

Final report for the CM & BRC project

The project on Improvement of Collection Management
and Biodiversity Research Capacity of the Research
Center for Biology, LIPI

31 Mar 2007 – 30 Sep 2009



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INTRODUCTION

Indonesia has one of the most prominent biodiversity resources in the world. The Government of Indonesia established Indonesian Biodiversity Strategy and Action Plan (IBSAP) in 2003, and positioned Indonesian Institute of Sciences (LIPI) as national research institution to promote biodiversity conservation.

The Government of Japan built zoological research facilities in 1997 and botanical and microbiological research facilities in 2006 by grant aid for the Research Center for Biology (RCB) of LIPI, to preserve world-important biodiversity specimen collections and improve the biodiversity research capacity. As to the zoological research facilities, various cooperation activities to develop the facilities management capacity of RCB had been done through the Biodiversity Conservation Project (1995-2003).

This new project is mainly targeted on the botanical and microbiological research facilities, and aimed at developing the biodiversity research capacity and management of collections in RCB. Through this project, it is expected that the functions of RCB as biodiversity research center are to be strengthened.

TITLE OF THE PROJECT

The Project on Improvement of Collection Management and Biodiversity Research Capacity of Research Center for Biology, Indonesian Institute of Sciences.

OVERALL GOAL

RCB becomes the nationally and internationally recognized center for tropical biodiversity research, conservation, and sustainable utilization.

PROJECT PURPOSE

Management capacity of the biodiversity research and collection in RCB is improved and strengthened through its own effort and networking with other institutes.

ACTIVITIES

- 1-1. To improve the RCB management policy in terms of research activities, facility and equipment, maintenance and utilization, and securing financial sources.
- 1-2. To develop maintenance protocol of the facilities and equipment maintenance including repair, replace and supplement of equipment, its parts, chemicals and consumables.
- 1-3. To manage toxic and hazardous wastes from laboratories.
- 1-4. To conduct programs of the newly installed facility and equipment (cryopreservation research, ways and means for specimen collections and storage of microbial collection, extract and simplisia, etc).
- 2-1. To develop and/or improve specimen management regulations and technical guideline including MTA.
- 2-2. To assist procurement of instruments and materials for the purpose of rehabilitation, restoration, and arrangement of the specimen collections.
- 2-3. To develop the research collaboration or joint research programs among institutes, and produce a model activities for the collaboration.
- 2-4. To develop and/or improve specimen database (ex. linkage with other databases and access from outside).
- 3-1. To develop educational and awareness programs and materials related to RCB activities including exhibits at the RCB information center.

PROJECT IMPLEMENTATION

Activity 1-1.

To improve the RCB management policy in terms of research activities, facility and equipment, maintenance and utilization, and securing financial sources.

1-1-1. REGULATION OF RESEARCH COLLABORATION

Draft of guideline for research collaboration and research activities with national and international institute/organization has been prepared in Mar 2009 and finalized in FY 2009.

1-1-2. REGULATION OF EQUIPMENTS/FACILITIES ACCESS

Draft of guideline for facility/equipment access in Microbiology & Botany Division has been prepared and finalized in FY 2009.

1-1-3. REGULATION OF FACILITY AND EQUIPMENT MAINTENANCES

Draft of guideline for facility/equipment maintenances in Microbiology & Botany Division has been prepared and finalized in FY 2009.

1-1-4. GUIDELINE OF FINANCIAL SOURCES

Draft of guideline for financial sources in Microbiology & Botany Division has been prepared and finalized in FY 2009.

Activity 1-2.

To develop maintenance protocol of the facilities and equipment maintenance including repair, replace and supplement of equipment, its parts, chemicals and consumables.

1-2-1. SOP OF EQUIPMENT USAGE

In order to support Good Laboratory Practice (GLP) and improvement of SOP, training courses entitled "One Day Seminar on Biosafety" and "Workshop on Chemical Safety" were held in 22 May 2008 and in 18 Nov 2008, respectively. These activities were conducted in collaboration with an international chemical company, PT. Merck Tbk. Laboratorial SOP of botany, microbiology, and zoology divisions was made according suggestions, and experiences of expert and RCB staffs in 2009.

