

附屬資料4. 要請文書

TERMS OF REFERENCE
OF
FEASIBILITY STUDY
FOR
BALI SEWERAGE SYSTEM PROJECT

NOVEMBER, 1989

Directorate General of Human Settlements (CIPTA KARYA)

The Government of the Republic of Indonesia

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I. INTRODUCTION

Bali Island has plenty of attractive natural circumstances and resort resources such as white sand beach, emerald green sea, white waves crushed into reef surrounding the island, pleasant breeze through coconut tree planted at the coastal line and inland, a lot of greenery, mountains exceeding 2,000m height such as Mt. Agung located in the northern part and so on.

These splendid natural resources are commingled with the ruins and temples of Bali Hindu and the gentle and honest characters of island people.

Literally the island is one of the most famous international sightseeing spots and is called as the Last Earthly Paradise being full of tropical atmosphere.

Also, the development of Bali's tourism industry is very important to obtain foreign currencies in accordance with the government non-petroleum policy.

According to the statistics of 1987, 1,300,000 of foreign tourists visited to Indonesia, among which 310,000 of foreign tourists visited to Bali. According to the latest information, it is said that 700,000 - 800,000 of foreign tourists visited to Bali.

Tourists stay at the hotels mainly in the resort area located in the southern part of the island where Kuta at the west coast, Sanur at the east coast and Nusa Dua at the eastsouth coast are the most famous and crowded spots.

Since the number of tourists is being increased year by year, one million of tourists are expected to visit to Bali in 1993. In order to meet this forecasting, extention of the existing hotels and new hotels construction are being done in full swing.

From the above circumstances, it is vitally important to take measures against water pollution in order to attract more and more tourists to Bali and to improve water environment of the residents.

In spite of the above circumstances, the Government of Indonesia (GOI) is seriously worrying about the water pollution for the time being.

II. BACKGROUND

The feasibility study on protective measures for coastal erosion called "The Urgent Bali Beach Conservation Project" was carried out by Japan International Cooperation Agency (JICA) at Kuta, Sanur, Nusa Dua and Tanah Lot, from January, 1988 until March, 1989.

During this feasibility study, wave and current of sea area were observed by the way of setting wave gauge and current meter at the sea bottom with about 30m of depth in the area of Kuta, Sanur and Nusa Dua.

Through this investigation, there was a surprised phenomenon that sea water had been polluted unexpectedly.

The polluted circumstances were:

1. Polluted sludge had been heavily accumulated at the bottom of the sea
2. The transparency of the sea water had been considerably decreased.
3. Some of coral had already been dying.

The following reasons for the sea water pollution might be concluded from the above circumstances:

1. Heavy waste water without treatment from hotels and so on is directly discharged to beaches.
2. The rivers such as Badung river flowing through Denpasar to beaches are polluted and the water quality is extremely deteriorated.
3. Since rainwater drainage system beside road and street is very poor, flood and inundation occurs frequently during raining. The overflowed water runs off to the sea together with domestic and industrial wastewaters.

Such kind of coastal pollution not only harms Bali Island tourism development but also destroys coral reef functioning as natural buffer to decrease wave energy. The destruction results in further coastal erosion.

In consideration of the above, GOI fully understands the importance of water pollution abatement in Bali Island and wishes to engage a consortium of Foreign and Local Consultants to update the full-dressed survey and report of present situation and to prepare feasibility study for improvement and development of adequate sewerage system at Denpasar, Sanur and Kuta areas in Bali. Nusa Dua area is not included in this feasibility study because Bali Tourism Development Corporation (BTDC) has already established the integrated wastewater disposal system for the area.

III. OBJECTIVES

1. Prefeasibility Study

To compare the possibility of two systems (public or basin-wide sewerage systems) for the said three areas through the review of the past studies and the necessary data collection, to prioritize the areas and to propose the most appropriate wastewater disposal system.

2. Feasibility Study

To prepare preliminary design of the wastewater disposal system for the prioritized areas based on the results of the prefeasibility study:

IV. STUDY AREA

1. Prefeasibility Study

Study areas covers the densely populated areas such as Denpasar and two resort areas of Kuta and Sanur.

2. Feasibility Study

Study area covers the priority areas identified in the prefeasibility study.

V. SCOPE OF STUDY

1. General

The Consultant is to review all previous reports and preliminary studies relevant to wastewater disposal and to prepare prefeasibility and feasibility studies for a development program.

