

Attachment-6

Terms of Reference

for

Feasibility Study on the Bien Hoa-Vung Tau

Corridor Area Water Supply Project

THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIET NAM

THE MINISTRY OF CONSTRUCTION

APPLICATION FOR

TECHNICAL COOPERATION (DEVELOPMENT STUDY)

BY THE GOVERNMENT OF JAPAN

FOR

FEASIBILITY STUDY ON THE BIEN HOA-VUNG TAU

CORRIDOR AREA WATER SUPPLY PROJECT

NATIONAL CORPORATION

OF

GENERAL CONSTRUCTION CONSULTANTS

APPLICATION FOR
TECHNICAL COOPERATION (DEVELOPMENT STUDY)
BY THE GOVERNMENT OF JAPAN

1. Study Title Feasibility Study on the Bien Hoa-Vung Tau Corridor Area Water Supply Project
2. Location Corridor area along National Highway No. 51 from Bien Hoa to Vung Tau through Long Thanh and Ba Ria with a length of 90 to 100 km and a width of 10 to 20 km
3. Executing Agency The Ministry of Construction, in which the National Corporation of General Construction Consultants (NAGECCO) will represent as the technical counterpart organization responsible for the Study
4. Objectives of the Study (1) Selection of the least cost combination plan from among the alternatives, which are made by combining a few water sources so as to meet water requirements

 (2) Feasibility studies for the projects, which are included in the above least cost combination plan

 (3) Transfer of technical knowledge on planning and investigation to Vietnamese counterparts through their direct participation in the Study
5. Necessity of the Study A number of plans to establish industrial estates are proposed in the corridor area along National Highway No. 51 from Bien Hoa to Vung Tau as part of the southern local economic zone, which is the locomotive of national economy along with the Hanoi-Hai Phong area, continuing to grow with an economic growth rate of over 10 % to 15 % against the national average of 8 to 9 %.

It is one of crucial elements for the full achievement of the plans of industrial estate and urban areas, which have been coming into existence, to secure industrial water as well as investment capital, human resources and electricity. Amount of water to be developed for the full achievement of industrial estate and urban area plans is estimated at 1.4 million m³ a day by the year 2015.

Water sources for the development of 1.4 million m³ a day are sought to the Dong Nai, local small rivers and groundwater; the first will require to construct a pipeline system along National Highway No. 51 from its intake site to the beneficiary areas, and the second will need the construction of reservoirs to secure stable water supply. Thus, it is urgent requirements to formulate the optimal combination plan from among alternatives made by combining several water sources for meeting the demand of 1.4 million m³ a day and furthermore to carry out the feasibility studies for those projects to compose the optimal combination plan.

6. Study Period

About 21 months

7. Cooperation Required to the Government of Japan

- (1) Dispatching of a study team to undertake the Study. Expert inputs required will be about 100 man-months.
- (2) Field survey and investigation relevant to the Study will be carried out.
- (3) Transfer of technical knowledge through the course of the Study.

8. Other Related Project

- (1) Feasibility Study for the Da Den Reservoir Project undertaken by the Ministry of Agriculture and Rural Development.
- (2) Pre-feasibility Study for the Song Ray Reservoir Project undertaken by the Ministry of Agriculture and Rural Development.

**TERMS OF REFERENCE
FOR
FEASIBILITY STUDY ON THE BIEN HOA-VUNG TAU
CORRIDOR AREA WATER SUPPLY PROJECT**

1. Introduction

The Government of the Socialist Republic of Viet Nam launched an economic reform in the year 1986 by proposing the Doi Moi policy, which gradually shifts from the planned economy to the market-oriented economy. The Doi Moi policy includes the following reforms:

- Provision of long-term land tenure rights, facilitating household farming;
- Opening-up of opportunities for private sector development;
- Increased autonomy for state enterprises and requirements that they operate on a non-subsidized basis and in a competitive environment;
- Decontrol of prices, allowing market supply and demand forces to work;
- Devaluation of the official exchange rate;
- Trade liberalization and reorientation to export-led growth;
- Encouragement of foreign investment;
- Reform of the fiscal and monetary system to better balance the budget, strengthen tax revenues, stimulate savings and control inflation; and
- Adoption of the new Constitution in the year 1992, introducing changes to democratic freedom and property rights.

As the result of introducing the Doi Moi policy, Vietnamese economy enjoyed high growth rates of 8.0 % in terms of Gross Domestic Product (GDP) in the year 1989. Due to the collapse of the Soviet Union in the year 1990, the GDP growth rate declined to 5.1 % in the year 1990 and 6.0 % in the year 1991. However, the economy fully recovered and climbed to 8.3 % in the year 1992, and healthy growth continued in the year 1993 with a GDP growth rate of 8.0 %. It is highly expected that Vietnamese economy continues to grow a high GDP rate of 7 to 8 % up to the year 2010.

The corridor area along National Highway No. 51 from Bien Hoa to Vung Tau as part of the economic triangle zone including Ho Chi Minh City has emerged as a locomotive to sustain economic development in the nation. It is estimated that industrial water with an amount of 1.4 million m³ a day should be developed for sustaining the economic activities in the area by the year 2015.

Due to the reason mentioned above, the Government of Viet Nam sincerely requests to the Government of Japan to provide technical assistance to carry out the Study, which prepares the optimal combination plan of projects necessary to develop industrial water with an amount of 1.2 million m³ a day including their feasibility studies.

2. Background Information

The Bien Hoa-Vung Tau corridor area, consisting of the economic triangle zone along with Ho Chi Minh City, extends in the lowermost east bank of the Dong Nai River (refer to Figure 1), facing Ho Chi Minh City, which lies at the other side of the Dong Nai River, i.e. west bank. The Study Area links Ho Chi Minh City, which is the international gateway in the region, with National Highway No. 1 and No. 51, and furthermore has the Vung Tau sea port for ocean freight.