1-2-2. SOP OF EQUIPMENTS MAINTENANCE

Laboratorial SOP of equipment maintenance in botany, microbiology, and zoology divisions was made according suggestions and experiences of experts and RCB staffs in 2009.

1-2-3. SOP OF CHEMICAL USAGE AND ORDER

Laboratorial SOP of chemical usage and order in botany, microbiology, and zoology divisions was made according suggestions and experiences of experts and RCB staffs in 2009.

Activity 1-3.

To manage toxic and hazardous wastes from laboratories.

1-3-1. SOP OF WASTE MANAGEMENT

Basic study on waste management of LIPI-RCB including SOP was conducted by consultant in March 2008. As a result of the above activity, a SOP of waste management entitled "*Pedoman Pengelolaan Limbah Laboratorium Puslit Biologi-LIPI*" was finalized in May 2008.

1-3-2. WASTE FACILITIES

As commented by consultant of waste management system, RCB is not necessary to treat toxic and hazardous wastes produced from laboratory, since it consumes large area, advanced technology and high cost. However, RCB could do pre-treatment for waste and separating process for wastes based on their characteristics before delivering to waste service agent. The facility for waste pre-treatment and collection were improved.

1-3-3. TRAINING OF WASTE MANAGEMENT

To support the development of waste management system in RCB especially wastes ruinously produced by a research center such as RCB, a training on waste management was carried out in Japan. Mr. Uway Warsita Mahyar received the lectures on laboratorial waste collection and pre-treatment in several institute from 7 to 23 July 2009 and applied his experiences for improvement SOP and waste facilities in RCB.

Activity 1-4.

To conduct programs of the newly installed facility and equipment (cryopreservation research, ways and means for specimen collections and storage of microbial collection, extract and simplisia, etc).

1-4-1. TRAINING OF MICROBIAL PRESERVATION

The review on LIPI Microbial Culture Collection (LIPIMC) was held by two short-term experts Dr. Ken-Ichiro Suzuki and Dr. Akira Nakagiri in February 2008. They suggested to RCB staffs to learn culture collection management and advanced preservation methods based on OECD Guideline for Biological Resource Center.

Based on the results of the review on LIPI Microbial Culture Collection (LIPIMC) by the short-term experts in February 2008, one of the RCB staff learned several preservation methods for microbiology at NITE Biological Resource Center (NBRC) (C/P training). Several training courses by short-term expert were implemented in FY2008 in Indonesia.

A junior researcher (Muhammad Ilyas) learned laboratory techniques of culture preservation and other skills in NBRC, Japan for about one month (24 Nov to 19 Dec 2008).

Dr. Akira Nakagiri (NBRC-Japan) was lead a training course entitled "Training Course on Collection, Isolation, Preservation of Fungi" in 5-11 March 2009 (15 participants from LIPI-RCB, LIPI-Biomaterial, LIPI-Biotechnology).

1-4-2. TRAINING OF CRYOPRESERVATION

Dr. Takao Niino was invited as a JICA short-term expert to conduct training course entitled "Training on Cryopreservation Techniques" held in 15-24 Dec 2008 (13 participants from LIPI-RCB, LIPI-Biotechnology, Bogor Botanical Garden, Bogor Agriculture University, Indonesian Center for Agricultural Biotechnology & Genetic Resources Research Center and Development, Indraprasta University, Seed Technology Research Center for Biology).

During his visit, ventilation system of the liquid nitrogen producer room was evaluated. Based on the results of evaluation, new ventilation fans installation and other optimalization for the room were carried out.

1-4-3. TRAINING OF MOLECULAR TECHNIQUES

Training Workshop on Plant Molecular Systematics Technique was conducted on 11 to 18 December 2008 (16 participants from LIPI-RCB).

Activity 2-1.

To develop and/or improve specimen management regulations and technical guideline including MTA.

2-1-1. COLLECTION MANAGEMENT

Existing regulations on specimen management have been collected and being revised. The revised regulations will be authorized by the head of RCB.