The study shall include field investigations and desk study comprising with the preparation of necessary reports, drawings, cost estimates, economic and financial analysis and institutional studies.

2. Training and Cooperative Study Effort

The Consultant shall establish a working relationship with staff from related central and local government agencies involved in the wastewater disposal providing the job training to the staff and advising on institutional developments required for improved performance of the local agencies.

These plans and studies shall remain in line with the integrated development approach and shall result in appraised packages to be offered to lending agencies for financing, thus the Local Government staff will need to be accustomed to appraisal procedures of the lending agencies.

VI. SCOPE OF ACTIVITIES

1. Phase 1 (Prefeasibility Study)

1) Collection of data and information

Appropriate data and information shall be collected and analysed including social, physical, political, institutional, economical, environmental and financial information.

2) Investigation of project areas and evaluation of existing facilities for wastewater disposal.

(1) Land

- i) Solid waste and its disposal system
- ii) Wastewater and its disposal
- iii) Groundwater qualities

(2) River

- i) Water qualities at the upper, middle and downstream of the rivers.
- ii) Qualities and quantities of wastewaters flowing into rivers.
- iii) Present conditions and future plans on river improvement

(3) Coast

- i) Water quality at coast
- ii) Ecology of marine living things
- iii) Pollution conditions at the bottom of coast
- iv) Qualities and quantities of wastewater flowing to the ocean

3) Review of existing studies and future plans

Existing studies and future plans related to wastewater disposal shall be reviewed in detail.

4) Identification of problems

(1) Pollution sources shall be identified based on the above study.

(2) Areas suffering from the heavier water pollution shall be identified.

5) Set-up of planning feature

Planning shall be implemented based on the feature such as population, wastewater flow, rainfall and so on.

6) Preparation, comparison and study of alternative plans

Alternative plans shall be prepared, compared and studied from the technical, sociological, economical and financial viewpoints.

Cost estimation shall also be done for new facilities, construction, existing facilities upgrading, operation and maintenance.

7) Prefeasibility Study

Prefeasibility study shall be done for the optimum plan preparation based on the social, economical and financial analysis.

It includes the prioritization of project areas and the selection of the appropriate system (public or basin wide system).

2. Phase II (Feasibility Study)

1) Confirmation of and review proposed scope of work

2) Additional investigation

Water quality test in dry season.

3) Preliminary design of facilities

Alternative plan shall be prepared and studied.

The optimum sewerage system shall be clarified and presented based on the preliminary design of facility and cost estimation.

4) Plan on organization, management and regulations

Organizational, managerial and legal aspects shall be studied and planned including the method of fee collection and levy for maintenance in line with financial plan.

Followings are important factors for the above study;

Review of maintenance organization and burden of maintenance cost

(1) Possibility whether the present government administration can manage maintenance organization.

(2) Calculation of maintenance cost.

(3) Payment capability of Bali resident for maintenance cost.

(4) Degree of understanding of the owner of the hotels, restaurants, large-scale shops, factories and large-scale enterprises on sewerage project and their cooperation consciousness and their capability for payment.

(5) Possibility of collection of sightseeing tax.

- 5) Economic and financial analyses
- 6) Staffing and training

The present situation in terms of management and personnel shall be assessed. The policies and practices of the lead agency in using either the private sector or public sector organizations to provide personnel assistance shall be explained. The capability and staffing of the agency shall be evaluated. A comparison shall be made between future staff requirements and defined the existing situation and the potential shortfall if any. An institutional development action plan shall be prepared to address the need for institutional strengthening.

- 7) Implementation schedule

Implementation shcedule shall be made in accordance with the optimum plan.

VII. MATERIAL AND APPARATUS FOR SURVEY

GOI provides material, apparatus and sample for water quality inspection and analysis test.

VIII. REPORTS AND DOCUMENTS

Consultants shall prepare and submit the following reports in English to GOI.

1. Inception Report
Thirty (30) copies at the beginning of the field survey in Indonesia.
2. Progress Report of Phase I & II
Thirty (30) copies in due course.
3. Interim Report of Phase I & II
Thirty (30) copies in due course.
4. Draft Final Report
Fifty (50) copies in due course.
GOI will provide the study team with their comments within one (1) month after receipt of the Draft Final Report.
5. Final Report
Fifty (50) copies at the end of the twenty (20) months.
All comments given by GOI shall be compiled in the preparation of the Final Report.

