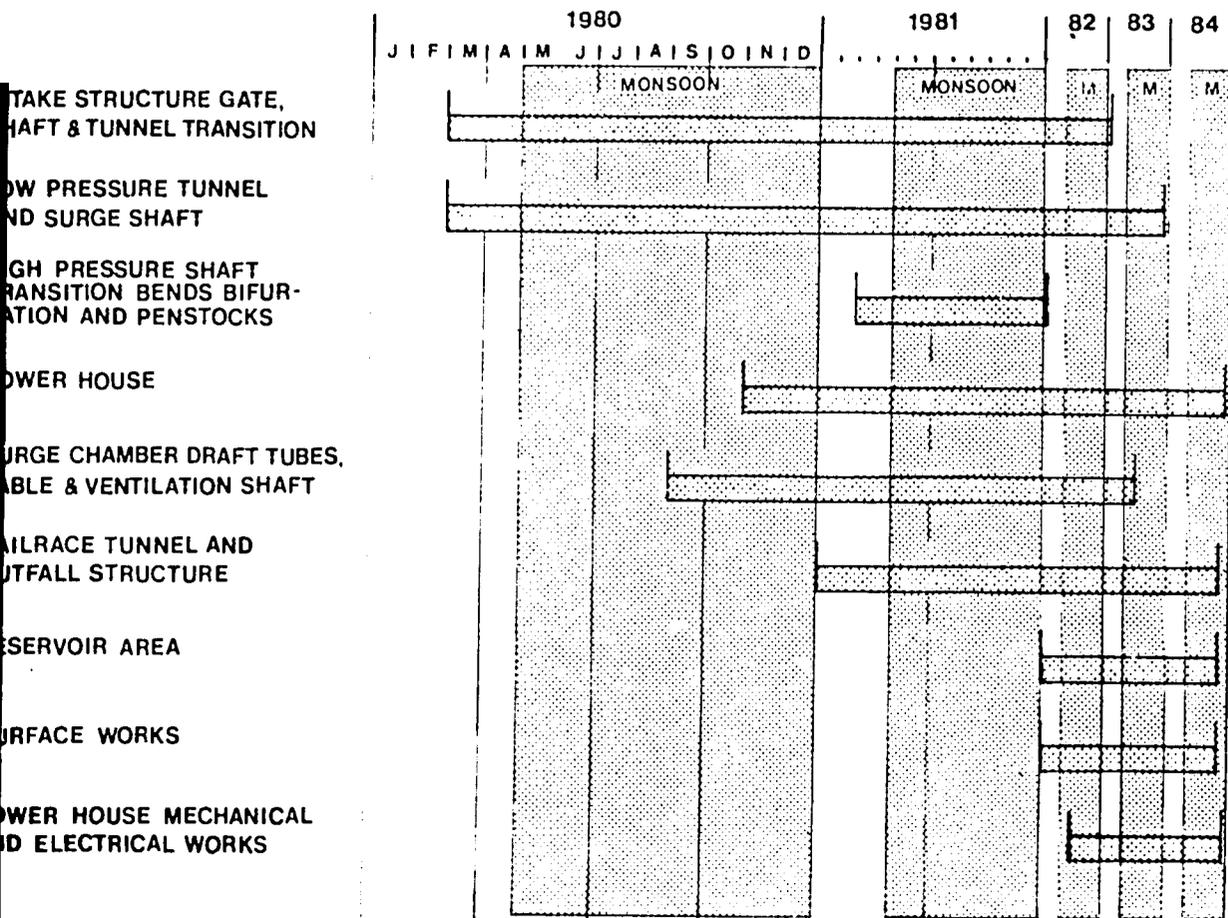
## AS OF 31<sup>ST</sup> AUGUST 1980



# KOTMALE HYDROPOWER PROJECT

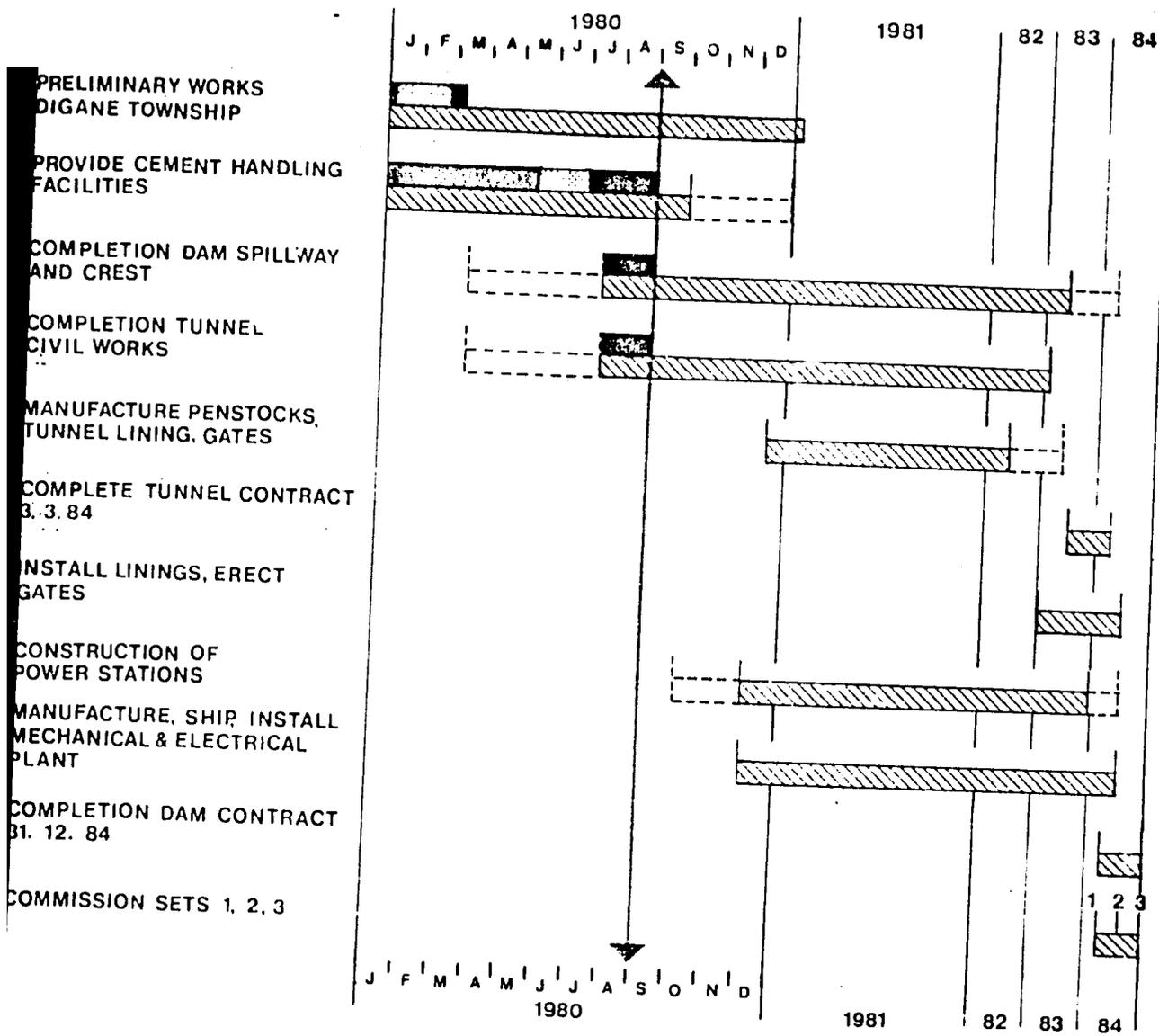