2-1-2. MTA

The draft version of RCB's MTAs for specimen and culture exchange has been already made.

2-1-3. TRAINING OF CULTURE COLLECTION

One of the RCB staff (Ms Atit Kanti) learned Culture Collection management through a comparison observation in Japan (C/P training). She shared the observation results in weekly seminar in RCB and implemented in RCB.

A short-term expert, Dr. Ken-ichiro Suzuki, was dispatched in Nov 2008 and Feb 2009 to share the knowledge on the improvement of culture collection management and to prepare long-term collaboration programs on world-wide BioResources Center networks.

Head of Microbiology Division (Dr. Heddy Julistiono) and the project manager of CM & BRC (Dr. Achmad Dinoto) conducted a comparative study on culture collection management in Japan Nov-Dec 2008.

Activity 2-2.

To assist procurement of instruments and materials for the purpose of rehabilitation, restoration, and arrangement of the specimen collections.

2-2-1. CULTURE COLLECTION

Based on the recommendations by the short-term experts, current facilities of LIPIMC will be optimized and improved for the moment. Road maps of LIPIMC development have been documented.

Based on the recommendations by the short-term experts (Dr. Ken-Ichiro Suzuki and Dr. Akira Nakagiri), minor improvement of culture preservation have been carried out.

A basic design study of international standard Culture Collection for near future was made in 2009.

2-2-2. CULTURE COLLECTION FACILITY

Database for culture collection were developed. Documents concerning on ordering and depositing specimen/culture have been developed and used as formal administration sheet. One staff room with equipment needed (PC, printer, scanner, file folders and cabinet) was prepared for culture collection management.

2-2-3. REHABILITATION/RESTORATION ARRANGEMENT

Two RCB staffs collected information on specimen management system in several Japanese herbariums as reference (C/P training) in FY2008 (Mr. Arief Hidayat) and FY2009 (Ms. Dewi Susan).

De-humidifier system has been installed in RCB herbarium to maintain the suitable condition of specimen storage.

Two RCB staffs (Alex Sumadijaya & Mohammad Irham) studied specimen management (specimen/culture rehabilitation, restoration, and arrangement) in several Japanese herbariums and museums (C/P training) in Feb-Mar 2009.

Activity 2-3.

To develop the research collaboration or joint research programs among institutes, and produce a model activities for the collaboration.

2-3-1. NETWORKING

Networking with Gunung Halimun-Salak National Park has been established and produced a book entitled "*Merajut Pesona Flora Hutan Pegunungan Tropis di Gunung Salak*" in 2008.

Preliminary meeting "National Workshop on Herbarium, Seminar & the Eighth Congress of PTTI" on drafting red list of Indonesian flora was held in collaboration with Indonesian Plant Taxonomy Association (PTTI) and Global Taxonomy Initiative (GTI) Indonesia.

A complete draft of red list of Indonesian flora "*Flora Langka Indonesia*" will be finalized on coming workshop 2009.

2-3-2. RESEARCH FUNDING SEMINAR

Because of the limited number of the annual report of RCB, the project made 1,000 copies re-print of the report for promotion of RCB.

Expose of activities of the microbiology division was held on 19-20 November 2008 (100 participants from private companies, local government, universities).

Expose of research activities of RCB was held on 23-24 Mar 2009 (200 participants from local government, National Parks, BKSDA, universities, private companies, NGO).

Enhancement of the opportunity on gaining research collaboration and scholarship for LIPI-RCB staffs from International donors: Netherlands Education Support Office in April 2008, DAAD in April 2009, JICA-JSPS in June 2008, Japanese Embassy in May 2008, AUSAID in April 2008)

Activity 2-4.

To develop and/or improve specimen database (ex. linkage with other databases and access from outside).

2-4-1. TRAINING OF IT & DATABASE

In FY2008 and FY2009, in total four members of IT team participated in the JICA group training “Biodiversity Information System” in Japan. In March 2009 two kinds of trainings were conducted by local consultants. Six members of IT team participated in the “PHP & MySQL (both Standard and Advanced)” training which had a total of 56 hours and other six members participated in the “CCNA1 & 2” training which had a total of 80 hours.