Having geographical merits located near Ho Chi Minh City, which is the economic development centre in southern Viet Nam, the Study Area has remained to be developed due to undulating topography and less endowed rainfall. This implies that vast areas still remain as the promised areas for future industrial development. Administratively, the Study Area extends in the Dong Nai and Ba Ria-Vung Tau provinces including their provincial towns, Bien Hoa and Ba Ria.

Bien Hoa and Ba Ria-Vung Tau water supply systems are two major water supply systems in the Study Area, even if there are several minor water supply systems with some hundreds cubic meter supply capacity a day. The Bien Hoa system has the Thien Tan treatment plant, which seeks the water source to the Dong Nai River, with a capacity of 36,000 m³/day and groundwater with a capacity of 480 m³/day. To meet the growing demand, the extension of Thien Tan plant with a capacity of 100,000 m³/day is under construction with the expected commission year of 1997.

The water supply system for Ba Ria-Vung Tau area has a supply capacity of 33,000 m³/day at present; 20,000 m³/day from Phuoc Thai reservoir and 13,000 m³/day from groundwater. As future plans, there is an extension plan of Phuoc Thai reservoir with a capacity of 10,000 m³/day and has a new development plan of Da Den reservoir with a total capacity of 100,000 m³/day.

The main source for the industrial water supply in the Study Area will be the Dong Nai River. There is no problem at present to induce saline water to the Bien Hoa water supply system due to small abstraction amount. However, abstraction of bulk water of approximately 3.5 million

m³/day, of which 2.1 million m³/day is supplied to Ho Chi Minh City from the Dong Nai River, would cause the induction of saline water to the water supply system, requiring careful studies for salinity water intrusion.

3. Necessity of the Study

A number of plans to establish industrial estates are proposed in the corridor area along National Highway No. 51 from Bien Hoa to Vung Tau as part of the economic triangle zone, which is the locomotive of national economy along with the Hanoi-Hai Phong area, continuing to grow with an economic growth rate of over 10 % to 15 % against the national average of 8 to 9 %.

It is one of crucial elements for the full achievement of industrial estate plans to secure industrial water including domestic water for those who live in the area as well as investment capital, human resources and electricity. Amount of water to be developed for the full achievement of industrial estate plans is estimated at 1.2 million m³ a day by the year 2015. Although there are two major water supply systems in the area, i.e. Bien Hoa and Ba Ria-Vung Tau systems, their supply capacity is far small compared with the requirement of 1.2 million m³ a day.

Water sources for the development of 1.2 million m³ a day are sought to the Dong Nai and local small rivers; the former will require to construct a pipeline system along National Highway No. 51 from its intake site to the beneficiary areas, and the latter will need the construction of reservoirs to secure stable water supply. Thus, it is urgent requirements to formulate the optimal combination plan from among alternatives made by combining several water sources for meeting the demand of 1.2 million m³ a day and furthermore to carry out the feasibility studies for the projects to compose the optimal combination plan.

4. Objectives of the Study

The objectives of the proposed Study are

- (1) Selection of the least cost combination plan from among the alternatives, which are made by combining a few water sources so as to meet water requirements,
- (2) Feasibility studies for the projects, which are included in the above least cost combination plan, and

- (3) Transfer of technical knowledge on planning and investigation to Vietnamese counterparts through their direct participation in the Study.

5. Scope of Work

5.1 Study Area

The Study Area shall cover the corridor area along National Highway No. 51 from Bien Hoa to Vung Tau through Long Thanh and Ba Ria with a length of 90 to 100 km and a width of 10 to 20 km.

5.2 Formulation of the Optimal Combination Plan

(1) Review of existing data and information

Following data and information shall be collected and reviewed:

- Previous reports regarding the water supply projects in the region,
- Topographic data including topographic maps, results of triangulation and leveling surveys,
- Meteorological data including rainfall, humidity, evaporation, sunshine hours, wind velocity, etc.,
- Hydrological data including water level records, low and flood flows, water quality and sediment load,
- Geological data including geological maps and drilling logs,
- Data on groundwater including aquifer maps and pump test results,
- Socio-economic data including population, gross domestic product, governmental and provincial budgets,
- Water treatment plants in the region and their performance,

- Existing irrigation development plans in relation to La Buong, Song Ca, Phuoc Thai, Da Den and Song Ray dams,
- Existing industrial development plans in the region for future water demand,
- Saline water intrusion data in relation to the abstraction of the Dong Nai River water,
- Data and information on natural environment such as vegetation, ecology, public health, etc.,
- Development plan on the new express way to be constructed parallel to National Highway No. 51, and
- Other necessary data and information.

(2) Demand projection of required water

Future industrial water demands including domestic uses will be projected by drawing attention on areal distribution and development schedule of the industrial estates.

(3) Field reconnaissance

The Study Area will at first be reconnoitered by the Study Team and the counterparts to clarify the site condition. Major items to be clarified will be as follows:

- Potential intake site at the Dong Nai River and the pipeline route along National Highway No. 51 (new express way),
- Potential damsites for water supply,
- Potential areas of groundwater,
- Proposed industrial development areas,
- Existing treatment facilities, and
- Saline water intrusion areas along the Dong Nai River.

(4) Identification of potential projects

All the potential projects for the industrial water supply will be identified in the region including their development capacity. As for the abstraction from the Dong Nai, a crucial element to be considered in determining the abstraction amount will be the saline water intrusion in the Dong Nai River due to the fact that a large scale abstraction from the Dong Nai River increases the possibilities to drag saline water to the upstream reaches, even if the current salinity intrusion study concludes that it is possible to abstract an amount of 1.4 million m³/day from the Dong Nai River with a salinity concentration of lower than 0.25 g/l, which is its allowable limit in the Vietnamese drinking water code.

