

CHAPTER 3 IMPLEMENTATION PLAN

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3.1 Implementation Plan

3.1.1 Implementation Concept

The Biodiversity Conservation project will be implemented in accordance with the guidelines of Japan's grant-aid system. Its implementation will be officially started when and after it is approved by the Japanese and Indonesian governments and the E/N is concluded. Then, the Indonesian government will select a Japanese corporation to act as a consultant for the stage of preparing detailed designs for the facilities and equipment. After completing documentation of the detailed designs, a Japanese construction engineering company and an equipment supply company, which will be selected by tender, will carry out the construction of buildings and the supply and installation of facilities and equipment. Contracts on the consultancy service, building construction and equipment supply and installation will only become effective after being verified by the Government of Japan.

Supervision of and construction under the Project will involve the project implementation agency, the Consultant, the Contractor and the Equipment Supplier under the control of the related ministries of both governments. The work assignments of each body are as follows.

(1) Project-implementing agency

The Indonesian agency which is in charge of the implementation of this project are LIPI and PHPA, and LIPI will act as the contracting party of the Indonesian government for consultant agreement, construction contract, banking arrangement and others of the Project on behalf of both agencies and cost to be borne by Indonesia side described in 3-2 will be allocated by LIPI and PHPA. The staff members who have taken part in discussion of the basic concepts of the facilities at the stage of the basic design study, will contribute to the detailed design and construction of such facilities.

(2) Consultant

A Japanese consultancy company will conclude a consultancy agreement with the Government of Indonesia to become the Consultant for the Project and will be responsible for the detailed design for all facilities for this Project and supervision of the construction work to ensure the proper construction of the planned facilities using grant aid provided by the Government of Japan. The Consultant will also prepare the tender documents and will conduct the tender on behalf of the project implementation Agencies.

(3) Construction Contractor

The Contractor will be a qualified Japanese construction firm selected through open tender. The Contractor will complete the construction of the facilities on schedule based on the detail design drawings prepared by the Consultant and will hand the buildings over to the Indonesian side.

The construction work for which the Contractor is responsible will mainly consist of buildings, air-conditioning and ventilation, plumbing, electrical and exterior work and the Contractor will sub-contract the work to Indonesian or Japanese sub-contractors, technicians and workers as required. Some field staffs for full-time on-site construction work will be required in view of the project size and contents.

(4) Equipment Supplier

The Equipment Supplier will be a qualified Japanese trading firm selected through open tender. The Equipment Supplier will procure and install the equipment which will satisfy the specifications given by the Consultant on schedule. The Equipment Supplier will also dispatch expert engineers to the project site to assist in the installation of the equipment and to provide the Indonesian side with explanations on the equipment handling methods.

3.1.2 Implementation Conditions

(1) Construction environment

The construction environment in Jakarta and surrounding districts are outlined as follows.

- 1) Although the project site is located in an area where local construction companies with high capabilities and skilled workers have commonly been operating, it has been rather difficult in recent years to secure the services of these companies and such workers as a result of the construction boom caused by the considerable commercial investment activities of private firms in this country.
 - 2) Carpentry, plastering, steel bar reinforcing, and finishing have been treated as professions, and organizations covering the respective types of work have been formed under a foreman. Ordinary workers other than those mentioned above are not specialized and are often employed as part-timers.
 - 3) Construction materials have recently been mass-produced at factories. For the principal construction materials not including those used in facilities and electric work, more factory prefabricated products have been utilized than locally produced or assembled ones which have been commonly used in the area.
 - 4) There are no particular problems in the local supply of construction materials. However, since the construction boom has substantially raised prices and wages, prices of such main materials as concrete and steel bars have been hiked by 15 to 20% in the past year. Wages have increased by 6 to 10% during the past year.
- (2) Points to be taken note of implementation of construction

The facilities of RDCB zoological building of LIPI and Nature Conservation Information Center of PHPA under this project are two-storied and Guning Halimun National Park Headquarters and Research Station are single-storied, reinforced concrete buildings and local construction companies are considered to have full capabilities to construct them. Most of construction materials can be locally procured, and some special materials to be imported from Japan will be handled well by local skilled engineers. Hence, no dispatch of special engineers will be required except for during the equipment installation work. As to the equipment installation work, local agents have able engineers and fully cope with maintenance after completion. However, manufacturers' engineers should be dispatched to give technical instructions to local engineers since the installation work is

specific and precise, and requires personal explanations as to how to operate the equipment.

It is expected that the construction boom will continue for a few more years in Indonesia, and that attention should be paid to securing locally available construction materials and skilled workers during the course of the construction work.

(3) Points to be taken note of in formulating construction schedule

- 1) Appropriate construction schedules with no excessive working conditions and processes involved should be set up.
- 2) Timing to start and complete work of the Japanese side and Indonesia side work should be carefully considered so that construction processes are convenient for both countries.
- 3) A minimum number of staff and specialized technicians should be dispatched from Japan. An appropriate number, timing, and periods of stay should be chosen carefully in accordance with the progress of the work.
- 4) As many local materials as possible should be employed. Procurement of Japanese materials should be minimized, and detail design applied local materials which facilitate local installation should be prepared.
- 5) Each work item should be subdivided into its basic elements to simplify the construction process.
- 6) The rainy season continues from December to May in Indonesia. Squalls occur for about one hour almost every day during this season, and particular interference will be caused to implementation of the construction work. Localized torrential downpours may submerge a part of the public roads leading to the construction site due to insufficient water drainage capability. Therefore, an appropriate schedule shall be considered to avoid the affection of the construction work of facilities especially within the national park.

(4) Construction schedule

The construction schedule should be fully discussed item by item in advance between the consultant and the working group to assure smooth implementation of the Project; starting periods and construction methods

should be confirmed as to the work which is to be carried out by both countries.

Especially the schedule of the work to be conducted by the Indonesian side as described in Section 3-2 below, such as land formation of the project site, improvement of site conditions by filling, supply of power, water and telephone service should be fully discussed in advance. In addition, ordinary office furniture sets necessary for the operation of the facilities should be installed before the facilities are completed. The construction schedule should be established by reviewing arrangement for the delivery of materials to be procured in Japan to the project site and the progress of construction activities using locally procured materials, without allowing such materials to be stocked for an excessively long period or to run short, thereby causing the construction process to be hindered as a result of any delayed delivery of materials.

(5) Contractor's field representative(s)

Smooth completion of the facility construction in accordance with the design documents within the specified period requires a contractor's field representatives ability to assure smooth operation of joint work with local construction companies in Indonesia and to afford appropriate technical instructions to them. It is desirable, in addition, to appoint a construction contractor's field representative(s) with sufficient experience in the construction of research and training facilities to fully understand the characteristics of the facilities and securing a high level of quality for it.

1) Building Work

Judging from four separated Construction sites, the scale and contents of the facilities, the number and types of construction engineers who are required to continually stay at the site are as follows.

Project Manager	: 1	General management
Construction Engineer	: 2	Construction management, schedule control and guidance on working drawing preparation
Mechanical and Electrical Engineer	: 2	Guidance on mechanical and electrical work

Clerk : 1 Control on imported equipment and materials, labour management and administration

2) Equipment work

Engineers specialized in the sophisticated equipment and instruments such as scanning electron microscope and information system should be dispatched to give local technicians instructions on their installation and operation.

3.1.3 Scope of Work

It is reasonable to divide the scope of the construction work between the two governments as follows :

(1) Work to be done by the Japanese Government

1) LIPI-RDCB zoological division facility

a) Facilities

- ① Specimen Storage :
Mammals, Birds, Insects, Wet Specimen, Molluscs
- ② Specimen Processing Room :
Mammals, Birds, Insects, Wet Specimen, Molluscs, Stuffing
- ③ Identification Room and Study Room :
Zoology Labs., Ecology Lab., Physiology Lab.
- ④ Staff Room :
Zoology Labs., Animal Ecology, Animal Physiology
- ⑤ Administration Section :
Director Room, Deputy Director Room, Administration Room, Document Storage, Reception Room
- ⑥ Meeting Room, Lecture Room :
Staff Meeting Room, Seminar Room
- ⑦ Library :
Reading Room, Book Storage, Working Storage
- ⑧ Preservative Storage Room :
Ecology, Physiology, Freeze Conservation, Chemical Storage

- ⑨ Information Processing Room :
Computer Room, Staff Room
- ⑩ Others :
Canteen, Dark Room, Storage, Mechanical/Electrical Room

b) Equipment

- ① Information Processing Equipment
- ② Zoological Research Equipment
- ③ Microbiological Research Equipment

2) GHNP HQ

a) Facilities

- ① Research Block :
Field Survey Management Room, Computer Room,
Laboratory, Chief Room
- ② Administration Block :
Director Room, Expert Room, Meeting Room, Reception
Room, Administration Room
- ③ Information & Training Block :
Library & Training Room, Document Storage
- ④ Utility Block :
Canteen, Work Shop, Generator Room
- ⑤ Guest House :
Living & Dining Room, Bed Room

b) Equipment

- ① Information Processing Equipment
- ② Zoological Research Equipment
- ③ Audio Visual Equipment
- ④ Drawing Equipment
- ⑤ Work Shop Equipment
- ⑥ Field Research Equipment
- ⑦ Vehicles

3) GHNP, RS

a) Facilities

- ① Research Rooms :
Laboratory, Specimen Storage, Administration Room,
Mechanical Room, etc.
- ② Researcher Rooms :
Living & Dining Room, Bed Room, etc.

b) Equipment

- ① Zoological Research Equipment
- ② Field Research Equipment

4) PHPA'S NCIC

a) Facilities

- ① Information Processing Rooms :
Computer Room, Manager Room, Staff Room, Expert Room,
Administration Room

b) Equipment

- ① Information Processing Equipment

(2) Work to be done by the Indonesian government

- 1) To remove obstacles under the ground of the project site before starting the construction work, and conduct necessary earth filling and leveling the land.
- 2) To carry out gardening, fencing, and installation of incidental external works.
- 3) To pave parking lots in the project sites.
- 4) To supply electric power, water, telephones, water drainage facilities, etc., to the construction sites.
- 5) To supply LP gas.
- 6) To provide ordinary office furniture and daily expendables.