Two kinds of trainings were conducted by local consultants. Four members participate in the “Linux (Basic and Administration & Networking)” training which had a total of 32 hours and three members participate in the “Open source Web GIS” training which had a total of 14 hours.

2-4-2. INTEGRATED DATABASE SYSTEM: To improve integrated database of animal/plant specimen and microbial culture collection

Integrated Database System is the database system which is used by LIPI-RCB staff at their office for data-entry, data-search and so on. Three database systems: Botany specimen database, Zoology specimen database and Microbiology database system were integrated in 2007 and it became integrated database system. However this system had many problems such as slow performance, lack of stability, etc. (These problems already existed in the previous non-integrated database systems.) Therefore the development of new database system using new technology was planned in March 2008. Old database system was developed using Visual Basic 6.0 and MS Access and new database system will be developed using PHP and MySQL. As of May 2009, the development of new database system has not yet started and old database system is still

used. To reduce problems, data entry is conducted in stand-alone computer in all divisions: Botany, Zoology and Microbiology.

As of May 2009, the total number of records in database is as follows.

- Botany: Approx. 338,600
- Zoology: Approx. 196,500
- Microbiology: 373

(* Note that the total records of Botany and Zoology is the total of records which are stored in several computers.)

The number of records newly-entered since March 2008 is as follows.

- Botany : Approx. 2,600
- Zoology : Approx. 2,500
- Microbiology : Approx. 250

2-4-3. ONLINE DATABASE: To improve database of animal/plant specimen or microbial culture which can be accessed online.

Online Database is the database system which shows data to the public through Web. IT team of LIPI-RCB completed the development of Botany online database in August 2008. Approximately 13,000 records of Botany type specimen have been published to Web.

The development of Zoology online database has been conducted by IT team of RCB and the 70 percent of development was already completed.

The development of Microbiology online database (www.lipimc.org), usually regarded as online catalogue, has been conducted by outsource developer.

The target for data-publishing to Web in each division by the end of project is as follows.

<Botany>

- All type specimen data stored in integrated database system (14,066 records)
- Publishing photos of some type specimen to Web if possible. The approx. 10,000 type specimen were already taken photos using digital camera.

<Zoology>

- Birds: 227 records (all type specimen described by Mr. Hoogerwerf with photo of some species)
- Herpet: Approx. 80 records (type specimen already published to book).
- Insect: Approx. 100 records (Coleoptera with photo)
- Mollusca: 145 records (all type specimen)
- Crustacea: 26 records (all type specimen)
- Fish: type specimen of catfish.

<Microbiology>

- Data of 400 strains

In addition, shooting the photos of approx. 600 insect type specimen (Coleoptera,

Hymenoptera, etc.) will be finished by November 2009.

Activity 3-1.

To develop educational and awareness programs and materials related to RCB activities including exhibits at the RCB information center.

3-1-1. EDUCATION AND PUBLIC AWARENESS PROGRAM

Expose of activities of the microbiology division was held on 19-20 November 2008 (approx. 100 participants from private companies, local government, universities).

Expose of research activities of RCB was held on 23-24 Mar 2009 (approx. 200 participants from local government, National Parks, BKSDA, universities, private companies, NGO).

Open house of Zoological Division "the Year of Frog" was held on 24-28 November 2008 (2316 participants from 3 universities & 29 senior high school).

Display Media, mini theater and souvenirs shop in the information center had been constructed by the end of June 2008. Souvenirs shop and display boards in the zoology division were developed in Feb-Mar 2009.

Posters and standing banners on the results of research were made and displayed in the display room of the information center. "Museum goods" for the souvenirs shop, such as key holders, T-shirts and other items were developed. Video clip of LIPI-RCB profile was made in Dec 2008. Posters on biodiversity of Indonesia are designed and were printed in Mar 2009.

One of the LIPI-RCB staff (Mr. Heriyanto) collected information on public awareness activities in several Japanese museums as reference (C/P training) in Feb-Mar 2009.

Two LIPI-RCB staffs (Mr. Mohammad Fathi Royyani & Ms. Vera Budi Lestari) join an intensive course on museology in Japan for three month from Sep 2009.

