

strative support in improvement and revision of the rules and regulations governing cooperation between various network units such as FCPC, F/L and O/U and the government agencies concerned is essential for each level of administration.

6-3 STRENGTHENING OF THE OPERATION AND MAINTENANCE SYSTEM

A sufficient budget should be allocated annually by the DFCP for operation and maintenance costs and replacement of vehicles, communication equipment and other equipment installed in Project facilities. To ensure regular budget allocation, annual expenditure and other data should be recorded by computer for each piece of equipment throughout the nation according to registration number. This data should also be periodically reviewed.

A manual should be made clearly identifying persons responsible for maintenance as well as maintenance methods, and monthly reports should be disseminated through the system channels for input into the computer, compilation and analysis by each responsible organization. An annual survey of operation conditions through monitoring with supervision and instruction by superiors is also considered beneficial. As the Pest Observers, motorcycles are particularly essential to Project activities, and care should be taken to ensure that all O/U are equipped with the same.

6-4 TRAINING AND EDUCATION OF AGENCY STAFF

As staff of Agricultural Extension Offices and agricultural cooperatives lead extension of rice cultivation technology, distribution of production materials and marketing of rice, they are closely linked to forecast and control activities. Sufficient awareness of the crop protection administrative network among the said staff will assuredly promote smooth project implementation. Accordingly, workshops, etc. should be planned in due course at each agency to teach forecasting and control strategies appropriate to their particular level of activity. Moreover, such opportunities as observation visits to infested areas should be fully utilized.

6-5 STRENGTHENING AND SUPPORT OF EXTENSION ACTIVITIES

Pests and diseases do not always exhibit regular patterns due to natural fluctuations in climatic conditions and changes in seed variety and cultivation methods. Accordingly, control strategies such as application and type of pesticide should be flexible and timely. Staffing and distribution of equipment for the Pest Brigade and Extension Offices, however, are often inadequate to deal with such situations. The DFCP should therefore recognize this situation and support and strengthen extension of pest control activities which involve farmers' groups, as well as provide technical training and extension of practically applicable control strategies for each level.

6-6 INSTITUTIONAL COOPERATION

Strengthening of cooperation between experimental and research institutes is particularly important. Opportunities should be made for exchange of information and results of basic research on major pests at each level (provincial, regional, etc.) and a program of activities at the DFCP should be made to facilitate regular periodic exchanges among universities (agricultural department), laboratories and research institutes. These opportunities should be scheduled at least once every cropping season and the exchange of recommendations based on research and information of local conditions or control methods will be an effective means for development of forecasting and control technology in each locality.

APPENDIX

APPENDIX 1

LIST OF PARTICIPANTS

BASIC DESIGN STUDY TEAM

1. Kanji TAMAGAWA
Team Leader
Deputy Director
Plant Protection Division
Ministry of Agriculture,
Forestry and Fisheries
2. Mikiō NAKAMURA
Project Coordinator
Deputy Head
Basic Design Division
Grant Aid Department
Japan International Cooperation Agency
3. Hiroshi KIKUOKA
Architectural
Planning and
Coordination
Matsuda, Hirata & Sakamoto
Architects, Planners & Engineers, Inc.
4. Kiyoshi KURONUMA
Architectural Design
Matsuda, Hirata & Sakamoto
Architects, Planners & Engineers, Inc.
5. Tetsuhito SATO
Electrical and
Mechanical Utilities
Matsuda, Hirata & Sakamoto
Architects, Planners & Engineers, Inc.
6. Masayoshi SHIBATA
Food Crop Protection
Advisor for Food Crop Protection
Chuo Kaihatsu Corporation
Consulting Engineers & Planners
7. Yoshihisa ONISHI
Equipment
Section Manager of Agricultural
Machinery and Equipment
Chuo Kaihatsu Corporation
Consulting Engineers & Planners

APPENDIX 2

LIST OF INDONESIAN SIDE PARTICIPANTS AND INTERVIEWEES FOR BASIC DESIGN STUDY

1. Ir. Suhaedi Wiraatmadja	Director General	Directorate General of Food Crop Agricultural
2. Dr. Ir. Sadji Partoatmodjo	Director	Directorate of Food Crop Protection (DFCP)
3. Ir. Haryono Siswomihardjo	Head	DFCP (Pest Observation & Surveillance)
4. Ir. Sutarto Alimoeso	Head	DFCP (Disease & Weed Control Guidance Section)
5. Ir. Diran	Head	DFCP (Investigate Pest Section)
6. Ir. Yasis	Head	DFCP (Disease & Weed Section, Division of Pest Forecasting & Observation of Forecasting)
7. Ir. Yuli Hartono	Stuff	DFCP (Subdirectorate of Disease & Weed Control)
8. Ir. Bambang Suharto	Stuff	DFCP (Subdirectorate of Disease & Weed Control)
9. Ir. Sumindar Sihotang	Stuff	DFCP (Directorate of Food Crop Programming)
10. Mr. Wayan Kantun	Head	DFCP (Administration)
11. Mr. Masduki	Head	Food Crop Protection Center of Bandung
12. Mr. Soejitno	Head	Food Crop Protection Center of Semarang
13. Mr. Djoko Soepraptono	Head	Food Crop Protection Center of Surabaya
14. Mr. Firman Butar-Butar	Head	Food Crop Protection Center of Denpasar