IX. SERVICE PERIOD AND WORK SCHEDULE

The consulting services shall be estimated to be completed within the period of eighteen (18) months after the receipt of the notice to proceed from GOI.

X. STAFF REQUIREMENTS OF CONSULTING SERVICES

The consultancy services will be done by the following experts.

Study Members

Team Leader
Sewage Planner
Sewerage Facility Planner
Facility Designer
Treatment Planner (On-site)
Sanitary Engineer
Urban Effluent Planner
Hydrology / Hydraulic Engineer
Sociologist / Economist
Environmental Expert
Chemist
Surveyor
Execution & Estimation Expert

XI. UNDERTAKING OF GOI

1. Access to Land

GOI warrants that the consultant shall have, free of charge, unimpeded access to all land in respect of which access is required for the performance of the consultant services.

2. Taxation and Duties

GOI will exempt the consultant and the personnel including dependents from (or GOI shall bear the cost of) any taxes, duties, fees, levies and others imposed under the laws; and ordinances in effect in Indonesia on the consultant and the personnel in respect of project undertaking.

3. Other Privileges and Assistance

GOI warrants that it shall:

- 1) Provide counterpart staff with their necessary facilities to cooperate and assist the consultant during the field work.
- 2) Provide the consultant and each of the personnel with work permits and such other documents as may be necessary to enable them to perform the services.
- 3) Arrange for the personnel to be provided promptly with all necessary entry and exit visas, residence permits, exchange permits, and travel documents required for their stay in Indonesia.

Appendix 1

Tentative Time Schedule

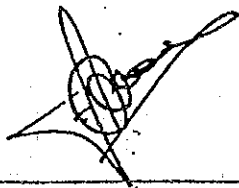
——— Work in Indonesia
 - - - - - Work in Home Office
 ▽ Submission of Report

Activity	The Months Elapsed																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
PHASE I <u>PREFEASIBILITY STUDY</u> Collection of Data and Information Investigation and Evaluation of Project Areas Existing Facilities for Sewage Pollution Review of Existing Investigation Clarification of Problem Points Set-up of Planning Feature Preparation Comparison and Study of Alternative plans Basic plan	Wet																				
PHASE II <u>FEASIBILITY STUDY</u> Confirmation of Proposed Scope of Work Additional Investigation Preliminary Design on Facility Plan on Organization, Management and Legal Aspects Economic Analysis and Financial Analysis																					
REPORT Inception Report Progress Report Interim Report Draft Final Report Final Report	▽																				

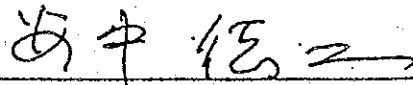
SCOPE OF WORK
FOR
THE DEVELOPMENT STUDY
ON
WASTEWATER DISPOSAL
FOR DENPASAR,
THE REPUBLIC OF INDONESIA

AGREED UPON BETWEEN
DIRECTORATE GENERAL OF HUMAN SETTLEMENTS,
THE MINISTRY OF PUBLIC WORKS,
THE REPUBLIC OF INDONESIA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

JAKARTA, March 14, 1991



Ir. SOERATMO NOTODIPOERO
ACTING FOR
DIRECTOR GENERAL OF
HUMAN SETTLEMENTS,
MINISTRY OF PUBLIC WORKS



Mr. TOKUJI ANNAKA
LEADER OF
THE PRELIMINARY STUDY TEAM,
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia, the Government of Japan decided to conduct a Development Study on Wastewater Disposal for Denpasar, the Republic of Indonesia (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Republic of Indonesia.

The Directorate General of Human Settlements, Ministry of Public Works of the Republic of Indonesia acts as counterpart body to the Japanese Study Team and also as coordinating body in relation to other relevant organizations for the smooth implementation of the Study.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are;

1. to prepare a master plan up to 2010 to develop wastewater disposal system/systems for Denpasar and its surroundings, the Republic of Indonesia (Part I Study). In this study, a priority project to be immediately implemented will be identified.
2. to carry out a feasibility study for the priority project identified in the master plan study (Part II Study).

III. SCOPE OF THE STUDY

1. STUDY AREA

- 1) The study area of the Part I Study will cover Kecamatan Denpasar Timur, Kecamatan Denpasar Barat, Kecamatan Denpasar Selatan, Kecamatan Kuta and Kecamatan Legian.
The area involved in Part I Study is shown in the Appendix.
- 2) The study area of the Part II Study will be selected following the result obtained in the Part I Study.