3-1-2. SCIENCE PROMOTION

Brochures and booklets of each laboratory profile and services in RCB were prepared. Additional 1000 copies of annual report of RCB 2007 were also printed for the science promotion purpose.

Activities described in "2-3-1. NETWORKING" were also aimed to promotion on research activities of RCB.

3-1-3. RCB WEBSITE: To develop bilingual and informative RCB website.

IT team of RCB developed both English and Indonesian websites. These websites started to function in August 2008. Indonesian website has been updated once a week or

two weeks since then. However English website has been updated with lower frequency and has smaller volume of contents than Indonesian website, because English manuscripts are not provided frequently.

In April 2009, editor team for web content was formally set up. This team consists of four members: head of RCB as team leader, one from Botany division, one from Zoology division and one from Microbiology division.

As of 1st May 2009, the number of people visited RCB website is 11,386 in English site and 26,219 in Indonesian site.

Appendix:

Equipment provision by JICA

ITEM	MAKER	TYPE/MODEL	QTT.	UNIT PRICE (Rp.)	AMOUNT (Rp.)
BK-T Fire Proof	Uchida		1	2,637,800	2,637,800
Laser Printer	Hewlett Packard	Laserjet 1020	1	1,260,000	1,260,000
USB	Sandisk	1 GB	1	320,000	320,000
Calculator	Casio	MX 12V	1	60,000	60,000
USB Switch Printer Standard			2	25,000	50,000
USB Switch Printer 3 M			1	45,000	45,000
USB HUB	Nexus	4 port	1	125,000	125,000
USB Switch Printer		4 port	1	290,000	290,000
CD-R	Verbatim	50 Spindle	1	130,000	130,000
Water Dispenser	Modena	DD12	1	1,379,000	1,379,000
Emergency Lantern	CMOS	BD-6V	1	179,900	179,900
Box file	Yasuka		16	10,900	126,400
Cabinet	Princess		1	250,000	250,000
Facsimile	Panasonic	KX-FP342CX	1	1,350,000	1,350,000
Telephone	Panasonic	KX-T2371MXW	3	185,000	555,000
White Board	Millenium	120 x 240 cm	1	1,929,000	1,929,000
Vacuum Cleaner	Sanyo	SC-Y120	1	499,000	499,000
Punch	Kokuyo	PN-4	1	1,059,000	1,059,000
Tube file	Kokuyo	FU-E650C	3	126,300	378,900
Tube file	Kokuyo	FU-E640B	4	126,300	505,200
Tube file	Kokuyo	FU-E690C	2	162,200	324,400
Tube file	Kokuyo	FU-E670C	2	141,100	282,200
Paper cutter	Joyko	PC2638	1	158,300	158,300
Paper Shredder	Krisbow	VS710CD	1	549,800	549,800
USB	Kingstone	1 GB	4	130,000	520,000
Switch HUB 24 ports	D-link	DES-1024D	1	795,000	795,000
UPS	ICA	CE600	1	475,000	475,000
White board	Tokai	90 x 120 cm	1	410,200	410,200
Locker	Lion	L 551	1	1,163,000	1,163,000
Tube file	Kokuyo	FU-E6550B	4	126,300	505,200
Tube file	Kokuyo	FU-E660B	3	141,100	423,300
Tube file	Kokuyo	FU-E690B	2	162,200	324,400
Cutting map	LINEX	4804 cm 3045	1	177,100	177,100
Stabilizer	Matsunaga	SVC-500F	1	850,000	850,000
Stabilizer	Matsunaga	SVC-1000F	1	1,425,000	1,425,000
Telephone Directory	Globe Tel	Ryokosho 03, Industrial Estate Guide	1	120,000	120,000
Dictionary	PT. Gramedia Jakarta	Kamus Indonesia-Inggris	1	85,000	85,000
Telephone Directory	MSX	Japanese, Firms, Businesses, & Representatives in Indonesia	1	195,000	195,000
Map	Gunther W. Holtorf	Jakarta, Jabotabek 13. Edition 2005/2006	1	195,000	195,000

