APPENDICES

1. Member List of the Study Team

Appendix 1 Member List of the Study Team

1. Member List of Basic Design Study (April 13, 2003～May 13, 2003)

(1) Leader — Mr. Akira OKUYAMA
Director, Fourth Project Management Division, Grand Aid Management Department
Japan International Cooperation Agency (JICA)

(2) Project Coordinator — Mr. Katsuya KUGE
Fourth Project Management Division, Grand Aid Management Department
Japan International Cooperation Agency (JICA)

(3) Project Manager/Facility Planning — Mr. Shigeru YASUMATSU
Kume Sekkei Co., Ltd.

(4) Biodiversity — Mr. Naozumi SUKIGARA
Kume Sekkei Co., Ltd.

(5) Museology/Environmental Education — Dr. Masanori DOI
Intem Consulting, Inc.

(6) Equipment Planning — Mr. Soichi TAKAI
Intem Consulting, Inc.

(7) Facility Design/Natural Condition Survey — Mr. Osamu HAMANO
Kume Sekkei Co., Ltd.

(8) Equipment Procurement/ Cost Estimation Engineer — Ms. Yoshino KATAKURA
Intem Consulting, Inc.

(9) Construction Cost Estimation Engineer/ Construction Planner — Mr. Shigeya OKUYAMA
Kume Sekkei Co., Ltd.

2. Member List of the Second Basic Design Study (August 3, 2003～August 7, 2003)

(1) Leader — Mr. Yuji OTAKE
JICA Indonesia Office

(2) Technical Adviser — Prof. Kunio IWATSUKI
The University of the Air

(3) Project Coordinator — Mr. Katsuya KUGE
Fourth Project Management Division, Grand Aid Management Department
Japan International Cooperation Agency (JICA)

(4) Project Manager — Mr. Shigeru YASUMATSU
Kume Sekkei Co., Ltd.

3. Member List of Explanation on Draft Final Report (October 19, 2003～October 25, 2003)

(1) Leader — Mr. Yuji OTAKE
JICA Indonesia Office

(2) Project Coordinator — Mr. Katsuya KUGE
Fourth Project Management Division, Grand Aid Management Department
Japan International Cooperation Agency (JICA)

(3) Project Manager/Facility Planning — Mr. Shigeru YASUMATSU
Kume Sekkei Co., Ltd.

(4) Biodiversity — Mr. Naozumi SUKIGARA
Kume Sekkei Co., Ltd.

(5) Equipment Planning — Mr. Kenzo MIYOSHI
Intem Consulting, Inc.

(6) Facility Design — Mr. Tomohiko YASUI
Kume Sekkei Co., Ltd.

(7) Equipment Procurement/ Cost Estimation Engineer — Ms. Yoshino KATAKURA
Intem Consulting, Inc.

2. Study Schedule

Appendix 2 Study Schedule

1. Itinerary of Basic Design Study(April 4〜May 13, 2003)

No	Date	Day	Action
1	April 13	Sun	Mr. Takai : Narita → Jakarta
2	April 14	Mon	Meeting at JICA Office, Discussion at RCB
3	April 15	Tue	Existing equipment survey, Discussion at RCB
4	April 16	Wed	Member : Narita → Jakarta Local agent survey, Inner meeting
5	April 17	Thu	Courtesy Call to LIPI and BAPPENAS, Courtesy Call to Embassy of Japan, Meeting at JICA Office
6	April 18	Fri	Site and Zoology building survey at Cibinong, Discussion at RCB
7	April 19	Sat	Existing facilities survey in Bogor, Discussion at RCB
8	April 20	Sun	Survey of National Museum, Data filing
9	April 21	Mon	Discussion at RCB, Collection of quotation for natural condition survey
10	April 22	Tue	Discussion at RCB, Negotiation of quotation for natural condition survey
11	April 23	Wed	Discussion at RCB, Signing on minutes, Inner meeting, Mr. Okuyama arrived.
12	April 24	Thu	Report to Embassy of Japan and JICA Office, Discussion at RCB, Bandung Museum survey, Official member left for Japan.
13	April 25	Fri	Discussion at RCB, University Indonesia survey, Existing facilities survey
14	April 26	Sat	Data filing, Inner meeting
15	April 27	Sun	Data filing
16	April 28	Mon	Discussion at RCB, PHPK Bogor office survey, University Indonesia survey, Existing facilities survey
17	April 29	Tue	Discussion at RCB RCB, Specimens condition survey, Interview of RCB staff
18	April 30	Wed	Discussion at RCB, Bogor Agricultural institute survey, Specimens condition survey
19	May 1	Thu	Interim report to JICA office, Discussion at RCB, GHNP PHKA office survey, Specimens condition survey
20	May 2	Fri	Interview for Technical Cooperation Team, Zoology building survey, Discussion at RCB
21	May 3	Sat	Data filing, Inner meeting
22	May 4	Sun	Data filing
23	May 5	Mon	Interim report to JICA office, GEF interview, BAPPENAS and KEHATI interview, Dr. Doi and Mr. Sukigara left.
24	May 6	Tue	Infra survey, Discussion at RCB, Interview of RCB staff
25	May 7	Wed	Infra survey, Discussion at RCB, Building restriction survey
26	May 8	Thu	Discussion at RCB, Ms. Katakura left.
27	May 9	Fri	Discussion at RCB, Mr. Takai left.
28	May 10	Sat	Data filing, Inner meeting
29	May 11	San	Data filing
30	May 12	Mon	Report to JICA Office, Jakarta →
31	May 13	Tue	Narita

2. Itinerary of The Second Basic Design Study (August 3〜August 7, 2003)

No	Date	Day	Action
1	August 3	Sun	Narita → Jakarta, Inner meeting
2	August 4	Mon	Survey at Cibinong, Discussion at RCB, Existing facility survey
3	August 5	Tue	Discussion at RCB
4	August 6	Wed	Signing on minutes at LIPI, Report to Embassy of Japan and JICA Office, Jakarta →
5	August 7	Thu	Technical Adviser: → Kansai, Others: → Narita

3. Itinerary of Explanation on Draft Final Report (October 19〜October 25, 2003)

No	Date	Day	Action
1	October 19	Sun	Narita → Jakarta
2	October 20	Mon	Courtesy Call to Embassy of Japan, Meeting at JICA Office, Discussion at RCB
3	October 21	Tue	Survey at Cibinong, Discussion at RCB
4	October 22	Wed	Discussion at RCB
5	October 23	Thu	Discussion at RCB and BAPPENAS
6	October 24	Fri	Signing on minutes at LIPI, Report to Embassy of Japan and JICA office, Jakarta →
7	October 25	Sat	Narita

3. List of Parties Concerned in the Recipient Country

Appendix 3 List of Parties Concerned in the Recipient Country

<Parties of the Indonesian side>

1. LIPI: Indonesia Institute of Sciences

Prof. Dr. Umar Anggara Jenie (Chairman）

Suparka, S. Dr. (Vice Chairman)

Dr. Jan Sopaheluwakan (Deputy Chairman for Earth Sciences)

Dr. Lukman Hakim (Deputy Chairman for Scientific Services)

Dr. Anung Kusnowa (Deputy Chairman for Earth Sciences)

Dr. Endan Sukara (Deputy Chairman for Life Science Center)

Dr. Arjuno Brojonegoro (Executive Secretary)

2. RCB: Research Center for Biology

Dr. Arie Budiman (Head)

<Botany Division>

Dr. Irawati (Head：Physiology）

Dr. Witjaksono, Ph.D.(Physiology)

Dr. Herwint Simbolon (Ecology)

Dr. Soedarsono Riswan (Ecology)

Mr. Uway W. Mahyar. (Taxonomy))

Dr. Eko B. Walujo (Ethnobotany)

Dr. Yuyu Suryasari P. (Plant Genetic)

Ir. Ning Wikan Utami (Physiology)

Dra. Sumarni (Physiology)

Dr. Nuril Hidayati TH (Physiology)

Ir. Titi Juhaeti (Physiology)

Dr. Chairul, Apt. (Phytochemistry)

Dr. Elizabeth A. Widjaja (Senior staff , Taxonomy)

Dr. Katini Kramadibrata (Taxonomy)

Dr. Ir. Y. Purwanto, （Ethnobotany）

<Microbiology Division>

Dr. Yantyati Widyastuti (Head)

Dr. Rostiati Napitupulu

Dr. Dudi D. Sastraatmadja, APU (Microbiologist/ Applied Bioscientist)

Dr. Joko Sulistyo

Novik Nurhidayat

Drs. Maman Rahmansyah (Microbial Ecology & Physiology)

Dra. Dyah Supriyeti(Microbial Ecology & Physiology)

Drs. Arwan Sugiharto(Microbial Ecology & Physiology)

<Zoology Division>

Dr. Siti Nuramaliati Prijono (Head)

Ir. Ristiyanti M. Marwoto, M.Sc., (Malacology)

Dr. Sri Sulandari

Ir. Ahmad Jauhau Arief

Dr. M. Syamasul Arifin Zein

Mr. Kustoto (Collection Manager)

Ms. Pudji Aswari (Collection Manager)

Mrs. Munspuni (Collection Manager)

Mr. Daejono (Collection Manager of Birds)

Dr. Rishyanti (Zoology Collection Manager of Malacology)

< Administration Division >

Ir. Edy B. Prasetyo, Head of Cooperation and Services Sub Division

3. Bogor Botanical Garden

Dr. Dedy Darnaedi (Director)

4. Research Center for Biotechnology

Dr. Usep Soetisna (Director)

5. BAPPENAS

Dra. Leila R. Komala (Deputy Chairman for Human Resources)

Dr. Ir. Basuki Yusuf Iskandar, MA (Director of Culture Science and Technology)

Dr. Ir. Agus Prabowom (Director of Natural Resources and Environment)

Mr. Medrizam (Head of environmental Div.)

Mr. Indra Darmawan, MSc (Head of Natural Resources div.)

6. Metrology and Geophysical Agency

Mr. Fierra Setyawan (Climate and Consultative Services)

Mr. Budi Waluyo (Seismologist, Dep. of Communication)

7. The World Bank

Ms. Maria Triyani (Operation Officer)

8. UNDP

Ms. Tanya Aiwi

9. Bogor Agricultural Institute

E.K.S. Harini Muntasib

10. Universitas Pendidikan Indonesia Fakultas Pendidikan Matematika dan Ilmu Pwngetahu Alam

Sri Redjeki, Dr. M.Pd.

Dr. Koichi Tokuda (Chief Adviser of JICA-IMSTEP)

Dr. Nobuhiro Kanaya (JICA – Expert on Biology Education)

Mr. Isamu Kuboki (Coordinator)

11. KEHATI

Dr. Anida Haryatmo, MBA, Program Director

Ms. Suzanty Sitorus, Communication & Resource Development Manager

12. NGO in Bogor Botanical Garden

Mr. Bian Tan (Programme Coordinator, Southeast Asia) Botanical Gardens Conservation International (BGCI)

Mr. Hendrian (Research Coordinator, Center for Plant Conservation)

13. Gunung Halimun National Park

Dr. Ir. Dwi Setyono, Head of National Park, Directorate General of Forest Protection and Nature Conservation (PHKA), Ministry of Forest

14. CIFOR: Center for International Forestry Research

Dr. Takeshi Toma, Scientist, Rehabilitation of Degraded Tropical Forest Ecosystems

Ms. Yani Saloh, Communications Unit

15. Bandung Geological Museum

Dr. Didik Kosasih (Director)

Tatty Suwarti, Ir (Sinior Researcher)

16. PT PERUSAHAAN GAS NEGARA CABANG BOGOR

Mr. Mohammad Ali (Kusubag Material/Gudang)

17. Cibinong BAPPEDA

Mr. Gunawan (Business Head, Facility Region)

18. Cibinong Municiparity Office

Mr. Anwar Anggana. S.T.

19. TELCOM in Bogor

Mr. Ayab Maulana

20. PT. PLN(Persero)Unit Bisin UPJ Bogor

Mr. Endang Rachmat, BE

21. Bogor Fire Office

Mr. Adang Bachmat (Head)

Mr. Hendrian Sukmasaputra (Head of Offence Subdivision)

22. Cibinong Water Supply Department

Mr. Triwalluyo（Sub Section Technical Cibinong Branch）

＜Parties of the Japanese side＞

1. Embassy of Japan in Indonesia

Mr. Yoshitaka Akimoto (Minister)

Mr. Takeo Kaminaga (Secretary)

2. JICA Indonesia Office

Mr. Michio Kanda (Former Resident Representative)

Mr. Kato (Resident Representative)

Mr. Yuji Otake (Deputy Resident Representative)

Mr. Tomoyuki Naito(Assistant Resident Representative)

3. JICA Expert

1) Biodiversity Conservation Project

Mr. Kojiro Mori (Chief Advisor)

Dr. Toshinao Okayama (Natural Environment Research & Survey)

Mr. Hiroshi Kobayashi (Environmental Education)

Mr. Haruji Ozawa (Natioal Park Management)

Mr. Naoki Sekimen (Project Coordinator)

2) Ministry of Forestry

Mr. Eiji Kurose (Advisor Conservation of Terrestrial Ecosystem)

Mr. Sayama Hiroshi (Advisor on Biodiversity Conservation)

4. Minutes of Discussions

4.1 Basic Design Study

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON THE PROJECT FOR
SUPPORT OF FACILITIES FOR BIODIVERSITY COLLECTION DEVELOPMENT
IN
THE REPUBLIC OF INDONESIA

In response to a request from the Republic of Indonesia (hereinafter referred to as " Indonesia"), the Government of Japan decided to conduct a Basic Design Study on the Project for Support of Facilities for Biodiversity Collection Development (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Indonesia the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Akira OKUYAMA, Director, Fourth Project Management Division, Grant Aid Management Department, JICA, and is scheduled to stay in the country from 13 April to 12 May, 2003.

The Team held discussions with the officials concerned of the Government of Indonesia and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

The Team will proceed to further works and prepare the Basic Design Study Report.

Jakarta, 23 April, 2003

Akira OKUYAMA
Leader
Basic Design Study Team
Japan International Cooperation Agency

Suparka, S.
Vice Chairman
Indonesian Institute of Sciences
The Republic of Indonesia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to establish research and development facilities and equipment for Botany and Microbiology Division of the Research Center for Biology (hereinafter referred to as "RCB"), Indonesian Institute of Sciences (hereinafter referred to as "LIPI") with enlighten function for environmental education related with biology at Cibinong Science Center (hereinafter referred to as "CSC") in order to support the conservation of the biodiversity in Indonesia.

2. Project site

The site of the Project is located at CSC, Cibinong, West Java, the Republic of Indonesia.

3. Responsible and Implementing Agency

The Responsible and Implementing Agency is LIPI. The organization chart of LIPI and RCB is shown in Annex-1.

4. Items requested by the Government of Indonesia

After discussions with the Team, the followings were finally requested for RCB, LIPI by the Indonesian side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

- Research and development facilities and equipment for RCB, LIPI with enlighten function for environmental education related with the conservation of the biodiversity

5. Japan's Grant Aid Scheme

5-1. The Indonesian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Indonesian as explained by the Team and described in Annex-2.

5-2. The Indonesian side will take necessary measures, as described in Annex-3, for smooth implementation of the Project as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

6-1. The consultants will proceed to further studies in Indonesia until 12 May, 2003.

6-2. JICA will prepare the draft final report in English and dispatch a mission in order to explain its contents around July, 2003.

6-3. In case that the contents of the report is accepted in principle by the Government of Indonesia, JICA will complete the final report and send it to the Government of Indonesia approximately by the end of October, 2003.

7. Other relevant issues

7-1. The Indonesian side explained that Cibinong was chosen as the Project site due to the ministerial decree for establishing CSC, in which RCB, LIPI is the core institution. Based on this decree LIPI made an overall master plan of CSC. The main purpose of CSC is to undertake integrated research and development through interdisciplinary activities of scientist within Botany, Microbiology and Zoology Divisions in RCB, so that an optimal research and development results will be achieved. The Team explained that consensus among the researchers and staff of RCB was necessary for the Project site selection between Bogor and Cibinong. The Indonesian side understood it and promised that proper process for making consensus will be taken and reported to Japanese side through JICA Indonesia Office.