APPENDIX 3

SCHEDULE OF BASIC DESIGN STUDY TEAM IN INDONESIA

Abbreviation

H. KIKUOKA : PM
K. KURONUMA : A
T. SATO : ME
M. SHIBATA : CP
Y. OONISHI : EQ

August 1985

- (1) 6th Arrival in Jakarta
(PM, A, ME, CP)
- (2) 7th Embassy of Japan, JICA Jakarta Office
- Courtesy call and discussions regarding study schedule
- Meeting with L/E Dr. NASU Reader and Mr. KAGAI Adviser

Directorate of Food Crop Protection (DFCP)
- Submission of Inception Report
- Discussion of schedule of Field Survey
- (3) 8th DFCP (Pasar Minggu)
- Discussion of schedule of Field Survey
- Explanation of Inception Report
- (4) 9th Jatisari FL (PFC site)
- Survey of existing FL
- Investigation of the site
- (5) 10th Bandung
- Survey of existing FCPC
- (6) 11th Bandung
- Team Meeting (PM, A, ME, CP)
- (7) 12th PM, A BANDUNG - JAKARTA
EQ Arrival in JAKARTA

ME, CP BANDUNG
 - Survey of CILEMBANG, TASIKMALAYA FL site

(8) 13th PM, A, EQ JAKARTA - SURABAYA
 Visit and report to
 - Embassy of Japan
 - JICA Jakarta office

ME, CP BANDUNG - CIPANAS
 - Survey of Ciavui, TASIKMALAYA FL site
 - Survey of Bojongpicung, CIANJUL FL site

(9) 14th PM, A SURABAYA - PAMEKASAN
 - Survey of SURABAYA FCPC

EQ SURABAYA
 - Survey of SURABAYA FCPC

ME, CP CIPANAS - JAKARTA - SEMARANG

(10) 15th PM, A PAMEKASAN - SURABAYA - DENPASAR
 - Survey of Pamekasan, PAMEKASAN FL site

EQ SURABAYA - DENPASAR
 - Survey of Pilangkenceng, MADIUM FL site

ME, CP SEMARANG - YOGYAKARTA - DENPASAR
 - Survey of SEMARANG FCPC
 - Survey of Banyubiru, Semarang FL site

(11) 16th ME, A, CP DENPASAR
 - Survey of DENPASAR FCPC site
 - Survey of Keranbitan, TABANAN FL site

PM, EQ DENPASAR
 - Survey of Seririt, BULELENG FL site

- (12) 17th PM, A, ME, Denpasar
CP, EQ
- Team Meeting
- (13) 18th PM, A Denpasar - Surabaya
- Survey of Existing Denpasar FCPC
EQ, CP Denpasar
- Analysis of Data
ME Denpasar - Yogyakarta - Solo
- (14) 19th PM, A Surabaya
- Survey of Jabon, Mojokerto FL site
and Padaan, Pasuruan FL site
ME Solo - Semarang
- Survey of Palur, Sukoharjo FL site
EQ DENPASAR - SURABAYA - MALANG
- Survey of Existing Jember FL
- (15) 20 th PM, A Surabaya - Jakarta
- Analysis of Data
ME Semarang
- Survey of Winon I and II, Pati FL site
EQ Malang - Surabaya
- Survey of Existing Tulungagung FL
- (16) 21st PM, A, CP Jakarta
Visit and report to
- Embassy of Japan
- JICA Jakarta Office
- DFCP (Pasar Minggu)

- PM, CP Meeting with Dr. Sadji
 - Confirmation of Content of the Request
- EQ Surabaya - Semarang
- ME, EQ Semarang - Yogyakarta
 - Survey of Semarang FCPC
 - Survey of Kedu, Temanggung FL site
 - Survey of Existing Pemalang FL
- (17) 22nd PM, A, CP Jakarta - Cirebon - Jakarta
 - Survey of Singajaya, Indramayu FL site
- ME, EQ Yogyakarta
 - Survey of Pandak, Bantul FL site
- ME - Survey of Banyudono, Sukoharjo FL site
- EQ - Solo - Jakarta
- (18) 23rd PM, A, CP Jakarta - Serang
 - Survey of Kasemen, Serang FL site
- ME Yogyakarta - Jakarta
- EQ Jakarta
 - Analysis of Data
- (19) 24th PM, A, CP Serang - Jakarta
- PM, A, CP, ME, EQ Jakarta
 - Team Meeting
 - Analysis of Data