3.1.4 Consultant Supervision

In accordance with the policy on Grant Aid by the Government of Japan, an appointed consultant needs to organize a project team to carry out detail design and supervising services in accordance with the basic design policies. This ensures appropriate coordination among concerned parties, and the smooth construction of planned facilities.

At the construction stage, the consultant should allocate resident supervisors with ample technical capabilities to issue instructions to contractors and to communicate with them. Also, the consultant should assign technical experts on a short-term basis in accordance with the progress of the work, in order to carry out inspection, attendance, and instructions.

(1) Basic policies of supervision plan

- To keep close communication with the responsible agencies to complete the facilities on schedule.
- To direct and assist construction contractors.
- To give priority to local equipment, materials, and construction methods.
- To carry out technology transfer in relation to construction methods and technologies.
- To provide facility management agencies with appropriate advice and guidance for efficient operation and management.

(2) Scope of supervision

- Assistance in construction contract
Selection of contractors (determination of construction contract method, preparation of contract forms, evaluation of cost estimates, and attendance at signing of contract).
- Inspection and approval of shop drawings.
Inspection and approval of shop drawings materials, finished samples, equipment, and machinery submitted by contractors.
- Instruction to contractors
Evaluation of construction plan and schedule, instructions to contractors, and progress reporting to the owner.
- Assistance in payment approval procedures

Evaluation of bills to be payable during or after the construction, and assistance in payment procedures.

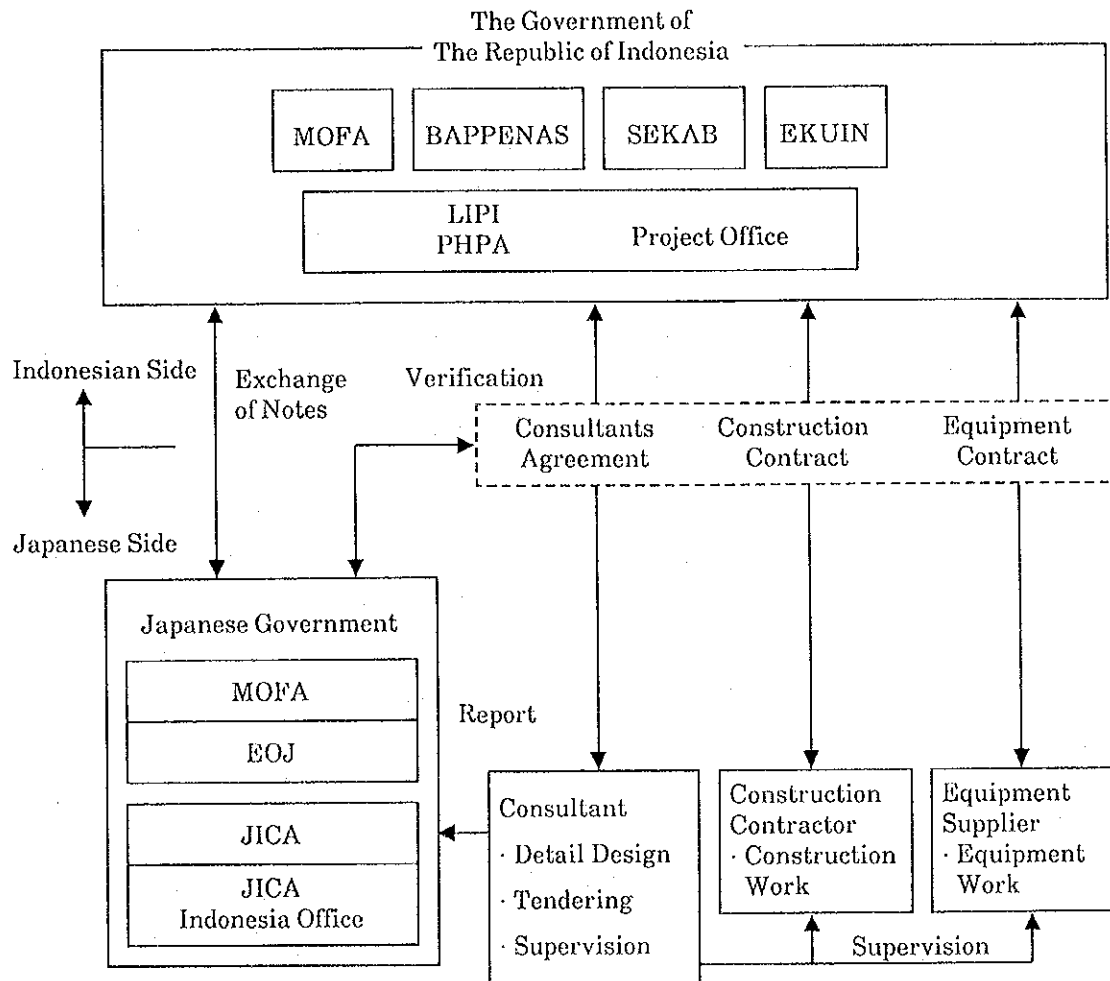
- Inspection and approval

Inspection and approval of the work from commencement to completion, and ordering to remedy defects.

The consultant mission confirms the completion of work in accordance with the conditions of the contract, attends delivery of the completed work, and obtains acceptance from the owner. Also, they report to the Government of Japan any matters related to the progress.

The construction supervising system and related agencies considered above are depicted in the following figure.

Supervision Plan



3.1.5 Procurement Plan

The following items should be taken into consideration when procuring construction materials and equipment to be used for the facilities of this project.

(1) Procurement policy

Main construction materials can be locally procured. Hence, the procurement policy is to procure materials in a reasonable manner by considering supply capabilities and quality vis-a-vis local manufacturers and suppliers.

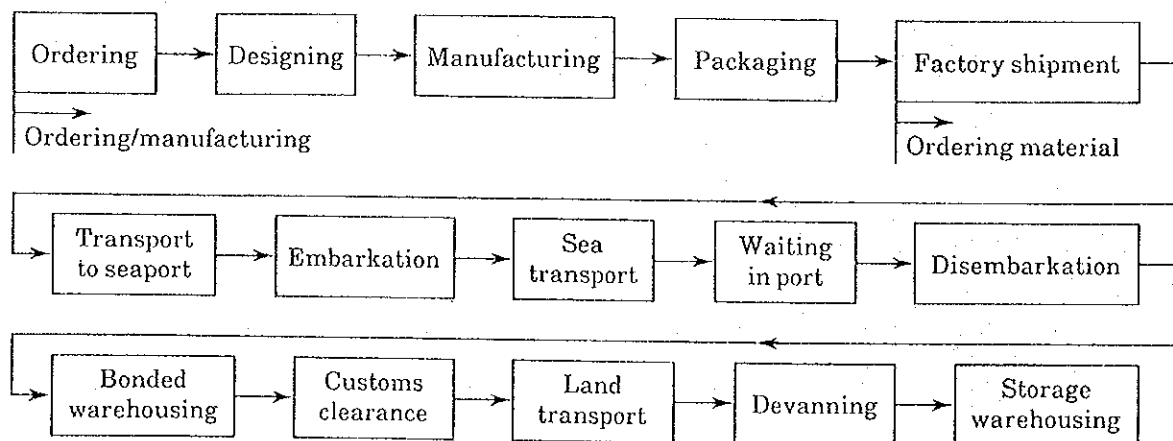
The number of materials to be procured from Japan should be kept to a minimum, restricted to those which cannot be locally supplied such as

special materials and equipment and those which cannot be locally procured because of unfavorable performance or local supply capabilities.

(2) Procurement in Japan

Those equipment and materials which are to be procured in Japan are to be manufactured and prepared in accordance with order specifications. Telephone exchange board, power distribution board, and other materials and equipment are to be manufactured upon order. Unlike those currently available in the market, these items will be prepared only after an order is placed in a process including the steps from ordering to designing, approval, manufacturing, packing, and shipping, and will take longer time in manufacture than mass-produced ones. Hence, it is necessary to place orders for them in accordance with the progress of the construction work. Moreover, since imports of many items have been prohibited in Indonesia, and rules may vary over an interval of a few years, the current list of prohibited items should be referred to prior to placing orders.

Material order flow



Unloading and customs clearance at local ports may take a long time in some cases. So, early arrangements should be made through close liaison with the Indonesian implementing agency so that these procedures may be smoothly expedited.

(3) Local procurement

Almost all the construction materials can be locally procured and this means that the facilities can be maintained without any particular difficulties. Even if equipment and materials may be damaged, they can be quickly repaired. However, sufficient consideration should be given to uniform quality and supply volumes of materials so that they do not hinder the functions of the buildings and the construction process.