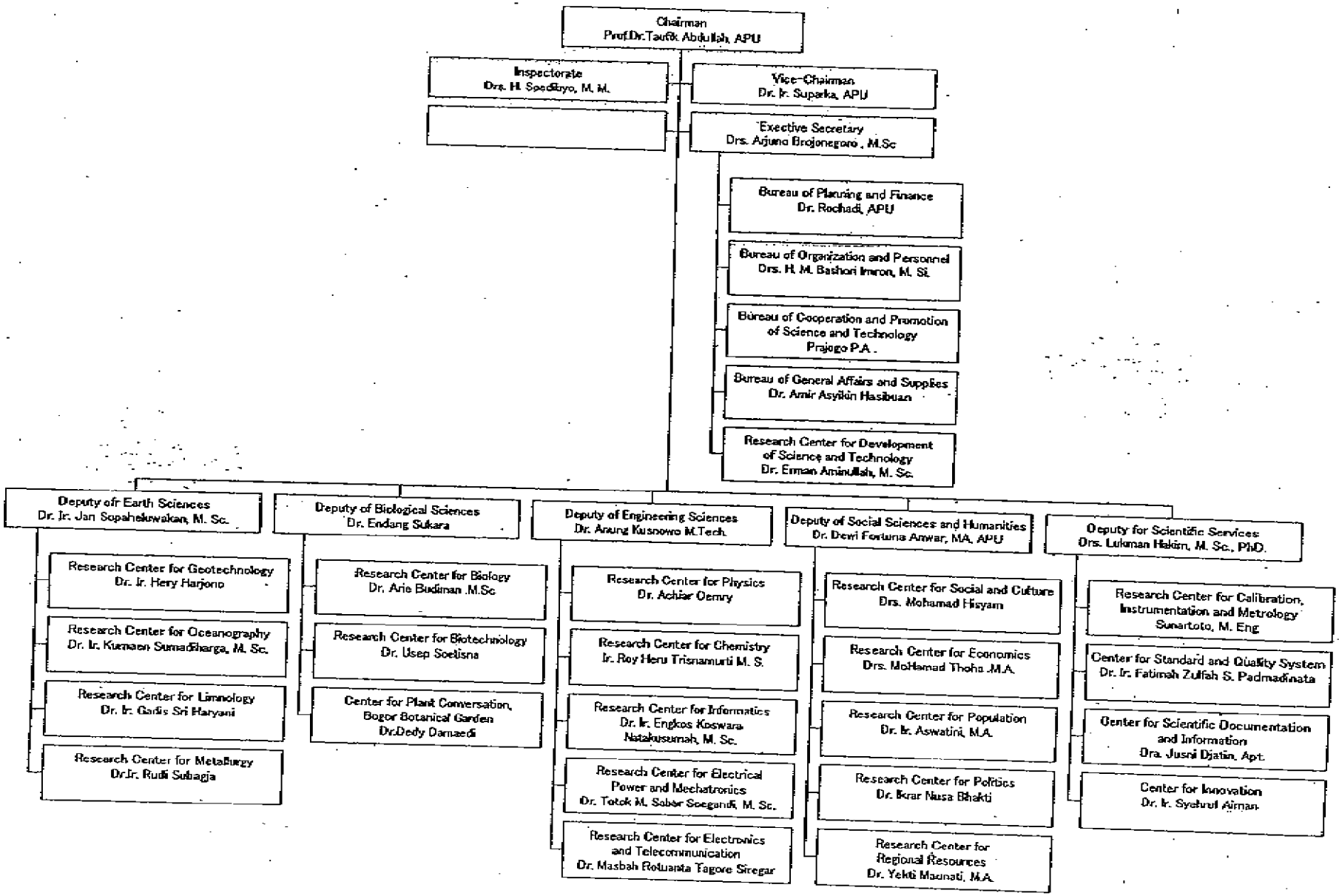
7-2. The Indonesian side guaranteed that the land-users of the project site will leave by the end of September, 2003 under the proper process.

7-3. The Indonesian side promised that LIPI will transfers all specimens in Bogor Herbarium to the newly established Facilities at CSC in two years from the completion of construction for the Project, as shown in Annex-4 and that the plan for remounting and transfer of the specimens will be reported to world-wide research institutes/academics such as Tokyo University, Air University in Japan, *Nationaal Herbarium Netherlands*, Royal Herbarium, Kew and so on. And both side agreed that a working group in RCB will be established to examine and evaluate the proper remounting and transfer of the specimens in cooperative with Japanese side.

7-4. The Indonesian side explained that the enlighten activities of environmental education for Indonesian people such as biodiversity conservation and sustainable use of biodiversity were one of the important objective in the Project, such as in Annex-5. The Team understood it and explained that the components and concepts for the environmental education will be examined after further study and the results will be reported to the Indonesian side at the Explanation of Draft Final Report Study.

7-5. The Indonesian side promised to allocate the necessary budget and personnel for implementation of the Project and for operation/maintenance of the facilities and equipment.

LIPI (Indonesian Institute of Sciences; Lembaga Ilmu Pengetahuan Indonesia)



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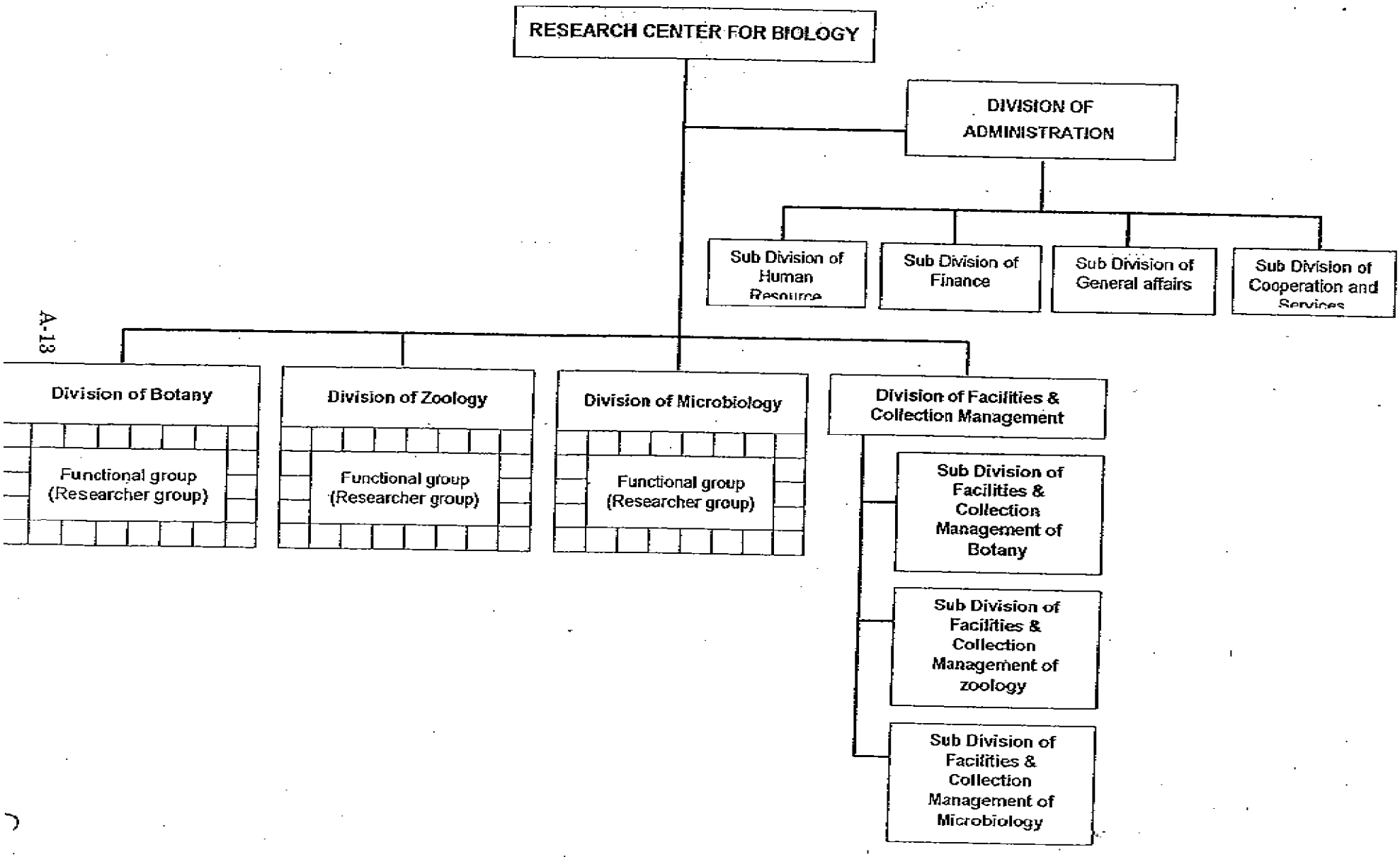
Annex-1

ORGANIZATION STRUCTURE
RESEARCH CENTER FOR BIOLOGY



JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Team to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Programme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;

b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;

c) confirmation of items agreed on by both parties concerning the basic concept of the Project;

d) preparation of a basic design of the Project; and

e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country, in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability

of Japanese taxpayers.

6) Undertakings required to the Government of the recipient country

a) to secure a lot of land necessary for the construction of the Project and to clear the site;

b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site;

c) to ensure prompt unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;

d) to exempt Japanese nationals from customs duties, internal taxes and fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;

e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;

f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and

g) to bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

9) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations

incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lot	●	
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct the building	●	
7	To provide facilities for the distribution of electricity , water supply , drainage and other incidental facilities		
	1) Electricity		
	a) The distributing line to the site		●
	b) The drop wiring and internal wiring within the site	●	
	c) The main circuit breaker and transformer	●	
	2) Water Supply		
	a) The city water distribution main to the site		●
	b) The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a) The city drainage main(for storm sewer and others to the site)		●
	b) The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a) The city gas main to the site		●
	b) The gas supply system within the site	●	
	5) Telephone System		
	a)The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b) The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a) General furniture		●
	b) Project equipment	●	
8	To bear the following commissions to the Japanese foreign exchange banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
10	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contact such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of the their work		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
12	To maintain and use properly and effectively the facilities contracted and equipment provided under the Grant		●
13	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

DRAFT TIME TABLE FOR REMOUNTING SPECIMENS AND MOVING SPECIMENS

	2003												First												Second year												Third year												Forth year													
	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
Remounting specimens																																																															
Fern 1287 pg= 77220, 40 mounter, 5 months																																																														
Arau - Zing. 3999 pg = 239940 - Zing, Poac, Arec, Orch., Gymno. = 2655 pg = 159300, 40 mounter, 10 months																																																														
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Conif - Hypo 3512 pg - Dip. = 2990 pg, 179400, 50% x 179400 = 89700, 40 mounter																																																														
[illegible]																																																														
Poly - Raff. = 256 pg = 15350, 40 mounter																																																														
Ranun - Zygo = 4168 pg - Sapot. = 3982 pg = 238920, 50% x 238920= 119460, 40 mounter																																																													

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Remounting done at Cibinong after moving

	Fifth year												Sixth year												Seventh year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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Conif - Hypo 3512 pg - Dip. = 2990 pg, Podoc [illegible]																																				
[illegible]																																				
Ranun - Zygo = 4168 pg - Sapot. = 3982 pg = 238920 - 119460= 119460, 40 mounter																																				

Annex-4

DRAFT TIME TABLE FOR REMOUNTING SPECIMENS AND MOVING SPECIMENS

	2003	First year	Second year	Third year	Forth year	
	5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2
Planning for moving (20 person involved)						
Packing Fungi 22430 + 261 (T) Lichens 9220 + 59 (T) Hepaticae 15329 + 30 (T) Musci 14582 + 111 (T) Algae 2415 + 5 (T) Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Fern 1287 pg= 77.220 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Gymnos - Zing 239940 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Acanthaceae - Comb. 400680 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Conn. - Hypo 179400 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Hypo - Poly 352980 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Ploly - Raff 15350 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						
Packing Ranun - Zygo 238920 Freezing in Cibinong if freezer size 50 m2 c. 70.000 spec. Enter in collection room						

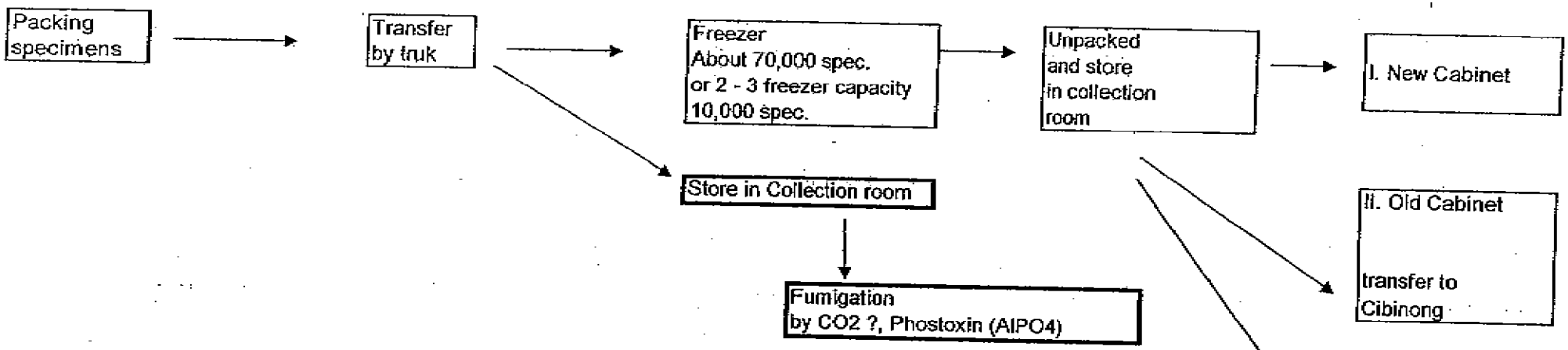
NUMBER OF REMOUNTING SPECIMENS PLANNED

Year	Total Original collection	GEF Project & after	Remounting planned	Unremounting
2003	77,220	0	77,220	0
2004	239,940	80,640	159,300	0
2004-2005	400,680	0	200,340	200,340
2006	210,720	31,320	89,700	89,700
2006-2007	376,680	23,700	176,490	176,490
2007	15,350	0	15,350	0
2007	250,080	11,160	119,460	119,460
Return from loan, fragile specimen, gift, new specimen	118,180	118,180		
Total	1,688,850	265,000	837,860	585,990

Loan + Gift about 111,150

Need to be remounting after moving to Cibinong (3 Years if 40 mounter) for 585,990 specimens

PLANNI/ FOR TRANSFERING SPECIMEN TO CIBINOI



ex Fungi: packing 1 cabinet (48 pigeon hall or 55 pigeon hall) if it is packing by 2 packers need 2 days
Fungi (Cryptogamae)cabinet : 41 new cabinet + 21 old cabinet = 62 cabinet
62 cabinet packing for 124 days if 2 packers or 13 days for 10 packers

A-23

Lembaga Ilmu Pengetahuan Indonesia
(The Indonesian Institute of Sciences)
PUSAT PENELITIAN DAN PENGEMBANGAN BIOLOGI
(RESEARCH AND DEVELOPMENT CENTRE FOR BIOLOGY)
Jl. Ir. H. Juanda 18, Bogor 16002, Indonesia P.O. Box 208 BOGOR
Telp. (0251) 321040 - 321041, Fax. 325854, Alamat kawat (cable address) "BIOL"

Annex-5

ENVIRONMENT EDUCATION

Linkage to national priorities, action plans and programs

- The need for public education and awareness are stressed in the Indonesian Biodiversity Action Plan (1993) and have recently been identified as critical elements in conservation by the World Bank Environment and Development report to Indonesia. The Propenas 2000, Indonesia's strategic plan, identifies forests and natural resources management as a priority area.

Rationale and objectives

- Indonesia is the world's most biologically diverse country. During the last two decades its remnant natural habitats, inside and outside protected areas, has come under a variety of unprecedented threats and have suffered severe and likely irreparable degradation. Some 18 million hectares of forest, mainly the richest and most valuable low land forests, were lost in 12 years from 1985 – 1997.
- The objective is to create a targeted flow of information to stimulate informed public and social debate concerning the critical and potentially terminal loss of biodiversity, especially in western and central Indonesia, that will influence political decissions on natural resource management policies in the regions.