As for reservoir type projects, development capacities will be examined relying on 1 to 50,000 scale topographic maps and hydrological analysis, whilst a crucial element to assess the development potential of groundwater would be the possibilities to induce brackish water.

(5) Preparation of combination plans by projects

Several combination alternatives will be prepared by combining the identified potential projects to meet the projected water demands. When the combination alternatives by projects are prepared, special attention shall be drawn to the development order among the industrial development zones; that is, the Long Binh zone, for example, has the top priority for development among the industrial development zones.

(6) Preliminary evaluation of combination plans

Construction costs of each project included in the combination plans will preliminarily be estimated based on the existing data, e.g. 1 to 50,000 scale topographic maps. The least cost combination plan will be selected from among the combination alternatives by computing economic cost of each project according to the development sequence.

(7) Selection of the optimal combination plan

The optimal combination plan will be selected from among combination alternatives by comprehensively considering not only economic viability but also the impacts to natural and social environments and saline water intrusion.

5.3 Feasibility Studies for the Projects Included in the Optimal Combination Plan

It is highly expected that the water pipeline project from the Dong Nai River, dam projects and groundwater projects are included in the optimal combination plan to supply industrial and domestic water to each industrial zone. Following studies will be carried out as part of the feasibility study for the projects included in the optimal combination plan.

(1) Field investigation

(a) Topographic survey

Topographic maps with a scale of 1 to 5,000 will be produced for the entire Study Area including the reservoir areas included in the optimal combination plan. Furthermore, 1 to 500 scale topographic maps will be prepared for such major structure sites as dams, treatment plants, river crossing of the pipeline and so on. Existing aerial photographs will be used for the preparation of topographic maps. If necessary, aerial photograph shooting will be carried out.

(b) Geological and geotechnical investigation

Geological investigation will be carried out for the dam structure sites by applying core boring and seismic exploration. The foundation for the major facilities of water pipeline including the treatment plants will be surveyed by geotechnical investigation including core boring.

(2) Basic design

The basic development plan of the projects included in the optimal combination plan will be designed on the feasibility study level based on the newly prepared topographic maps among others. As part of basic design, a preliminary construction plan will be prepared.

(3) Preliminary cost estimate

Construction cost required for the implementation of the projects included in the optimal combination plan will be estimated on basis of unit prices and work quantity obtained based on the basic design. Disbursement of the construction cost will also be prepared based on the construction plan.

(4) Environmental assessment

Of the projects included in the optimal combination plan, Environmental Impact Assessment (EIA) will be carried out for the projects which are identified to cause significant impacts to the surrounding environment, and will be based on the guidelines internationally recognized.

The main focal points of EIA are:

- Deterioration of water quality due to the creation of reservoir,
- Impacts to the ecosystem,
- Effects to scenic beauty,
- Effects to archaeological and cultural heritage,
- Adverse effects to the existing infrastructure,
- Involuntary resettlement of residents,
- Effects to downstream water use, in particular irrigation water,
- Water-borne endemic diseases such as malaria, schistosomiasis, etc., and
- Environmental effects during construction.

(5) Proposal of stage development

The projects included in the optimal combination plan shall not be necessary to be developed at a time, but shall be developed according to the development plan of the industrial development zones. Thus, a stage-wise development sequence of the optimal combination plan shall be proposed; that is, development priority will for example be placed on the Long Binh industrial zone.

(6) Evaluation of project viability

Preliminary construction cost of each project included in the optimal combination plan is estimated on the basis of the preliminary design, followed by the economic evaluation. Overall evaluation of each project will be carried out by taking into consideration not only the necessity of the project, technical soundness and economic feasibility but also environmental impacts, compensation and resettlement issues.

5.4 Transfer of technical knowledge

For technology transfer and training, expatriates of the Study Team shall encompass provision of in-service training and technology transfer programme to the counterpart staff during the

course of the Study. This shall be conducted as part of their involvement in the Study as well as in the form of training seminars, in accordance with the needs of the Study and the individual counterpart staff, and to the extent consistent with the orderly conduct of the work.

6. Work Programme

6.1 Work Schedule

The Study shall be carried out within a time period of 21 months, as its work schedule is given in Figure 2.

6.2 Study Outputs (reports) to be Submitted

Following reports are prepared and submitted during the course of the Study:

	<u>Number of copies</u>	<u>Submission time</u>
(1) Inception Report	30	Within 1st month from the commencement
(2) Progress Report (1)	30	Within 6th month from the commencement
(3) Interim Report	30	Within 9th month from the commencement
(4) Progress Report (2)	30	Within 15th month from the commencement
(5) Draft Final Report	30	Within 20th month from the commencement
(6) Final Report	50	Within 21st month from the commencement

6.3 Expertise Input

The Study Team will prepare an overall development plan in the Study Area consistent with the objective and scope of the technical assistance outlined above. The Study will require 16 experts and a total of 100 man-months as follows:

- Team Leader,
- Water Supply Planner,
- Dam Expert,
- Structural Engineer for the Pipeline,
- Designer for Treatment Facilities,
- Mechanical Engineer for Pump Houses,
- Hydrologist,
- Hydrogeologist,
- Geologist,

- Boring Expert,
- Geophysicists,
- Soil Mechanics Engineer,
- Natural Environmental Expert,
- Social Environmental Expert,
- Construction Planner/Cost Estimate Expert, and
- Economist/Project Evaluation Expert.