(4) Costs

By comparing materials that can be procured both locally and in Japan, those with lower costs will be employed. Procurement from Japan requires additional packing, transporting, and insurance expenses beyond their market prices, but there are no import duties.

(5) Procurement schedule

Based on the above-mentioned factors, materials and equipment to be used in construction of this project will be procured in the following manner.

1) Construction of building frames work

Almost all types of materials that to be used for construction of building frames, namely sand, gravel, cement, concrete, reinforcing bars, steel frames, concrete blocks, and bricks, are locally available in Indonesia. However, concrete blocks of local make are not applicable as bearing walls because they have insufficient strength.

2) Interior and Exterior finishing work and external work

Almost all the materials to be used for the construction work are locally available in Indonesia; they include timber, aluminum fittings, copper fittings, plastering materials, tiles, roof tiles, metallic roofing materials, paints, and glass (some of these materials are imported). Hence, only humidity control board waterproofed materials, and other special materials as well as some types of metallic fittings and hardware (due to maintainability) are to be procured in Japan.

3) Air-conditioning and plumbing work

Pump and boilers are to be locally procured for the air-conditioning and plumbing work for maintenance purpose. Apparatuses (such as valves and dampers) to be used in this work are to be procured in Japan, but the plan intends to procure sanitary ware in Indonesia. Air conditioners, fans, and other instruments are to be procured in Japan, but they may be procured in Indonesia after close checking of their costs.

4) Electrical work

Electric work materials as illumination lamps, power transformers, electric wires and cables, PVC pipes, and stand by motor generators are to be locally procured by cost effectivity. Illumination fixtures, power distribution boards, terminal boards, transformers, switchboards, power control panels, telephone exchanges and low-voltage electric apparatuses etc., for which ready-made items are suitable, are to be procured locally as far as possible, as a result of comparison of costs. Specially designed illumination fixtures are to be procured in Japan.

5) Equipment work

Basically all the equipment and instruments (such as analyzers) to be introduced into the facilities of this project will be procured in Indonesia. However, advanced equipment and instruments such as data processing equipment and scanning electron microscope are to be procured in Japan. Due care should be taken in marine and inland transportation. Moreover, engineers specialized in operating them should be dispatched at the time of installation. Some advanced instruments will require the parties concerned to consider training of Indonesian staff members to accustom them to operation of the instruments so that they may make efficient use of them after installation.

(6) Principal construction machinery procurement plan

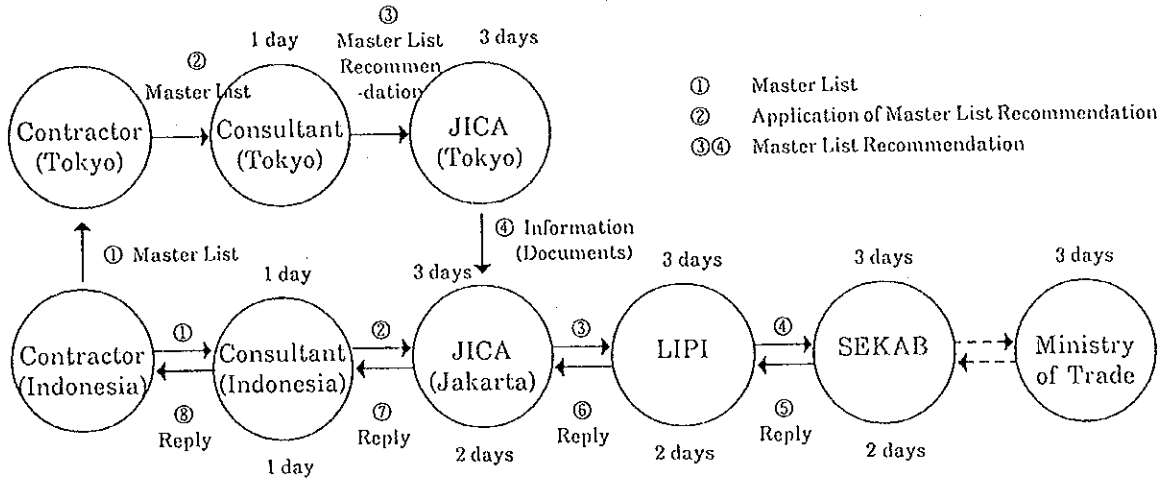
Local subcontractors and machine lease companies possess the common machines which will be needed for the implementation of the Project. All

Necessary Terms and Procedure for Custom Clearance of Importing Materials

A. Approval of Master List

In Japan about 5 days

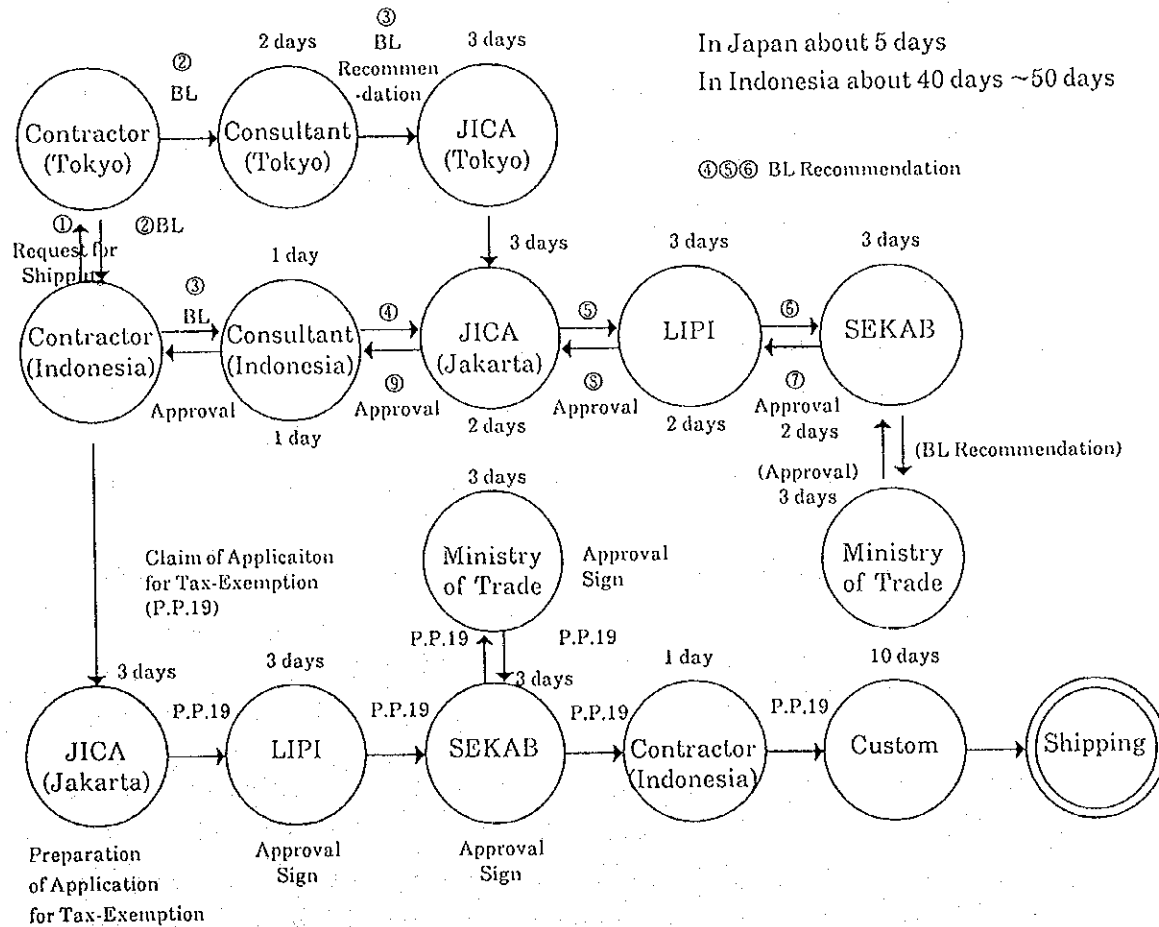
In Indonesia about 20 days ~ 30 days



B. Flow Chart of Shipping Document and Procedure of Tax-Exemption

In Japan about 5 days

In Indonesia about 40 days ~ 50 days



the construction machines can be locally pro-cured in this project. However, when compared with the machines available in Japan, they are usually handled with less care and are poorly maintained, thereby often resulting in troubles.

Names of construction machines.

- File driver
- Truck crane
- Tower crane
- Bulldozer
- Roller
- Power generator
- Backhoe
- Crawler crane
- Air compressor
- Grader
- Submerged water pump

- (7) Means and numbers of days required to transport principal materials and equipment to the construction site

Materials and equipment to be procured in Japan for the implementation of this project will be transported mainly by sea, but if urgent transportation is needed, they may be airfreighted. Procedures of and the number of days required for marine transportation are listed as follows.

Japan	—	Inland transportation (Manufacture → port)	1 day
		Inspection at storage (Yokohama, Kobe)	7 days
		Loading	3 days
Indonesia	—	Transportation (Yokohama, Kobe → Jakarta)	14 days
		Custum clearance (Jakarta), document processing	3~7 days
		Inland transportation (Port → Cibinong, Bogor)	1 day
		(Port → Jakarta → GHNP)	2~3 days

Marine transportation will take about one month, while air transportation takes about one week. For items of smaller dimensions, DHL and other air parcel forms may be utilized. When the equipment and materials are imported into Indonesia, the imported item list must be approved by

SEKAB. Judging from past experience, SEKAB may sometimes instruct that some items be locally procured. Hence, preliminary arrangements should be made to obtain its approval.