Expected outcomes

- Develop sense of belonging amongst the community as the beneficiary and as inseparable part of the invironment.
- The raising of economic, social and ethical literacy and reasons for biodiversity conservation to the public up to the political level.
- A better-informed public able to express concerns on rapid loss of biodiversity to leaders.

4. Minutes of Discussions

4.2 The Second Basic Design Study

MINUTES OF DISCUSSIONS
ON
THE SECOND BASIC DESIGN STUDY
ON THE PROJECT FOR
SUPPORT OF FACILITIES FOR BIODIVERSITY COLLECTION DEVELOPMENT
IN
THE REPUBLIC OF INDONESIA

In April 2003, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Support of Facilities for Biodiversity Collection Development (hereinafter referred to as "the Project"). Based on the results of former Basic Design Study, the Government of Japan and JICA decided to conduct a Second Basic Design Study on the Project in order to conduct further study.

JICA has sent to Indonesia the Second Basic Design Study Team (hereinafter referred to as "the Team"), which has been headed by Mr. Yuji OTAKE, Deputy Resident Representative, JICA Indonesia Office and has been scheduled to stay in the country from 3 to 6 August, 2003.

The Team held discussions with the officials concerned of the Government of Indonesia and conducted a field survey at the study area.

In the course of discussions and field survey, both parties have confirmed the main items described on the attached sheets.

The Team will proceed to further works and prepare the Basic Design Study Report.

Jakarta, 6 August, 2003

Mr. Yuji OTAKE
Leader
Second Basic Design Study Team
Japan International Cooperation Agency

Dr. Suparka, S.
Vice Chairman
Indonesian Institute of Sciences
The Republic of Indonesia

Prof. Dr. Kunio IWATSUKI
Technical Adviser
Second Basic Design Study Team
The University of the Air

ATTACHMENT

1. Objective of the Project

The objective of the Project is to establish research and development facilities and equipments for Botany and Microbiology Division of the Research Center for Biology (hereinafter referred to as "RCB"), Indonesian Institute of Sciences (hereinafter referred to as "LIPI") with enlighten function for environmental education related with biology at Cibinong Science Center (hereinafter referred to as "CSC") in order to support the sustainability of the biodiversity in Indonesia.

2. Project site

The site of the Project is located at CSC, Cibinong, West Java, the Republic of Indonesia.

3. Responsible and Implementing Agency

The Responsible and Implementing Agency is LIPI.

4. Items requested by the Government of Indonesia

After discussions with the Team, the followings were finally requested for RCB, LIPI by the Indonesian side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

- Research and development facilities and equipment for RCB, LIPI with enlighten function for environmental education related with the sustainable use of the biodiversity

5. Schedule of the Study

5-1. JICA will prepare the draft final report in English and dispatch a mission in order to explain its contents around October, 2003.

5-3. In case that the contents of the report is accepted in principle by the Government of Indonesia, JICA will complete the final report and send it to the Government of Indonesia approximately by the end of January, 2004.

6. Plan for Restoration and Transfer of the Botanical Specimens

6-1. The Indonesian side explained that LIPI had sent the draft plan for restoration and transfer of the botanical specimens to the University of Tokyo, Nationaal Herbarium Netherlands, Royal Botanic Gardens, Kew and Missouri Botanical Garden. As the result, LIPI obtained basic consent from their scientists.

6-2. The Indonesian side explained that, as the result of review about the draft plan from the perspective of proper running cost and the speed, the fumigation with chemicals authorized to use by the Ministry of Health was more preferable than freezing. The

Indonesian side promised to send the modified draft plan, as shown in Annex-1, to world-wide research institutes and to receive any advices from those institutes to review the plan further.

6-3. Prof. IWATSUKI, technical adviser of the Team, basically appreciated the appropriateness of the protocol of the modified draft plan and would survey further and evaluate the appropriateness of the pest process in Tokyo.

6-4. Both sides agreed that the Indonesian side would reevaluate and set up the updated plan for restoration and transfer of the specimens including schedule and the budget / personnel allocation plan. And the Indonesian side promised to report the results to JICA Indonesia Office by early September, 2003.

7. Storage Method of Botanical Specimens

7-1. Herbarium (Dried Plant) Specimens

The Indonesian side explained that it was more preferable that the herbarium specimens to be stored in an air-conditioned room after fumigation process, rather than in a natural ventilation room using mercury chloride from the perspective of long-term storage and risk for human health. Prof. IWATSUKI appreciated it.

7-2. Botanical Spirit Specimens

The Indonesian side explained that it was more preferable that the botanical spirit specimens to be stored in air-conditioned rooms than in natural ventilation room from the perspective of long-term storage recommended by Nationaal Herbarium Netherlands, Royal Botanic Gardens, KEW. Prof. IWATSUKI agreed it academically.

7-3. Running Cost

The Team explained that the air-conditioned storage method required high running cost and stated that the annual running cost would be estimated in detail in Tokyo. The result would be reported to the Indonesian side at the Explanation of Draft Final Report Study around October, 2003. The Indonesian side stated that the budget allocation plan for the running cost would be reported to the Team at the Explanation of Draft Final Report Study.

8. Site Selection

8-1. The Indonesian side explained that Cibinong was chosen as the Project site due to the ministerial decree for establishing CSC, in which RCB, LIPI is the core institution. Based on this decree LIPI made an overall master plan of CSC. The main purpose of CSC is to undertake integrated research and development through interdisciplinary activities of scientist within Botany, Microbiology and Zoology Divisions in RCB, so that an optimal research and development results would be achieved. Prof. IWATSUKI agreed the concept and stated that the concentration of botany, microbiology and zoology research institutes in one location would be useful because the organisms of each research target were closely tied ecologically.

8-2. The Indonesian side reported that the explanation meeting in small group had been conducted in LIPI to make consensus for the Project site and facility selection in Cibinong. And LIPI had obtained the basic understandings of all researchers and staffs of RCB. The Team emphasized the importance of consensus based on the proper process. Both side agreed that the Indonesian side would inform further the researchers and staffs that the purposes of the concentration of the institutes is to promote the interdisciplinary study and also the enlighten activities of environmental education for Indonesian people.

Annex - 1.

PROTOCOL FOR MOVING BOTANY DIVISION FROM BOGOR TO CIBINONG

Background

1. A modern and international standard of herbarium building will be established in Cibinong, sponsored by the JICA to meet the government planning in developing a research center, which was planned since early 1960.
2. The existing herbarium building that is located in Bogor is now unsuitable to maintain the international standard collection of herbarium specimens in a good condition, although this building historically has a connection to Bogor Botanical Gardens. This building is suitable to store the collection using mercury chloride as preservative.
3. Beside the existing herbarium building which has not meet the international standard, the existing laboratory equipment which is located at Treub Laboratory (inside the Botanical Gardens) is now unsuitable to do a modern research activities. Because of that a modern laboratory and its equipment is necessary to be built in the new building.
4. For moving the whole herbarium specimens, laboratory equipments, books, office and administration equipment and other supplies is not simple, a protocol to organize the moving of the specimens, laboratories equipment, library, office and administration equipment, storage, photography and drawing equipment and personal belonging is required.
5. With this protocol precautions were taken to guarantee that the specimens are in a good condition during transportation and will have a better storage condition at the new building.
6. A team to prepare the moving activities will plan the budget and set the guidelines. While during the actual moving activity, another team is established which consist of a coordinator, a secretary and 8 members.

Aim of the protocol

1. The protocol will be used as a guidance for moving the specimens, laboratory equipment, administration office equipment and document, personal belonging
2. The preparation of the specimen is needed before moving, during moving and after arrived at the new building in Cibinong as written in this guidance

Moving stages

There are seven main parts in the Botany Division that will be moved to the new building:

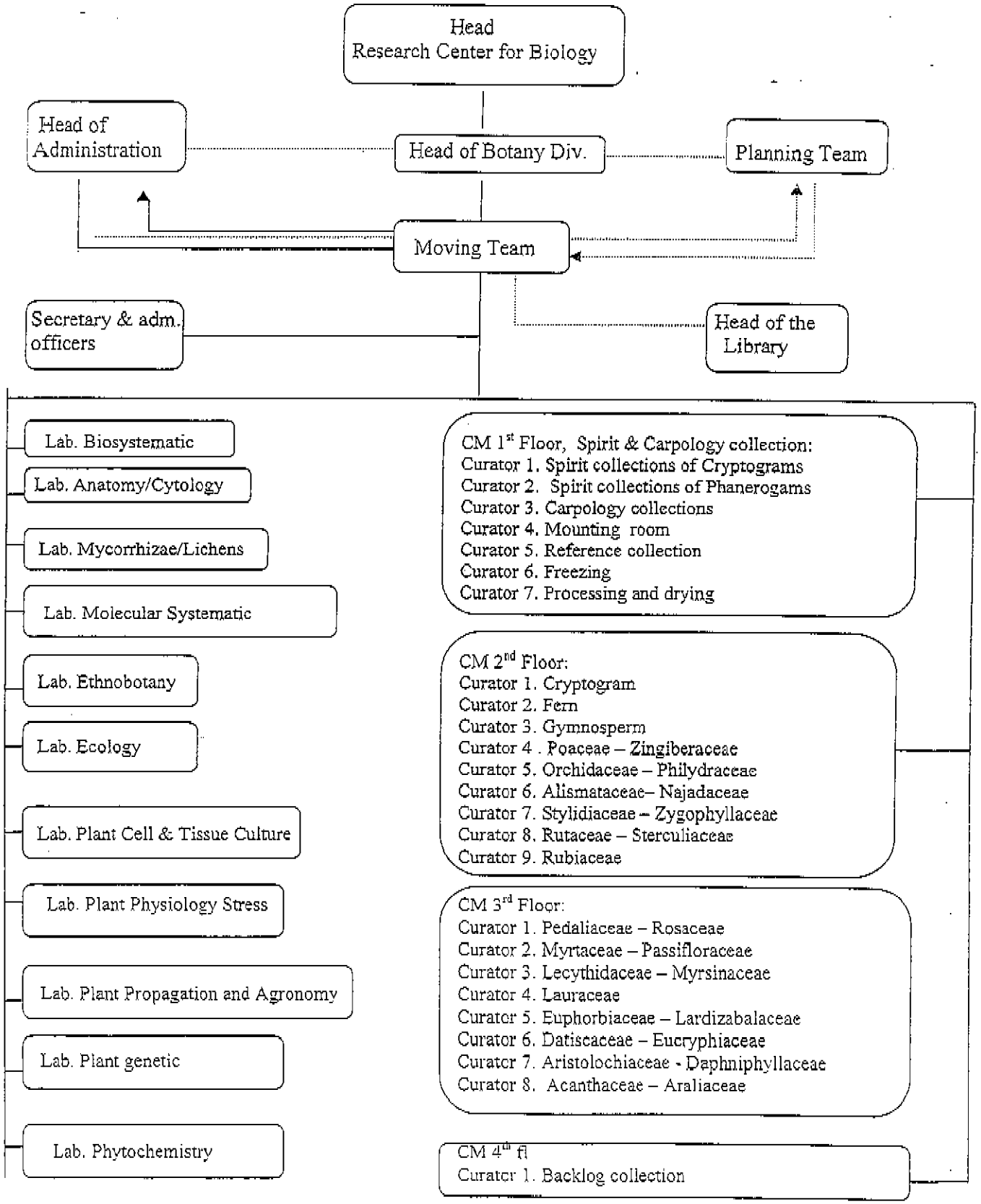
1. Herbarium collections
2. Mounting
3. Laboratories
4. Personal belonging
5. Library
6. Photographs and drawing collections
7. Database
8. Administration office
9. Storage rooms

Person responsible to those groups:

1. The Collection Manager and the Curators will have a full responsibility on the herbarium specimen collections during moving. All Collection Managers with the help of the Curators are responsible on packing, freezing and unpacked specimen into the cabinet.
2. Head of the laboratory will be responsible on his/her equipments of their laboratory. He/she should responsible on packing, transportation to a new building and unpacking at the new laboratory.
3. Head of the library will be responsible to all library collections, library equipments and additional collections at the storage rooms. She/he will responsible on packing, transporting to a new building and unpacking and arranging all collections at the new building.
4. The administration staff will be responsible on selecting, inventarisation, coding, packaging, transporting, unpacking all office facilities required at the new building.
5. Head of the storage room will has a responsibility on the content of the storage rooms including mounting paper, bottles, chemicals, field instruments etc.). He/she will also responsible on packing, transporting, up to unpacking activities at the new building.
6. The artists are responsible to the photograph, drawing collections and the drawing equipments during packing, transporting and unpacking into the cabinet at the building.
7. Personal belongings should be packed by the owners and for moving will be guided by the responsible person on transportation.

40

Flowchart of organization structure and moving activities



MOVING TEAM

Items	Rehabilitation	Packing	Transport	Freezing	Unpack & Rearranged
Date	Aug '03 – Dec '06	Jan'06 – Dec. '07	Jan'06–'Feb'08	Jan '06 – Feb '08	Jan '06 - finished
Specimen collections	R.P. Collection Manager 1. Research staff 2. Technicians 3. Mounters 4. Technical assistant	R.P. CM I, II, III, IV 1. Research staff 2. Technicians 3. Mounters 4. Technical assistant		R.P. CM I, II, III, IV 1. Research staff 2. Technicians 3. Mounters 4. Technical assistant	R.P. CM I, II, III, IV 1. Research staff 2. Technicians 3. Mounters 4.Technical assistant
Laboratory Equipments		R.P. Head of laboratory	R.P. Head of laboratory		R.P. Head of Laboratory
Books, equipments & other publications		R.P. Head of the Library	R.P. Head of the Library		R.P. Head of the Library
Office equipments		R.P. Administration staff	R.P. Administration staff		
Storage rooms		R.P. Head of storage room	R.P. Head of storage room		
Photographs & Drawings		R.P. artists	R.P. artists		R.P. Artists
Personal belonging		R.P. owners	R.P. owners		R.P. owners

1. HERBARIUM COLLECTION

In general, herbarium collection is divided into 6 categories:

1. Dry specimens
2. Type specimens
3. Carpology and xylarium collection
4. Wet specimens
5. Voucher spesimen
6. Backlog specimens
7. Loan specimens
8. Reference collection

Each catagories has their own specifications and problems before specimen is moved to Cibinong, therefore each collection should be planned carefully in detail.

1. Dry specimens

On table 1 it can be seen that the dry specimen kept in the Herbarium consist of:

a. Cryptogamae which divided into:
   i. Fungi
   ii. Lichens
   iii. Hepaticae
   iv. Musci
   v. Algae
b. Fern
c. Gymnospermae
d. Monocotyledonae
e. Dicotyledonae

Table 1. The number of dry specimen kept in the Herbarium Bogoriense

Exisiting locality	Items	No. Cabinet	No. Pigeon hole	No. specimen
Fl 2	Fungi (new cabinet 48ph)	41	1,968	22,430
	Lichens (old 55 ph)	4	220	9,220
	Hepaticae (old 55 ph)	5	275	15,329
	Musci (old 55 ph)	8	440	14,582
	Algae (old 55 ph)	3	165	2,415
Total	**61 cab (new and old) = 64 new cabinet**	61	3,068	63,976
Fl 2	Fern	100	2,400	96,000
Fl 2	Gymnospermae	20	480	19,200
Fl 2	Monocotyledonae	294	7,056	282,240
Fl 2	Dicotyledonae Fl. II	258	6,192	247,680
Fl 3	Dicotyledonae Fl.III (342 New with 24 ph + 371 Old with Old 18 ph)	621	14,904	596,160
	Total	1,293	31,032	1,241,280
Abroad	On going loan			100,000
	Total	1,293	31,032	1,341,280

Based on the above table, that the total number of specimens is 1,341,200 sheet which is kept in the steel cabinet. Some of the specimen is still kept in the old steel cabinet such as Lichens, Hepaticae, Musci, Algae and some of Dicotyledonae collections. The lichens, Hepaticae, Musci and Algae need 23 new cabinet, whereas Dicotyledonae need ... new cabinet including the future addition collection. So the total of new cabinet needed to replace the old cabinet will be.....