Dictionary	PT. Gramedia Jakarta	Kamus Inggris-Indonesia	1	85,000	85,000
Dictionary	Pustaka Warga Negara	Buku Pintar Seri senior	1	80,000	80,000
Desk Lamp	Maspion	YS-901 TL	2	55,000	110,000
Battery Charger	Krisbow	240 V	1	198,000	198,000
Battery Rechargeable	Krisbow		2	69,500	139,000
Map	Nelles	Map: Indonesia	1	50,000	50,000
Atlas	Periplus	Travel Atlas Indonesia	1	155,000	155,000
PC Direct USB Camera System		NY-C	1	3,760,000	3,760,000
PC Direct USB Camera System		TS-CA-200M	1	10,810,000	10,810,000
PC direct USB Camera System		NY-NF	1	376,000	376,000
Desk Lamp	Ohsima	MSP-308	1	50,000	50,000
Refrigator	LG	GN-191SLT	1	1,350,000	1,350,000
Folding Chair	Chitose		8	160,000	1,280,000
UPS	ICA	CE 1200	1	750,000	750,000
Printer Toner Cartridge	Hewlett Packard	HP12A	2	600,000	1,200,000
Printer Toner Cartridge	Hewlett Packard	Q6001A Cyan	1	750,000	750,000
Printer Toner Cartridge	Hewlett Packard	Q6002A Yellow	1	750,000	750,000
Printer Toner Cartridge	Hewlett Packard	Q6003A Menta	1	750,000	750,000
Optic Mouse	Mobile Gear		2	70,000	140,000
Microscope LED Illumination			2	4,650,000	9,300,000
Map	Nelles	Map: Java-Bali	3	77,000	231,000
Map	Nelles	Map: Indonesia	3	75,000	225,000
Printer Toner Cartridge	Hewlett Packard	Q6000A Black	1	750,000	750,000
Modem	D-link	Wireless G ADSL2+Router	1	680,000	680,000
Hygrometer		Hygrometer Dry Wet	10	12,000	1,200,000
HCL04		HCL04 70%	1	7,487,000	7,487,000
Book	Kodansha Scientific	Flora of Japan Vol. I	1	5,023,700	5,023,700
Book	Kodansha Scientific	Flora of Japan Vol. IIa	1	7,392,000	7,392,000
Book	Kodansha Scientific	Flora of Japan Vol. IIb	1	4,453,200	4,453,200
Book	Kodansha Scientific	Flora of Japan Vol. IIc	1	487,870	4,878,700
Book	Kodansha Scientific	Flora of Japan Vol. IIIa	1	7,176,700	7,176,700
Book	Kodansha Scientific	Flora of Japan Vol. IIIb	1	3,588,400	3,588,400
Tabung isi Gas Helium UHP			1	2,500,000	2,500,000
Desktop PC	Hewlett Packard		1		
NaOH, etc			1	18,285,000	18,285,000
Parafilm, etc			1	28,823,675	28,823,675
Dehumidifier			1	41,800,000	41,800,000
Dehumidifier (Installing)			1	29,854,000	29,854,000
ABI Genetic, etc			1	37,690,000	37,690,000
DNA extraction kit, etc			1	38,799,680	38,799,680
Quarts cuvette, etc			1	39,885,440	39,885,440