- (8) Study of quality of main construction materials and countries from which to procure them.

Work	Equipment and Materials	Procurement Country	Quality			Remark
			good	normal	poor	
Structural Work	Reinforcing bars	Indonesia		○		Tensile strength varies widely
	Concrete	Indonesia		○		Quality varies widely
	Forms	Indonesia		○		
	Space truss products assembling	Indonesia		○		
		Pre-stress concrete (PS)	Indonesia	○		Experience in assembling efficient assembly and high accuracy
		Structural steels	Indonesia		○	Well experienced and good control of production. Japanese made PS wire.
Roof Work	Metal Roof assembling	Indonesia		○		Few product types
		Indonesia		○		
		Indonesia		○		
	Water proof	Indonesia		○		Well experienced efficient assembly, good quality
Exterior Finishing Fixtures	Spray tile	Indonesia	○			
	Aluminum	Indonesia	○			Use of products of Japanese companies manufactured locally and many types
	Stainless	Indonesia		○		Use Japanese made plates, manufactured with quite high accuracy inside reinforcement methods are still poor
	Steel Sliding wall	Indonesia	○	○		
	Wood	Indonesia		○		Well accustomed to drawing, manufacturing and installation
Floor	Metal fittings	Indonesia		○		
	Terazzo block	Indonesia		○		Due to method of on-site polishing of roughly ground products, become badly soiled during installation
	Washed block	Indonesia		○		
	Cement tile	Indonesia		○		
	Stone (Granite)	Indonesia		○		Materials from Italy, irregular colouring
	PVC tile	Indonesia		○		Japanese made high efficiency

Work	Equipment and Materials	Procurement Country	Quality			Remark
			good	normal	poor	
Base	PVC sheet	Indonesia		○		Japanese made uneven application with trowel Irregular colouring and only standard shaped tiles available
	Carpet tile	Indonesia		○		
	Colourcrete	Indonesia		○		
	Tile	Indonesia		○		
	PVC base board	Indonesia		○		
	PVC groove material	Indonesia		○		
Wall	Mortar	Indonesia		○		After rough and middle layer, cement wash finish. Uneven application with trowel
	Plywood	Indonesia		○		
	Exposed brick	Indonesia		○		
	Teak Wood	Indonesia		○		
Ceiling	Vinyl cloth	Indonesia		○		Cloth imported from Europe or Japan
	Humidity control board	Japan	○			For control humidity in specimen storage
	Paint	Indonesia		○		
	Rock wool acoustic board	Indonesia		○		Imported material
	Asbestos cement board	Indonesia		○		
	Gypsum board	Indonesia		○		made in Europe
	Aluminum louver	Indonesia		○		Ready made, few types
	Paint	Indonesia		○		
	Wooden moulding	Indonesia		○		Difficult to ensure accuracy because installing on walls first
	Furniture Work	Wooden furniture	Indonesia		○	
Steel furniture		Indonesia		○		
Others	Folding desk	Indonesia		○		
	White board	Indonesia		○		Can be curved on site (Subject to import controls)
Air-Conditioning Work	Separate type air-conditioner	Japan	○			
	Exhaust fan	Japan		○		
Plumbing Work	Dumper	Japan		○		
	Pump	Indonesia		○		
	Outlet diffuser	Indonesia		○		
	PVC pipe	Indonesia		○		
	Valve	Indonesia		○		Japanese made
	Sanitary Fixture	Indonesia	○			Metal fittings made in Japan
	Kitchen equipment	Indonesia		○		Refrigerator, kitchen equipment made in Japan
	Septic Tank	Indonesia		○		

Work	Equipment and Materials	Procurement Country	Quality			Remark
			good	normal	poor	
Electrical Work	Transformer	Indonesia		○		Equipment made in Japan as above Special lighting fixtures only Japanese made Japanese made Japanese made Special wires & cables are Japanese made Japanese made
	Generator	Indonesia		○		
	Power distribution board	Indonesia		○		
	Power board	Indonesia		○		
	Lighting panel board	Indonesia		○		
	Lighting fixture	Indonesia		○		
		Japan	○			
	Public address system	Indonesia		○		
	Telephone equipment	Indonesia		○		
	Fire Alarm equipment	Indonesia		○		
	Electric Wires & Cables	Indonesia		○		
	Wiring conduit pipe	Indonesia		○		
Lift	Indonesia		○			

3.1.6 Implementation Schedule

When the construction of the facilities is implemented under Japanese grant-aid, the following procedures are to be taken :

- i) signing of an Exchange of Notes (E/N) between the two countries
- ii) choice of a Japanese design and supervision consulting company by the Government of Indonesia
- iii) conclusion of a design supervision agreement between the Indonesian government and the consulting company
- iv) three preparatory stages including preparation of design documents for implementation, tendering and conclusion of a construction contract with the successful tenderer
- v) construction of the facilities concerned. After the E/N is signed, LIPI (Consultant Agreement, Construction Contract, Certificates for Payment etc.) will act as the implementing agency of the Indonesian government.

(1) Detailed design work

Contract documents for construction are prepared based on the basic design and are composed of detailed design drawings, particular specifications,

general specifications, etc. Close discussions are held with related agencies of the Indonesian government at the initial, middle, and final stages of preparing the detailed design, respectively. After the final results are approved by the agencies concerned, tendering procedures will be undertaken. Details are arranged in consideration of the contents and schedules of the project-type technical cooperation concerned.

(2) Tendering

After the detailed design work is completed, prequalifications (P/Q : preliminary review for qualification of applied contractor) is announced and is carried out in Japan. In accordance with the review, LIPI as a representing agency will invite tenderers for the Project, and the tendering will be done in Japan under the supervision of the Owner and JICA. The tenderer which underbids the others will become the successful one, if the contents of its tender are judged to be appropriate, and then it will conclude a construction contract with LIPI, representing of the Indonesian government.

(3) Construction work

After the construction contract is signed, the construction work will be commenced after the Japanese government verified it. Judging from the scale and contents of the facilities of the project, the construction period is expected, at least, to be about 12 months for Phase- I (construction of the RDCB zoological facility, GHNP headquarters and research station) and about 10 months for Phase- II (construction of the nature conservation information center and procurement of equipment for all facilities). On the conditions that

- i) construction materials and equipment are smoothly procured
- ii) smooth progress is seen in the Indonesian administrative procedures and reviews and preliminary work within the scope of responsibility of the Indonesian side
- iii) the one-year budgetary system of the Japanese government is applied correctly.

(4) Indonesian ministries and agencies concerned and procedures taken by them

The Indonesian ministries and agencies concerned and the procedures to be taken by them from conclusion of the consulting agreement to completion of the construction work are described as follows.

- 1) National Development Planning Board (BAPPENAS)
After the E/N is signed, LIPI will submit to BAPPENAS an application for approval of LIPI's appointment of a consultant to take charge of design and supervision of the facilities of this project (usually, the consultant which has taken charge of the basic design study). It will usually take a few weeks to receive the approval.
- 2) Prime Minister's Secretariat (SEKAB)
LIPI will submit an application to SEKAB so that SEKAB's tender document examination section will check each item of facilities and equipment to see whether or not locally produced materials and equipment can be employed as much as possible and examine the terms and conditions of the agreement. It will usually take a few weeks for the examination to be completed.
- 3) Public Works (PU) Cibinong, Bogor, Sukabumi
LIPI will submit an application to an administrative agency of PU for confirmation of the construction of the facilities. When it is confirmed, the construction work can be started. It will take one to six months to obtain a letter of confirmation.
- 4) Coordinating Minister for Economy, Finance, Industry, and Development Survey (EKUIN)
Any contract whose total value is 30 billion Rupiahs (¥ 210 million) or more should be approved by EKUIN. In the case of this project, LIPI will apply to EKUIN for examination and approval of the contents of the contracts for the facilities and equipment after the contracts are concluded.
- 5) SEKAB
After the construction work is started, a list of materials procured and imported from Japan will be submitted to SEKAB. After it is approved,

the materials can be transported from their ports of entry to the project site.

6) Public Works (PU) Cibinong, Bogor, Skabumi

After the construction work is completed, LIPI will apply for PU's examination of the construction work. When approved, the facilities can be occupied.

It is expected that LIPI, the implementing agency of this project, will maintain smooth coordination with the abovementioned agencies so that all of the construction work may be completed within the scheduled period.

The outlined process expediting chart is shown on the following page.

Project Implementation Schedule

month		1	2	3	4	5	6	7	8	9	10	11	12
Phase- I LIPI Zoological Facilities	Detailed Design	■ (Site Survey)		□ (Internal work)		■ (Confirmation)							
		(Total 4 Months)											
PHPA HQ, RS	Construction & Supply	■ (Preparation)		□ (Foundation work)		■ (Concrete work)		■ (Mechanical, Electrical work Interior finish)		□ (Exterior finish)			
		(Total 12 Months)											
Phase- II PHPA NCIC Equipment	Detailed Design	□ (Internal work)		■ (Confirmation)									
		(Total 2.0 Months)											
	Construction & Supply	■ (Preparation)		□ (Foundation work)		■ (Concrete work)		■ (Mechanical, Electrical work Interior finish)		□ (Exterior finish)			
				□ [Equipment Supply]		□ (Fabrication Supply)		■ (Transportation)		■ Installation Adjust			
		(Total 10 Months)											

3-1-7 Obligation of Recipient Country

In the case that the project will be implemented in accordance with the guidelines of Japan's grant-aid system, necessary measures to be taken by the Government of Indonesia are as follows.