Total volume of the dry specimens is shown on table 2.

Table 2. Total volume of dry specimens

Floor	Items	Old cabinet	New cabinet	Cabinet Volume (m3)	Specimen volume (m3)
II	Cyrptogamae				
	Fungi		39	41.73	31.12
	Lichens, Hepaticae, Musci, Algae	20		22.6	22.2
	Lichens, Hepaticae, Musci, Algae		2	2.14	1.6
	Fern		40	42.8	33.5
			40	42.8	33.5
	Fern & Gymnospermae		40	42.8	33.5
	Monotyledonae		42	44.94	33.5
			42	44.94	33.5
			42	44.94	33.5
			42	44.94	33.5
			42	44.94	33.5
			42	44.94	33.5
			42	44.94	33.5
	Dicotyledonae		40	42.8	31.9
			40	42.8	31.9
			30	32.1	23.94
			40	42.8	31.9
			40	42.8	31.9
			40	42.8	31.9
			28	29.96	22.35
Fl III	Dicotyledonae		29	31.83	23.1
			41	43.87	32.7
			40	42.8	28.8
			40	42.8	31.9
			40	42.8	31.9
			40	42.8	31.9
			40	42.8	31.9

			39	41.73	31.12
		31		35.03	22.32
			7	7.49	5.58
		31		35.03	22.32
		31		35.03	22.32
		30		33.9	21.6
		32		36.16	23.04
		32		36.16	23.04
		30		33.9	21.6
		30		33.9	21.6
		30		33.9	21.6
		30		33.9	21.6
		30		33.9	21.6
		28		31.64	20.16
		26		29.38	18.72
	Total	413	1027	1566.26	1121.33

So the total space need for the existing dry collection is 1,566.26 m3.

a. **Restoration**

Most of the dry specimens are too fragile for transportation; therefore it is necessary to restore the specimens before moving. Through this restoration activity, it is expected that the specimen which is in a bad condition will get better condition and can be moved to the new building. Also, the quality of the specimens are improved and equal to the international standard for the herbarium specimen collections. Each restoration activity will not similar, depend on the category of the dry specimens collections.

There are 3 categories of dry collections:

1. The specimens in a bad condition, restoration activity are urgently needed.
   Specimens that fall into this category are the dried specimens on damaged mounted paper due to age, acidity of the paper and also the mercury chloride
2. The specimens which need restoration in 5 years
   The dried specimens on good paper, but will get damage within 5 years or start to deteriorate.
3. The specimens which is in a good condition
   These specimens are stored in a good storage cabinet.

The restoration of the dry specimens which categorized in group 1 is urgently needed and should be done in Bogor before moving, whereas the group 2 can be done in Cibinong after moving to the new building and group 3 is not necessary to restore them.

i. Number of collection need to be remounted

Based on the number of specimen kept in the Herbarium Bogoriense and the degree of damage condition, there are some group of specimens is targeted to be restored.

Locality	Items	No. specimen	remounted during GEF - now	Need to be remounted	Remounting-plan (100% Fern, and Monocot, 30% of Dicot)
Fl 2	Fern	96,000	0	96,000	96,000
Fl 2	Gymnospermae	19,200			
			183,400	118,040	118,440
Fl 2	Monocotyledonae	282,240			
Fl 2	Dicotyledonae Fl. II	247,680	59,520	188,160	56,448
Fl 3	Dicotyledonae Fl.III (342 Nwith 24 ph + 371 Old with Old 18 ph)	596,160	22,080	574,080	172,224
	Total	1,241,280	265,000	976,680	442,712
	On going loan	100,000			
	Total	1,341,280	265,000	976,280	442,712

1. Fern

The number of collection is about 96.000 specimens, some of them have been remounted during 2001 – 2003. All specimens under this group should be remounted because most of the collection in a fragile condition. Because of that it is targeted that the specimen will be remounted in the early stage.

2. Gymospermae and Monocotyledonae

The total number of Gymnospermae and Monocotyledonae collection is about 301.440 specimens, and during GEF project till now 183,400 specimens have been remounted. So that 118,040 specimens has not been remounted. It is expected that the specimen of Monocotyledonae (except for Arecaceae, Zingiberaceae, Orchidaceae, Bamboo) should be remounted before moving to the new building, so the total specimen of Monocotyledoane will finished to be remounted.

3. Dicotyledonae.

The total number of Dicotyledonae collection is about 843,840 specimens, and during GEF project till now 81,600 specimens (Dipterocarpaceae, Lauraceae, Sapotaceae) have been remounted. So that 762,240 specimens has not been remounted. It is expected that the specimens of Dicotyledonae should be remounted 228,672 specimens before moving to the new building. Another 533,568 will be romounted after moving to Cibinong.

ii. Manpower to remount specimens

To meet the schedule of moving to the new building which is planned on the beginning of January 2006, it is necessary to have 40 mounter to remount the dry collections. This mounters should be hired from outside, because our technicians is not enough for doing this task. Because of the capacity of manpower to remount specimen is only about 400 sheet per month, then restoration of the herbarium specimens which categorized in group I should be started on August 2003. The schedule of remounting is as follows.

	2003		2004				2005			
	3	4	1	2	3	4	1	2	3	4
Fern 96,000 spec										
Monot 118,440 spec.										
Dicot Fl. 2 56,448 spec.										
Dicot Fl. 3 172,224										

b. Packing

There 4 categories of specimen moving:

1. Specimen Fungi, Lichens, Hepaticae, Musci, Algae
2. Specimen Fern and Gymnospermae
3. Specimen Monocotyledonae
4. Specimen Dicotyledonae

The method of packing depend on the varieties specimens.

Arrangement during packing

1. Specimen Fungi, Lichens, Hepaticae, Musci, Algae

Specimen under this category has been put in small cadboards without cover at every pigeon hole, because of that it is necessary to mark each cabinet with C1, C2, C3, C4 .... C61. Each small cardboard is also need to be marked by giving the same number as pigeon hole for example C1-1 for cabinet 1 pigeon hole 1 of cryptogamae collections, C1-2 for cabinet 1 pigeon hole 2 of cryptogamae collections.....etc.

2. Specimen Fern and Gymnospermae

Each cabinet will be marked as F1, F2.....F120. Each pigeon hole will be marked 1 – 24. So specimen from cabinet F1 and pigeon hole 1 will be marked as F1-1 and specimen from one pigeon hole should go to one cardboard. If the specimen only few and the cardboard is too big, the box will be filled with styrofoam until the specimen tied up and not loose.

3. Specimen Monocotyledonae

Each cabinet will be marked as M1, M2.....M294. Each pigeon hole will be marked 1 – 24. So specimen from cabinet M1 and pigeon hole 1 will be marked as M1-1 and specimen from one pigeon hole should go to one cardboard. If the specimen only few and the cardboard is too big, the box will be filled with styliform until the specimen tied up and not loose.

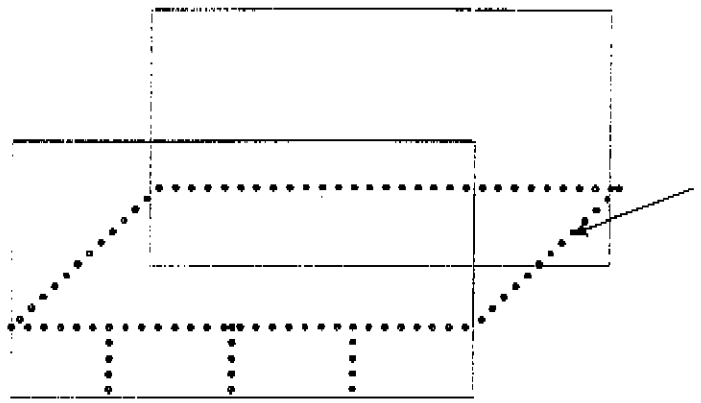
4. Specimen Dicotyledonae

Each cabinet will be marked as D1, D2.....D879. Each pigeon hole will be marked 1 – 24. So specimen from cabinet D1 and pigeon hole 1 will be marked as D1-1 and specimen from one pigeon hole should go to one cardboard. If the specimen only few and the cardboard is too big, the box will be filled with styliform until the specimen tied up and not loose.

How to pack

1. For specimens Cryptogamae which consists of Fungi, Lichens, Hepaticae, Musci, Algae. Every four small boxes should be wrapped together with buble plastic and placed in the big cardboard for moving.

Specimen will be packed in one cardboard size 50 (length) x 80 (width) x 50 cm (height) for 12 pigeon hole (12 small boxes), so specimen from one new cabinet will be put in 4 cardboards during moving. Furthermore, for old cabinet, 5 boxes should be needed to cover 55 pigeon hole. So for all cryptogamae cabinet the total number of boxes need is 274 cardboards. Between one layer to the next layer it is necessary to have cardboard with its stand to prevent the next layer press the layer below it. Each box should be coded by C1-1-12, C1-13-24, C1-25-36, C1-37-48, followed by C2-1-12 etc.



2. For Fern and Gymnospermae there are 120 cabinet (2880 pigeon hole). Each spesimen which have been remounted will be put in the plastic ziplock according to the alphabetical orders of the family, genera, species and locality (big islands). The arrangement of the family remain the same and followed Holttum classification. So for Fern and Gymnospermae need 2880 cardboards.
3. Monocotyledonae. There are 294 cabinet (7056 pigeon hole). Each specimen which have been remounted will be put in the plastic ziplock according to the alphabetical orders of the family, genera, species and locality (big islands). Poaceae will divided into two subfamily Bambusoideae and other Poaceae family. Bambusoideae will be placed in the beginning of the Poaceae family and arrangement will be follow the general regulation (alphabetical orders of genera, species, and locality). Other Poaceae family will be arranged according to the alphabetical orders of the family, genera, species and locality. Total number of cardboards need is 7056 cardboards

4. Dicotyledonae. There are 879 cabinet (21,096 pigeon hole). Each specimen which have been remounted will be put in the plastic ziplock according to the alphabetical orders of the family, genera, species and locality. Whereas the specimen have not been remounted will be put in the separated plastic ziplock and arrange based on alphabetical orders. Total number of cardboards need is 21,096 cardboards.

So total cardboards need for Fern, Gymnospermae, Monocotyledonae, Dicotyledonae is 31032, size 380 L x 500 W x 175 H.

c. **Transportation**

There are 4 stages of transporting the specimens.

1. Specimen Fungi, Lichens, Hepaticae, Musci, Algae
2. Specimen Fern and Gymnospermae
3. Specimen Monocotyledonae
4. Specimen Dicotyledonae

Specimen will be transported based on the schedule of moving. The schedule will be designed according to the capacity of packing, transportation and unpacking and rearrangement. After packing is completing, specimen will be transported according to the stages. Each stages should follow the number of packing for example stage 1 start from pack C1 – C61 for Cryptogamae. Before the specimen on stage 1 is started to be transported to new building, a new cabinet (23 new cabinet) will be installed in new building then the specimen can be transported at least for 23 cabinet (1104 pigeon hole). After specimen from 23 cabinet is moved, then the cabinet from the old building should be moved. The cabinet from the old building should be cleaned by *permethrin* based chemical which call *constrain*. After the first specimen transferred and the cabinet is transferred, the second specimen will be moved, and then the other cabinet moved and follows by the specimens until finished.

When the specimen in stage 1 finish, specimen at stage 2 can begin. Before the specimen at stage 2 is moved, it is necessary to installed 321 new cabinet to replace the old cabinet of dicotyledonae and new specimens for the future 10 years. The cabinet in the old building will be transferred to new building and cleaning with the chemical is necessarily to be done. When stage 2 finish, spesimen stage 3 can begin etc.

Transportation of the specimens should be done in a container truck to prevent suddenly rain come or other environment factors which can give a problem to the specimens.

After all specimens is moved, specimens will be fumigated by *magtoxin 56PB* Which take faster than if the specimen will be freezed

d. **Unpacking and rearrangment**

After specimens finished to be freezed, specimen will be bring to the collection room and unpack the specimen in the collection room. Each specimen should be unpacked and rearranged according to the alphabetical orders of family, genera, species and locality as shown on the label on the boxes. Rearrangement should be done carefully and followed the coding of each box. The arrangement will be as follows.

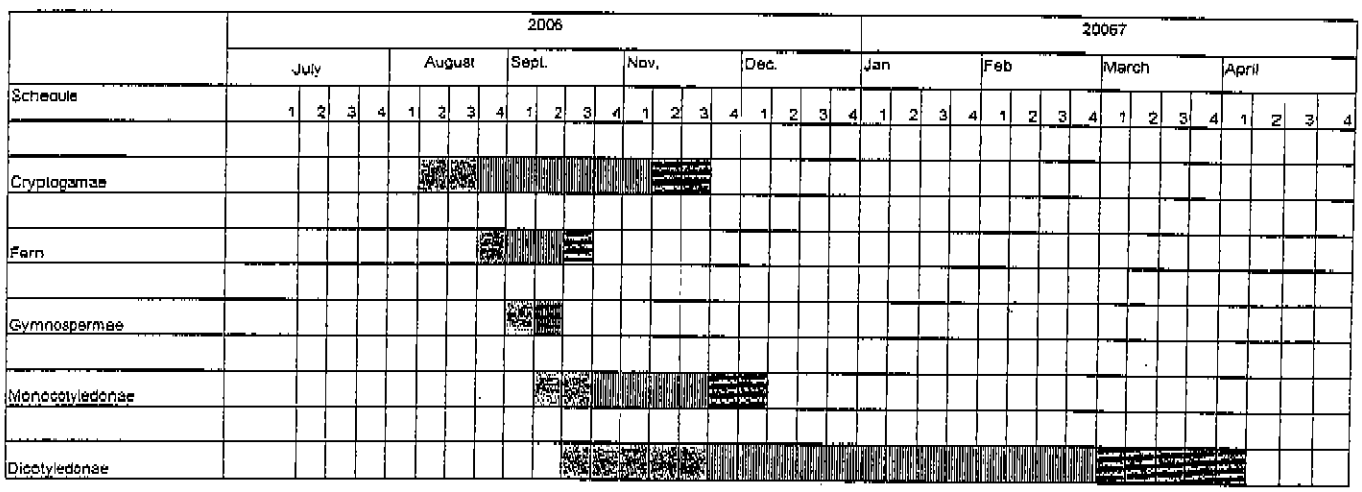
Cryptogamae: Fungi
Lichens
Hepaticae
Musci

Algae
Fern
Gymnospermae
Monocotyledonae
Dicotyledonae

e. **Fumigation**

Preservation of the specimen herbarium using freezing method will need more time for the whole specimens than fumigation, so the fumigation will be done after the specimens is completed moved. The chemical used for fumigation is *magtoxin 56PB*. The idea to do fumigation is firstly to prevent insect come and attack the specimens, secondly to check whether the collection room can be used for fumigation in the future. For doing this we need preparation for the specimen to get ready to fumigate. Each specimen should be opened from the plastic zip lock.

f. **Schedule for dry specimens**



Notes:

Packing

tranfferring

unpacking and rearrangment

2. **Type specimens**

The type collections kept in the special room of the hebarium building and arranged according to the alphabetical orders of the family, genera and species. Some specimen has been placed based on their basionym or the first author who give a name of this species. The arrangement of this type specimen have not finished. Therefore the arrangement follow alphabetical orders of the family, genera and species.

The total number of type specimen cabinet is 50 cabinet (=1200 pigeon hole, volume 39.90 m3) which consists of Cryptogamae, Fern, Gymnospermae, Monotyledonae and Dicotyledonae. Total cabinet volume is 53.50 m3.

The arrangement of the type specimens at the moment depend on alphabetical orders of the family, genera and species. Before moving to the new building, the arrangement should followed dry specimens. Because of that it is necessary to make rearrangement according to the class of the specimens from Cryptogamae, Fern, Gymnospermae, Monocotyledonae, Dicotyledonae.

Packing

Specimen has been kept in the zip lock and then it is packed in cardboards size 380 L x 500 W x 175 H. The total cardboard need is 1200.

Transportation

When specimen is finished to be packed, specimens will be transferred to the new building by truck container or truck box.