Micropipet, etc.			1	35,041,280	35,041,280
Kim Wipes, etc.			1	38,252,160	38,252,160
HCL PA			1	280,000	280,000
Oxygen tube			1	1,900,000	1,900,000
Electric scale		Model: GR 288, A&D	1	17,480,000	17,480,000
Disposable blade	Erma	35' 80mm	3	2,350,000	7,050,000
Notebook PC	Toshiba	Toshiba Notebook Satellite L40-N504	3	8,030,000	24,090,000
Software		Windows XP Professional-English	3	1,725,000	5,175,000
Software		MS Office 2007 Professional-English	3	3,825,000	11,475,000
Desktop PC	Dell Optiplex	Dell Optiplex 330LMT-KP600	2	8,740,000	17,480,000
PCR Master Mix, etc.			1	39,950,400	39,950,400
Qiaquick PCR Purification Kit, etc.			1	22,234,880	22,234,880
PH Meter, etc.			1	38,280,000	38,280,000
HPLC Column, etc.			1	19,032,000	19,032,000
Ethanol, etc.			1	6,785,500	6,785,500
Computer Memory		512Mb DDR1 PC3200, for PC Dell Optiplex	10	525,000	5,250,000
Computer Memory		512Mb DDR1 PC3200, for PC HP Compaq dx2000	1	625,000	625,000
Automobile	Mitsubishi	Strada Triton	1		
Ruler		100 cm	1	30,500	30,500
LCD Projector					
Notebook PC	Toshiba		2		
Desktop PC	Hewlett Packard		1		
Photocopy machine	Ricoh	Aficio MP2000L	1		
Display Media		Display Media: Gedung Bundar, Front, and Flooring Front Display Media	1	36,000,000	36,000,000
Desktop PC	Hewlett Packard		1	7,775,000	7,775,000
Software	Microsoft	Office 2007 Small Business Edition	2		
Software	Symantec	Norton Internet Security 2007	2		
DVD, Microphone wireless, etc.	Sansui		1	9,975,000	9,975,000
Bracket Projector, etc.			1	1,040,000	1,040,000
Stem, etc.	Kyoka		1	3,640,000	3,640,000
Display Media		Gift shop & Audio Visual Room	1	125,000,000	125,000,000
HPLC Column		Discovery HS C18	1	9,500,000	9,500,000
UPS	ICA	600VA (300 watt)	1	660,000	660,000
Printer	Hewlett Packard	Laserjet P1006	1	1,100,000	1,100,000
Scanner	Umax	Astra 5600	1	7,850,000	7,850,000
Scanner	Umax	Astra 5600	1	785,000	785,000
UPS	ICA	CE 600 (600VA)	1	660,000	660,000
Cartridge for water destilator	SHIMADZU	210E	1	7,915,000	7,915,000

Microtube	Axygen	1,5 ml, boil proof, flat cap, 500pcs/pack	4		1,824,000
Centrifuge	Coming	50 ml, self standing, 25pcs/pack	4		1,680,000
Microcrystal tips	Gilson	0,5-10 ul	10		2,400,000
Microtube	Axygen	1,5 ml, boil proof, flat cap, 500pcs/pack	10		4,560,000
P2 Micropipette		0,2-2 ul	2		10,800,000
100 base pair ladder			2		5,568,000
Big Dye Terminator		V.3.1 RR-100	1	14,986,620	14,986,620
Adaptor for Digital Balance PR2003		ME238620	1	850,000	850,000
Calliper			2	85,000	170,000
Handlens			5	67,500	337,500
Dissecting set			2	115,000	230,000
Calliper			3	85,000	255,000
Tabung kosong			1	2,000,000	2,000,000
Gas CO2 UHP + tabung			1		650,000
Gas N2 UHP + tabung			1		650,000
Gas H2 UHP + tabung			1		700,000
Regulator			1		1,250,000
USB	Kingstone	4 GB	2	279,000	558,000
Gas Helium UHP			1	3,680,000	3,680,000
Tabung gas helium			1	1,980,000	1,980,000
Dissecting set			3	115,000	345,000
Kaca Pembesar			15	67,500	1,012,500
Konektor "Y"			50	75,000	3,750,000
Microscope Slide Glass	NORMAX	Ground edge, 100pcs/pack, 76x26mm	3	55,000	165,000
Microscope Cover Glass	NORMAX	100pcs/pack, 18x18mm	10	13,200	132,000
Preservation Glass (Cryogenic Vial)	IWAKI	External thread, self-stand, PP, 50pcs/pack, 2 ml	2	228,800	457,600
Oxygen meter	IWATANI	MG-1000	1	20,955,000	20,955,000
Transformer for Oxygen Meter			1	550,000	550,000
Microphone	Shure	C606	2	310,000	620,000
Refractive Index Detector	SHIMADZU	RID-10A	1		
LCD Projector					
Ampule for L-drying		Volume 1 ml	5000		
UPS	ICA	CE 600	6		
Digital recorder	SONY	ICD-UX91F	1		
Color Laser Printer	Hewlett Packard	Color LaserJet HP LJ5550, A3 Size	1		
Filter for Destillation Machine		Small size: ASK-Ro2Ai v-100, Large size: CART-SH 3.2 v-100/CART-SH 3.2 v-100	3		
Thermal Paper		Thermal Paper for thermal paper DVU-414	1		
Mix Gas Regulator		Mixing H2, N2, and CO2 gases	1		