## UNDERGROUND WORKS

### CONTRACTORS TENDER PROGRAMME



# VICTORIA DAM AND HYDRO ELECTRIC PROJECT

AS OF 31 AUGUST 1980

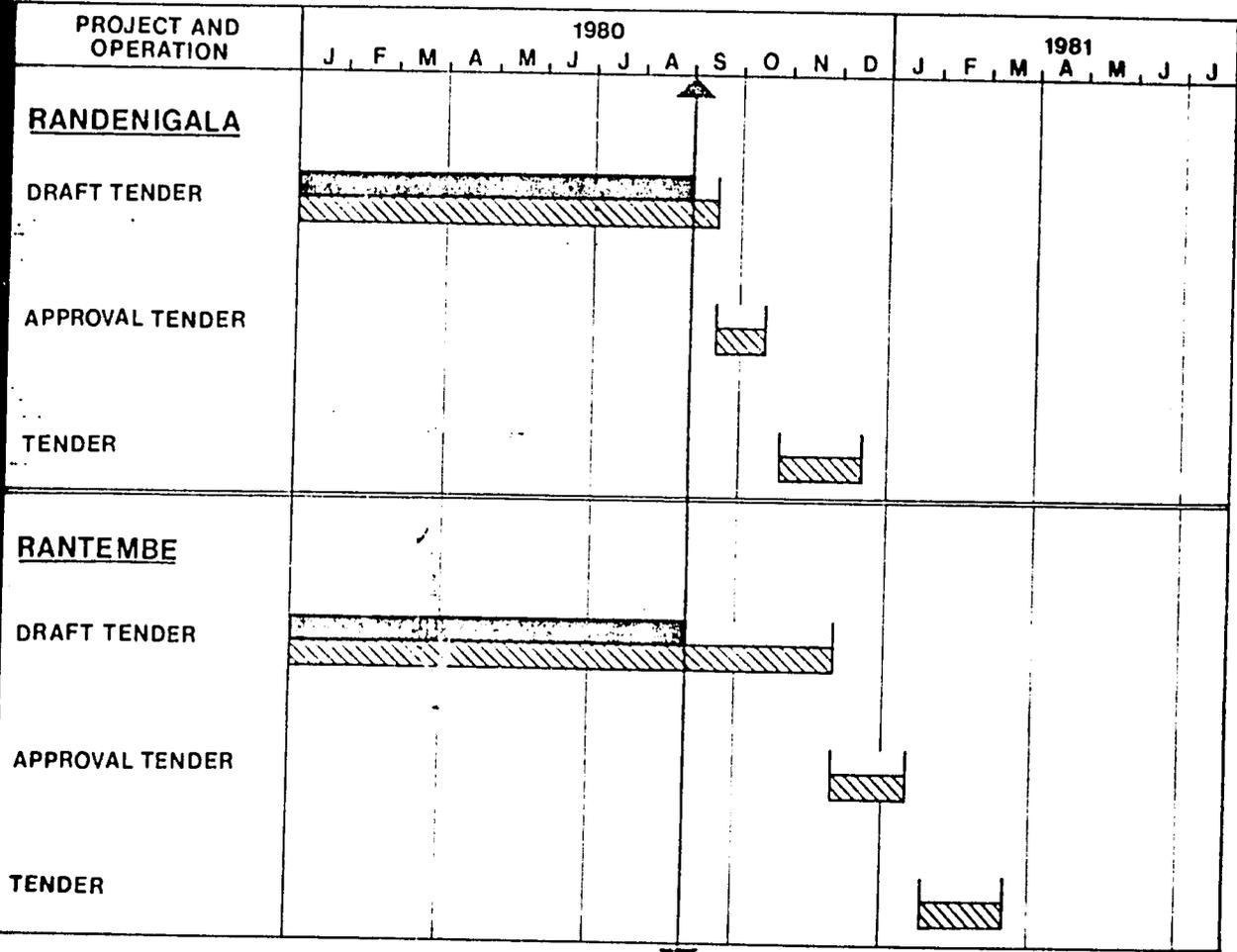


 DATE CURSOR  