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2. CONTENTS OF THE STUDY

The Study will be composed of field investigations, data collections and analysis works in Indonesia and Japan.

- 1) Master Plan Study (Part I Study)
 - a. Data collection
 - b. Analysis of present condition of wastewater disposal.
 - c. Review of existing previous studies and development plans related to the study area.
 - d. Identification of characteristics and problems of the study area related to the Study.
 - e. Establishment of planning principles such as planning area, planning criteria and so forth.
 - f. Preparation of a master plan
Comparative analysis of alternatives.
 - required new facilities
 - rehabilitation of existing facilities
 - rough engineering design of the facilities
 - rough estimation of construction and O/M costs
 - selection of the most suitable master plan
 - g. Environmental study.
 - h. Implementation plan.
 - i. Socio-economic analysis.
 - j. Financial analysis.
 - k. Prioritization of projects.
 - l. Recommendation for management of wastewater disposal system for tourism area and tourism resort.
- 2) Feasibility Study (Part II Study)
 - a. Identification of scope of the proposed project.
 - b. Supplemental data collection and detailed field investigations.
 - c. Facility planning.
 - design criteria
 - layout of the facilities
 - examination of alternatives
 - cost estimate
 - d. Institutional and organizational planning.
 - organization and management
 - charging system for users
 - e. Project evaluation.
 - considerations on sanitary improvements and environment
 - financial and economic analysis
 - f. Implementation schedule.

IV. STUDY SCHEDULE

The whole study will be conducted in accordance with the attached tentative schedule.



V. REPORT

JICA shall prepare and submit the following reports in English to the Government of the Republic of Indonesia.

1. Inception Report
Thirty(30) copies at the beginning of the Part I Study.
2. Progress Report(I)
Thirty(30) copies at the end of the field study in Part I.
3. Interim Report
Thirty(30) copies at the beginning of the Part II Study.
4. Progress Report(II)
Thirty(30) copies at the end of the field study in Part II.
5. Draft Final Report
Fifty(50) copies at the end of the Part II Study.
The Government of the Republic of Indonesia will present their comments on the report to JICA through the JICA office within one(1) month after receipt of the Draft Final Report.
6. Final Report
Fifty(50) copies after one(1) month of the receipt of the comments for the Draft Final Report from the Government of the Republic of Indonesia.

VI. UNDERTAKINGS OF THE GOVERNMENT OF THE REPUBLIC OF INDONESIA

1. To facilitate smooth conduct of the Study, the Government of the Republic of Indonesia shall take necessary measures:
 - (1) to secure the safety of the Study Team,
 - (2) to permit the members of the Japanese Study Team to enter, leave and sojourn in the Republic of Indonesia for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
 - (3) to exempt the members of the Japanese Study Team from taxes, duties and other charges on equipments, machinery and other materials brought into the Republic of Indonesia for the conduct of the Study,
 - (4) to exempt the expatriate members of the Japanese Study Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese Study Team for their services in connection with the implementation of the Study,
 - (5) to provide necessary facilities to the Japanese Study Team for remittance as well as utilization of the funds introduced into the Republic of Indonesia from Japan in connection with the implementation of the Study,
 - (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study,
 - (7) to secure permission for the Japanese Study Team to take all data and documents (including photographs) related to the Study out of the Republic of Indonesia to Japan,

(8) to provide medical services as needed. Its expenses will be chargeable on the members of the Japanese Study Team.

2. The Government of the Republic of Indonesia shall bear claims, if any arising against the members of the Japanese Study Team resulting from, occurring in the course of, 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 Japanese Study Team.

3. The Directorate General of Human Settlements shall, at its own expense, provide the Japanese Study Team with the followings, in cooperation with other relevant organizations concerned:

- (1) available data and information related to the Study.
- (2) counterpart personnel.
- (3) suitable office space with necessary equipment in Denpasar.
- (4) credentials or identification cards.
- (5) appropriate number of vehicles with drivers.

VII. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures:

1. To dispatch, at its own expense, the Study Team to the Republic of Indonesia,
2. To pursue technology transfer to the Indonesian counterpart personnel in the course of the Study.

VIII. CONSULTATION

JICA and the Directorate General of Human Settlements shall consult each other in respect of any matter which is not agreed in this document and may arise from or in connection with the Study.