- (20) 25th PM, A, ME, Jakarta
CP, EQ
- Analysis of Data
- Collection of Material on Construction Conditions
- (21) 26th - Analysis of Data
Arrival in Jakarta
(TAMAGAWA and NAKAMURA)
- Team Meeting
- (22) 27th JAKARTA
Visit to DFCP and DGFC (Pasar Minggu)
- Courtesy call and discussions regarding the project
- Meeting with Dr. Nasu and Mr. Kagai
Visit to Embassy of Japan, JICA JAKARTA Office
- (23) 28th JAKARTA
- Team Meeting
- Meeting with DFCP (Results of site survey)
- (24) 29th JAKARTA
- Team Meeting
- Meeting with DFCP (Content of the Request)
- (25) 30th JAKARTA
PM, ME, A - Preparation of Schematic floor plans
- Analysis of Data
CP, EQ - Meeting with DFCP (Questionnaire)
Departure for field survey of construction sites
(Tamagawa, Nakamura)

(26) 31st JAKARTA
PM, ME, A - Preparation of Schematic floor Plans
CP - Meeting with DFCP (Questionnaire)
EQ - Survey of Existing Facility of Bandung FCPC

September 1985

(27) 1st JAKARTA
PM, A, ME - Preparation of Schematic floor plans
CP, EQ - Analysis of Data
- Team Meeting

(28) 2nd JAKARTA
Meeting with DFCP
PM, A, ME - Discussion of building locations and floor plans
EQ - Discussion of equipment details
CP, PM - Discussion of background and control of the request

(29) 3rd JAKARTA
CP, PM, EQ - Discussion with DFCP (Organization, function and activities and equipment details)
ME, A - Preparation of floor plans for for facilities

(30) 4th JAKARTA
- Meeting with DFCP (Floor plans, building details, Project Outline and Equipment details)
- Preparation of Minutes

- (31) 5th JAKARTA
- Discussed Draft Minutes
 - Study of constructions conditions
- (32) 6th Jakarta
- Signing and exchange of Minutes with DGFC (DFCP)
 - Preparation of floor plans for facilities
 - Analysis of Data
- ME JAKARTA - MALANG
- Survey of Malang FL site
- (33) 7th Jakarta
- Study of construction conditions
 - Designation of boring test locations at sites
 - Submission and discussion of schematic floor plans for facilities
- ME MALANG - JAKARTA
- (34) 8th JAKARTA
- Collection of Material on construction conditions and meteorological data
- A JAKARTA - SEMARANG
- Survey of Grobogan FL site
- Departure for Tokyo (TAMAGAWA AND NAKAMURA)
- (35) 9th JAKARTA
- Discussion with DFCP on Questionnaire
 - Collection of material on construction conditions

- A SEMARANG YOGYAKARTA
- Survey of existing SEMARANG FCPC
 - Survey of Kedu, TEMANGGUNG FL and TAJUM, BANYUMAS FL sites
- (36) 10th JAKARTA
- Study of construction conditions
 - Discussion with DFPC (Equipment)
 - Analysis of data
- A Yogyakarta - Jakarta
- Survey of Pandak, Bantul FL site
- (37) 11th JAKARTA
- Visit and report to
- Embassy of Japan
 - JICA JAKARTA Office
 - DFPC (Pasar Minggu)
 - Analysis of data
- (38) 12th Departure for Tokyo (PM, A, ME, CP, EQ)

APPENDIX 4

MINUTES OF DISCUSSIONS

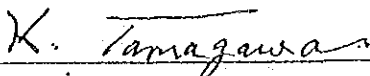
MINUTES OF DISCUSSIONS
ON
THE RICE PEST AND DISEASE FORECASTING
AND CONTROL PROJECT
IN THE REPUBLIC OF INDONESIA

In response to the request made by the Government of the Republic of Indonesia for the Rice Pest and Disease Forecasting and Control Project (hereinafter referred to as "the Project"), the Government of Japan decided to conduct a basic design study, and the Japan International Cooperation Agency has dispatched the basic design study team headed by Mr. Kanji TAMAGAWA, Deputy Director of Plant Protection Division, Ministry of Agriculture, Forestry and Fisheries, from 6th August to 12th September, 1985.

The team has carried out a field survey, held a series of discussions and exchanged views with the authorities concerned of the Government of the Republic of Indonesia.

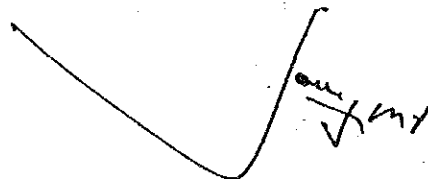
As a result of the survey and discussions, both parties have agreed to recommend their respective Government to examine the results of the study attached herewith towards the realization of the Project.