Unpacking and rearrangment

After the specimen arrived in the new building, specimens will be unpacked and rearranged in the new building. Before it can be rearranged, the old cabinet have to be moved and cleaned by *permethrin* based chemical which call *constrain*. When the cabinet ready, specimen will be rearranged from Cryptogamae, Fern, Gymnospermae, Monocotyledonae, Dicotyledonae.

Fumigation

If the specimen is separated from the main collection in one room, after the specimen rearranged, fumigation can be done for the type specimens by using *magtoxin 56PB*.

3. Carpology, xylarium, seed, fosil

On the table 1 it can be seen that the carpology, xylarium, seed and fosil specimens kept in the Herbarium Bogoriense.

Table 1. Carpology, xylarium, seed and fosil specimen kept at the Herbarium Bogoriense

Items	No. Specimen	No. cabinet	No. drawer	Cabinet size	Volume
Capological collections	6,779	14	252	300Wx83Dx127H	44.27
Xylarium	1,030	6	36	120Wx85Dx180H	11
Seed		1		106Wx52Dx108H	0.6
Fossil					
Fungi	10	1		300Wx150Sz115H	5.2
Total	7,819	22	288		611.07

The carpology collections is kept in the short cabinet with drawers originally, and in the new building it is proposed that this collection should have the same size cabinet with dry specimens. Because of that 29 cabinet will be procured by the project to accommodate this carpological collection.

Rearrangement of the carpology collection

The carpology and xylarium collection has been arranged based on the alphabetical orders of the family, genera and species. However, the dry specimens is arranged according to the kingdom and class and then at each class is arranged according to the alphabetical orders of the family, genera and species. Because of that it is necessary to rearrange the carpology and xylarium collection like the dry specimens. This rearrangement will be done before moving to new building.

Fossil specimens need to be relabeled, because of that the new label should be made before moving to new building.

Packing

1. Each drawer of carpological and xylarium collections will be put into a big plastic bag then pack into a cardboard and filled with chips styrofoarm to prevent the specimens moving. Size of cardboard is 48 x 36 x 24 cm and for this specimens 288 cardboards are needed.

2. For fossil collection, each specimen should wrap by newspaper and then put into a plastic bag then tied up by using a cello-tape. Then all fossil collection will be put in a big plastic bag and packed in a cardboard size 48 x 36 x 24 cm to prevent the specimen moving, chips styrofoam will be used.

3. The seed collections are kept in each glass tube which are arranged according to the alphabetical orders of the family and genera and species. To prevent the glass tube broken, it is necessary to wrap each glass tube with newspaper and mark according to the label. After the tube is wrapped, it is placed back in the tray. Then each tray should be put in a plastic bag and arrange in the cardboard, filled the cardboard with chips styrofoam.

Encoding

Each box will be marked according to the cabinet, drawer and type of specimen for example L. I.25. M means that cabinet 1 drawer no 25 Monocotyledonae, D for Dicotyledonae, F for fern, G for Gymnospermae, X for xylarium, Fo for fossil and S for seed.

Transportation

Specimen will be transferred to Cibinong in the new building using container truck or box truck to prevent get rain if it is rain.

Unpacking and rearranged

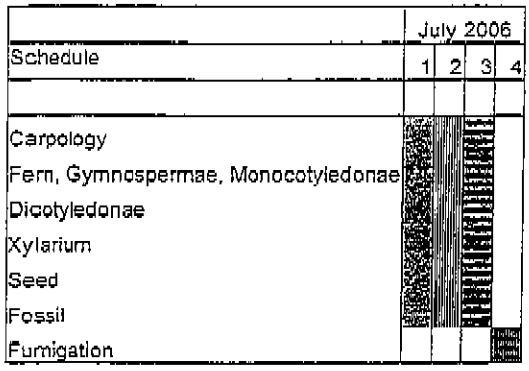
New cabinet for carpology, xylarium collections should be installed before the specimens is transferred.

After the specimen is transferred, specimen will be unpacked and rearranged in the cabinet accordingly based on the alphabetical orders of the class, family, genera and species.

Fumigation

After all specimens is transferred to the new building, specimens will be fumigated at the same time. When the carpological room is separated and the room has a good isolation system, fumigation for carpological collection can be done after unpacking and rearrangement finished.

Schedule



4. Wet specimens

The wet specimens or spirit collection in the Herbarium Bogoriense is one of the biggest spirit collection in the world, because of that it is necessary to maintain this collection especially due to many flower and fruit kept here. The spirit collections is arranged according to the alphabetical orders of the family, genera and species. The spirit collections will be rearranged follow the dry specimens arrangement. Because of that it is necessary to rearrange the collections before moving to the new building. This work will be done before moving.

The total number of spirit collections is 46,340 specimens, and kept in 5 different size of cabinet as shown on table 1.

No of specimens	Cabinet size	No of cabinet	Total volume m3
49,614	200 W x 30 D x 180 H	16	17.28
	150 W x 40 D x 220 H	98	129.36
	160 W x 50 D x 130 H	1	1.04
	130 W x 63 D x 120 H	1	0.98
	255 W x 63 D x 200 H	1	3.2
	On the table		8.7
Total		117	160.56

Rebottle

The spirit collection need to be rebottled because many of the bottle not in a good condition for moving. Because of that it is necessary to rebottle the specimen using screw cap so the cap will not open during moving and also the alcohol will not evaporate very soon. The number of spirit collection need to be rebottled as shown on table 2.

Table 3. A list of rebottling spirit collection

Items	Number of specimens
Existing spirit collection	49,614
Rebottled during GEF	8,194
Specimen need to rebottling	41,420
Number of required bottle	41,420
Future collection in 10 years	2,000
Total number of required bottle	43,420

Rearrangement

Spirit collection will be arranged according to the alphabetical orders like dry specimens (Cryptogamae, Fern, Gymnospermae, Monocotyledonae, Dicotyledonae). After the spirit collection is divided into several classes, each class should be arranged according to the alphabetical orders of the family, genera and species.

Packing

The spirit collection should be packed carefully because all spirit collections are kept in the bottle. Packing should be done by wood boxes with the size depending on the bottle size.

Each section should be packed in wood boxes with code such as for Cryptogamae (Fungi, Hepaticae, Lichens, Musci, Algae): CF – 1 ..... for fungi collection box 1, CH – 1 for Hepaticae collection box 1, CL – 1 for Lichens collection box 1, CM – 1 for Musci collection box 1, CA – 1 for Algae collection box 1.

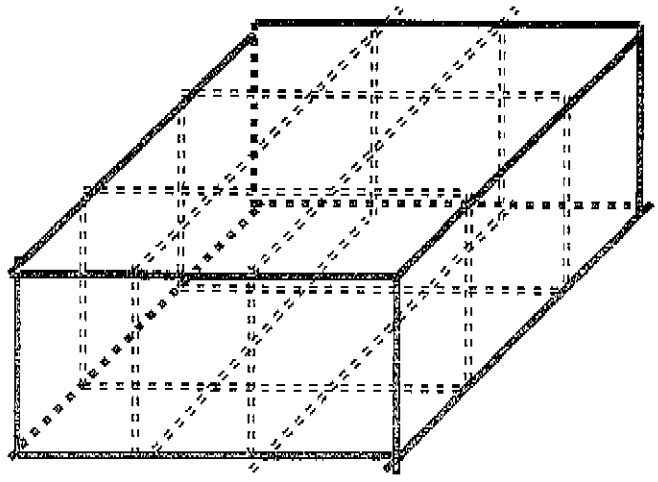
For Fern collection will be coded as F – 1, for fern collection box 1 etc.

For Gymnospermae collection will be coded as G – 1, for Gymnospermae collection box 1 etc.

For Monocotyledonae collection will be coded as M – 1 for Monocotyledonae

For Dicotyledonae collection will be coded as D – 1 for Dicotyledonae.

To prevent the specimen bottle broken due to shaking during transporting, it is suggested that each bottle should be have temporary divider made of cardboard (shown on the figure).



Transporting

The spirit collection is going to be transferred when packing is finished. All specimens will be transferred in the same time by truck container or truck boxes.

Unpacking and Rearrangement

When the spirit collections has arrived in the new building, the boxes will be unpacked and then the arrangement of the specimen can be started. The arrangement will be done as follows:

Cryptogamae : Fungi
Hepaticae
Lichens
Musci
Algae
Fern
Gymnospermae
Monocotyledonae
Dicotyledonae

Schedule for rebottling and moving

Items	2004											
	1	2	3	4	5	6	7	8	9	10	11	12
Rebottling												
Rearrangement												
Packing												
Transporting												
Unpacking and Rearrangement												

5. Voucher spesimen

Voucher specimens devided into two part i.e. ethnobotany voucher specimens and ecology voucher specimens. The ethnobotany voucher specimens will be kept in the ethnobotany voucher room, whereas the ecological voucher specimens will be kept in ecological voucher room.

It is estimated that the number of voucher specimens as shown on table 1.

Voucher specimens	No. of existing voucher	Future new voucher	No. of required cabinet
Ethnobotany	15,000	2,000	16
Ecology	15,000	2,000	16

Items	No. of boxes	Dimensions	Volume	
Ecology voucher (Ismail room)	6	60 x 60 x 60	1.3	

Packing

The voucher specimens is kept in the cardboard at the moment or in the black tin. Before moving all specimens should be rearranged according to the locality where the specimen was collected. Old voucher specimens (5 years after published) should be left and it is not necessary to be brought to the new building. Each voucher specimen should be coded the same as the locality of voucher.

Transportation

When packing is finished all voucher specimens will be transferred in the same time using truck container or truck boxes.

Unpacking and rearrangement

After specimens arrived in the new building, the voucher specimens will be unpacked and rearranged in the specimen cabinet. The arrangement of the specimens in the cabinet is based on the locality of the voucher when it was collected. The voucher specimens will not be mounted.

Schedule of voucher

Type of voucher	2006											2007											
	1	2	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Ethnobotany voucher																							
Ecology voucher																							
Fumigation																							

6. Backlog specimens

Backlog specimens is specimens which was collected either by staffs or by herbarium Bogoriense visitors without a specimens label and only tag label. This specimens was arranged according to the collector' names. Because of that each collector should fill the specimens label as well as the identification of the specimens. When the label and identification of the specimens have been completed, the specimen should be mounted and distribution of the specimens for other herbaria can be done.

Before moving to the new building, it is necessary to check all the backlog specimens. When the collectors has died or moved (can not be traced) and the collector' books are not available, these specimens should not be brought to the new building. If the backlog specimens are belongs to the staffs, it is necessary to ask staff to fill in the specimens label and distributed the specimens to other herbaria, so the unmounted specimens which will be brought to the new building will decreasing. If the backlog specimens belong to the visitor, the visitor should be contacted and ask them to fill in the specimen label. This information should be done before the moving schedule arrive.

Specimens number

The backlog specimens consists of xxx black tin boxes which has volume 6.24 m3

Items	No. of Boxes	Dimensions	volume	
Deden	6			

Packing

All backlog specimens should be packed in the cardboard and coded by the collector's name.

Transportation.

After the backlog specimens is packed, all specimens is transferred in the same time.

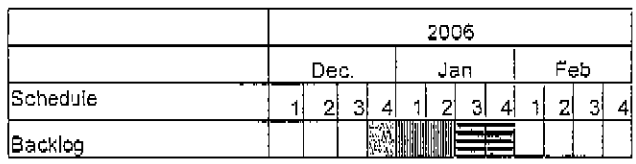
Unpacking and rearrangement

When specimen arrive in the new building, all the specimens will be unpacked and rearranged according to the collector's name and kept in the old steel cabinet. Before the old steel cabinet will be used, it is necessary to clean them by using *constrain.*

Fumigation

Fumigation for the backlog specimens is necessary to be done after the arrangement is completed. Because this specimens will be kept in a separate room, so the fumigation can be done without waiting the moving ended.

Schedule



7. Loan specimens

Loan specimens is divided into 4 categories:

1. Incoming loan specimens
2. Incoming gift specimens

3. Ongoing loan specimens
4. Ongoing gift specimens.

Incoming loan specimens is specimens which come to the Herbarium Bogoriense due to loan for the Herbarium Bogoriense staff. When this specimen arrive, it is necessary to freeze them in the walk in freezer or deep freeze refrigerator. After that the specimens will be send to the staff who is going to use it.

Incoming gift specimens is specimens which come as a gift from other herbaria. This specimen is waiting for mounting. When the specimens is send with its label, this specimens is only waiting for the time to mount, but if the specimens arrived without label, this specimens is waiting for the label and this can take a long time until the label arrived.

Ongoing loan specimens is specimens which should be sent to other herbaria for loan. Usually this specimen is waiting for the confirmation from the other herbaria whether they want to get a loan or they will come to check themselves.

Ongoing gift specimens is specimens which was collected by the staff and gift to other herbaria. Usually this specimen is waiting for the funding to send it to other herbaria.

From the above categories, the specimens which need to be kept in the loan sections is incoming gift specimens, ongoing loan specimens and ongoing gift specimens. The highest percentage of specimens kept in loan section is ongoing gift specimens.

The number of specimens in the loan section as follows.

Type of specimens	No. of boxes	Dimension	Volume (m2)
Gift for BO (no label)	2	55 x 32 x 35	12.32
	1	45 x 32 x 24	3.46
	1	45 x 34 x 21	3.21
	1	45 x 32 x 34	4.90
	1	47 x 34 x 25	4.00
	1	40 x 35 x 30	4.20
	1	45 x 38 x 34	5.81
	1	44 x 30 x 28	3.70
	1	47 x 33 x 25	3.88
	1	46 x 30 x 18	2.48
	1	45 x 31 x 30	4.19
	2	50 x 40 x 14	5.60
	1	45 x 36 x 33	5.35
	1	47 x 33 x 24	3.72
	1	47 x 32 x 24	3.61
	4	46 x 36 x 25	16.56
	1	50 x 39 x 17	3.32
	1	55 x 41 x 39	8.79
	3	55 x 40 x 35	23.10
	1	46 x 39 x 20	3.59

	1	46 x 34 x 25	3.91
	1	60 x 49 x61	17.93
	1	53 x 38 x 35	7.05
	1	60 x 49 x 61	17.93
	1	53 x 38 x 35	7.05
	1	60 x 47 x 37	10.43
	1	44 x 30 x 27	3.56
	1	45 x 34 x 19	2.91
	1	47 x 32 x 23	3.46
	1	46 x 44 x 39	7.89
	1	50 x 38 x 37	7.03
Gift to NY (JPM)	1	41 x 40 x 32	5.25
	1	44 x 34 x 21	3.14
	1	50 x 38 x 37	7.03
	1	40 x 43 x 40	6.88
			0.00
Gift to BO	1	46 x 36 x 24	3.97
	1	45 x 30 x 21	2.84
	1	43 x 31 x 13	1.73
	1	43 x 31 x 13	1.73
	1	44 x 29 x 12	1.53
	1	48 x 36 x 29	5.01
	1	45 x 32 x 28	4.03
	1	46 x 31 x 14	2.00
	1	46 x 32 x 29	4.27
	1	46 x 30 x 39	5.38
	1	46 x 33 x 22	3.34
	1	45 x 31 x 31	4.32
	4	60 x 40 x 18	17.28
Gift To BO	22	47 x 43 x 40	177.85
Black tin and specimens	58	52 x 35 x 21	221.68
Loan from other herbaria	16	47 x 32 x 12	28.88
Komputer	1	50 x 80 x 40	16.00
Filing cabinet	6	62 x 46 x 130	222.46
Tota:	161		961.53

Packing

All specimens kept in the loan section should be kept in zip lock plastic bag and both side press with cardboard and tied up. Then specimens will be kept in the card boxes with size 38 L x 50 D x 17.5 H.