7. Undertaking of the Government of Viet Nam

7.1 The Government of Viet Nam shall facilitate the execution of the Study in accordance with the prevailing laws and regulations stipulated by the Vietnamese Government as below:

- (1) To secure the safety of the Study Team;
- (2) To permit the members of the Study Team to enter, leave and stay in Viet Nam for duration of their assignment therein, and exempt them from foreign registration requirement and consular fees;
- (3) To exempt the members of the Study Team from taxes, duties and other charges on equipment, machinery, and other materials bought into and out of Viet Nam for the conduct of the Study;
- (4) To exempt the members of the Study Team from income taxes and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Study Team for their services in connection with the implementation of the Study;
- (5) To provide necessary facilities to the Study Team for remittances as well as utilization of the funds introduced into Viet Nam from Japan in connection with the implementation of the Study;
- (6) To obtain permission for entry into special areas for the purpose of implementing the Study;
- (7) To secure permission which is considered to be necessary and issued by the relevant authorities for the Study Team to take out all data and documents including maps and aerophotographs related to the Study out of Viet Nam to Japan; and

- (8) To provide medical services as needed and its expense will be chargeable on the members of the Study Team.

7.2 The Government of Viet Nam shall bear claim, if any arisen against members of the Study Team resulting from, occurring in the course of the Study or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Study Team.

7.3 The Ministry of Construction (MOC) shall act as a counterpart agency to the Study Team. Within the MOC, the National Corporation of General Construction Consultants (NAGECCO) will be in charge of handling technical issues. The MOC will also act as a coordinating body in relation to other governmental and non-governmental organizations concerned such as the Ministry of Planning and Investment, the Ministry of Agriculture and Rural Development, the Ministry of Science, Technology and Environment and the People's Committee of Dong Nai and Baria-Vung Tau Provinces for the smooth implementation of the Study.

7.4 The MOC shall, at its own expense, provide the Study Team with the following in cooperation with other organizations concerned:

- (1) Available data and information related to the Study;
- (2) Necessary number of counterpart personnel including the project coordinator throughout the Study period;
- (3) Credential or identification card;
- (4) Suitable office space for the Study Team and the Counterpart Team with necessary equipment and clerical services in Ho Chi Minh City; and
- (5) Appropriate number of vehicles with drivers during the Study in Viet Nam.

