

Figure 4-18 Wind Pressure Map Areas for the Philippines

(Source: NSCB)

TABLE 4-20 BASIC WIND PRESSURES FOR DIFFERENT HEIGHT ZONES ABOVE THE GROUND

Height Zone in Feet	Wind-pressure-map Area		
	ZONE I	ZONE II	ZONE III
Less than 30	30 psf	20 psf	10 psf
30 to 50	40 psf	30 psf	20 psf
50 to 100	50 psf	35 psf	25 psf
100 to 500	60 psf	40 psf	30 psf
500 to 1200	70 psf	45 psf	35 psf
Over 1200	80 psf	50 psf	40 psf

(Source: NSCB)

d. Utility Plan

1) Electric system

a) Receiving and substation system

Both in PAL-Central and PAL-Davao, 3 ϕ 3 W 230 V power will be supplied from the electric line via a transformer on the electric pole.

b) Generator system

To deal with power failures, a generator system of 30 KVA will be provided for PAL-Central. The power will be supplied to the safety and security facilities including fire hydrant pumps, fire alarms, pressure pumps, telephone system, security lamps, refrigerators, etc.

c) Main feeder system

In PAL-Central, power will be supplied from the main switch board in the electric room to the lighting distribution panel and the power distribution panel on each floor. In PAL-Davao, power will be supplied from the switch panel to the lighting panel and the power panel. The wiring will be installed in the ceiling cable racks.

Lighting panel	3 ϕ 3 W 230 V 60 Hz
	1 ϕ 2 W 230 V 60 Hz
Power panel	3 ϕ 3 W 230 V 60 Hz

d) Lighting system

Fluorescent lamps will be used in principle. Lighting fixtures will be selected to ensure sufficient illumination. For the special purpose rooms, equipment appropriate to the purpose will be selected. The JIS illumination criteria will be applied in the design.

e) Receptacle system

Receptacle outlets of sufficient capacity for the specified usage will be provided where necessary.

f) Power control system

The pumps will be provided with automatic on-off functions. The power for the ventilation system will be regulated both at the switch panel and the remote switch. In case either the power system or tank system malfunctions, alarms will sound in the administrative office.

g) Telephone system

Approximately five circuits for PAL-Central's exclusive use will be led into the building. A telephone exchange system will be installed in the administrative office, from which the telephone wiring will be distributed to each set. One circuit will be for facsimile use. In PAL-Davao, two circuits will be provided. Push-button type telephone sets will be adopted. The exchange will be a type that allows both extension calls and public calls. One circuit will be for facsimile use.

h) Fire alarm system

Alarm terminals will be provided where necessary to activate fire alarms. An automatic fire detector will be installed where there is any particular danger of fire.

i) Lightning protection system

A lightning rod will be installed on the roof of the second floor of PAL-Central building.

2) Plumbing system

a) Water intake

PAL-Central will take water from the water main embedded under the public road on the north of the site, and will lead into the water reservoir tank. PAL-Davao will take water from a water main embedded under the compound road, and will connect to its water supply system directly.

b) Water supply system

In PAL-Central, water will be distributed to each place through an auto pressure pump. PAL-Davao will be equipped with a direct water supply system.

c) Drainage system

As mentioned in CHAPTER 3. 6 Environmental Concerns, solvents and other thick laboratory wastes (including water for primary cleaning) will be stored within the PAL-Central building, and an expert agency will be asked for its disposal. Concentration of pesticides or organic solvents in water for rinsing glasswares is assumed low enough to be discharged into the drainage system.

Sewage will be drained separately from drainage water within the building, and combined outside after being treated in the septic tank. At PAL-Central, combined drainage water will be discharged into the sewage main along Visayas Avenue. At PAL-Davao, drainage water will be discharged into a creek that runs about 50 meter south of the building.

d) Hot water supply

The local hot water supply system will be adopted. An electric boiler will be installed to supply hot water.

e) Sanitary wares

Sanitary wares will be installed according to the architectural plan. Special provisions will be provided in the laboratories appropriate to their equipment.

3) Air conditioning and ventilation system

a) Air conditioning system

Air-cooled split type cooler or window type cooler will be provided in each room. Fresh air will be taken into through the louvres. No heating system is assumed necessary.

b) Ventilation system

An individual fan will be provided in the rooms where ventilation is required. The sleeping rooms will be equipped with ceiling fans.