Jakarta, 6th September, 1985



Mr. Kanji TAMAGAWA

Team Leader
Basic Design Study Team
Japan International
Cooperation Agency



Dr. Ir. Sadji Partoatmodjo
for Director General of Food
Crops Agriculture,
Ministry of Agriculture

ATTACHMENT

1. The objective of the Project is to provide necessary buildings, facilities and equipment for the establishment of Rice Pest and Disease Forecasting and Control System by the Grant Aid of the Government of Japan.
2. The Project is composed of the following :
 - (1) Pest Forecasting Center
 - (2) Food Crop Protection Center
 - (3) Field Laboratory (including Vertebrate Laboratory and Biological Laboratory).
3. The main activities of the facilities are as follows :
 - (1) Pest Forecasting Center
 - a. To study pest population, pest forecasting and control
 - b. To establish pest surveillance and forecasting technique
 - c. To conduct practical training for staff of Food Crop Protection Centers and Field Laboratories.
 - (2) Food Crop Protection Center
 - a. To enumerate and evaluate of data from Field Laboratory, and Pest Observatory Unit in the regional level.
 - b. To disseminate pest information and pest control recommendation to Food Crop Agriculture Service.
 - c. To establish and develop pest forecasting and control technique.
 - d. To supervise Field Laboratory and Pest Observatory Unit in the regional level.
 - e. To assist the Food Crop Agricultural Extension Service for pest control, application of new technology, and maintenance of the equipment.

K.F.

A

(3) Field Laboratory

- a. To conduct the pest forecasting and control study.
- b. To analyse the data in the covered area.
- c. To conduct certain study for development use of natural enemies as pest control agents and vertebrate pest control.
- d. To supervise the Pest Observer.

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Annex I

Items requested by the Government of the Republic of Indonesia are as follows.

1. Buildings

(1) Pest Forecasting Center (Jatisari)

- | | |
|-----------------------------|-----------------------------|
| a. Laboratory | e. Dormitory |
| b. Library | f. Training room |
| c. Expert (instructor) room | g. Drying floor and storage |
| d. Technical staff room | |

(2) Food Crop Protection Center (Bandung, Semarang, Surabaya, Denpasar)

- | | |
|--|-------------------------|
| a. Technical staff room | d. Meeting room |
| b. Laboratory and net house
(green house) | e. Workshop and storage |
| c. Library | |

(3) Field Laboratory

- | |
|--|
| a. Laboratory and net house
(green house) |
| b. Drying floor and storage |
| c. Meeting room |
| d. Multipurpose laboratory |

By Priority order : 1st/2nd priority

- (West Java)
Indramayu, Cianjur, Serang/
Tasikmalaya
- (Central Java)
Pati, Banyumas/Boyolali, Temanggung,
Grobogan, Bantul
- (East Java)
Mojokerto, Madiun, Pamekasan/
Malang
- (Bali)
Tabanan, Singaraja

2. Equipment

Equipment necessary for the activity of the Project.

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Annex II

Following arrangements are required to be undertaken by the Government of the Republic of Indonesia

1. To provide data and information necessary for the construction including boring test.
2. To secure land necessary for the construction of facilities and to clear, fill and level the site as needed before the start of construction.
3. To prepare the access road to the site before the start of construction.
4. To provide facilities for distribution of electricity, telephone, water supply to the site, and external drainage from the project site.
5. To undertake incidental civil work such as planting and fencing, if needed.
6. To provide general furniture and materials for daily activities.
7. To obtain the building permit before construction.
8. To bear commissions to the Japanese foreign exchange bank for the banking arrangement.
9. To ensure prompt unloading, tax exemption, customs clearance of the products at the port of disembarkation in Indonesia and prompt internal transportation therein on the products and related equipment under the Grant.
10. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Republic of Indonesia with respect to the supply of the products and the services under the verified contracts.
11. To accord Japanese nationals whose services may be required in connection with the supply of the products and the service under the verified contract, such formalities as may be necessary for their entry into the Republic of Indonesia and stay therein for the performance of their work.
12. To bear all expenses, other than those to be borne by the grant aid, necessary for the construction of the facilities as well as for the transportation and installation of the machinery and equipment.
13. To maintain and use properly and effectively the facilities constructed as well as equipment, provided under the Grant.
14. To provide the space necessary for such construction as temporary offices, working areas, stock yards and others.

k.T.