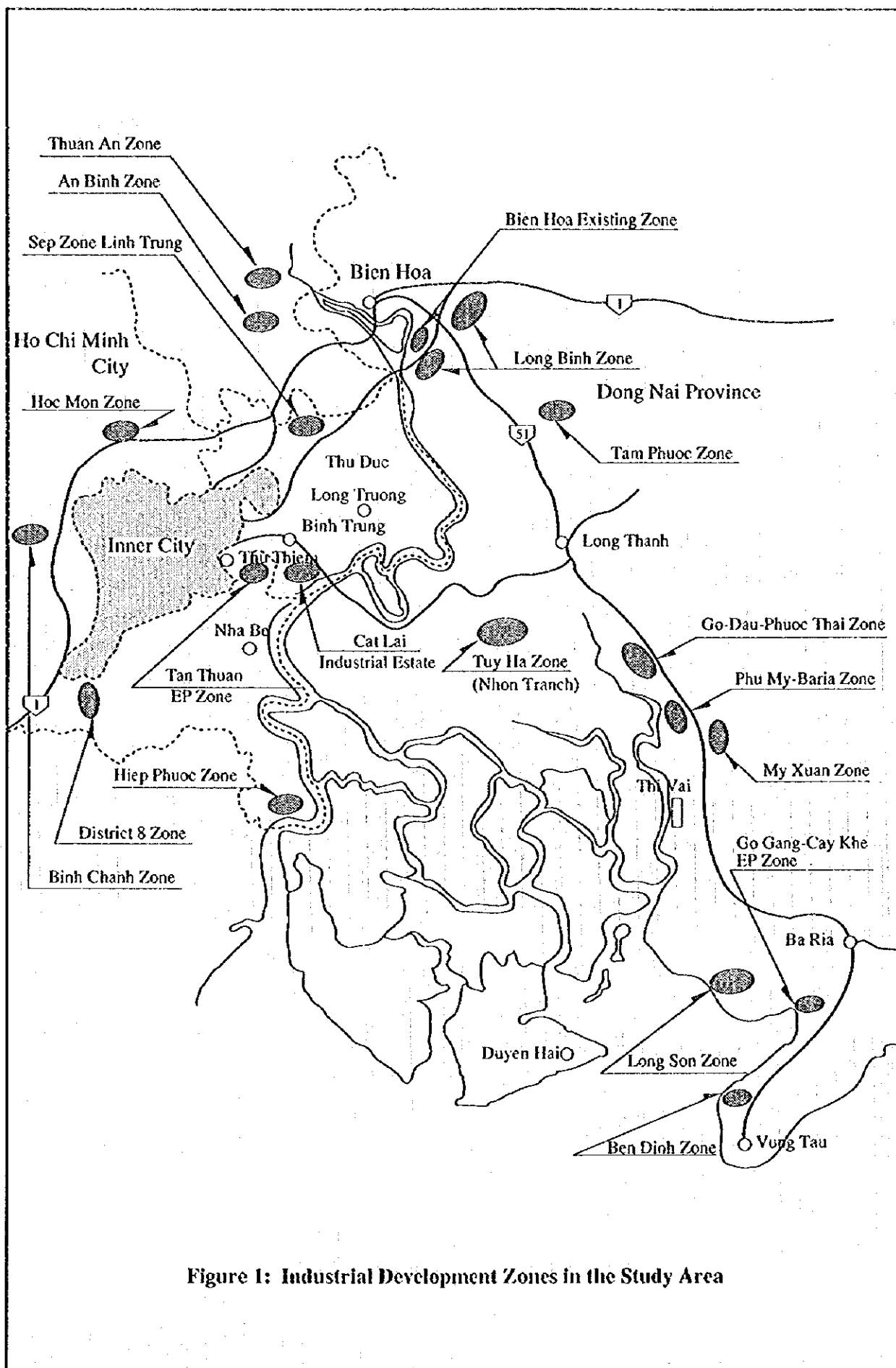


Figure 1: Industrial Development Zones in the Study Area

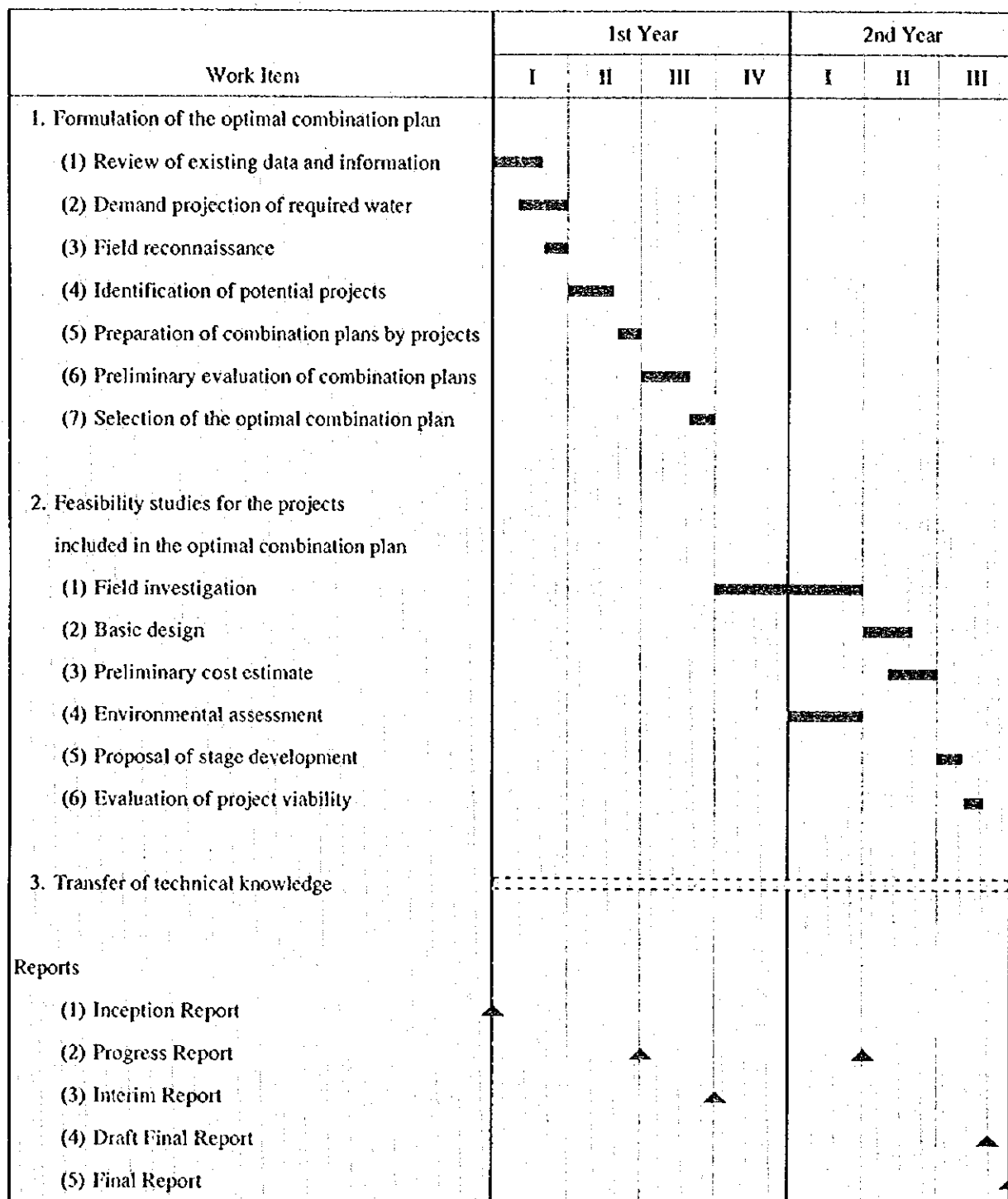


Figure 2: Work Schedule

Attachment-7

Terms of Reference

for

Action Plan Study on Institutional Strengthening

for

Implementation of the Dong Nai

Water Resources Development Project



THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIET NAM

THE MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

APPLICATION FOR

TECHNICAL COOPERATION (ACTION PLAN STUDY)

BY THE GOVERNMENT OF JAPAN

FOR

ACTION PLAN STUDY ON

INSTITUTIONAL STRENGTHENING FOR IMPLEMENTATION

OF THE DONG NAI

WATER RESOURCES DEVELOPMENT PROJECTS

INSTITUTE OF WATER RESOURCES

PLANNING AND MANAGEMENT

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5. Necessity of the Study

In Viet Nam, there is no formal regional (or inter-provincial) planning as an on-going task with regular planning machinery. This anomaly inhibits the formulation and integration of development projects that must be launched together in separate provinces within the same region and/or basin. Even when the formulation of development projects for several provinces within a region (or basin) can be effected, the strategic implementation of these development projects is highly unlikely as there is no mechanism by which the relevance of implementation can be pushed and monitored.

Under such conditions, it is required to establish a regional coordinating institution to tackle the following problems:

- (1) Lack of coordination among the central ministries/agencies, among the local authorities and between the central and local governments in planning and implementing the regional water resources development projects;
- (2) Limited number of staff in charge of planning, implementing and managing water resources development projects;
- (3) Capability building of the staff in planning, implementing and managing water resources development projects in provincial and local authorities;
- (4) Poor storage and dissemination of the basic and/or accurate data on water resources and rural development to the authorities interested;
- (5) Delayed decentralization and less autonomous structure of local governments from the administrative and financial viewpoints.

6. Study Period

About 10 months

7. Cooperation Requested to the Government of Japan
- (1) Dispatching of a study team to undertake the Action Plan Study. Expert inputs required will be about 70 man-months.
 - (2) Conduct of questionnaire and interview surveys for setting up a information center and capability building will be carried out.
 - (3) Provision of the immediate equipment for opening the core office of the PMO-Information Center and transfer of technical knowledge through the course of the Study.
8. Other Related Projects
- (1) Priority and M/P projects proposed in the Master Plan Study on Dong Nai River and Surrounding Basins Water Resources Development

1. Introduction

Since the year 1986, the Vietnamese Government is carrying out drastic reforms in the political, economic and social fields under the banner of "Doi Moi" (renovation in Vietnamese). Doi Moi has two major objectives to pursue in the economic field: 1) an economic liberalization policy at home and 2) an open door policy internationally.