 CONTRACTOR'S TENDER PROGRAMME

**PROGRESS**  
 AS AT 31.05.80  
 AS AT 30.06.80  
 AS AT 31.08.80

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# JOINT VENTURE RANDENIGALA DETAIL DESIGN PROGRAMME

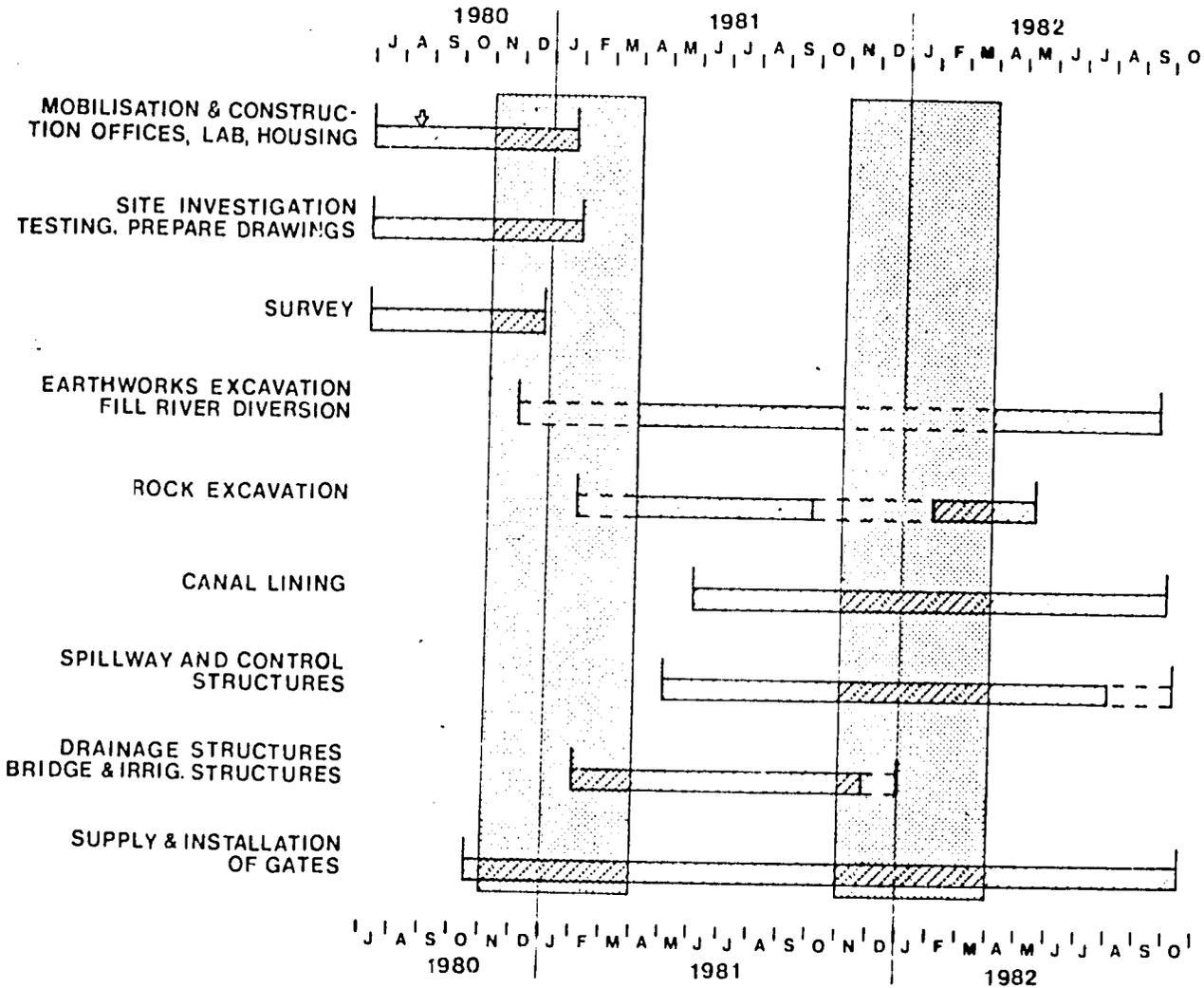


Source: Randenigala Joint Venture Chart AN-1

▲ DATE CURSOR

 PROGRESS  
 PROGRAMME