4) Other systems

a) Fire extinguishing system

A fire hydrant system will be installed in PAL-Central.

b) Prefabricated air-cooled freezer and refrigerator

A prefabricated type air-cooled freezer (-20°C) and a refrigerator (5°C) will be installed in the pesticide residue monitoring unit for sample storing.

e. Material Plan

Materials to be adopted in this project are as shown below. Local products and materials will be used as much as possible, unless they are disadvantageous as to quality, price or supply conditions, the aim being economy and easy construction and maintenance.

1) Structural materials (main elements)

Member	Material	RP/Japan	Remarks
PAL-Central Main Building, PAL-Davao			
Column, Beam	Reinforced concrete	o	
Floor, Stairs			
Exterior wall	Reinforced concrete block	o	
Interior wall	Reinforced concrete block or wooden framed panel	o	
PAL-Central Annex			
Column, Beam	Structural steel	o	quality, precision
Floor (& footing)	Reinforced concrete	o	
Exterior wall frame	Aluminum sash	o	quality, supply
Wainscot	Reinforced concrete block	o	
Exterior wall	Glass, stainless steel mesh	o	quality, supply

2) Exterior finish

PAL-Central Main Building, PAL-Davao

Member	Material	RP/Japan	Remarks
Roof	Folded steel plate	o	quality, supply
	Asphalt waterproofing w/ concrete cover	o	
Exterior wall	Spray tile	o	
	Gravel w/ washing finish	o	
Doors & windows	Aluminum sash	o	quality, supply
Floor:			
Entrance porch	Terrazzo tile	o	
Balcony	Mortar waterproofing	o	
Eaves (plancier)	Cement board, paint finish	o	

PAL-Central Annex

Member	Material	RP/Japan	Remarks
Roof	Folded steel plate	o	quality, supply
Exterior wall	Spray tile	o	
Doors & windows	Aluminum sash Steel door	o o	quality, supply
Floor	Mortar w/ trowel finish	o	

3) Interior finish

PAL-Central Main Building, PAL-Davao

Member	Material	RP/Japan	Remarks
<Floor>			
Laboratory	Chemical-resistant vinyl floor tile	o	quality, supply
Ordinary rooms Corridor, Seminar room, Meeting room	Vinyl tile	o	quality, supply
Executive's office Conference room	Carpet tile	o	supply
Toilet, Water distilling room	Porcelain tile	o	
Hall	Terrazzo tile Marble	o o	PAL-Central's main entrance
<Wall>			
Laboratory, Ordinary room, Meeting room, Corridor	Mortar w/ trowelling, paint finish	o	
Executive's office, Conference room, Reception, Hall	Decorative plywood w/ varnish	o	with molding
Seminar room	Perforated plywood	o	supply w/ 25 mm thick glass wool lining
Toilet, Water distilling room	Ceramic tile	o	
<Ceiling>			
Laboratory, Ordinary room, Meeting room, Corridor	Decorative gypsum board	o	supply
Executive's office, Conference room, Reception, Hall	Rock wool acoustic board	o	supply
Toilet, Water distilling room	Cement board with paint finish	o	

<Doors & Windows>	Wooden door	0	with steel door frame
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PAL-Central Annex

Member	Material	RP/Japan	Remarks
Floor: All rooms	Mortar w/ trowel finish	0	
Wall: Rooms	Mortar w/ trowel finish	0	
Toilet	Ceramic tile	0	
Ceiling:			
Chemicals storage, Workshop	Decorative gypsum board	0	quality, supply
Toilet	Cement board w/ paint finish	0	
Others	Roof underlayment		
Doors & Windows	Steel door	0	
	Aluminum sash	0	quality, supply

(3) Equipment Plan

a. Current conditions

As referred to in the preceding section, GCs and HPLCs play principal roles in pesticide residue analysis. The table below summarizes the quantity of GCs and HPLCs that each PAL currently possesses, the year of their procurement and the number of those in operation. Rotary vacuum evaporators are also shown in the table, because their quantity determines the speed of extraction/clean-up process.