With economic recession due to the shock occasioned by the collapse of the Soviet Union, the GDP declined to 5.1 % in the year 1990 recovered 8.7 % in the year 1992 and healthy growth continued in the year 1994 with an 8.8 % rate.

The Study Area, covering the Dong Nai River and its surrounding river basins with an area of some 48,500 km² or sharing 14.6 % of the total land area of the country, extends over one city and nine provinces of southern Viet Nam : Tay Ninh, Song Be, Dac Lac, Lam Dong, Ninh Thuan, Binh Thuan, Ba Ria-Vung Tau, Dong Nai, Ho Chi Minh City and Long An.

In the year 1994, the population in the Study Area was 11.7 million, accounting for 16.3 % of the country's total population. GDP in the Study Area totaled about VND 10.7 trillion in the year 1993 and this amounted to 32.0 % of the national total. The per capita GDP in the area was VND 936,000 in the same year, which was almost twice the country average (VND 478,000).

Given the rich natural and human resources, the Study Area as a whole has recorded higher economic growth rates compared to the whole country. Besides, in view of its large potentials, the area is expected to continue to develop keeping more or less the presently enjoyed growth rates up to the target year 2015. However, it is apprehended, on the other hand, that such strikingly accelerated growth led by the SFEA (HCMC-Bien Hoa-Ba Ria-Vung Tau Area) might skew the balanced and sustainable development and generate more large regional disparities/differences.

In fact, it is noted that there exist large regional imbalances and differences with different endowments and potential. For example, Ho Chi Minh city and its surrounding areas are more wealthier than the rest of the South, while the South Central Coast and Highlands, i.e. Binh Thuan and Ninh Thuan provinces, are quite poor. In a region, some areas suffer from much greater concentration of poverty than others.

The Study Area holds an important position in the national development and specific geo-political characteristics as follows:

- (1) More urbanized and more rapidly urbanizing region;
- (2) Receiving area of spillover from HCMC and for in-migration from northern regions;
- (3) More concentrated urbanization pattern; and
- (4) Crossroads (or gateway) to Indochina countries.

The Study Area is relatively rich in water resources as far as the total endowments are concerned. Water is to be considered as one of the most essential resources for socio-economic development : hydro-electric power, water for agriculture, and industrial and domestic water supply.

As one of the three major constituents (land-water-people), water is critically important for regional development. Water resources available in the Study Area will be developed to support the regional development as follows:

- 1) To contribute to the increase in total power supply to support higher economic growth/industrialization and income generating activities in rural areas,
- 2) To expand substantially the supply of water to support industries and other urban activities and to develop appropriate sources of water to assure decent quality of rural life,
- 3) To develop water resources in designated localities where irrigation and/or tourism potentials are superior to enhance the quality of land and water environment, and
- 4) To promote people's participation in water/power resources development and management for efficient use of limitedly available water/energy resources.

2. Background Information

The development of the Dong Nai River and Surrounding Basins Area (Study Area) may be viewed both from the perspective of water resources development and regional development.

Although the integrated planning for provincial development exists, the scope for regional (inter-provincial) planning, at least up to very recently, was limited to only the special economic zones (in South: Southern Focal Economic Zone = SFEZ).

Besides, certain areas covering many provinces are planned as a unit by an agency specifically assigned the task in a specific sector. As noted, the so-called river basins development projects like the Mekong, Red River, Dong Nai River, etc. may be units for monitoring spatial development.

At the provincial level, the Provincial or City's People's Committee is the most important institution insofar as area development is concerned. Its direct mission is to oversee the living improvement of the local people. The policy and strategy are channeled through the counterpart committees set up at the district level and the precinct level.

In the Master Plan Study Report on Dong Nai River and Surrounding Basins Water Resources Development (JICA), it is recommended to treat its study area as a spatial unit. Administratively, each of ten (10) provinces concerned may be treated as a unit, which is a part of the so-called provincial administration under the Provincial/City People's Committee (PPC or CPC).

For implementation of the "Master Plan Study on Dong Nai River and Surrounding Basins Water Resources Development", the Vietnamese government has already established a preliminary management system (Steering Committee) for supervising the Study.

Basically, it seems to be practical to make the most of the existing system or develop the existing "Steering Committee for the Master Plan Study". Therefore, institutional arrangements proposed here are to establish a "Council" in charge of development of the Dong Nai River and Surrounding Basins (tentatively called as "Dong Nai Water Resources Development Council: DWRDC"), based on the existing management system.

The DWRDC to be established may be consisted of chairmen of ten (10) Provincial/City People's Committees concerned and representatives from the Ministries/Agencies relevant to the water resources development. This Council may be chaired by the director of the Project Management Office (PMO), a new institution called a "Project Management Office (PMO)" to be established under the "DWRDC" to facilitate the coordination at every national, ministry/department and regional/provincial levels.

To improve and strengthen the capabilities of the existing development management system, it is requisite to establish a information center in order to store basic/accurate data on water resources and rural development and disseminate them to the authorities interested. Besides, it is also important to start an "institutional supporting program". PMO may play important roles in implementing this program.

Considering the optimal utilization of water resources in the Dong Nai River Basin area, it is essential to make keep close contacts among all agencies concerned because their problems are inter-related and complementary. The Dong Nai Water Resources Development Council (DWRDC) proposed above will play a pivotal role in their coordination, collaboration and settlement of problems.