Cuvet		For spectrophotometer 1 ml=1000 ul & 100 ul	1		
Silicon tube		For freeze drying, 9,5x6 mm, 7,5 m	2		
Silicon tube		For freeze drying, 9,5x6 mm, 20 m	1		
Water filter	SHIMADZU	FHEC 10 BR	5		
Autoclave basket		Stainless steel, diameter 40 mm	1		
Cryogenic Vial	IWAKI	External thread, self standSize 2 ml (1x50 pcs)	750		
Computer	Hewlett Packard	A6638D	2		
Battery		Delta-T Devices Porometer Ap-4 19500 Multicell International Ltd.	1		
Regulator	Cigweld	Comet 5000	1		
Digital Camera	Nikon	D300	1		
Macro Lens	Nikon	AF-S Micro Nikkor 60 mm	1		
DVD Drive RWRWR	ASUS	DRW-20B1ST	1		
Switch HUB	3COM	3CGSU08	6		
DVD Drive R	Samsung	SH-D162	1		
External Hard disk	Maxtor	Maxtor Basics	2		
Mini DV Player	SONY	HDR-HC9E	1		
DVD Drive RWRWR	ASUS	DRW-20B1ST	1		
Printer		HP DeskJet, A4 size	1		
DVD Drive R	Samsung	SH-D162	1		
GPS	GARMIN		2		
Mini DV Player	SONY	HDR-HC9E	1		
Digital tape recorder	SONY	ICD-UX91F	1		
Printer		HP DeskJet, A4 size	1		
External Hard disk	Maxtor	Maxtor Basics	1		
Memory card	Kingstone	KVR 400x64C3A/1 G	7		
External Hard disk	Maxtor	Maxtor Basics	2		
Silicon pipe		Ø 6 mm Thickness : 3 mm	40 m		
Pipette pump	Belt-Art	Blue, F379111002	3		
Pipette pump	Belt-Art	Green, F379111010	3		
Pipette pump	Belt-Art	Red, F379111025	3		
Micropipette	CAPP	SL10-1AZ	2		
Micropipette	CAPP	C20-1	2		
Micropipette	CAPP	SL10-1AZ	2		
Micropipette	CAPP	SL1000-1AZ	2		
Mini Centrifudge	Eppendorf	5453 000.011	1		
Bottle filtering	Iwaki-Pyrex	5342ROKA1000	1		
Bottle filtering	Iwaki-Pyrex	5342ROKA2000	1		
PCR Core System I	PROMEGA	200 reactions	1		
Printer	Hewlett Packard	OfficeJet 7100	1		
GPS	GARMIN		2		

Annex: Basic Documents of the Project

Before project implementation (Preparatory Mission)

1. Record of Discussion (22 December 2006)
2. Minutes of Meetings between Japan International Cooperation Agency and the Authorities concerned of the Government of the Republic of Indonesia (22 December 2006)

Management Consultation Team & 1st Joint Coordinating Committee Meeting

3. Minutes of Meetings between Japan International Cooperation Agency and the Authorities concerned of the Government of the Republic of Indonesia (26 March 2008)
4. Recommendation from the management consultation team (26 March 2008)

2nd Joint Coordinating Committee Meeting

5. Minutes of Meetings between Japan International Cooperation Agency and the Authorities concerned of the Government of the Republic of Indonesia (26 March 2008)

Terminal Evaluation

6. Minutes of Meetings of Joint Coordinating Committee (13 July 2009)
7. Minutes of Meetings between the Japanese Terminal Evaluation team and the Authority concerned of the Government of the Republic of Indonesia (13 July 2009)