Table 4-21 Current Principal Instruments at Each PAL

		PAL-Central		PAL	PAL	PAL	PAL	PAL
		Residue Monitoring	Formulation Analysis	Baguio	Cebu	CDO	Bicol	Davao
GCs (Procurement Year)	BCD	4 (1976, 1979)	0	2 (1982)	2 (1983)	2 (1982)	0	1 (1989 FM MNL)
	NPD	3	0	2 (1982)	1 (1983)	1 (1982)	0	1 (1990 FM MNL)
	FPD	1 (1981)	0	0	0	0	0	0
	FID	0	5 (1976)	0	0	0	0	0
GCs in operation		6	1	0	0	2	0	0
HPLCs		1	1	0	0	0	0	0
HPLCs in operation		0	1	0	0	0	0	0
Rotary Evaporators (Proc. Yr)		3 (1976)	1 (1976)	1 (1982)	1 (1984)	1 (1982)	0	1 (1990 FM MNL)
REs in operation		3	1	1	1	1	0	1

Source: BPI data

PAL-Central and PAL-CDO are the two laboratories where GCs are being used. The remaining satellites are capable of sample processing, and entrust analysis with GC to these two. The fact that sample processing and GC analysis cannot be done in one place is obstructive to analysis efficiency. Thus, instruments as listed in the following pages will be required for intensifying PALs' capability. The GCs that each laboratory owns now are more than 10 years old. Except for the one with FPD at PAL-Central, their production has been terminated, and spare parts are scarce. It will be, therefore, hardly possible to re-use the present GCs.

HPLCs are currently installed at PAL-Central only. This instrument is indispensable for the analysis of non-evaporating pesticides and heat-decomposing ones, which cannot be detected by GC. As operation of HPLCs is technically simple and easy, they are considered to be supplied to all the laboratories.

There are four rotary vacuum evaporators at PAL-Central and one at each satellite. This quantity is insufficient for prompt processing work, and more evaporators are to be provided.

The following paragraphs refer to inconvenience observed at each PAL now.

1) PAL-Central

Several inconveniences were observed such as the instruments were mounted adjacent to the walls, so it is hard to walk around the rear side for repairs; it is dangerous where hydrogen gas cylinders are mounted on the corridor; or the electric fans need repairs, etc.

2) PAL-Baguio

Much of the equipment is broken down due to the 1990 earthquake. Some usable machines have technical problems such as their motors becoming overheated, and are unable to operate for long periods.

3) PAL-Cebu

The distilling apparatus has been incapacitated and distilled water is unavailable. A generator for use as standby power source has been installed, but it does not have enough capacity to run GCs. The staff use only sample processing equipment.

4) PAL-CDO

PAL-CDO is the only satellite that is capable of sample analysis with GC, and operates with relative activity, in spite of inadequate circumstances such as they have to ask the university for distilled water, or they do not have reference manuals like AOAC to study the correct analysis method, etc.

5) PAL-Davao

The cooling system of the rotary vacuum evaporator is not running at full capacity, and as a consequence it takes considerably longer hours to process collected samples.

b. Planning Principles

The following principles will be taken into consideration to prepare the equipment program.

1) To develop reliable data as the public scientific laboratory

- To observe the GAP guidelines by FAO/WHO

(in training of technical staff, their safety, sample contamination, freezing/cold storage of samples, etc.)

- To provide such equipment for each PAL as to be able to deal with various analysis methods. The procedures from sample processing to instrument analysis differ depending on sample crops and pesticides.
 - To adopt the capillary column system to achieve reliable data
 - To intensify PAL-Central in particular, as it is to function as the leading, teaching laboratory for the satellites, in addition to its routine analysis services (GC/MS is necessary for identifying pesticides in samples containing confusing ingredients.)
- 2) To achieve economy and efficiency in analysis
- To provide one GC with one detector, to enable prompt analysis of large volume
(GC-ECD for organochlorines, GC-FPD for organophosphates, etc.)
 - To select such instruments that require the least amount of solvents or chemical gases, as they are usually expensive
- 3) To select equipment that is easy for operation and maintenance
- The current PALs' staff have good engineering skills, and are well familiar to basic operation of GCs and other instruments. It will be kept in mind to avoid instruments that require special high-tech skills, but to select those that all the staff will be able to handle.
 - The supplied instruments are to be used continuously for long periods. Thus, factors like maintenance availability, technical service quality, supply of spare parts and consumable goods in the Philippines will be important conditions for equipment selection.
- 4) To specify the scope of building construction and equipment supply
- To shift some of the equipment included in the list of the requested equipment for PAL-Central and PAL-Davao to the scope of building work, following the discussions with the BPI during the Phase 1 and Phase 2 study.
- PAL-Central : Cold rooms (-20°C, +5°C), AVR, Exhaust fan,
Emergency shower, Air conditioner
- PAL-Davao : AVR, Exhaust fan, Emergency shower,
Air conditioner

5) Equipment for administrative work will be under the responsibility of the Government of the Philippines. In principle, the equipment for analysis work will take precedence of that for training purpose.