APPENDIX 5

LIST OF PARTICIPANTS

BASIC DESIGN STUDY REPORT CONFIRMATION TEAM

1. Kanji TAMAGAWA
Team Leader
Deputy Director
Plant Protection Division
Ministry of Agriculture,
Forestry and Fisheries
2. Yoshihide TERANISHI
Project Coordinator
Basic Design Division
Grant Aid Department
Japan International Cooperation Agency
3. Hiroshi KIKUOKA
Architectural
Planning and
Coordination
Matsuda, Hirata & Sakamoto
Architects, Planners & Engineers, Inc.
4. Masayoshi SHIBATA
Food Crop Protection
Advisor for Food Crop Protection
Chuo Kaihatsu Corporation
Consulting Engineers & Planners

APPENDIX 6

LIST OF INDONESIAN SIDE PARTICIPANT AND INTERVIEWEES FOR DRAFT REPORT OF THE BASIC DESIGN STUDY

1. Ir. Jafri Jamaluddin	Secretary	Directorate General of Food Crop Agriculture (DGFA)
2. Dr. Ir. Sadji Partoatmodjo	Director	Directorate of Food Crop Protection (DFCP)
3. Ir. Sutarto Alimoeso	Head	Section of Execution Disease and Weed Control (DFCP)
4. Ir. Firman Butar-Butar	Head	Food Crop Protection Center (FCPC) of Denpasar
5. Ir. I.G.B. Tenaya	Chief	Food Crop Agriculture Extension Service BALI PROVINCE
6. Ir. I. W. Kunia	Chief	Food Crop Agriculture Extension Service BALI PROVINCE

APPENDIX 7

SCHEDULE OF BASIC DESIGN STUDY REPORT CONFIRMATION TEAM
IN INDONESIA

December 1985

- (1) 10th Arrival in JAKARTA
 (TAMAGAWA, TERANISHI, KIKUOKA, SHIBATA)
- (2) 11th JICA JAKARTA Office
- Courtesy call and submission of Draft Report of the Basic Design Report
- DGFC
- Courtesy call and submission of Draft Report of the Basic Design Report to Secretary, Ir. Jafri Jamaluddin
- DFCP
- Meeting with Dr. Nasu Reader and Mr. KAGAI Advisor (Discussion of Schedule of Basic Design Study Report Confirmation Team)
 - Team Meeting
- (3) 12th DFCP
- Courtesy call and submission of Draft Report of the Basic Design Report to Dr. Ir. Sadji
 - Team Meeting
- (4) 13th DFCP
- Explanation and discussion of Draft Report of the Basic Design Report to Dr. Ir. Sadji
 - Team Meeting
- (5) 14th DFCP
- Discussion of Draft Report of the Basic Design Report
 - Drafting of Minutes of Discussions

(6) 15th

JAKARTA - BALI - JAKARTA

- Survey of Celuk, GIANYAR FL site (KIKUOKA)

- Analysis of data

(7) 16th

DFCP

- Signing and Exchange of Minutes of Discussions

Report to Embassy of Japan and JICA Jakarta Office

(8) 17th

Departure for Tokyo

(TAMAGAWA, TERANISHI, KIKUOKA, SHIBATA)

APPENDIX 8
MINUTES OF DISCUSSIONS


MINUTES OF DISCUSSION
THE DRAFT FINAL REPORT OF THE BASIC DESIGN STUDY
ON
THE RICE PEST AND DISEASE FORECASTING AND CONTROL PROJECT
IN
THE REPUBLIC OF INDONESIA

The Government of Japan decided to present and explain the Draft Final Report of the basic design study on the Rice Pest and Disease Forecasting and Control Project in the Republic of Indonesia (hereinafter referred to as " the Project "), and the Japan International Cooperation Agency has dispatched a basic design study team headed by Mr. Kanji Tamagawa, Deputy Director of Plant Protection Division, Ministry of Agriculture, Forestry and Fisheries, to the Republic of Indonesia from 10th to 17th December 1985 for the above purpose.


The team held a series of meetings with the relevant officials of the Government of the Republic of Indonesia to explain and discuss on the Report.

As a result of discussions, both parties have confirmed the following results attached herewith.

Jakarta, 16th December, 1985




Mr. Kanji TAMAGAWA
Team Leader
Basic Design Study Team
Japan International
Cooperation Agency



Dr. Ir. Sadji Partoatmodjo
for Director General of Food
Crops Agriculture,
Ministry of Agriculture

ATTACHMENT

1. The Indonesian side had agreed in principal to the basic design proposed in the Draft Final Report and appropriate alteration agreed by both parties during the discussion inclusive of the locations of the Project Site as ANNEX I will be incorporated in the Final Report.
2. The Indonesian side had understood Japan's grant aid system and both parties had confirmed that the Government of the Republic of Indonesia will take necessary measures as ANNEX II upon the execution of the grant aid to the Project by the Government of Japan.
3. Both parties had confirmed that the Final Report (10 - copies in English) will be submitted to the Government of the Republic of Indonesia in January, 1986. 