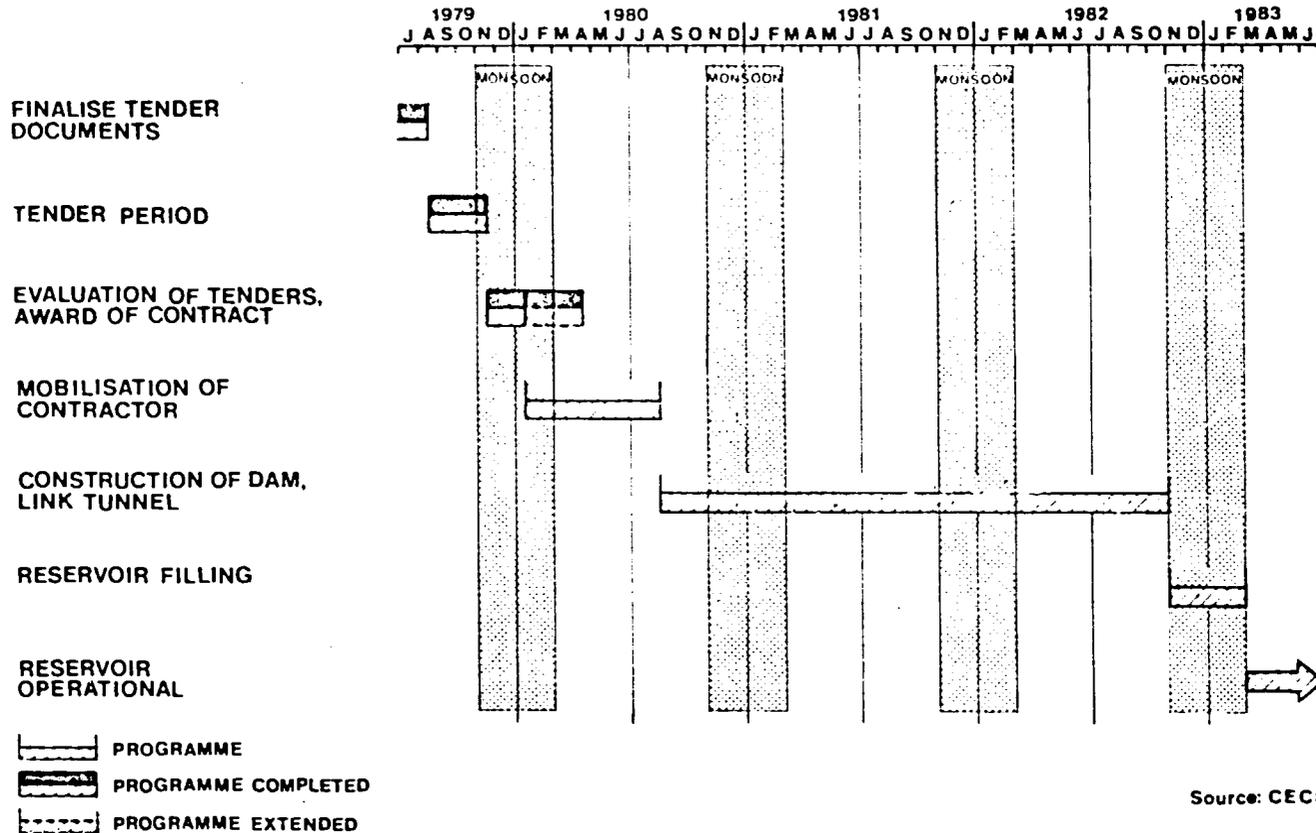
# RIGHT BANK TRANSBASIN CANAL OVERALL CONSTRUCTION PROGRAMME



⚡ AWARD OF CONTRACT

Source: Sir Alexander Gibb & Partners