2. MOUNTING ROOM

3. LABORATORIES

Botany Division divided into six research groups (Taxonomy, Ecology, Etnobotany, Phytochemistry, Plant Physiology, Plant Morphology and Genetic) and eleven laboratories will be established at the new building. There are eight part of the existing laboratory equipments should be moved to the new laboratory at new building;

1. Instruments Analysis
2. laboratory equipment
3. Glassware
4. Microscopes
5. Chemicals
6. Tissue Culture collections
7. Seed bank
8. Plant Collections

Activities action;

The activities action of moving to Cibinong will be divided into four stage;

1. Encode the equipments, chemicals etc.
2. Packing process
3. Transportation
4. Unpacking process and rearrangement

Encode the equipments:

Most of the laboratory equipments and chemicals are too fragile and dangerous for transportation; therefore it is necessary to encode the equipments and chemicals of each laboratory before moving. While the personal belongings will responsible by the owners. Through this activity, it is expected that the quality of packing and transportation will be suitable for each equipments and chemicals.

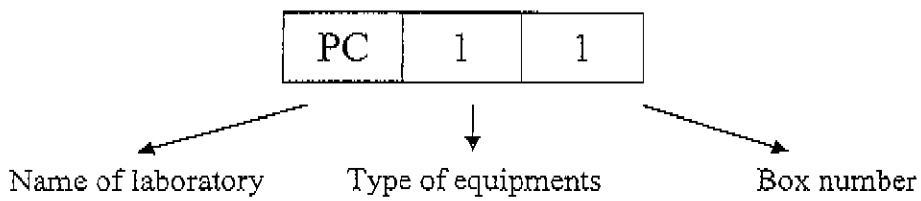
Packed code of Laboratory Equipments, glassware and microscopes.

No.	Name of laboratory	Code
1	Biosystematic	BS
2	Anatomy/Cytology	AC

3	Mycorrhizae/Lichen (Cryptogamae)	ML
4	Molecular Systematic	MS
5	Ecology	EC
6	Etnobotany	ET
7	Plant Physiology Stress	PS
8	Plant Cell and Tissue Culture	PT
9	Plant Reproduction	PR
10	Morphology and Genetic	MG
11	Phytochemistry	PC

The code will be followed by type of the existing laboratory equipments.
For examples :

1. Instrument analysis of Lab phytochemistry.



2. Microscopes of lab. Anatomy/Cytology.

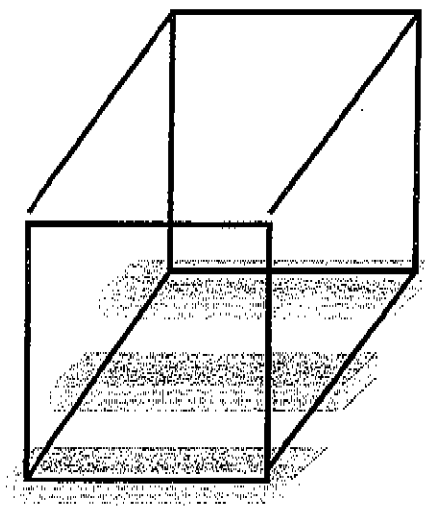
AC	4	2

Packing process:

Packing is one of the activities that should be done before moving and it is very important that all materials are in a good condition and in good order.
Packing activity depends on the type of the materials;

1. For Instruments analysis should be in boxes if possible with the wooden boxes and use styrofoam or plastic wrap to prevent the equipments from damage.
2. For Glassware will be covered by paper, it should use partition boxes and Styrofoam to prevent from damage.
3. For microscopes and binocular will put in original box and it should use boxes made of the wooden boxes to prevent from damage.
4. For dried chemicals and wet chemicals, corrosive, non corrosive, flammable and non flammable will be packed in separated wooden box with alphabetical arrangement and will be coordinated with storage manager
5. For tissue culture, seed bank collection will be put in plastic boxes (50 x 30 x 20 cm).

6. For plant collections will be packed in boxes in partition wooden boxes depend on the type of plant collection.



Boxes for Instrument Analysis and equipment (depend on size of equipment)

Man Power

Moving process needs extra manpower (trained) 10 persons/month especially for packing, transportation, unpacking and rearrangement in the new building under supervision of each head of laboratory or the person in charge.

Volume

Before moving, it is necessary to know the total volume of the laboratory equipments, chemicals, personal belongings etc. Total volume of goods from each laboratory will be moved as seen as table below:

Total volume of equipments, chemicals etc.

No.	Name of Laboratories	Volume (m^3)
1	Etnobotany	5 ?
2	Ecology	17 ?
3	Plant Physiology Stress	5
4	Plant Reproduction	8
5	Genetic and Morphology	3
6	Anatomy and Cytology	5 ?
7	Cell & Tissue Culture	15

8	Bio-systematic	5 ?
9	Molecular Biology	10 ?
10	Cryptogamae	3
11	Phytochemistry	20
12	Tissue Collection	5
13	Plant Collection	10
14	Chemicals	10
Total		**121**

Transportation:

According to the planning the new building will be completed at the end of 2005. The moving activity is the most difficult job, so that moving can be started at early 2006.

Safety of the laboratory equipments, chemicals, personal belongings etc., is one the tools to identify whether the goal of this moving stage is reached. Moving process needs a lot of energy, budget, manpower etc., therefore, it is necessary to have a solid team for moving activity.

All the budget for moving will be provided by GOI. Therefore, it is necessary to plan the budget proposal to GOI in the year 2006.

Some equipments and transportation tools are required in moving activity such as; fork lift, trolley, handy talky, boxcar and truck.

The type of transportation depend on the type of the laboratory equipments, chemicals, personal belongings etc, as seem as below;

1. Instruments analysis, glassware, personal computer, books, microscopes and binocular should be moved by 5 ton boxcar.

2. Dried chemicals and wet chemicals, corrosive, non corrosive, flammable and non flammable should be moved 5 ton truck.

3. Tissue culture, seed bank collection should be moved 2 ton boxcar.

4. Plant collections should be moved 5 ton truck

5. Tables, chairs, cupboards, and book rack should be moved 10 ton truck

Unpacking and rearrangement

Each responsible person or person in charge of each laboratory should have a map plan where the instrument will be rearranged. Each instrument should be drawn in the map which can be used by the person who are unpacked the boxes.

Moving Schedule:

For the smoothness of moving process, it is necessary to arrange activities schedule that can be use by moving team. Moving activities will appropriate with the schedule as seem at table below.

Action Plan

No.	Activities	Jan-Apr. 2006 (weeks)												
		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Encode	x	x	x	x	x	x							
2	Packing process			x	x	x	x	x	x					
3	Mov. of Lab. Etnobotany				x									
4	Mov. of Lab. Ecology				x									
5	Mov. of Lab. Physiol.Stress					x								
6	Mov. of Lab. Reproduction					x								
7	Mov. of Lab. Gen./Morph.						X							
8	Mov. of Lab. Anat./Cyto.						X							
9	Mov. of Lab. Tiss. Culture							x						
10	Mov. of Lab. BioSystimatic							x						
11	Mov. of Lab. Mol. Biology								x					
12	Mov. of Lab. Cryptogamae								x					
13	Mov. of Lab. Phytochem.									x	x			
14	Mov. of Tissue Collection							x						
15	Mov. of Plant Collection					x								
16	Mov. of Chemicals												x	x
17	Mov. Personal Belongging				x	x	x	x	x	x	x	x	x	x
18	Unpacking/reorganizing					x	x	x	x	x	x	x	x	x

4. PERSONAL BELONGING

5. LIBRARY

The library materials can be grouped into 11 categories:

A. Books
B. Journals/periodicals
C. References
D. Reprints
E. Documents
F. Antiquariats
G. Photocopy books
H. Duplicate books
I. Atlas
J. Library catalog
K. Others including company catalog, circulars etc.

Those library materials are maintained in five kind of container:

1. mobile cabinet (Rolling Cabinet =RC). There are 10 units and each unit consisted of 5 mobile cabinets. Therefore there are 50 cabinets. Each cabinet has 5 shelves and numbered from 1 to 5 from top to bottom.
2. Metal Rack (Rak Besi =RB). The metal rack number is 32 unit, however 24 of them are used for library materials in two sides. Therefore these 24 units are numbered 1 to 48. Each rack has 5 shelves

3. Wooden Bookcases (Lemari Kayu=LK) There are 6 of them and each has 5 shelves.
4. Metal Bookcases (Lemari Besi=LB) There is only one of it.
5. Map Drawer (Laci Map=LM).

The total volume of the library materials are approximately .....m^3

The protocol for relocating the library materials includes steps as follows:

1. To map and number/identify the containers that contain the library materials to be relocated. The container is divided into shelves. The identity of each shelf is dependent upon the kind of container, the number of the container and the shelf number. For example the rolling cabinet number 5, the middle shelf is designated as RC5-3.
2. Boxing the literatures.
    a. The library materials in each shelf are to be tied in a moving unit. Each cell is divided into 3 moving unit, unit from the left side of the shelf (1), the middle side of the shelf (2) and the right side of the shelf (3). Therefore the literatures at the middle side of RC5-3 are designated as RC5-3-2. The moving unit is also identified according to the category of the materials. For book, it is designated as A and this letter is put in moving unit location. Therefore books located at RC5-3-2 is identified as A/RC5-3-2. This identity is to be written in a piece of A4 paper (identity sheet) and put in the shelf accordingly.
    b. The preparation of the moving unit is as follows. The library materials in a moving unit is layered/wrapped in a bubbled plastic sheet and the identity sheet is placed on top of it and then the moving unit is tied with a rope.
    c. The moving units (several) are then put in carton boxes. For each moving box, a note indicating the content of the box (which moving units) is put on the outside of the box. The boxes are sealed with transparent plastic tape.
3. The translocation of the moving boxes. Moving boxes with library materials in them are to be transported in trucks, unloaded and stored in the new site.
4. The translocation of cabinets. The rolling cabinets need to be disassembled from their rails. They and other cabinets are to be transported in trucks or other, unloaded and then set up in the new site according to its sequences especially for rolling cabinet and metal rack. The library furniture including tables for library staff, reading tables and chairs, racks for new journal issues, wooden rack for shelving frequently used references are to be moved together with cabinets.
5. The reshelving of the library materials. After the cabinets are set, the moving boxes are unpacked and the moving units are put in their designated shelves according to their identities and then untied.

Note: The box should (but not obligatory) has a dimension of 54 x 39 x 36 cm
1 m^3 require 13.2 boxes
The total number of boxes required 500 boxes (or less).

6. PHOTOGRAPHS AND DRAWING COLLECTIONS

7. DATABASE

8. ADMINISTRATION OFFICE

Administation Office is divided into 2 main parts:

a. Equipment and document in the Director of Botanical Division
b. Equipment and document in the administration office

Based on the inventarisation on the administration office, a coding is necessary to the equipment and document kept in this room in order to get easy arrangement and organization.

No.	Name of Equipment	Code	Number	Volume Content (m3)	Volume total (m3)
A. Office Room					
1	Filling cabinet	FC/O	5	0,692	0,923
2	Cabinet	LB/O	1	00.551	0.788
3	Document	DOC/O	-	0.252	
4	Brandcast	BR/O	1	0.341	
5	Computer unit	Com/O	2		0.338
B. Director Room					
1	Filling cabinet	FB/DR	2		0.763
2	Documnet	DOC?DR		1.519	
3	Table	TD/DR	1		1.603
4	Chairs	CH/DR	10		3.341
5	Table for reading	TR?DR	1		2.722
6	Cupboard	CB/DR	2		2.571
7	Long Table	LT/DR	1		1.304
8	Computer tabel	CT/DR	1		0.243
9	Computer unit	COM/DR	1		0.199

Activities action

The activities actio of moving will be divided into six stages:

a. Inventory all equipment and document
b. Encoding the equipment and document
c. Packing
d. Transportation
e. Unpacking
f. Reorganizing all equipment and document in the administration office.

Packing process
Packing is one of the activities that should be done before moving and it is very important to insure that all equipment and documents are in good condition, good order and save.
Packing acitivity depend on the type of the equipment and the document:

1. For the office equipment, the normal procedures are applied.
2. For the computer and electronic unit should be use boxes if possible the original box and use Styrofoam or plastic buble to prevent the equipment from damage.
3. For cabinet should be packed with cardboard to prevent damage.
4. For the documents are packed in the the cardboard boxes and the arrangement are as the original arrangement
5. For other equipment (table, chairs etc.) pack all necessary equipment in a cardboard box.

Transportation: see general protocol

Unpacking and arrangement: see general protocol

9. STORAGE ROOMS

There are 3 storage rooms (paper, bottle, charcoal) available in the old building which will be moved to the new building. In the new building the storage rooms will be divided into 5 rooms:

1. Paper storage rooms
2. General storage rooms: Bottle and plastic storage rooms
3. Dry chemicels storage rooms
4. Liquid chemicals storage rooms
5. Charcoal

Existing equipment and chemicals

Items	Dimensions	Volume	Storage room	
1. Paper		15.50	Paper	
2. Bottle		8.46	General	
3. Plastic bag		4.05	General	
4. Charcoal				
5. Dry chemical				
6. Wet chemical			14.69	

9. MAB REFERENCE COLLECTIONS

During Dr. A.J.G.Kosterman's life he has collected all references on economic botany aspect of Indonesian flora. This project was funded by MAB – Indonesia and before he died he has donated his work to the Herbarium Bogoriense as a reference collection so people (staff and visitor) can use this reference to get an information on the plant diversity in Indonesia and its uses.

All the reference collections was kept in the filing cabinet and now is laid in the forth floor of the Herbarium Building. It is expected that this reference collections can be kept in the public access near the library. The total collections is ... filing cabinet which has 19.75 m3 cabinet and the contain is also 19.75 m3.

Packing

All reference collection should be packed in the plstic bag, each drawer should be put in one plastic bag. Each filling cabinet should be coded by FC 1 for filing cabinet 1 and FC1-1 for filing cabinet 1 drawer 1. Remark for FC1-1 should be signed in the plastic bag. The contain of one filing cabinet will be put in one box which consists of 4 plastic bag (one plastic bag for each drawer). So the total number of the boxes will be..... size.....

Transportation

All reference collection will be transferred to new building by box truck, and all the filing cabinet will be brought before the reference is transferred. When the filing cabinet arrive in the new building, it is necessary to clean up the filing cabinet with constrain chemical to remove all unnessarary insect.

Unpacking and rearrangement

Unpacking will be done after the filing cabinet arrived and also the boxes arrive. Arrangement should follow the remark on the boxes.

Schedule

ESTIMATED BUDGET FOR BOTANY RESTORATION

NO	ACTIVITIES	QUANTITY	PRICE	TOTAL	2004	2005	2006	2007	REMARKS
I	Human Resources								
	Wages for dry Spesimen	635,112	1,875	1,190,835,000	416,792,250	416,792,250	178,625,250	178,625,250	
	Wages for wet Spesimen	41,420	1,875	77,662,500	27,181,875	27,181,875	11,649,375	11,649,375	
	Wages for Supervisor 8 persons	384	250,000	96,000,000	24,000,000	24,000,000	24,000,000	24,000,000	
	Sub total Human Resources			**1,364,497,500**	**467,974,125**	**467,974,125**	**214,274,625**	**214,274,625**	
II	**Equipment and Supplies**								
	Mounting paper and tools	635,112	12,500	7,938,900,000	2,778,615,000	2,778,615,000	-	2,381,670,000	
	Species cover	158,778	6,000	952,668,000	333,433,800	333,433,800	-	285,800,400	
	Genus cover	31,755	10,000	317,550,000	111,142,500	111,142,500	-	95,265,000	
	Plastik zip lock	15,879	17,500	277,882,500	97,258,875	97,258,875	-	83,364,750	
	Alcohol	36,996	18,500	684,426,000	239,549,100	239,549,100	-	205,327,800	
	Equipment dissecting	12	475,000	5,700,000	1,995,000	1,995,000	-	1,710,000	
	Parafin	6	600,000	3,600,000	1,260,000	1,260,000	-	1,080,000	
	Bottle 200 x 400 mm	70	75,000	5,250,000	1,837,500	1,837,500	-	1,575,000	
	Bottle 400 x 400 mm	40	100,000	4,000,000	1,400,000	1,400,000	-	1,200,000	
	Bottle 300 x 450 mm	10	100,000	1,000,000	350,000	350,000	-	300,000	
	Bottle 500 x 300 mm	5	100,000	500,000	175,000	175,000	-	150,000	
	Bottle 600 x 300	5	100,000	500,000	175,000	175,000	-	150,000	
	Bottle 250 x 600	1	100,000	100,000	35,000	35,000	-	30,000	
	Bottle 500 x 600	8	100,000	800,000	280,000	280,000	-	240,000	
	Bottle 250 cc	6,500	22,500	146,250,000	51,187,500	51,187,500	-	43,875,000	
	Bottle 125 cc	6,500	20,000	130,000,000	45,500,000	45,500,000	-	39,000,000	
	Bottle 450 cc	2,200	25,000	55,000,000	19,250,000	19,250,000	-	16,500,000	
	Bottle 850 cc	2,200	75,000	165,000,000	57,750,000	57,750,000	-	49,500,000	
	Bottle 2000 cc	2,200	100,000	220,000,000	77,000,000	77,000,000	-	66,000,000	

	Bottle 4000 cc	2,200	125,000	275,000,000	96,250,000	96,250,000	-	82,500,000	
	Sub total equipment and Supplies			11,184,126,500	3,914,444,275	3,914,444,275	-	3,355,237,950	
III	Budget for Moving	11,000	230,000	2,530,000,000	-	-	1,518,000,000	1,012,000,000	
	TOTAL			15,078,624,000	4,382,418,400	4,382,418,400	1,732,274,625	4,581,512,575	

4. Minutes of Discussions

4.3 Explanation on the Draft Final Report

MINUTES OF DISCUSSIONS
ON
BASIC DESIGN STUDY
ON
THE PROJECT FOR IMPROVEMENT OF RESEARCH FACILITIES FOR BIODIVERSITY CONSERVATION AND UTILIZATION
IN
THE REPUBLIC OF INDONESIA
(EXPLANATION ON DRAFT FINAL REPORT)

In April and August 2003, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team twice on the Project for Support of Facilities for Biodiversity Collection Development, and through discussion, field survey, and technical examination of the study results in Japan, JICA prepared a draft final report of the study.