- To cancel the equipment not directly relevant to PALs' analysis work.

Coaster, Typewriter, Car for administration, Photocopier

- To cancel the following equipment for training

Video movie camera, TV (34 inch), Video, Library tables and chairs

6) Other equipment to be canceled

The following equipment for analysis work will be canceled considering current situation of the Philippines and the implementing organization.

- Motorcycle

Vehicles with refrigerator, to be provided for each laboratory, will be sufficient for collection of expected amount of samples. Motorcycles are not suitable for moving around in large areas.

- Vacuum manifold

They are useful for speedy processing of solid-phase extraction, but are difficult to handle.

- LC/MS

LC/MS requires high-tech skills.

- Atomic absorption photometer

GC can substitute this instrument in residue analysis.

- Data processing apparatus

As data processing units are mounted in GCs and HPLCs, individual data processing apparatus will not be necessary.

- UPS, generator

They require considerable maintenance costs. Electric service is becoming improved in the country. (Data processing units are equipped with protective system against power failure.)

- Fire extinguisher (powder type)

Powder type fire extinguisher is inappropriate for laboratory equipment.

- Movable rack
Substituted to steel rack or chemicals and utensils stock cabinet.
- Modem system
Analysis data can be dispersed by mailing floppy disks or other ways.
- Clean bench
PALs will not be concerned with biological efficacy testing.
- Solar energy heater (Water heater)
Glassware can be cleaned with water.
- Incinerator
Laboratory waste water with high organic concentration will be disposed by outside experts.
- GPC column system
This system is useful for speedy clean-up process, but is difficult to handle.

c. Equipment to be Provided in the Project

Table 4-22 shows equipment to be supplied to each PAL. Figures on the top row indicate quantities to be supplied, those on the middle row are the number of potential instruments among the existing ones, and those on the bottom are requested amount. The designed quantities are determined with reference to the current operation of the equipment shown in the priority list of requested equipment (Annex 7) as well as the priority orders marked by the BPI (in A, B, C).

Potential instruments mean the ones that will not adversely affect to data reliability or analysis work efficiency, when they are used in PALs after the project completion.

Table 4-22 Equipment to be Provided in the Project (1)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)								Reference
		Central		Baguio	Cebu	Cag. de Oro	Bicol	Davao	Total	
		PR	FA							
101	Vehicles(4WD) w/ refrigerator (60L) unit 4.8L*1.8W*1.8Hm Seating capacity : 4-5 Refrigerator unit capacity 60L	1	0	1	1	1	1	1	6	
		0	0	0	0	0	0	0	0	
		1	0	1	1	1	1	1	6	
201	Refrigerator for sample extraction (200L) Capacity : 200L No. of door : 2-doors	0	1	1	1	1	1	1	6	
		1	0	0	0	0	0	0	1	
		1	1	1	1	1	1	1	7	
202	Refrigerator for std. soln.(300L) Capacity : 300L No. of door : 3-doors	1	1	0	0	1	1	1	5	
		0	0	1	1	0	0	0	2	
		1	1	1	1	1	1	1	7	
203	Freezer (for Std. of Pesticides)(200L) Capacity: 200L Temp. performance:-30C	0	1	1	0	0	0	1	3	One each additionally requested for Baguio and Davao
		0	0	0	0	0	0	0	0	
		0	1	1	0	0	0	1	3	
204	Freezer(for sample homogenized)(400L) Capacity: 400L Temp. performance: -30C	2	0	0	1	1	1	1	6	
		0	0	1	0	0	0	0	1	
		2	0	0	1	1	2	2	8	
301	Blender(heavy duty food processor) Revolution : 14,700/11,300rpm Capacity: max. 500mL Container : made of glass, 1.2L	4	0	2	2	2	2	2	14	
		0	0	0	0	0	0	0	0	
		8	0	3	3	3	3	3	23	
302	Homogenizer Revolution :4,000 to 30,000rpm Sample volume : 0.3 to 2,000mL	2	0	1	1	1	1	1	7	
		0	0	0	0	1	0	0	1	
		6	0	2	2	2	3	3	18	
303	Grinder continuous(for Cereals) Revolution : 0-500rpm Crushing size : 0.2-2.0mm (7 sizes)	1	0	0	0	0	1	1	3	
		0	0	0	1	1	0	0	2	
		1	0	0	0	1	1	1	4	
304	Shaker(horizontal/vertical) Number of shaking:app.50-280times/min. Timer : 0-60min.	1	1	1	1	1	1	1	7	Needed for Cebu and Davao though not marked as Priority A
		1	0	0	0	0	0	0	1	
		2	1	1	1	1	1	1	8	
305	Shaker(rotary) Used for shaking volumetric flask, 250 to 500mL	0	0	0	0	0	0	1	1	One additionally requested for Davao
		1	0	1	1	1	0	0	4	
		1	0	0	0	0	0	1	2	
306	Shaker(with water bath) Temp. range : Room temp. +5C-80C Capacity : 27L Shaking speed : 20-120time/min.	0	1	1	0	0	0	0	2	
		0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	7	
307	Soxhlet extraction apparatus (6 ports) Capable of using 6 Capacity: app. 11L	1	1	1	0	0	0	0	3	
		0	0	0	1	0	0	0	1	
		1	1	1	1	1	1	1	7	