K.T.

ANNEX I

Locations of the Project site

1. Pest Forecasting Center (PFC)

- Jatisari

2. Food Crop Protection Center (FCPC)

- Bandung
- Semarang
- Surabaya
- Denpasar

3. Field Laboratory (FL)

West Java

- Kasemen, SERANG
- Bojongpicung, CIANJUR
- Cilembang, TASIKMALAYA
- Singajaya, INDRAMAYU

Central Java

- Winong II, PATI
- Palur, SUKOHARJO
- Kedu, TEMANGGUNG
- Tajum, BANYUMAS
- Pandak, BANTUL

East Java

- Pandaan, PASURUAN
- Jabon, MOJOKERTO
- Pamekasan, PAMEKASAN
- Pilangkenceng, MADIUN

Bali

- Seririt, BULELENG
- Celuk, GIANYAR

K.T.

ANNEX II

Necessary measures to be undertaken by the Government of the Republic of Indonesia

1. Work Related to Construction

- (a) Improvement of the sites for construction of facilities
- (b) Provision of electric power, telephone circuits, water service piping, drainage canal and other ancillary facilities necessary for the facilities within respective sites
- (c) Supply of temporary electric power for construction except three locations, (Kasemen, SERANG; Pandak, BANTUL; Pilangkenceng, MADIUN)
- (d) Outdoor facilities (entrance gates, fencing, plantings)
- (e) Construction and/ or improvement of the access road to the proposed construction site

2. Provision of Conveniences Related to Construction

- (a) Tax exemptions and Provision of conveniences in making entry and exit to and from the country and during sojourn for organizations and individual persons of Japanese nationality who shall engage in the project
- (b) Tax exemptions and provision of conveniences in customs clearance formalities for construction equipment and materials, laboratory equipment and others, which shall be brought into Indonesia for the implementation of the project
- (c) Acquisition of the building permit prior to commencement of construction
- (d) Securing of sites for temporary office, working area, equipment and construction materials yard, etc. necessary for the construction work

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3. Proper maintenance and management of facilities and equipment which shall be constructed and/ or provided under the grant aid.
4. Proper and effective implementation of the Project
 - (a) Personnel assignment according to the proposed staffing for the Project.
 - (b) Implementation of the proposed training program of the Project.
5. Budgeting for other necessary expenses inclusive of Value Added Tax for the Project in accordance with the implementation schedule. /

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SUPPLEMENT

TABLE 1

AGRICULTURAL PRODUCTION IN INDONESIA
(1978-83)

	Unit: 1,000t					
	1978	79	80	81	82	83
1. Rice	17,525	17,872	20,163	22,286	23,191	23,462
2. Corn	4,029	3,606	5,991	4,509	3,207	5,180
3. Cassava	12,902	13,751	13,726	13,301	12,676	13,219
4. Sweet Potato	2,083	2,194	2,079	2,094	1,897	2,231
5. Soy Beans	617	680	653	704	513	580
6. Groundnuts	446	424	470	475	434	477
7. Fish	1,647	1,748	1,850	1,914	1,939	2,080
8. Meat	475	486	571	596	629	671
9. Eggs	151	164	259	275	297	316
10. Milk (10 ⁶ l)	62	72	78	86	117	135
11. Rubber	884	898	1,002	1,048	861	1,076
12. Copra	1,575	1,582	1,759	1,812	1,736	1,628
13. Coffee	223	228	285	295	266	234
14. Tea	91	125	106	110	92	111
15. Tobacco	81	87	116	118	117	122
16. Sugar	1,516	1,601	1,831	1,700	1,861	2,164
17. Wood (1,000m ³)	39,069	39,210	38,789	39,273	42,364	49,870

Source: The IV 5 year development plan (REPELITA IV)

TABLE 2

RICE PRODUCTION AND CONSUMPTION
IN THE IV FIVE YEAR PLAN
(1984-88)

	1984	85	86	87	88
1. Crop Area (1,000ha) ^{1/}	9,179	9,360	9,548	9,639	9,726
2. Paddy Yield (kg/ha)	3,957	4,037	4,138	4,232	4,328
3. Rice Yield (kg/ha) ^{2/}	2,691	2,754	2,814	2,878	2,943
4. Paddy Production (1,000t)	36,325	37,913	39,510	40,788	42,094
5. Rice Production (1,000t) ^{3/}	24,701	25,781	26,867	27,736	28,624
6. Per Capita Consumption (kg/year) ^{4/}	133	135	138	141	144
7. Total Population (10 ⁶)	162	165	169	172	176
8. Total Consumption (1,000t)	21,546	22,275	23,332	24,252	25,344