- (1) To bear commissions and other expenses arising from banking agreements.
- (2) To pay expenses related to application for building construction permit.
- (3) To take prompt measures related to landing, duty exemption, customs clearance at Indonesian ports where construction materials and equipment to be procured under the grant-aid are to be imported.
- (4) To exempt Japanese nationals engaging in the supply of materials, equipment, and services under the Project from customs duties, national taxes, and other financial levies charged in Indonesia.
- (5) To provide the necessary measures for the above-mentioned Japanese nationals to enter, leave and stay in Indonesia for execution of their work under the verified contracts.
- (6) To appropriately and effectively maintain and administer the facilities to be constructed and equipment to be granted under the scope of the grant-aid.
- (7) To bear all necessary expenses for carrying out the Project outside the scope of the grant-aid.
- (8) To secure budgets and personnel necessary to appropriately and effectively maintain and administer the facilities and equipment to be granted under the grant-aid.

3.2 Project Cost Estimate

- (1) Estimated Project costs for the Work and relating matter to be done by the Indonesian government is as follows :

● LIPI

		Time of Arrangement
1. Planting, Fence/Gate	Rp. 80,000,000	Early 1997
2. Water connection charge, Electricity incoming charge, telephone incoming charge	Rp. 242,000,000	1996 (During Construction)
3. Furniture and fixtures	Rp. 120,000,000	1997 (Completion of Construction)
4. Banking arrangement (B/A) commission	Rp. 13,000,000	Early 1996
5. Application for building permission	Rp. 80,000,000	Last 1995
6. Customs clearance charge	Rp. 50,000,000	1996 (During Construction)
TOTAL	Rp. 585,000,000	

● PHPA

		Time of Arrange
1. Land Reclamation, Removal of Existing Facility	Land Reclamation for HQ. Removal of Existing Facility for NCIC has been secured in previous budget	1995 (Before Construction)
2. Planting, Fence/Gate	Rp. 24,000,000	1997
3. Water supply charge, Electricity incoming charge, Telephone incoming charge	Rp. 20,000,000 Deep well for HQ and RS have been secured in previous budget	1996 (During Construction)
4. Furniture and Fixtures	Rp. 20,000,000	1997 (Completion of Construction)
5. Banking arrangement (B/A) commission	Rp. 3,000,000	Early 1996
6. Application for Building permission	Rp. 10,000,000	Last 1995
7. Customs clearance charge	Rp. 10,000,000	1996 (During Construction)
TOTAL	Rp. 87,000,000	

3.3 Operation and Maintenance Costs

Trial calculation of management and maintenance expenses

Trial calculation of management and maintenance expenses, which the Indonesian side should bear after the completion and turnover of the facilities to it, has been effected in accordance with the results of the basic design study. Expenditure items are classified into facility operation and facility, equipment maintenance expenses.

(1) Facility operation expenses

Annual operation expenses are calculated by assuming routine loads of power, telephone, water supply, and LPG.

1) Power charges

Operation hours

Monday~Thursday	: 8:30~16:00 (lunch break 1 hour)		
		6.5 hours×4 days =	26 hours
Friday	: 8:30~12:00	3.5 hours×1 days =	3.5 hours
Saturday	: 8:30~14:00	4.5 hours×1 days =	4.5 hours
			<hr/>
			34 hours/week
Annual	: 34 hours/week×52 week		= 1,768 hours
			≐ 1,800 hours

① RDCB, Zoological Facility

a. Calculation of power to be used

- Lighting and outlets

$$240 \text{ KVA} \times 0.6 \times 1,800 \text{ hours} = 259,200 \text{ KWH/year}$$

- Air-conditioner and general power

$$540 \text{ KVA} \times 0.4 \times 1,800 \text{ hours} = 388,800 \text{ KWH/year}$$

- Research and training equipment

$$70 \text{ KVA} \times 0.4 \times 1,800 \text{ hours} = 50,400 \text{ KWH/year}$$

$$\underline{\hspace{10em}} 698,400 \text{ KWH/year}$$

- b. Estimation of electrical charge (High tension power supply)
- Consumption charge
 $698,400 \text{ KWH/year} \times 176.5 \text{ Rp/KWH} \times 1.03 =$
126,965,628 Rp/year
 - Unit charge
 $800 \text{ KVA} \times 4,560 \text{ Rp/KVAyear} \times 12 \text{ months} =$
43,776,000 Rp/year
-
- 170,741,628 Rp/year

② PHPA HQ

- a. Calculation of power to be used
- Lighting and outlets
 $22 \text{ KVA} \times 0.6 \times 1,800 \text{ hours} =$ 23,760 KWH/year
 - Air-conditioner and general power
 $13 \text{ KVA} \times 0.7 \times 1,800 \text{ hours} =$ 16,380 KWH/year
 - Others
 $10 \text{ KVA} \times 0.4 \times 1,800 \text{ hours} =$ 7,200 KWH/year
-
- 47,340 KWH/year
- b. Estimation of electrical charge (Low tension power supply)
- Consumption charge
 $47,340 \text{ KWH/year} \times 188.5 \text{ Rp/KWH} \times 1.03 =$
9,191,297 Rp/year
 - Unit charge
 $48.3 \text{ KVA} \times 8,500 \text{ Rp/KVAmonth} \times 12 \text{ months} =$
4,926,600 Rp/year
-
- 14,117,897 Rp/year

③ PHPA NCIC

- a. Calculation of power to be used
- Lighting and outlets
 $12 \text{ KVA} \times 0.6 \times 1,800 \text{ hours} =$ 12,960 KWH/year
 - Air-conditioner and general power
 $97 \text{ KVA} \times 0.7 \times 1,800 \text{ hours} =$ 122,220 KWH/year
 - Others
 $20 \text{ KVA} \times 0.4 \times 1,800 \text{ hours} =$ 14,400 KWH/year
-
- 149,580 KWH/year

- b. Estimation of electrical charge (Low tension power supply)
- Consumption charge
 $149,5800 \text{ KWH/year} \times 188.5 \text{ Rp/KWH} \times 1.03 =$
29,041,704 Rp/year
 - Unit charge
 $83.1 \text{ KVA} \times 8,500 \text{ Rp/KVAmonth} \times 12 \text{ months} =$
8,476,200 Rp/year
-
- 37,517,904 Rp/year

2) Telephone charges

① RDCB, Zoological Facility

The telephone service in Cibinong belongs to the network of Bogor Telekom, and the local telephone rate is Rp.110 per call.

The trial calculation assumes 5,000 calls a month.

- Unit charge
 $2,600 \text{ Rp/line} \times 20 \text{ lines} \times 12 \text{ months} =$ 624,000 Rp/year
 $5,000 \times 110 \text{ Rp/line} \times 12 \text{ months} =$ 6,600,000 Rp/year
-
- 7,224,000 Rp/year

② PHPA HQ

The trial calculation assumes 500 calls a month.

- Unit charge
 $2,600 \text{ Rp/line} \times 2 \text{ lines} \times 12 \text{ months} =$ 62,400 Rp/year
 $500 \times 110 \text{ Rp/line} \times 12 \text{ months} =$ 660,000 Rp/year
-
- 722,400 Rp/year

③ PHPA NCIC

The trial calculation assumes 500 calls a month.

- Unit charge
 $2,600 \text{ Rp/line} \times 4 \text{ lines} \times 12 \text{ months} =$ 124,800 Rp/year
 $1,000 \times 110 \text{ Rp/line} \times 12 \text{ months} =$ 1,320,000 Rp/year
-
- 1,444,400 Rp/year

3) Water charge

Maximum daily water consumption is calculated based on the number of persons working or staying in the facilities and average consumption per person in Indonesia.

① RDCB, Zoological Facility

$$70 \text{ persons} \times 200 \text{ */day} = 14 \text{ m}^3/\text{day}$$

$$14 \text{ m}^3/\text{day} \times 300 \text{ days/year} \times 1,950 \text{ Rp/m}^3 = 8,190,000 \text{ Rp/year}$$

② PHPA NCIC

$$10 \text{ persons} \times 120 \text{ */day} = 1.2 \text{ m}^3/\text{day}$$

$$1.2 \text{ m}^3/\text{day} \times 300 \text{ days/year} \times 370 \text{ Rp/m}^3 = 134,000 \text{ Rp/year}$$

4) LPG charges

① RDCB, Zoological Facility

$$70 \text{ persons} \times 1,000 \text{ Kcal/person} \div 8,320 \text{ Kcal/m}^3 = 84 \text{ m}^3/\text{day}$$

$$84 \text{ m}^3/\text{day} \times 300 \text{ days/year} \times 0.6 \times 265 \text{ Rp/m}^3 = 4,000,000 \text{ Rp/year}$$

5) Generator (gasoline)

① PHPA RS

The gasoline consumption of 20 KVA's generator is 5.0 ℓ

$$5.0 \text{ ℓ} \times 12 \text{ H} \times 180 \text{ days/year} \times 375 \text{ Rp/ℓ} = 4,050,000 \text{ Rp/year}$$

(2) Facility and equipment maintenance expenses

1) Maintenance expenses of facilities

Building maintenance expenses vary substantially as time elapses. By assuming that annual average maintenance expenses per floor area amount to 4,000 Rp/m² when viewed over a span of 30 years, the facility maintenance expenses are calculated (including the facility cleaning and guarding expenses).