In order to explain and to consult the Republic of Indonesia (hereinafter referred to as "Indonesia") on the components of the draft final report, JICA sent to Indonesia the Draft Final Report Explanation Team (hereinafter referred to as " the Team "), which is headed by Mr. Yuji OTAKE, Deputy Resident Representative, JICA Indonesia Office and has been scheduled to stay in the country from 19 October to 24 October, 2003.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Jakarta, 24 October, 2003

Yuji OTAKE
Leader
Basic Design Explanation Team
Japan International Cooperation Agency

Umar Anggara Jenie
Chairman
Indonesian Institute of Sciences
The Republic of Indonesia

ATTACHMENT

1. Components of the Draft Final Report

The Government of Indonesia agreed and accepted in principle the components of the draft final report explained by the Team including the changes as follows. The finalized components of equipment were shown in Annex-1.

<Facilities>

(1) Combination of Building-Annex 1 and Building-Annex 2 as one building. location of the building -Annex and green houses change as shown in Annex-2.

(2) Addition of a generator with capacity of not more than 10KVA to support research and culture collection that require uninterrupted power supply

(3) Adjustment of laboratories including installation of four buffer rooms for four laboratories

<Equipment>

(1) Addition of a deep freezer to preserve DNA collection

2. Japan's Grant Aid scheme

The Indonesia side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Indonesia as explained by the Team and described in Annex-2 and 3 of the Minutes of Discussions signed by both parties on 23 April, 2003.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Indonesia by around January, 2004.

4. Other Relevant Issues

4-1. Both side agreed that the name of the project was renamed from "The Project for Support of Facilities for Biodiversity Collection Development in the Republic of Indonesia" to "The Project for Improvement of Research Facilities for Biodiversity Conservation and Utilization in the Republic of Indonesia" (hereinafter referred to as " the Project").

4-2. The Indonesian side explained that the priority issues for Indonesian Institute of Sciences (hereinafter referred to as "LIPI") is to establish research and development facilities and equipments for Botany and Microbiology Division of the Research Center for Biology (hereinafter referred to as "RCB").

4-3. The Team explained the estimated operation and maintenance cost for the Project referring to the Draft Final Report and confirmed the understanding of the Indonesian side in principle. The Indonesian side promised to allocate the necessary budget for the Project. And the Indonesian side explained that LIPI would estimate the annual operation and maintenance cost in detail from 2004 to 2008 and would complete and report the table of Annex-3 to JICA Indonesia Office and BAPPENAS by the end of October, 2003.

4-4. The Indonesian side explained that LIPI had sent the draft plan for restoration and transfer of the botanical specimens, as shown in Annex-1 of the Minutes of Discussions signed by both side on 6 August, 2003, to Nationaal Herbarium Netherlands, Royal Botanic Gardens, Kew and Missouri Botanical Garden. As the result, LIPI obtained consent from their scientists. And LIPI promised to discuss in detail and set up the plan for restoration and transfer of the specimens including schedule and the budget and personnel allocation plan and to report the results to the JICA Indonesia Office by the end of October, 2003.

4-5. Both side agreed that the disclosure of any information about the Project to RCB staffs was important to obtain further consensus for the concentration of the institutes in Cibinong. The Indonesian side explained that LIPI would have some meetings to explain the details of the Project to the RCB staffs based on the draft final report and would report the results to JICA Indonesia Office by the end of October, 2003. Furthermore, the Team asked LIPI to keep sending all the Project related information including further consensus formulation among both inside and outside LIPI, to JICA Indonesia Office.

4-6. The Indonesian side explained that LIPI had obtained full agreement with the all land-users of the Project site about stopping the utilization of the Project site to secure the land by the end of April, 2004. And LIPI promised to construct the fence around the Project site by the end of July, 2004.

Equipment List

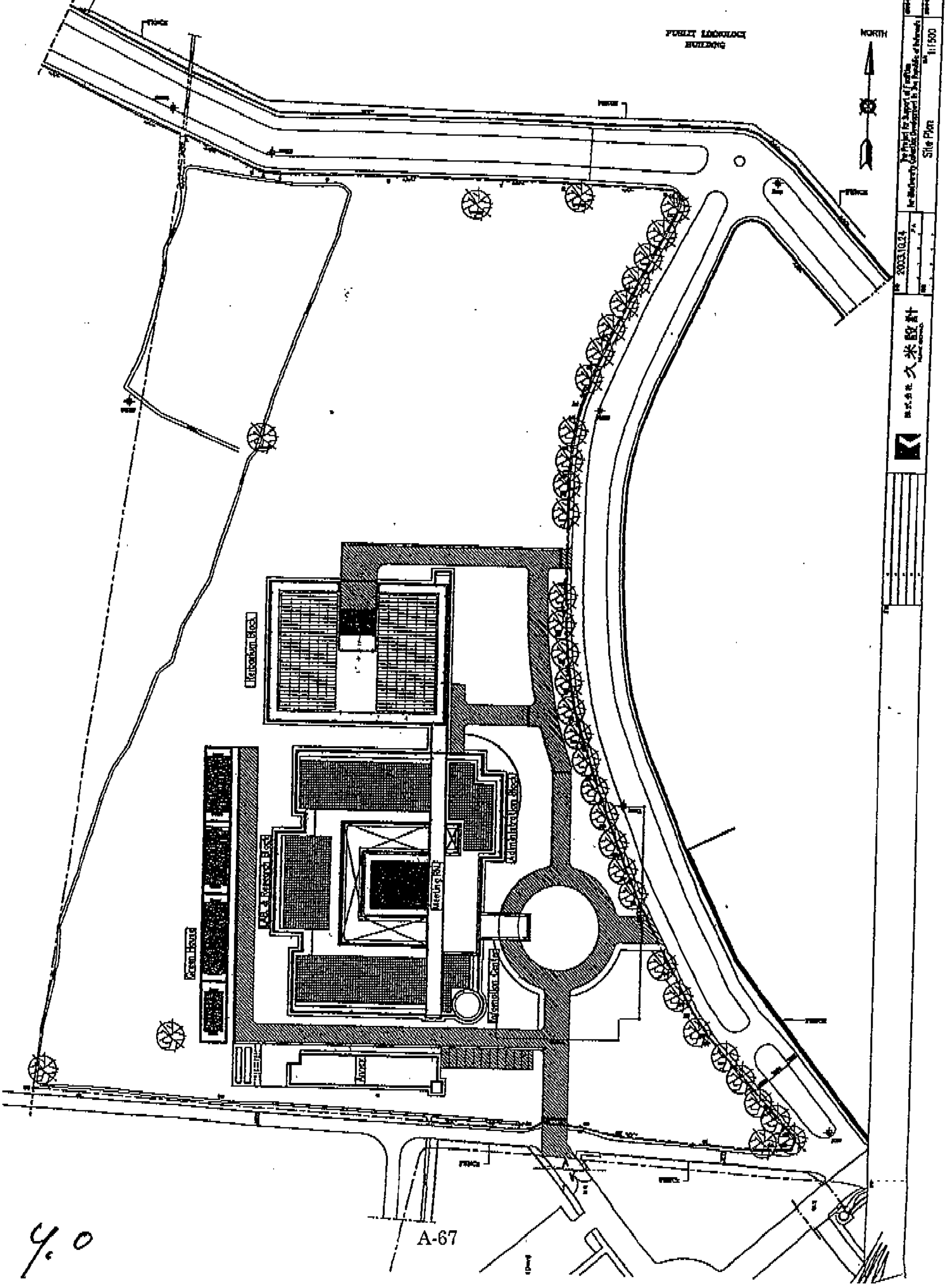
Code No.	Equipment	Q'ty	Code No.	Equipment	Q'ty
1) Division of Botany					
①Phytochemistry group laboratories					
B-1-1	Clean bench(Vertical air current type)	2	B-1-20	Draft chamber	1
B-1-2-1	Rotary evaporator 2ℓ	1	B-1-21-1	Packed column type distillation unit	1
B-1-2-2	Rotary evaporator 10ℓ	1	B-1-23-1	Drying oven for instruments	1
B-1-6	Test tube mixer	2	B-1-23-2	Incubator	1
B-1-11	Water bath 29ℓ	1	B-1-24	Sample mill	1
B-1-12-1	Ultrasonic cleaner	1	B-1-25	Extractor(Soxlet)	1
B-1-12-2	Ultrasonic pipette cleaner	1	B-1-29	Recycling HPLC	1
B-1-13	Autoclave 46ℓ	2	B-1-36	Fermenter	1
B-1-14-2	CO2 Incubator	1	B-1-37-1	Electrophoresis(horizontal type with densitometer)	1
B-1-15	Chiller/cooling aspirator	4	B-1-37-2	Electrophoresis (vertical type)	1
B-1-16-1	High speed microcentrifuge	1	B-1-38	Thermal Cycler for PCR	1
B-1-16-2	High speed refrigerated centrifuge	1	B-1-44	Rat cage	20
B-1-17-1	Freezer	1	B-1-45	Mouse cage	20
B-1-17-2	Deep freezer	1	B-1-46	Rabbit cage	10
B-1-18	Refractometer	1	B-1-47	Experimental equipment (Jack, stand)	1
②Plant Physiology group laboratories(Plant cell & tissue culture)					
B-2-1	Clean bench(Horizontal air current type)	3	B-2-34	Test tube mixer	2
B-2-2	Desk top centrifuge	1	B-2-36	Autoclave, large	1
B-2-5-1	Cart	1	B-2-38	Drying oven	1
B-2-5-2	Cart(folding type)	1	B-2-39	Sterilizer, dry heat with glass bead	2
B-2-6	Inverted microscope with camera	1	B-2-40	Magnetic stirrer with hot plate	2
B-2-7	Stereo microscope	1	B-2-41	Electronic balance, 600g, 0.01g	1
B-2-11	Fiber optic bifurcated illuminator	1	B-2-43	Electronic balandce, top loading 3000g, 0.01g	1
B-2-12	Shaker	2	B-2-50	pH meter (desk top type)	2
B-2-13	Cuture shelf	20	B-2-51	Nitorogen freezing container	1
B-2-14	Computer	2	B-2-71-1	Water bath	1
B-2-20	Film scanner	1	B-2-77	Water purifier	1
B-2-21	Flatbed scanner	1	B-2-78	Micro gas burner	2
B-2-25	Laser printer	1	B-2-80	Liquid nitrogen producer	1
B-2-26	Refrigerator	2	B-2-81	Experimental equipment and glassware	1
B-2-27	Micro pipette(10,20,100,1000,5000μℓ, 0.5-2.0, 0.1-	2			
③Plant Physiology group laboratories(Stress physiology, Macro Propagation and Preparation)					
B-3-1	Portable photosynthesis and transpiration measurement	1	B-3-22	Freezer	1
B-3-3	Data logger with sensor	2	B-3-23	Digital camera	1
B-3-6	Weather station with recorder	1	B-3-26	Infared moisture meter	1
B-3-9	Soil hygrometer	2	B-3-27	Stereoscopic microscope	1
B-3-14	Germinator chamber	2	B-3-28-1	pH meter(Portable)	1
B-3-15	Incubator	2	B-3-28-2	pH meter (Desktop)	1
B-3-16	Electronic balance, 0-1200g, 0.1g	1	B-3-29	Colorimeter	1
B-3-17-1	Drying oven, 106ℓ	1	B-3-30-1	Computer	1
B-3-17-2	Drying oven, 144ℓ	1	B-3-30-2	Printer	1
B-3-19	Seed counter	1	B-3-30-3	Scanner	1
B-3-21	Refrigerator	1	B-3-31	Desk top centrifuge	1
④Anatomy and Plant Morphology and Cytology group laboratories(Plant genetic)					
B-4-1-1	Water bath 5ℓ	1	B-4-25	Micro pipette set (10,20,100,1000,5000μℓ)	2
B-4-1-2	Water bath 10ℓ	1	B-4-31	Draft chamber	1
B-4-2	Thermal cycler for PCR	1	B-4-32	Extractor for ethidium bromide decontamination	2
B-4-3	Autoclave (Horizontal)	1	B-4-33-1	Biohazard waste container	2
B-4-4	Drying oven	1	B-4-36	pH meter (Desktop)	1
B-4-5	Refrigerated centrifuge	1	B-4-37	Magnetic stirrer with hot plate	2
B-4-12	Electrophoresis(horizontal type)	1	B-4-38	Test tube mixer	2
B-4-13	Electrophoresis(horizontal type, large)	1	B-4-40	Electronic balance, top loading 1200g,0.1g	1
B-4-14	Electrophoresis (vertical type)	1	B-4-44	Water purifier	1
B-4-19	Gel Air Dryer	1	B-4-46	Clean bench(Lamina flow type)	2
B-4-20	Vacuum Centrifugal concentrator	1	B-4-51-1	Computer	1
B-4-21	UV transilluminator	1	B-4-51-2	Printer	1
B-4-22	UV blocking eye glasses	1	B-4-53	Deep freezer	1
B-4-23	Gel documantation system	2	B-4-52	Experimental equipment and glass wares	1
⑤Anatomy and Plant Morphology laboratory					
B-5-1	Precision microtome (0.5μ)	1	B-5-2	Biological microscope	1
⑥Anatomy and Cytology laboratory					
B-6-1	Vacuum pump	1	B-6-17	Magnetic stirrer with hot plate	2
B-6-2	Biological microscope with digital video camera	1	B-6-18	Vacuum desiccator	2
B-6-4	Precision rotary microtome	1	B-6-22	Water bath	1
B-6-6	Specimen heating stage	1	B-6-23	Computer	1
B-6-9	CCD Microscope	1	B-6-30	Incubator	1
B-6-10	Staining jar	12	B-6-31	Water purifier	1
B-6-13	Increment borers	2	B-6-33	Chemical cabinet	1
⑦Taxonomy group laboratories					
B-7-1	Microscope with slide observation attachment	2	B-7-16	Printer	1
B-7-2	Dissecting microscope with micrometer	2	B-7-17	Scanner	1
B-7-4	Microscope with camera	2	B-7-18	Tally counters	3
B-7-11	Computer (Mac)	1	B-7-20	Water proof torch	3
B-7-15	Computer	1	B-7-21	Experimental equipment	1
⑧Taxonomy group laboratories					
B-8-1	Electrophoresis(horizontal type with densitometer	1	B-8-4	Staining box	6
B-8-3	Gel dryer	1			
⑨Taxonomy group laboratories(Molecular systematic)					
B-9-8	Fluorometer	1	B-9-25	Termal cycler for PCR	1
B-9-9	Deep freezer	1	B-9-27	Electrophoresis(slab gel type)	1
B-9-10	Ice maker	1	B-9-30	Ultrasonic washing machine	1