Source: REPELITA IV & Central Statistics Bureau

^{1/} Harvest Area

^{2/} Rice = 0.68 x Paddy weight

^{3/} Not including the post-harvest loss estimated at 10%

^{4/} Estimated Consumption: 130kg/year Capita in 1983

TABLE 3

Production of Major Food Crops in Each Province (1983, 84)

(Unit: 1,000ha; 1,000t; t/ha)

Province/ Item	West Java 1/		Central Java 2/		East Java		Bali		Others		Indonesia	
	3/ Area	4/ Pro- duc- tion Yield	3/ Area	4/ Pro- duc- tion Yield	3/ Area	4/ Pro- duc- tion Yield	3/ Area	4/ Pro- duc- tion Yield	3/ Area	4/ Pro- duc- tion Yield	3/ Area	4/ Pro- duc- tion Yield
1. Paddy	1,842	7,803 4.24	1,453	6,678 4.60	1,482	7,147 4.82	168	739 4.39	4,214	12,936 3.07	9,162	35,303 3.85
	1,991	8,452 4.27	1,620	7,607 4.70	1,563	7,711 4.93	169	758 4.48	4,293	13,415 3.12	9,636	37,979 3.94
2. Corn	93	147 1.57	766	1,422 1.86	1,160	2,087 1.78	48	73 1.52	934	1,358 1.45	3,002	5,087 1.69
	124	203 1.64	657	1,293 1.97	1,314	2,453 1.87	48	73 1.52	882	1,336 1.51	3,025	5,359 1.77
3. Cassava	161	1,747 10.9	334	3,362 10.1	343	3,349 9.8	21	226 10.8	361	3,417 9.5	1,221	12,103 9.9
	192	2,153 11.2	334	3,495 10.5	350	3,586 10.2	20	219 10.9	443	4,751 10.7	1,339	14,205 10.6
4. Sweetpotato	48	403 8.4	34	262 7.7	36	245 6.8	11	109 9.9	162	1,197 7.4	280	2,213 7.9
	45	386 8.5	28	220 8.0	35	267 7.5	9	90 9.6	166	1,376 8.3	284	2,338 8.2
5. Soy beans	28	20 0.7	162	125 0.8	285	253 0.9	7	7 1.0	156	130 0.8	640	536 0.8
	67	46 0.7	193	164 0.8	336	320 0.95	11	10 0.9	231	202 0.9	838	743 0.9
6. Groundnuts	71	67 0.9	139	132 1.0	130	121 0.9	11	12 1.1	129	127 1.0	481	460 1.0
	82	80 1.0	138	134 1.0	140	133 0.95	13	14 1.1	150	160 1.1	523	522 1.0

1/ Including Jakarta (D.K.I.)

2/ Including Yogyakarta Province (D.I.)

3/ Harvest area

4/ Dry paddy, dry corn, dry beans and dry peanuts

Source: Directorate General of Food Crop Production, Dep. of Agr.

Directorate of Food Crop Planning

Sub-directorate of Data and Statistics

TABLE 4 Rice Damage Area by Pest and Disease (1980-84)

No.	Pest & Disease	Infested Area (1,000ha) <u>1/</u>					Average
		1980	1981	1982	1983	1984	
1.	BPH <u>2/</u>	79	58	62	116		79
2.	Gall Midge	37	25	24	17		26
3.	Stemborer	227	276	150	126		195
4.	Leafhopper	131	166	113	81		123
5.	Armyworm	57	77	34	65		58
6.	Rice bug	127	95	46	54		81
7.	Black bug	11	14	7	12		44
8.	Green bug	3	5	1	10		5
9.	Rats	230	199	194	168		198
10.	Other Pests	8	6	15	4		8
11.	Rice Blast	4	7	5	24		40
12.	Tungro	6	6	6	6		6
13.	Sheath Blight	4	8	9	14		9
14.	Brown spot	4	4	23	5		9
15.	Bacterial Blight	7	11	9	2		7
16.	Other Diseases	7	8	4	6		6
Total		942	965	702	710		830

1/ Area of severe damage
2/ Brown Plant Hopper

Source: DFCP

TABLE 5 Damage Area by Major Pest and Disease in Each Province (1984)

Province Item	West Java	Central <u>1/</u> Java	East Java	Bali	Other provinces	Indo- nesia
1. BPH <u>2/</u>	2,566	1,395	102	147	26,191	30,401
2. Tungro	0	2,837	277	16,330	11,796	31,240
3. Rice Blast	704	4,847	869	1,680	12,079	20,179
4. Gall Midge	5,619	8,741	359	186	2,530	17,435
5. Rats	65,757	64,963	17,110	ND		
Total	74,646	82,783	18,717	18,343		