3. Necessity of the Study

In Viet Nam, there is no formal regional (or inter-provincial) planning as an on-going task with regular planning machinery. This anomaly inhibits the formulation and integration of development projects that must be launched together in separate provinces within the same region and/or basin. Even when the formulation of development projects for several provinces within a region (or basin) can be effected, the strategic implementation of these development projects is highly unlikely as there is no mechanism by which the relevance of implementation can be pushed and monitored.

Under such conditions, it is required to establish a regional coordinating institution to tackle the following problems:

- (1) Lack of coordination among the central ministries/agencies, among the local authorities and between the central and local governments in planning and implementing the regional water resources development projects;
- (2) Limited number of staff in charge of planning, implementing and managing water resources development projects;
- (3) Capability building of the staff in planning, implementing and managing water resources development projects in provincial and local authorities;
- (4) Poor storage and dissemination of the basic/accurate data on water resources and rural development to the authorities interested;
- (5) Delayed decentralization and less autonomous structure of local governments from the administrative and financial viewpoints.

4. Objectives of the Study

- (1) To formulate and systematize the structure, plan and methodology of inventory and social surveys for a regional water resources and rural database development;

- (2) To establish viable coordinating network and working relationship (linkage) between and among national, provincial & local government agencies, academic/research institutions and people's organizations;
- (3) To formulate the plan and methodology to improve the technical skills and management capabilities of the staff in charge of water resources and rural development;
- (4) To develop and conduct management and training programs for human resources development to upgrade managerial and technical expertise;
- (5) To set up, at first step, a "Dong Nai water resources development information center" for the Project Management Office (PMO) under the Dong Nai Water Resources Development Council (DWRDC) and establish finally a regional rural database center by integrating the above system; and
- (6) To define mechanism to enable NGOs and people's organizations to participate in project development and implementation.

5. Scope of Work

The works to be carried out in the "Action Plan Study on Institutional Strengthening for Implementation of the Dong Nai Water Resources Development Projects" shall mainly comprise but not necessary be limited to the following:

Phase I : Implementation Program

- | | | |
|--------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | : | Analysis of the present administrative, institutional, managerial and financial conditions (staff, facilities & equipment, budget, information system, etc.) in each institution concerned |
| Step 2 | : | Assessment of development potentials & resources and clarification of constraints |
| Step 3 | : | Formulation of development objectives and strategies |
| Step 4 | : | Preparation of basic development/improvement scenarios for each institution to be linked with the Dong Nai Water Resources development (Rural) Information Center |

- Step 5 : Establishment of implementation frameworks
- Validation of the inventoried facilities and equipment
 - Identification of priority facilities and equipment to be installed
 - Institutional framework for coordinating the works/activities at national, regional, provincial levels
- Step 6 : Formulation of institutional strengthening implementation program
- Prioritization of the inventoried/identified items to be constructed and/or installed
 - General schedule of implementation
 - Assignment schedule and their capability building
 - Establishment of information/data processing system
 - Preparation of communication forms

Phase II : Action Plan Study

- Step 7 : Study of institutional, managerial and financial aspects of the priority institutions
- Organization
 - Facilities & equipment
 - Operation and maintenance cost (including personnel expenses)
- Step 8 : Formulation of institutional strengthening action plan
- Jurisdiction of government agencies and other institutions concerned
 - Implementation schedule
 - Capability building program
 - Establishment plan of Dong Nai WRD Information Center
- Step 9 : Financial analysis
- Capital requirement
 - Proposed financing scheme
 - Projected financial statements
- Step 10 : Preparation of cooperation scheme

Transfer of Technical Knowledge

For technology transfer and training, expatriates of the Study Team shall encompass provision of in-service training and technology transfer program to the counterpart staff during the course

of the Study. This shall be conducted as part of their involvement in the Study as well as in the form of training seminars, in accordance with the needs of the Study and the individual counterpart staff, and to the extent consistent with the orderly conduct of the work.

6. Work Program

6.1 Work Schedule

The Study shall be carried out within a time period of 10 months, as its work schedule is given in Figure 1.

6.2 Study Outputs (reports) to be Submitted

The following reports are prepared and submitted during the course of the Study:

	<u>Number of copies</u>	<u>Submission time</u>
(1) Inception Report	30	Within 1st month from the commencement
(2) Progress Report	30	Within 3rd month from the commencement
(3) Interim Report	30	Within 6th month from the commencement
(4) Draft Final Report	30	Within 9th month from the commencement
(5) Final Report	30	Within 10th month from the commencement

6.3 Expertise Input

The Study Team will prepare an overall development plan in the Study Area consistent with the objective and scope of the technical assistance outlined above. The Study will require experts and a total of 70 man-months as follows:

Expert	M/M
(1) Team Leader	6.0
(2) Regional & Rural Development Planner	10.0
(3) Institutional & Management Development	10.0
(4) System Engineer	10.0
(5) Water Resources Development Planner	10.0
(5) Civil and Design Engineer	8.0
(6) Facilities & Equipment Engineer	8.0
(7) Cooperation Planner	5.0
(8) Financial and Cost Estimator	3.0
Total	70.0

7. Undertaking of the Government of Viet Nam

7.1 The Government of Viet Nam shall facilitate the execution of the Study in accordance with the prevailing laws and regulations stipulated by the Vietnamese Government as below:

- (1) To secure the safety of the Study Team;
- (2) To permit the members of the Study Team to enter, leave and stay in Viet Nam for duration of their assignment therein, and exempt them from foreign registration requirement and consular fees;
- (3) To exempt the members of the Study Team from taxes, duties and other charges on equipment, machinery, and other materials bought into and out of Viet Nam for the conduct of the Study;
- (4) To exempt the members of the Study Team from income taxes and other charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Study Team for their services in connection with the implementation of the study;
- (5) To provide necessary facilities to the Study Team for remittances as well as utilization of the funds introduced into Viet Nam from Japan in connection with the implementation of the Study;
- (6) To obtain permission for entry into special areas for the purpose of implementing the Study;