Table 4-22 Equipment to be Provided in the Project (2)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)								Reference
		Central		Baguio	Cebu	Cag. de Oro	Bicol	Davao	Total	
		PR	FA							
c. Sample Extraction 308	Ultrasonic bath(large)	1	0	0	0	0	0	0	1	
	Effective capacity:20L Heater capacity : 561 Watt	0	0	0	0	0	0	0	0	
		1	0	0	0	0	0	0	1	
c. Sample Extraction 309	Ultrasonic bath(Midium)	1	1	1	0	1	1	1	6	Needed for CDO and Davao though not marked as Priority A
	Effective capacity:9.5L Oscillating frequency: 47kHz Heater capacity : 284 Watt	0	0	0	1	0	0	0	1	
		2	0	1	1	1	1	1	7	
c. Sample Extraction 310	Ultrasonic bath(small)	0	1	0	0	0	0	0	1	
	Effective capacity:3L Heater capacity : 109 Watt Degas mode : Equipped	0	0	1	0	0	0	0	1	
		0	0	0	0	0	0	0	0	
d. Sample Processing 401	Analytical balance (Dual)	1	1	1	1	1	1	1	7	
	Weighing range:0-42g/0-200g	0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	7	
d. Sample Processing 402	Top loading balance(0-3000g)&(0-300g) (Dual)	3	1	1	1	0	1	1	8	
	Weighing range:0-6200g/0-600g	0	0	0	0	1	0	0	1	
		4	2	1	1	1	1	1	11	
d. Sample Processing 403	Distilling apparatus (Stand, mantle, heater, glassware),5L	1	0	1	1	1	1	1	6	
	Stand, Mantle heater, Glassware Cooling Aspirator	0	0	0	0	0	0	0	0	
		2	0	1	1	1	1	1	7	
d. Sample Processing 404	Distilling apparatus (Stand, mantle, heater, glassware),1L	0	1	0	0	0	0	0	1	
	Stand, Mantle heater Glassware Cooling Aspirator	0	0	0	0	0	0	0	0	
		0	1	0	0	0	0	0	1	
d. Sample Processing 405	Water bath, 1kW	1	0	1	0	0	0	1	3	
	Temp. range : Room temp. +5C - 80C	0	0	0	1	0	0	0	1	
		2	1	1	1	1	1	1	8	
d. Sample Processing 406	Mantle heater,500ml	1	0	1	2	1	1	1	7	Needed for Davao marked as Priority B
	Maximum temp. : 450C Capacity : 1000ml	0	0	0	0	0	0	0	0	
		3	3	3	3	3	3	3	21	
d. Sample Processing 407	Mantle heater,1000ml	1	0	0	0	0	0	0	1	
	Maximum temp. : 450C	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
d. Sample Processing 408	Rotary vacuum evaporator w/accessories	5	2	2	2	2	2	3	18	
	Driving unit: 30-180rpm	3	1	1	1	1	0	1	8	
		6	2	4	4	4	4	4	28	
d. Sample Processing 409	Cooling aspirator	3	1	2	2	2	2	2	14	
	Temp. range : -10C to 40C	1	0	0	0	0	0	0	1	
		4	1	3	3	3	3	3	20	