① RDCB Zoological facility

$$4,000 \text{ Rp/m}^2 \text{ year} \times 8,000 \text{ m}^2 = 32,000,000 \text{ Rp/year}$$

② PHPA HQ

$$4,000 \text{ Rp/m}^2 \text{ year} \times 725 \text{ m}^2 = 2,900,000 \text{ Rp/year}$$

③ PHPA RS

$$4,000 \text{ Rp/m}^2 \text{ year} \times 300 \text{ m}^2 = 1,200,000 \text{ Rp/year}$$

④ PHPA NCIC

$$4,000 \text{ Rp/m}^2 \text{ year} \times 375 \text{ m}^2 = 1,500,000 \text{ Rp/year}$$

2) Maintenance expenses of mechanical system

Mechanical system maintenance expenses will not amount to much during the first five years after the completion of the facilities, but parts and instruments will have to be replaced with new ones thereafter. The expenses are calculated by assuming that annual average maintenance expenses are about 1.0% of the mechanical construction cost when viewed over a span of ten years.

- ① RDCB Zoological facility
 $360,000,000 \text{ J¥} \times 0.01 = 3,600,000 \text{ J¥/year}$
 $\doteq 72,000,000 \text{ Rp/year}$
- ② PHPA HQ
 $24,000,000 \text{ J¥} \times 0.01 = 240,000 \text{ J¥/year}$
 $\doteq 4,800,000 \text{ Rp/year}$
- ③ PHPA RS
 $9,000,000 \text{ J¥} \times 0.01 = 90,000 \text{ J¥/year}$
 $\doteq 180,000 \text{ Rp/year}$
- ④ PHPA NCIC
 $15,000,000 \text{ J¥} \times 0.01 = 150,000 \text{ J¥/year}$
 $\doteq 3,000,000 \text{ Rp/year}$

3) Maintenance expenses of equipment

Equipment maintenance expenses will not amount to much during the first few years after the completion of the Center, but they will gradually increase as time passes. Based on ordinary examples seen in Japan, annual maintenance expenses are expected to be 1.5% of equipment prices for the initial five years and 3% for the next five years.

During the initial five years

- ① RDCB Zoological facility
 $250,000,000 \text{ J¥} \times *0.5 \times 0.015 = 1,875,000 \text{ J¥/year}$
 $\doteq 37,500,000 \text{ Rp/year}$

(* Ratio of equipment requires maintenance among all equipment)

- ② PHPA HQ, RS
 $50,000,000 \text{ J¥} \times *0.5 \times 0.015 = 375,000 \text{ J¥/year}$
 $\doteq 7,500,000 \text{ Rp/year}$
- ③ PHPA NCIC
 $50,000,000 \text{ J¥} \times *0.5 \times 0.015 = 375,000 \text{ J¥/year}$
 $\doteq 7,500,000 \text{ Rp/year}$

During the next five years

- ① RDCB Zoological facility \cong 75,000,000 Rp/year
- ② PHPA HQ, RS \cong 15,000,000 Rp/year
- ③ PHPA NCIC \cong 15,000,000 Rp/year

(3) Total of the trial calculation

- ① RDCB Zoological facility
 - a. Facility operation expenses \cong 190,000,000 Rp/year
 - b. Facility and equipment maintenance expenses \cong 50,000,000 Rp/year

- ② PHPA HQ
 - a. Facility operation expenses \cong 15,000,000 Rp/year
 - b. Facility and equipment maintenance expenses \cong 12,000,000 Rp/year

- ③ PHPA RS
 - a. Facility operation expenses \cong 4,000,000 Rp/year
 - b. Facility and equipment maintenance expenses included in ②

- ④ PHPA NCIC
 - a. Facility operation expenses \cong 40,000,000 Rp/year
 - b. Facility and equipment maintenance expenses \cong 10,000,000 Rp/year

In planning for the facilities and equipment and materials in this program, a lot of thoughts were put into minimization of maintenance and management costs. The plans also assure that maintenance & management after the facilities are completed are carried out easily by securing major spare parts of various types of equipment within the range of 5 to 15 percent of the procurement expense of the equipment and materials. In selecting the equipment and materials, as many as possible are procured within Indonesia in consideration of the repair and maintenance work.

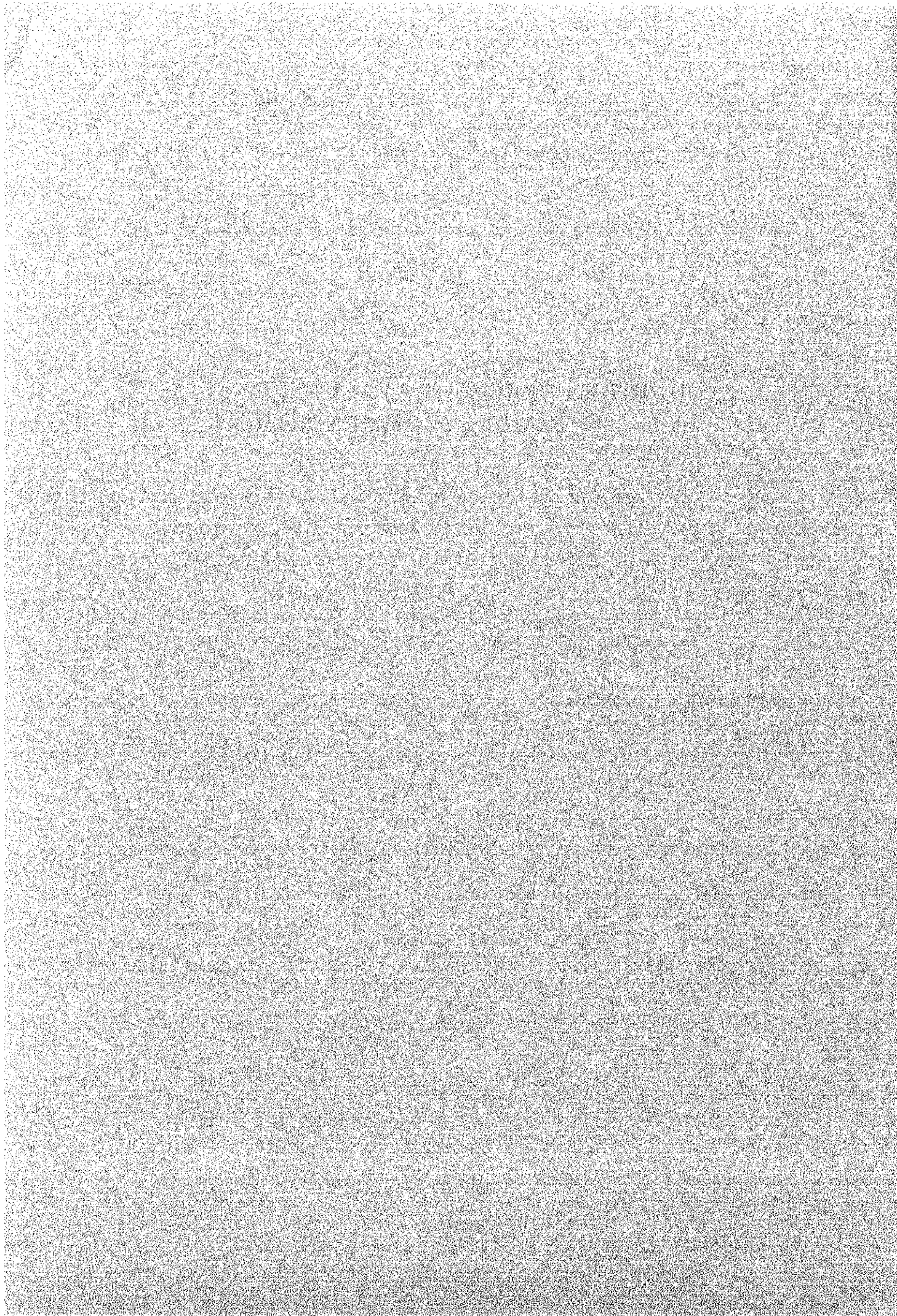
Both the RDCB zoological division and PHPA are well-experienced for many years in maintenance and management of the equipment and materials that

they are currently keeping. Judging from the technical level of their staff and considering the fact that the equipment and materials to be serviced in this program are mostly basic ones, a short period of training will be sufficient in employing these people for the maintenance work.

According to the provisional estimate, the maintenance and management costs for the RDCB zoological division are paid by the LIPI as part of the entire RDCB budget; a special budget is drawn up for newly-built facilities and promised by the LIPI to be secured. As a special budget for maintenance including ground leveling for the first year, 600 million rupiahs have already been executed to the RDCB zoological division.

Regarding the PHPA, 1400 million rupiahs were planned at the time of opening the place as the budget for the GHNP (Gunung Halimun National Park), of which the maintenance cost is about 10 percent, thus fully incorporating the provisionally calculated amount above. As for the NCIC, the above budget is promised by the BAPPENAS to be secured from 1997 as the budget of the PHPA. Therefore, it is understood that no problem related to budgetary measures for maintenance costs will occur either to the LIPI or to the PHPA.

CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATION



CHAPTER 4 PROJECT EVALUATION AND RECOMMENDATION

4.1 Project Effect

The number of specimens stored at the LIPI and RDCB zoological divisions including the specimens from the era of the Dutch colonial rule has reached 300,000. However, their inventories are neither standardized nor transformed into a satisfactory database, thus causing inconvenience to search and comparative research, etc. Accordingly, this project aims at a unified database of biological specimens through construction of facilities and supply of equipment, thus facilitating research and comparative research and clarifying the conservation situation of regional and national species and their habitats and ecosystems. The project also makes it possible to provide the latest biological and ecological information on biological resources, the trend of the populations feared to be extinct, as well as fauna and flora with potential economic values.

Furthermore, joining the biodiversity information together with a broad range of socioeconomic, environmental, and land utilization data, it is made possible to provide policy makers, natural resource managers, and domestic public- and private-sector researchers, etc. in Indonesia with the biodiversity information that is necessary in making development and environmental protection mutually compatible.

Building facilities and providing equipments for the HQ and the RS in the GHNP, which is a highly biodiverse in-situ in Indonesia, will encourage the work of collecting and sampling animals and plants over a broader habitat area. Also, by promoting research studies and training and education of persons concerned for proper management of national parks, it is expected that the conservation and management capabilities of managers at the habitat areas will be improved and participation by residents for conservation of biodiversity will be encouraged, thus contributing greatly to solution of problems such as unlawful occupation, poaching, and illegal gold mining.

Impacts Resulting from Implementation of the Project and Degree of Improvement
in the Present State

Present State and Problems	Measures in Proposed Project	Project's Effects and Extent of Improvement
1. Ill-organized inventories of the specimens stored at LIPI & RDCB zoological divisions and their incomplete construction into a database have inconvenienced the data search and comparative research work.	To provide computers and workstations as equipment to enable data input from the specimen register into the computers for construction of a well-organized database.	Actual 25,000 specimens relating GHNP owned by LIPI will increase additionally 10,000 in 2 years, and 500,000 specimens will be data based to be usable in 10 years. Management can be centralized.
2. Unsatisfactory specimen management at the LIPI and RDCB zoological divisions leading to shortage of storage space and insufficient air-conditioning	To construct a storage and install a necessary air-conditioning system spacious enough to cope with the increase in the number of specimens.	Can not only cope with the specimen increase of about 500,000 in 10 years but also store up the RDCO (Research and Development Center for Oceanology)'s specimens.
3. Impossibility of sufficient research and specimen identification due to shortage and obsolescence of the equipments in current possession by LIPI & RDCB zoological divisions.	To provide research equipments including large-scale ones such as electron microscope, X-ray equipment, echo camera, liquid chromatography.	Specimen identification is performed precisely and promptly thus making it possible to reduce the number of specimens unaccounted for.
4. Insufficient space for conducting independent seminars and in-service trainings.	To build seminar rooms.	Made possible to accommodate people enough for smooth training.
5. Due to lack of proper management, unacceptable conducts such as unlawful occupation, poaching, and illegal gold mining are being practiced in the in-situ of high biodiversity, thus spoiling the ecosystem conservation.	To build a headquarters building in the GHNP (Gunung Halimun National Park).	Becomes a model of proper management of national parks, preventing unacceptable conducts such as unlawful occupation, poaching, and illegal gold mining and preserving the ecosystem.
6. Insufficient collection and sampling of animals and plants at the in-situ of high biodiversity.	To build a RS building in the GHNP (Gunung Halimun National Park)	Resulted in promotion of collecting and sampling animals and plants as in-situ specimens in national parks.
7. Insufficient in-situ conservation due to lack of knowledge and understanding of biodiversity conservation, by the persons concerned and neighboring residents.	To set up a research room in the GHNP HQ to provide education and training for the people concerned with biodiversity conservation and neighboring residents.	Education of the people concerned with biodiversity conservation and neighboring residents promoted enabling a more perfect form of conservation to be carried out.

4.2 Recommendation

The smooth and successful implementation of the Project will be further assured if the following recommendations for improvement in specific areas are heeded.

(1) Systematic Management

Although the RDCB's zoological division is acting as an institution within the LIPI, RDCB, it is desirable that RDCB zoological division will seek a linkage with the whole RDCB and incorporate with PHPA to promote effective activities. Its management plan also should be incorporated systematic cooperation/linkage with such related organizations/ programs as USAID and GEF.

(2) Maintenance

For the effective operation and maintenance of building services and equipment of this project, arrangement should be made for the RDCB zoological division and PHPA engineers/technicians responsible for such building services and equipment to receive practical instructions and training at the time of their installation so that they can obtain the necessary knowledge and skills by the time of their handing over to the Indonesian side.

(3) Measures and work to be undertaken by Indonesian Side

In addition to such necessary steps as the tender arrangements, signing of agreements, banking agreement arrangements and customs clearance procedures, etc., arrangements with authorities concerned such as BAPPENAS, SEKAB, EKUIN must be promptly completed for the smooth progress of the Project.

It is desirable that a reliable budget planning will be secured for the completion of the land reclamation, the ground preparation and the demolition of the existing facilities prior to the commencement of the Project and also the well-digging in progress, as well as the purchase of planting, furniture and furnishings by the time of building completion.

(4) Budget for operation

Since the activities of the project is closely related to the national finance, it is desirable to prepare and maintain a rational budget to the project.

A tight cooperation with related organizations and assistance organs such as World Bank is desirable because this project is the indispensible investment for the implementation of a total biodiversity conservation project in Indonesia.

(5) Promotion of training activities

The proposed project also plans training activities in addition to research and field activities, therefor, the planned facilities for this project is desired for the use of these training purpose.

It is hoped that the training activities will be conducted not only for the concerned personnel of the related organizations but also widely for the NGO and neighboring residents as well for better understanding of the need for environmental protection. To cover a wide range of trainings and seminars, it is also necessary to secure instructors from outside, formulate an instructor assignment plan, produce a workable training curriculum, plan for creating teaching aids and bring up advisors to cope with training activities to be expanded in the future.

(6) Colaboration with project-type technical cooperation and assistance organs by other countries

To fully achieve its planned functions and to promote the effective and efficient use of its facilities it is important to keep a close cooperation/linkage with the Japanese technical cooperation and such related organizations as GEF and USAID at the time of implementation of the project.

APPENDICIES

- 1. Member List of the Study Team**
- 2. Survey Shedule**
- 3. Interviewed Persons**
- 4. Minutes of Discussions**
- 5. Activities Funded by GEF and JICA**
- 6. Condition of the Project Site**
- 7. Water Quality Analysis Table**

1. Member List of the Survey Team

**1-1 The Basic Design Study Team
(January 15 ~February 13, 1995)**

**1-2 The Draft Basic Design Report Explanation Team
(May 31 ~ June 7, 1995)**

1. Member List of the Survey Team

1-1 The Basic Design Study Team (January 15~February 13, 1995)

Team Leader	Mr. Hiroshi Yoneda Special Advisor to Management Director Grant Aid Study & Design Department Japan International Cooperation Agency (JICA)
Project Coordinator	Mr. Masahiro Tawa First Basic Design Division Grant Aid Study & Design Department Japan International Cooperation Agency (JICA)
Biological Research	Mr. Ginzo Aoyama Research Coordinator National Institute for Environmental Study, Environmental Agency
Information Processing Equipment	Mr. Yoichi Tsuruoka Development Specialist Japan International Cooperation Agency (JICA)
Chief Consultant Architecture Planner	Mr. Osamu Matsumura Kume Sekkei Co., Ltd.
Architectural Planning I	Mr. Makoto Nagadomi Kume Sekkei Co., Ltd.
Architectural Planning II	Mr. Hiroyuki Tuchiya Kume Sekkei Co., Ltd.
Mechanical / Electrical Design Planning	Mr. Mikio Kurishiro Kume Sekkei Co., Ltd.
Equipment Planning	Mr. Masatsugu Koga Kume Sekkei Co., Ltd.
Cost Estimate	Mr. Osamu Hamano Kume Sekkei Co., Ltd.