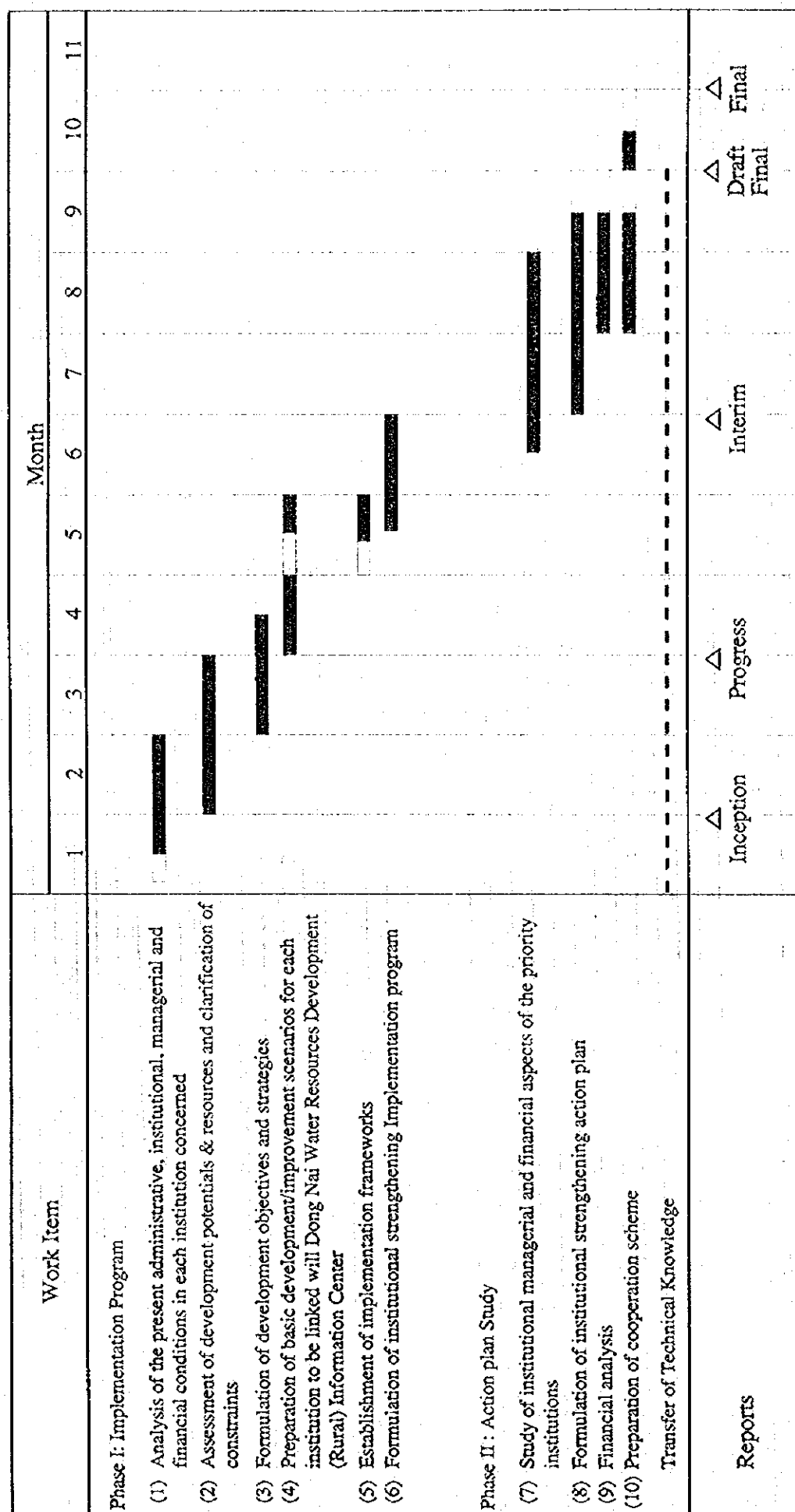
- (7) To secure permission which is considered to be necessary and issued by the relevant authorities for the Study Team to take out all data and documents including maps and aerophotographs related to the Study out of Viet Nam to Japan; and
- (8) To provide medical services as needed and its expense will be chargeable on the members of the Study Team.

7.2 The Government of Viet Nam shall bear claim, if any arisen against members of the Study Team resulting from, occurring in the course of the study or otherwise connected with the discharge of their duties in the implementation of the study, except misconduct on the part of the members of the study Team.

7.3 The Ministry of Agriculture and Rural Development (MOARD) shall act as a counterpart agency to the Study Team. With the MOARD, the Institute of Water Resources Planning and Management will be in charge of handling technical issue. For the smooth implementation of the Study, the MOARD will also act as a coordinating body in relation to other governmental and non-governmental organizations concerned such as the Ministry of Planning and Investment (MOPI), Ministry of Industry (MOID), Ministry of Construction (MOC), Vietnamese Power Corporation (VPC), Ministry of Science, Technology and Environment (MOSTE), Ministry of Labor, War Invalids and Social Affairs (MOLWISA), Ministry of Public Health (MOPH), and ten (10) People's Committees concerned in Dong Nai Master Plan Study Area.

7.4 The MOARD shall, at its own expense, provide the Study Team with the following in cooperation with other organization concerned:

- (1) Available data and information related to the Study;
- (2) Necessary number of counterpart personnel including project coordinator throughout the Study period;
- (3) Credential or identification card;
- (4) Suitable office space for the Study Team and the Counterpart Team with necessary equipment and clerical services in Hanoi; and
- (5) Appropriate number of vehicles with drivers during the Study in Viet Nam.



 : Works to be done in Japan
  : Works to be done in Viet Nam

Figure 1: Work Schedule (Tentative) for Institutional Strengthening for Implementation of the Dong Nai Water Resources Development Projects





1111