Source: DFCP

1/ Including Yogyakarta Province
2/ Brown Plant Hopper

TABLE 6

Pest and Disease Resistant Rice Varieties

Rice Varieties	Pest and Disease	Pest						Disease							
		BHP			White-backed plant hopper	Green rice leaf hopper	Rice stem-borer	Rice gall midge	Grassy stunt	Ragged stunt	Tungro	Bacterial leaf blight	Cercospora leaf spot	Blast	Sheath blight
		Biotype 1	Biotype 2	Biotype 3											
1	PB5	S	S	S	S	S	S	S	S	S	S	MS	-	MS	
2	PB8	S	S	S	S	S	S	S	S	S	S	S	S	MR	
3	PB20	S	S	S	S	S	S	S	-	-	MR	-	-	-	
4	Pelita	S	S	S	S	S	S	S	S	S	S	MR	-	-	
5	C4	S	S	S	S	S	MR	S	-	-	MR	MS	MR	MR	
6	PB26	R	S	R	S	MR	R	S	MS	S	R	S	-	-	
7	PB28	R	S	R	S	MR	R	S	R	S	R	-	-	S	
8	PB29	R	S	R	S	MR	R	S	-	-	-	-	-	-	
9	PB30	R	S	R	S	MR	R	S	R	S	R	MS	-	-	
10	PB32	R	R	S	S	MR	R	S	MR	S	MR	MR	-	-	
11	PB34	R	S	R	S	MR	R	S	R	S	-	-	S	S	
12	PB36	R	R	S	S	S	R	S	R	S	-	MS	MR	MS	
13	PB38	R	R	S	S	S	MR	S	R	S	MR	MR	MS	MS	
14	IR40	-	-	-	-	-	-	-	M	S	R	-	R	M	
15	IR42	R	R	S	-	R	-	-	R	S	R	R	R	M	
16	Brantas	R	S	R	S	S	-	S	-	MR	-	-	S	S	
17	Serayu	R	S	R	-	-	-	-	R	-	MR	S	-	R	
18	Citarum	R	S	MR	MR	MR	-	S	MS	MS	-	MS	S	MR	
19	Asahan	R	S	MR	S	S	-	S	R	MR	MR	S	MR	R	
20	Ayung	R	MR	R	S	S	S	-	S	S	R	R	S	-	
21	Cisadane	R	MR	R	S	S	-	-	S	S	-	R	S	-	
22	Cimandiri	R	MR	-	-	R	S	S	R	-	-	R	S	-	
23	Semeru	R	MR	-	-	R	S	S	MR	S	-	R	S	S	

R: Resistant
S: Susceptible
MR: Moderately Resistant
MS: Moderately Susceptible
M: Moderately

Source: F.S. Report, JICA, 1982/83

TABLE 7

Distribution of Agricultural Materials in Java (1980-83)

Source: DFCP

(a) Quantity of Paddy Seeds (kg/ha)

Item Year	West Java		Central Java		East Java	
	Seeds Quantity	(Purchased)	Seeds Quantity	(Purchased)	Seeds Quantity	(Purchased)
1980	37.6 kg/ha	14.2 kg/ha	38.9 kg/ha	23.1 kg/ha	44.1 kg/ha	29.8 kg/ha
81	35.8	17.3	38.4	24.4	43.3	28.0
82	35.2	18.3	39.2	24.9	43.2	28.1
83	37.9	18.6	41.1	27.9	47.1	31.1

(b) Quantity of Pesticide (kg/ha)

Item Year	West Java		Central Java		East Java	
	Quantity	(Insecticide)	Quantity	(Insecticide)	Quantity	(Insecticide)
1980	1.7 kg/ha	1.5 kg/ha	2.0 kg/ha	1.9 kg/ha	1.8 kg/ha	1.7 kg/ha
81	1.9	1.5	2.0	1.6	2.2	1.8
82	2.4	2.1	2.6	2.1	2.1	1.9
83	2.8	2.0	3.0	2.3	2.8	2.2

(c) Quantity of Fertilizer (kg/ha)

Item Year	West Java		Central Java		East Java	
	Quantity	(Urea)	Quantity	(Urea)	Quantity	(Urea)
1980	255 kg/ha	180 kg/ha	255 kg/ha	200 kg/ha	327 kg/ha	268 kg/ha
81	283	199	278	210	344	274
82	288	200	309	226	340	267
83	307	210	334	250	399	303

(d) Existing Pest Control Equipment (1983)

Equipments	West Java		Central Java		East Java	
	Number	per ha ^{1/}	Number	per ha ^{1/}	Number	per ha ^{1/}
Hand Sprayer	903,528	0.078	99,815	0.092	88,720	0.075
Emposan (rat)	8,857	0.007	12,508	0.012	6,581	0.096
Others	1,324	0.001	832	0.001	1,517	0.01
Total	103,709	0.086	113,155	0.105	96,818	0.082

^{1/} Calculated from paddfy field acreage

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