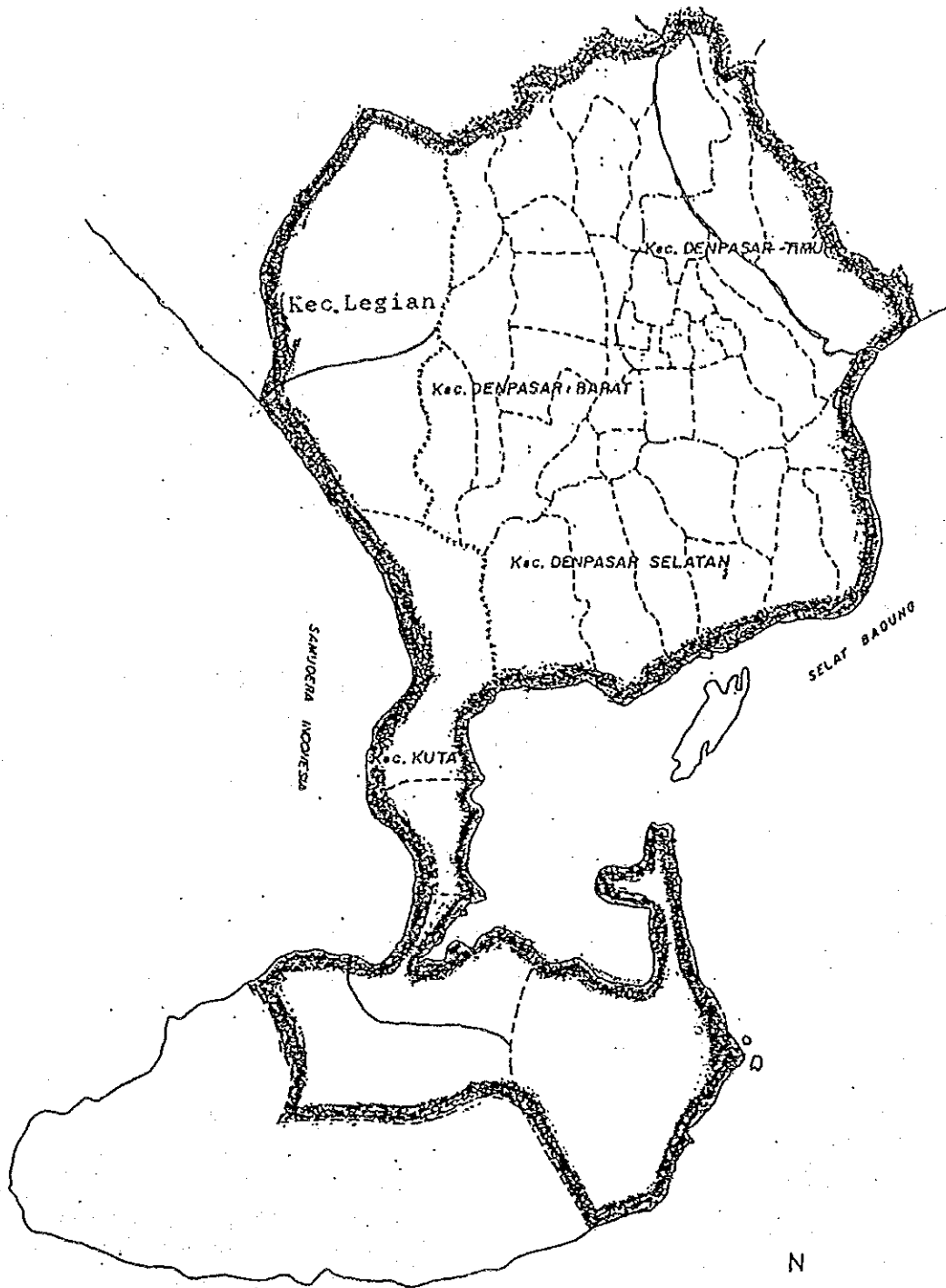
TENTATIVE SCHEDULE


MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DESCRIPTION																
WORK IN INDONESIA		▬		▬				▬		▬					▬	
WORK IN JAPAN		▬			▬		▬					▬				
STAGE OF STUDY				Part I								Part II				
REPORT PRESENTATION		Δ Ic/R			Δ P/R(I)			Δ Ic/R			Δ P/R(II)			Δ DF/R		Δ F/R
STEERING COMMITTEE AND TECHNICAL COMMITTEE		▬						▬							▬	

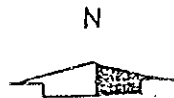
NOTE Ic/R : Inception Report
 P/R : Progress Report
 It/R : Interim Report
 DF/R : Draft Final Report
 F/R : Final Report