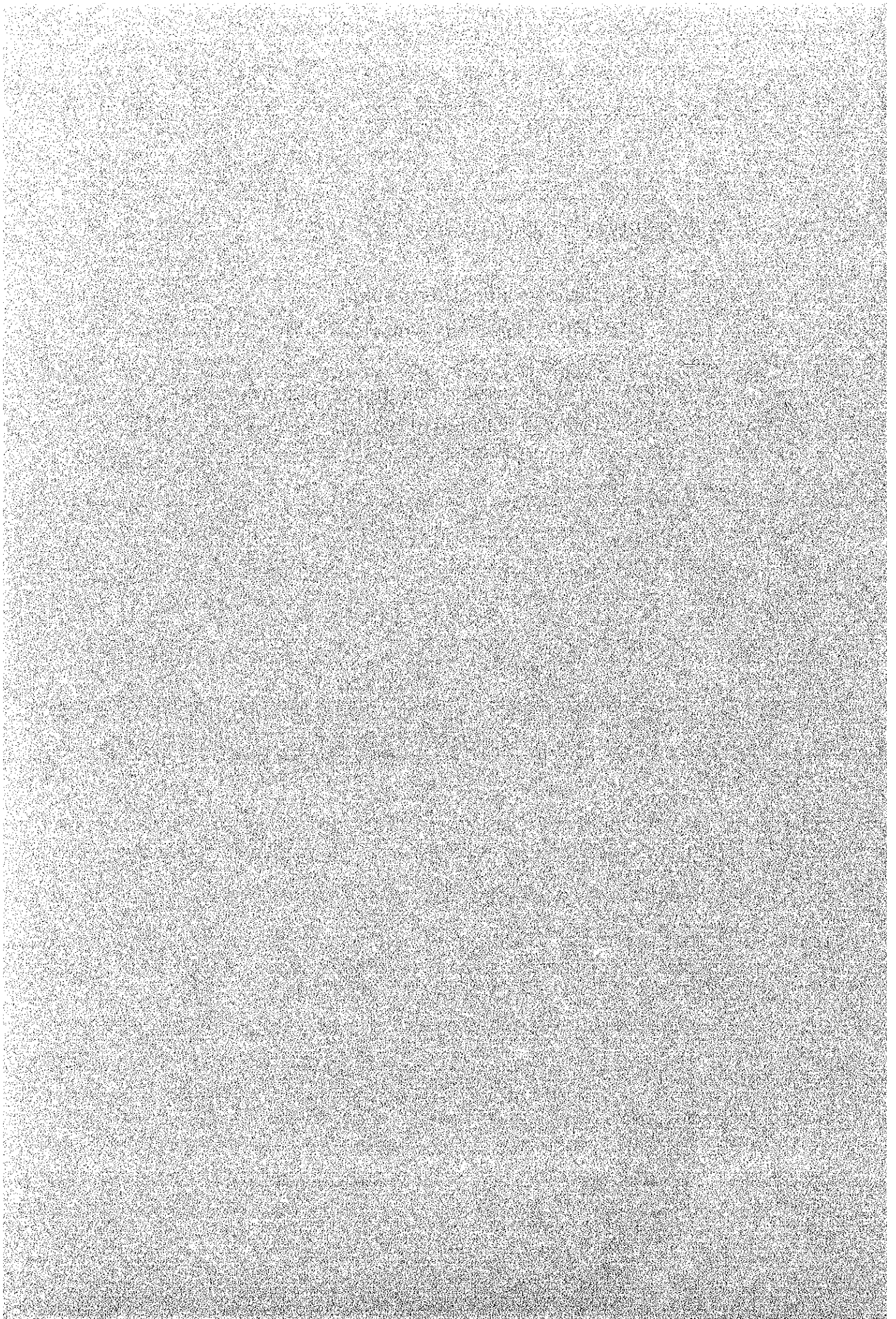
1-2 The Draft Basic Design Report Explanation Team (May 31 ~ June 7, 1995)

Team Leader	Mr. Tetsuya Sumi Assistant Director Grant Aid Division Economic Co-Operation Bureau Ministry of Foreign Affairs
Project Coordinator	Mr. Yoshiaki Nishikawa Deputy Director First Basic Design Study Division Grant Aid Study & Design Department Japan International Cooperation Agency (JICA)
Technical Advisor	Mr. Ginzo Aoyama Research Coordinator National Institute for Environmental Study Environmental Agency
Chief Consultant	Mr. Osamu Matsumura
Architectural Planner	Kume Sekkei Co., Ltd.
Architectural Planning I	Mr. Makoto Nagadomi Kume Sekkei Co., Ltd.
Architectural Planning II	Mr. Hiroyuki Tsuchiya Kume Sekkei Co., Ltd.

2. Survey Schedule

- 2-1 Basic Design Study Team
(January 15~February 13, 1995)**

- 2-2 Draft Basic Design Report Explanation Team
(May 31 ~ June 7, 1995)**



2. Survey Schedule

2-1 Basic Design Study Team (January 15~February 13, 1995)

	Date	Activities
1	Jan. 15 (Sun)	· Tokyo → Jakarta, Consultant members arriving by JL-725
2	Jan. 16 (Mon)	· Survey schedule, Explanation of schedule at JICA and LIPI-RDCB · Explanation of Inception report (I.R) and Questionnaire (Ques.) at LIPI-RDCB
3	Jan. 17 (Tue)	· Observation at PHPA's HQ site (Kabandungan)
4	Jan. 18 (Wed)	· Observation at site for Cibinong RDCB-Zoological facility, Biotechnology R & D Center and Limnology R & D Center · Observation at RDCB existing facilities in Bogor
5	Jan. 19 (Thu)	· Discussion at LIPI-RDCB · Tokyo → Jakarta, Government members arriving by JL-725
6	Jan. 20 (Fri)	· Discussion at JICA, Embassy of Japan and BAPPENAS · Discussion at PHPA
7	Jan. 21 (Sat)	· Observation at PHPA's NCIC site (Kabandungan) and RS site (Cikaniki) · Team Meeting
8	Jan. 22 (Sun)	· Observation at PHPA's HQ site (Bogor PHPA office) · Team Meeting
9	Jan. 23 (Mon)	· Discussion at LIPI-RDCB and PHPA · Observation at RDCB existing facilities in Bogor · Observation at PHPA existing facilities in Bogor · Observation at PHPA's NCIC site
10	Jan. 24 (Tue)	· Observation at Biotechnology R & D Center · Observation at site for Cibinong RDCB-Zoological facility · Discussion, Draft of Minutes of Meeting
11	Jan. 25 (Wed)	· Discussion at LIPI-RDCB and PHPA
12	Jan. 26 (Thu)	· Discussion at USAID · Discussion at IBRD · Discussion, Draft of Minutes of Meeting at BAPPENAS
13	Jan. 27 (Fri)	· Signing of Minutes of Meeting at BAPPENAS · Report to JICA and Embassy of Japan
14	Jan. 28 (Sat)	· Team Meeting · Jakarta → Tokyo, Government members leaving by JL-726
15	Jan. 29 (Sun)	· Market Survey · Team Meeting
16	Jan. 30 (Mon)	· Discussion at Local Consultant's office · Study of Concept Plan
17	Jan. 31 (Tue)	· Observation at EMC in Serpong · Observation at PU Data Section

	Date	Schedule
18	Feb. 1 (Wed)	<ul style="list-style-type: none"> · Observation at PHPA's HQ site · Participation of GEF Data Base Workshop · Observation at LIPI-RDCO in Ancol
19	Feb. 2 (Thu)	<ul style="list-style-type: none"> · Collection of Data · Market Survey · Study of Concept Plan
20	Feb. 3 (Fri)	<ul style="list-style-type: none"> · Study of Concept Plan · Collection of Data
21	Feb. 4 (Sat)	<ul style="list-style-type: none"> · Study of Concept Plan · Tokyo→Jakarta, arriving a member of cost estimate of consultant by JL-725
22	Feb. 5 (Sun)	<ul style="list-style-type: none"> · Analyze on collected Data · Team Meeting
23	Feb. 6 (Mon)	<ul style="list-style-type: none"> · Discussion at LIPI-RDCB and PHPA · Discussion with GEF technical Advisory Group
24	Feb. 7 (Tue)	<ul style="list-style-type: none"> · Report to JICA · Discussion at PHPA · Collection of Data
25	Feb. 8 (Wed)	<ul style="list-style-type: none"> · Observation at PHPA's HQ site and RS site · Discussion at PLN, TELEKOM, PU and Local Government in Sukabumi
26	Feb. 9 (Thu)	<ul style="list-style-type: none"> · Observation at PHPA's office · Discussion at PAM, PU, PLN, TELEKOM in Bogor and Cibinong
27	Feb. 10 (Fri)	<ul style="list-style-type: none"> · Report to JICA and Embassy of Japan · Observation at Jakarta Design Center · Discussion at Local consultant's office
28	Feb. 11 (Sat)	<ul style="list-style-type: none"> · Analyze on collected Data · Team Meeting
29	Feb. 12 (Sun)	<ul style="list-style-type: none"> · Jakarta→Tokyo, consultant leaving by JL-726
30	Feb. 13 (Mon)	<ul style="list-style-type: none"> · Arriving at Tokyo

2-2 The Draft Basic Design Report Explanation Team (May 31~June 7, 1995)

	Date	Activities
	May 29 (Mon)	· Tokyo → Jakarta, Project Coordinator, Chief Consultant Architectural Planner, Architectural Planning I arriving by JL-725
	May 30 (Tue)	· Survey schedule, Explanation of schedule at JICA · Survey at Bogor PIIHA office · Observation at the new site for NCIC and the site for RDCB zoological facility in Cibinong
1	May 31 (Wed)	· Tokyo → Jakarta, Team Leader, Technical Advisor, Architectural Planning II arriving by JL-725 · Team Meeting
2	June 1 (Thu)	· Explanation of Draft Basic Design Report to BAPPENAS, Embassy of Japan, JICA · Observation at the site for GHNP HQ and RS
3	June 2 (Fri)	· Explanation of Draft Basic Design Report to LIPI-RDCB and PHPA · Survey at Bogor PHPA office
4	June 3 (Sat)	· Discussion of Draft Basic Design Report with LIPI-RDCB and PHPA · Discussion of Draft Equipment Plan
5	June 4 (Sun)	· Analyze on collected Data · Team Meeting
6	June 5 (Mon)	· Signing of Minutes of Meeting at BAPPENAS · Team Meeting
7	June 6 (Tue)	· Explanation to USAID the contents of cooperation by Japanese side · Report to Embassy of Japan and JICA · Jakarta → Tokyo leaving by JL-726
8	June 7 (Wed)	· Arriving at Tokyo

3. Interviewed Persons

3. Interviewed Persons

Embassy of Japan

Mr. Nobuhito Hobo	Counsellor Development Affairs
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