Code No.	Equipment	Q'ty	Code No.	Equipment	Q'ty
B-9-14	Water purifier	1	B-9-32	Biohazard deposit bucket small	4
B-9-19	Draft chamber	1	B-9-33	Biohazard deposit bucket large	4
B-9-21	Magnetic stirrer with hot plate	2	B-9-36	Experimental equipment and glass wares	1
B-9-23	Computer (Mac)	1			
⑩Taxonomy group laboratories(Cryptogams)					
B-10-2	Vacuum desicator	1	B-10-13	Magnetic stirrer with hot plate	1
B-10-8	Slurp pointed forceps	6	B-10-14	Chemical cabinet	1
B-10-9	Biological microscope with camera	1	B-10-15	Autoclave, small	1
B-10-10	Stereo microscope	1	B-10-16	Clean bench(Vertical air current type)	1
B-10-11	Water bath	1	B-10-20	Computer	1
B-10-12	Refrigerator	1			
⑪Ecology group laboratories					
B-12-2	Relascope	2	B-12-17	Theodolite	1
B-12-3	Lux meter	3	B-12-18	Portable photosynthetic	1
B-12-7	Computer	2	B-12-19	Soil tester	2
B-12-8-1	Laser printer	1	B-12-20	Thermohygrometer	3
B-12-8-2	Ink jet printer	1	B-12-23	Tape measure	5
B-12-9	Scanner	1	B-12-26	Mercury analyzer	1
B-12-10	pH meter(Portable)	1	B-12-28	CN analyzer	1
B-12-14-2	Drying oven M	1	B-12-30	Muffle's furnace	1
B-12-15	Electronic balance 6100g, 0.1g	1	B-12-31	Incubator	1
B-12-16-1	Field balance 1000g	2	B-12-32	Light meter	1
B-12-16-2	Field balance 100g	2	B-12-33	Chlorophyll meter	1
⑫Ethnobotany group laboratories					
B-13-1	Electronic labelmaker	2	B-13-15-2	Ink jet printer	1
B-13-11	Computer	1	B-13-17	Scanner	1
B-13-15-1	Laser printer	1			
⑬Herbarium					
B-14-1	Trolly (for Wet collection)	2	B-14-18	Species folders	102,455
B-14-2	Folding handle platform trolley	1	B-14-19	Genus cover	20,491
B-14-3	Trolly (for dry collection)	4	B-14-20	Mounting board	307,365
B-14-4	Pencil type pH meter	6	B-14-23	Herbarium mounting tape for dry collection	553
B-14-5	Forcep, for herbarium	8	B-14-24	Iron heater for herbarium	40
B-14-6	Plastic bag for herbarium	1	B-14-26	Alchohol meter	1
B-14-7	Wet collection bottoles	1	B-14-27	Mobile rack for wet collection with container	1
B-14-9	Special bottle for wet collection	1	B-14-36	Walk in freezer (prefabricated type)	1
B-14-10	Carpology collection cabinet	521	B-14-38	Drying oven	1
B-14-12	Specimen cabinet	3			
⑭Field equipment					
B-15-1	Altimeter	4	B-15-14	Compass with clinometer	4
B-15-2	Tracing tables	1	B-15-15	Tape recorder	4
B-15-3	Caliper	4	B-15-16	Tallcy counter	3
B-15-4	Mirror stereoscope	4	B-15-17	Diameter tape	5
B-15-5	Tree grippers	2	B-15-18	Soil profiler	2
B-15-6	Tree pruner	4	B-15-19	Soil pH and moisture meter	2
B-15-7	Binocular	4	B-15-20	Digital caliper	4
B-15-10	Pruning Secateur	4	B-15-21	Relascope	1
B-15-11	Hand pruners	2	B-15-22	Digital Video Camera	3
B-15-12	GPS with anntena	2	B-15-23	Digital Camera	3
B-15-13	Portable GPS	2			
⑮Photographic room					
B-19-2	Camera set	1	B-19-14	Home video light	1
B-19-4	Tripod	1	B-19-15	Video player cassette VHS	1
B-19-9	Slide viewer	1	B-19-16	Television	1
B-19-11	Slide maker	1	B-19-17	Video editor	1
B-19-12	Video camera	1	B-19-27	Slide duplicator	1
B-19-13	Video DC light	1	B-19-33	Film scanner	1
⑯Common laboratories and common equipment mainly for analysis					
B-21-1	Freeze Dryer	1	B-21-6	AAS	1
B-21-2	HPLC	1	B-21-7	Spectrophotometer	1
B-21-3	UV-VIS Spectorophotometer	1	B-21-8	GC-MS/MS	1
B-21-4	FT-IR spectrophotometer	1	B-21-9	Analytical balance 0.1mg, 1200g w/table	1
B-21-5	Spray dryer	1	B-21-10	Analytical balance 0.01mg, 1200g w/ table	1
2) Division of Microbiology					
①Ecology and Physiology group laboratories					
M-1-5	Electronic balance 600g, 0.01g	1	M-1-41	Hygrometer	3
M-1-6	Shaking incubator	1	M-1-42	Digital thermometer	3
M-1-7	Clean bench(Vertical air current type)	1	M-1-43	Binocular	3
M-1-8-1	Autoclave, small	1	M-1-44	Lux meter	3
M-1-8-2	Autoclave, large	1	M-1-45	Diameter measure	3
M-1-9	Portable thermohygrometer	2	M-1-46	Clinometer	3
M-1-10	Automatic Potentiometeric Titrator	1	M-1-47	Dry box	3
M-1-11-1	Refrigerated centrifuge	1	M-1-48	Interval timer	3
M-1-12	Muli pipette set	3	M-1-50	Hand type GPS	3
M-1-13	Refrigerator	1	M-1-52	Drying oven	1
M-1-14	Magnetic stirrer with hot plate, 6 plates	1	M-1-53	Magnetic stirrer with hot plate	2
M-1-19	Water quality meter	1	M-1-55	Hot plate	2
M-1-22	Portable MLSS meter	1	M-1-57	Drying oven	1
M-1-23	Portable COD meter	1	M-1-58	Test tube mixer	2
M-1-24	Crucible Furnace	1	M-1-59	pH meter (Desktop)	1
M-1-28	BOD analyzer	1	M-1-60	Freezer	1
M-1-29	Turbidity/temperature meter	1	M-1-62	Shaker	1
M-1-31	DO meter	1	M-1-63	Computer	1
M-1-32	Salinometer	1	M-1-65	Fermentor	1
M-1-34	Compass	3	M-1-66	Universal mutation detection system	1

Code No.	Equipment	Q'ty	Code No.	Equipment	Q'ty
M-1-35	Altimeter	3	M-1-67	Draft chamber	1
M-1-36	Auger sets(core, mud, sand, soil)	3	M-1-69	Thermocycler for PCR	1
M-1-40	Soil tester	3			
②Applied Microbiology & Development					
M-2-1	Rotary Vacuum Evaporator	1	M-2-21	Incubator	1
M-2-2	Fermentor	1	M-2-22	Test tube mixer	1
M-2-3	Homogenizer	1	M-2-23	Clean bench(Vertical air current type)	1
M-2-6	Autoclave	1	M-2-25	Digital thermometer	1
M-2-7	Electronic balance 300g, 0.001g	1	M-2-26	Computer	1
M-2-8	Refrigerator	1	M-2-27	Oil bath	1
M-2-11	Shaker	1	M-2-28	Electronic balance 3000g, 0.01g	1
M-2-14	Shaking incubator	1	M-2-33-1	Barometer	1
M-2-15	Freezer	1	M-2-33-2	Thermo-hygrometer	1
M-2-16	Ultrasonic Homogenizer	1	M-2-34	Drying Oven	1
M-2-19	Microwave oven	1			
③Biosystematics & Genetics					
M-3-1	Clean bench(Vertical air current type)	3	M-3-21	Protein electrophoresis middle	1
M-3-2	Anaerobic laminar air flow cabinet	1	M-3-22	Pulse Field Gel Electrophoresis	1
M-3-3	Water bath shaking incubator	1	M-3-23-1	Micro pipete set (10,20,100,1000,5000μl)	2
M-3-4-1	Incubator, 10℃	1	M-3-23-2	Multi micro pipette, 12 channel, 30-300μl	1
M-3-4-2	Incubator, 120℃	1	M-3-24	DNA Sequencer (Common equipment)	1
M-3-5	Deep freezer	1	M-3-25	Gel documentation system	1
M-3-6	Refrigerator	1	M-3-31	pH meter (Desktop)	1
M-3-7	High speed refrigerated centrifuge	1	M-3-33	Fermenter	1
M-3-8	Microcentrifuge	1	M-3-35	Sonicator	1
M-3-11	Autoclave	1	M-3-36	Ultra filtration	1
M-3-15	Test tube mixer	2	M-3-38	Computer	1
M-3-16	Magnetic stirrer with hot plate	1	M-3-39	Laser printer	1
M-3-19	Thermal cycler for PCR	1	M-3-40	Scanner	1
M-3-20	Horizontal electrophoresis apparatus	1			
④Microbial Biochemistry					
M-4-4	Protein electrophoresis middle	1	M-4-25	Digital thermometer	1
M-4-6	Autoclave, small	1	M-4-26	Vacuum Oven	1
M-4-8	Shaking incubator	1	M-4-28	Sonicator	1
M-4-9	Refrigerated Centrifuge	1	M-4-30	Rotary vacuum evaporator	1
M-4-10	Fermentor	1	M-4-32	Concentrator	1
M-4-11	Shaker	1	M-4-35	Multi pipette set (10,20,100,1000,5000μl)	2
M-4-13	Ultra filtration	1	M-4-36	Test tube mixer	2
M-4-15	Clean bench(Vertical air current type)	2	M-4-37	Computer	1
M-4-16-1	Magnetic stirrer with hot plate	1	M-4-39	Refrigerator	1
M-4-16-2	Magnetic stirrer (6 stirrer)	1	M-4-40	Refrigerated Centrifuge	1
M-4-17	Peristaltic pump	1	M-4-41	pH meter (Desktop)	1
M-4-19	UV Hand Lamp	1	M-4-42	Microwave oven	1
M-4-20	Cold room	1	M-4-43	Incubator	1
M-4-22	Muffle's furnace	1	M-4-49	Drying oven	1
M-4-23	Fat determination system	1	M-4-50	Chromatography scanning system	1
M-4-24	Auto Kjeldahl unit	1	M-4-54	Stirrer	1
⑤Common laboratories and common equipment					
M-5-1	Microscope with digital camera system	1	M-5-11	Ion chromatography	1
M-5-2	Inverted microscope with Micromanipulator	1	M-5-12	Total Organic Carbon & Nitrogen Analyzer	1
M-5-3	Washing machine	2	M-5-13	UV-VIS Spectrophotometer	1
M-5-4	Spray dryer	1	M-5-15	HPLC	1
M-5-5	Ice-maker	1	M-5-16	Spectropolarimeter	1
M-5-6	Water purifier	1	M-5-17	Fluorescence Spectrophotometer	1
M-5-7	Ultra water purifier	1	M-5-18	Analytical balance 100g, 0.01mg, w/table	1
M-5-8	Freeze drier	1	M-5-20	Analytical balance 300g, 0.1mg, w/table	1
M-5-10	DNA/Protein/Enzyme analyzer	1			
⑥Meeting rooms, experimental tables and etc.					
Meeting room					
A-1	Portable screen	1	A-7-3	Mixer	1
A-2	LCD Projector	1	A-7-4	CD deck	1
A-3	Slide projector	1	A-7-5	VTR	1
A-4	Visual presenter	1	A-7-6	Casette deck	1
A-5	OHP	1	A-7-7	Monitor	1
A-6	Pointer	1	A-7-8	Microphone	1
A-7	PR system/sound system	1	A-7-9	Stereo synthesizer tuner	1
A-7-1	Speaker (wall type)	1	A-8	Roll-in screen	1
A-7-2	Amplifier	1	A-9	Tape recorder	1
Library					
L-2	Computer	1	L-7	Cutter	1
L-4	Copying machine	1	L-10	Cart	2
L-6	Typewriter	1			
Information Center					
I-1	Display television	1	I-3	Television set	1
I-2	Computer for internet with T/C	5	I-4	VHS	1
Experimental Table					
Div., of Botany			Div., of Microbiology		
TB-1	Central experimental table	*	TM-1	Central experimental table	*
TB-2	Sink	*	TM-2	Sink	*
TB-3	Side experimental table	*	TM-3	Side experimental table	*
TB-4	Work table	*	TM-4	Work table	*
TB-5	Cabinet for laboratory	*	TM-5	Cabinet for laboratory	*

* Quantity to be adjusted based on the final layout.

Annex-2



4.0

The Project for Improvement of Research Facilities for Biodiversity Conservation and Utilization in the Republic of Indonesia

Operation and Maintenance Cost

(Rp.)

	2004	2005	2006	2007	2008
(1) Operating Cost for Facilities and Equipment					
① Electricity Cost including Deep Well Pumping Cost					
② Telephone Cost					
③ LPG Gas Cost					
④ Equipment Consumables					
(2) Maintenance Cost					
① Facilities					
② Utilities					
③ Lift					
(3) Construction Cost by Indonesian Side					
(4) Restration and Transfer of Specimens Cost (Botany)					
① Personnel Cost					
② Equipment and Supplies Cost					
③ Transfer Cost					
(5) Restration and Transfer of Specimens Cost (Microbiology)					
① Personnel Cost					
② Equipment and Supplies Cost					
③ Transfer Cost					
(6) Others					
Total					

5. Cost Estimation Borne by the Recipient Country

Appendix-5 Cost Estimation Borne by the Recipient Country

（1US$ ＝ 9,099.30 = 116.79J-Yen）

(1) Matters Related to Construction Work

1) Clearance at the site:
   a) Cutting ground surface (5 cm) by bulldozer : 605,000 Rp x 10 days = 6,050,000 Rp
   b) Cutting soil disposal : 38,000 Rp x 0.05 m x 45,800 cubic meters = 87,020,000 Rp
   1) - Total : 93,070,000 Rp
2) Whole of planting work at the site (including planting for termite prevention to collection storage): the cost will be estimated by the Indonesian side after the designing.
3) Construction of gate, gate house and fencing: same style as the zoology Division Building except barbwire fence
   a) Main gate with wall : 32,700,000 Rp x 1 No. = 32,700,000 Rp
   b) Gate house : 69,100,000 Rp x 1 No. = 69,100,000 Rp
   c) Sub-gate with column : 16,400,000 Rp x 2 Nos. = 32,800,000 Rp
   d) Fence at the front : 760,000 Rp x 170 meters = 129,200,000 Rp
   e) Barbwire fence at other sides : 23,000 Rp x 810 meters = 18,630,000 Rp
   3) - Total : 282,430,000 Rp

(2) Infrastructure Connection

1) Power Connection (lead into the site)
   Estimated Supply Capacity: 875kVA
   Connection work fee: 250,000 Rp/kVA x 875kVA = 218,750,000 Rp
   Security: 156,000 Rp/kVA x 875kVA = 136,500,000 Rp
   1) - Total : 355,250,000 Rp (excluding tax)
2) Telephone Line Connection
   Connection Line: 10 lines
   Connection work fee: 400,000 Rp/line x 10 lines = 4,000,000 Rp
   Application fee: 450,000 Rp/line x 10 lines = 4,500,000 Rp
   2) - Total : 8,500,000 Rp (excluding tax)

(3) Payment Charge

Contract Amount x 0.1% = about 2,357,000 J-Yen (183,638,000 Rp)

(4) Authorization to Pay (A/P)

Charge for issue and amendment of A/P:
10,000 J-Yen/issue x 8 times = 80,000 J-Yen (6,233,000 Rp)

(5) Procurement General Furniture: 0 Rp

Transfer of the existing general office furniture, fixtures and utensils are planned.

The best price is applied for the estimation, and the Japanese side has no responsibility for the estimated cost, because the Indonesian government price might be applied for the above items excluding (3) and (4).


JICA