# MADURU OYA RESERVOIR PROJECT IMPLEMENTATION PROGRAMME



# H4 & H5 AREAS

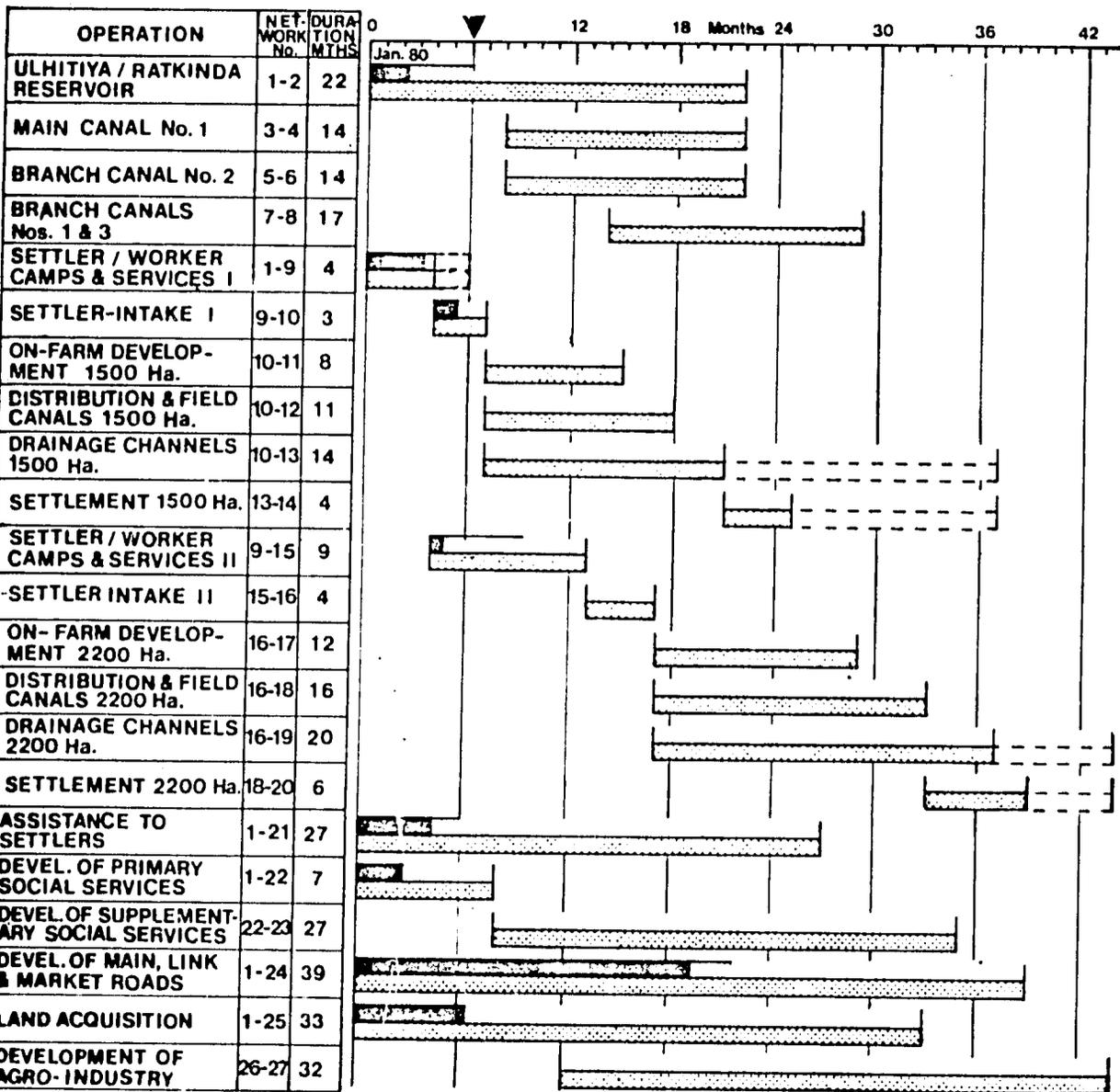
## REVISED CONSTRUCTION PROGRAMME 30<sup>TH</sup> JUNE 1980