STUDY AREA



 STUDY AREA



MINUTES OF MEETING
ON
SCOPE OF WORK
FOR
THE DEVELOPMENT STUDY
ON
WASTEWATER DISPOSAL FOR DENPASAR,
THE REPUBLIC OF INDONESIA

AGREED UPON BETWEEN
DIRECTORATE GENERAL OF HUMAN SETTLEMENTS,
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LEADER OF
THE PRELIMINARY STUDY TEAM,
THE JAPAN INTERNATIONAL
COOPERATION AGENCY

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), at the official request of the Government of the Republic of Indonesia dispatched a Preliminary Study Team (hereinafter referred to as "the Team") headed by Mr. Tokuji ANNAKA from March 6th to 15th, 1991 to discuss the Scope of Work for the Development Study on Wastewater Disposal for Denpasar, the Republic of Indonesia (hereinafter referred to as "the Study").

The Team had a series of discussions with the authorities concerned of the Republic of Indonesia, and agreed on the Scope of Work for the Study.

This document sets forth the main items discussed.

1. The Indonesian side requested that the Study be started as early date as possible in 1991, because the local governments of Bali feel that the Study is very urgent.
2. Regarding the study area (III.1 of the Scope of Work), the Indonesian side requested the area include Sanur, Kuta, Legian, and Nusa Dua other than Denpasar. The Japanese side agreed to include those areas in the study area.
3. Regarding the contents of the Study (III.2 of the Scope of Work), the Indonesian side requested that the Study give some recommendations such as guidelines for management of wastewater disposal systems in tourism area and tourism resort, so that the local governments could use them for the preparation of local regulations and measures for water pollution control. The Japanese side took note of the request.
4. Both sides confirmed that the wastewater disposal system (II.1 of the Scope of Work) includes not only centralized sewerage system but also on-site system such as individual treatment system.
5. Regarding considerations on environment (III.2.2 of Scope of Work), the Indonesian side requested the Study prepare AMDAL (Environmental Impact Assessment Study). The Japanese side agreed to include environmental consideration study based on the "GUIDELINE FOR AMDAL STUDIES OF PUBLIC WORKS, WASTEWATER TREATMENT PROJECTS".
6. The Indonesian side requested development of monitoring system in this study for water pollution control which may be used in the future. The Japanese side took note of the request.
7. The Indonesian side requested that the Study consider social, cultural and historical conditions of Bali. The Japanese side took note of the request.
8. For the smooth and efficient implementation of the Study, both sides reconfirmed that the Indonesian side will organize following committees.



(1) Steering Committee :

- to formulate basic policy
- chaired by the Director General of Human Settlements
- consists of representatives of following organizations
 - * Directorate of Environmental Sanitation
 - * Directorate for Programme Development, Cipta Karya
 - * Directorate of Water Supply, Cipta Karya
 - * Directorate of Regional and City Planning, Cipta Karya
 - * Directorate General of Water Resources Development
 - * Bali Public Works Representative Office(Kanwil Departemen PU, Propinsi Bali)
 - * Local Governments of Bali(Level I/II)
 - * Other institutions concerned


(2) Technical Committee

- to conduct practical matters
- chaired by Director of Environmental Sanitation
- consists of representative of following organizations
 - * Directorate of Environmental Sanitation
 - * Directorate for Programme Development, Cipta Karya
 - * Directorate of Water Supply, Cipta Karya
 - * Directorate of Regional and City Planning, Cipta Karya
 - * Directorate General of Water Resources Development
 - * Bali Public Works Representative Office(Kanwil Departemen PU, Propinsi Bali)
 - * Local Governments of Bali(Level I/II)
 - * Other institutions concerned

9. Regarding counterparts of the Indonesian side, the Japanese side requested full time counterparts and part time counterparts from the Directorate General of Human Settlements, the Directorate General of Water Resources Development and Bali local governments. The Indonesian side agreed to assign their personnel as counterparts to the Japanese Team.

10. The Japanese side requested the Indonesian side to furnish an office with necessary equipments within the City of Denpasar to the Japanese Study Team. The Indonesian side agreed to provide an office with a telephone, a drawing machine, a computer, a photocopy machine and necessary furniture, and a vehicle with driver.

11. The Indonesian side requested the Japanese side to give training to counterparts both in Indonesia and Japan. The Japanese side took note of the request.



JICA