ITEM	1980												1981														
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
BRANCH CANALS	[Hatched bar from J to O]																										
JUNGLE CLEARING	[Hatched bar from J to S]																										
IRRIGATION INFRASTRUCTURE (DISTRIBUTORY & DRAINAGE SYSTEMS)	[Hatched bar from J to D]																										
ON-FARM DEVELOPMENT	[Hatched bar from J to M]																										
MARKET ROADS (METALLING & TARRING)	[Hatched bar from J to D]																										
VILLAGES & HAMLETS (INTERNAL ROADS)	[Hatched bar from J to D]																										
OWNSHIPS & VILLAGE CENTRES (LANDMARKINGS & INTERNAL ROADS)	[Hatched bar from J to S]																										
SCHOOLS, POST OFFICES & POLICE STATIONS	[Hatched bar from J to D]																										
MEDICAL CENTRES	[Hatched bar from M to O]																										
COMMUNITY WELLS	[Hatched bar from J to D]																										
SEED AND FERTILIZER STORES & CO-OP DEPOTS	[Hatched bar from J to M]																										
GRAIN STORES AND MB COMPLEX	[Hatched bar from J to D]																										
PROJECT MANAGEMENT OFFICES & QUARTERS	[Hatched bar from J to D]																										
AGRICULTURAL & COMMUNITY TRAINING & RESEARCH BUILDINGS	[Hatched bar from J to M]																										
SETTLEMENT	[Hatched bar from J to M]																										

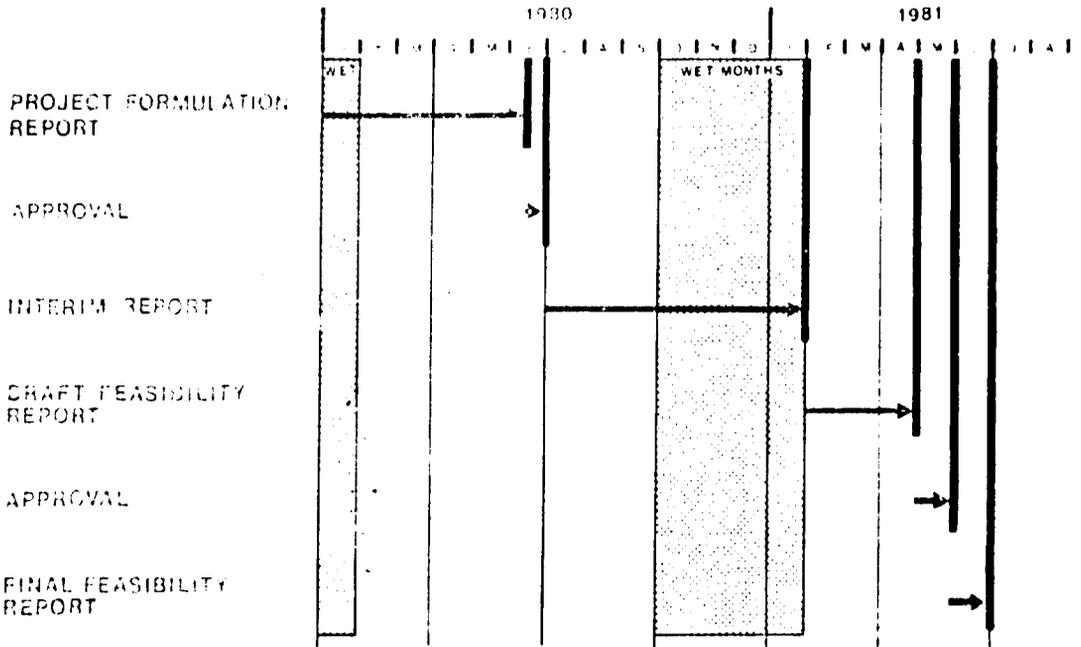
Source: MDS - P & E Division

# IMPLEMENTATION PROGRAMME ZONE TWO SYSTEM C

AS OF 30<sup>TH</sup> JUNE 1980



# SYSTEM A JOINT VENTURE FEASIBILITY STUDY PROGRAMME



Source: Banderqala Joint Venture Chart AN-2