Table 4-22 Equipment to be Provided in the Project (3)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)								Reference
		Central		Baguio	Cebu	Cag. de Oro	Bicol	Davao	Total	
		PR	FA							
d. Sample Processing 410	Magnetic stirrer w/hot plate	2	2	1	0	0	1	0	6	
	Stirring capacity : 50-3,000ml	0	0	0	0	0	0	0	0	
	Hot plate temp. : Max. 300C Stirrer size : 150mm Dia.	6	2	4	4	4	4	4	28	
d. Sample Processing 411	Automated gel permeation chromatograph	1	0	0	0	0	0	0	1	
	Glass column , Compressor ,Filter unit	0	0	0	0	0	0	0	0	
		1	0	0	0	0	0	0	1	
d. Sample Processing 412	Vacuum pump	0	0	0	0	0	1	1	2	
	Ultimate vacuum range: 200 Torr	1	1	1	1	1	0	0	5	
		2	1	1	1	1	1	1	8	
d. Sample Processing 413	Laboratory oven (activation column adsorbents)	1	1	1	0	0	1	1	5	
	Temp. range : 40C-260C	0	0	0	1	1	0	0	2	
	Capacity : 77L	1	1	1	1	1	1	1	7	
d. Sample Processing 414	Dehumidifier (desiccator) (for column store)	1	0	1	1	0	0	1	4	
	Inner capacity : 94L	0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	7	
d. Sample Processing 415	Muffle furnace	0	0	1	0	0	0	1	2	One each additionally requested for Baguio and Davao
	Temp. range : 500C-1500C	1	0	0	1	0	0	0	2	
	Capacity : 10L	1	0	1	0	0	0	1	3	
d. Sample Processing 416	Water distilling apparatus, small	0	1	1	1	1	1	1	6	Needed for Davao though not marked as Priority A
	Production method : Distillation, ion exchange	0	0	0	0	0	0	0	0	
	Distilled water capa. : app. 1.8L/hour	2	1	1	1	1	1	1	8	
d. Sample Processing 417	Water distilling apparatus, large	1	0	0	0	0	0	0	1	Provided for PAL-Central
	Production method : Distillation, ion exchange and filtration	0	0	0	0	0	0	0	0	
	Distilled water capa. : app. 5L/hour	0	0	0	0	0	0	0	0	
d. Sample Processing 418	Drying oven (for glassware)	1	1	1	1	0	1	1	6	
	Temp. range : 30-60C	0	0	0	0	1	0	0	1	
	Capacity : 445L	1	1	1	1	0	1	1	6	
d. Sample Processing 419	Ultrasonic pipette washer	1	1	1	1	1	1	1	7	
	Oscillating output : 50watt, 28kHz	0	0	0	0	0	0	0	0	
	Pipette tank : Polychloride resin, clear	1	1	1	1	1	1	1	7	
d. Sample Processing 420	Centrifuge(bench-top)	1	1	0	0	0	0	0	2	
	Max. speed : 6000rpm	0	0	0	1	1	0	0	2	
	Swing Rotor, 15ml*40 tubes, Glass tube 15ml , Balancer, Carbon brush	2	1	1	1	1	1	1	8	
d. Sample Processing 421	Centrifuge(large,250ml)	1	0	1	0	0	1	1	4	
	Max. speed : 3000rpm	0	0	0	0	0	0	0	0	
	Swing rotor, 350ml, Glass tube with cap, Carbon brush	1	1	1	1	1	1	1	7	

Table 4-22 Equipment to be Provided in the Project (4)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)							Reference	
		Central		Baguio	Cebu	Cag. de Oro	Bicol	Davao		Total
		PR	FA							
d. Sample Processing 422	Ice making machine	1	1	1	1	1	1	1	7	
	Air cooled type	0	0	0	0	0	0	0	0	
	Production capacity : 34kg Size of Cube ice : 32*32*20mm	1	0	1	1	1	1	1	6	
d. Sample Processing 423	pH meter	1	1	1	1	1	1	1	7	
	Measuring range : pH 0-14	0	0	0	0	0	0	0	0	
		2	1	1	1	1	1	1	8	
d. Sample Processing 424	Laboratory cart(1)	2	2	0	0	0	1	1	6	
	Holding type, with 100mm-casters	0	0	0	1	0	0	0	1	
	Dimensions : 45W*73D*84H cm	6	4	0	0	0	3	3	16	
d. Sample Processing 425	Laboratory cart(2)	1	0	0	0	0	0	0	1	
	Flame : Steel pipe 25mm Dia.	0	0	0	0	0	0	0	0	
	Dimensions : 70W*45D*75H cm	0	0	0	0	0	0	0	0	
d. Sample Processing 426	Laboratory cart(3)	1	0	0	0	0	0	0	1	
	Main body : Steel pipe 25mm Dia.	0	0	0	0	0	0	0	0	
	Basket : 4 (31*25*10 Depth cm) Dimensions : 70W*45D*75H cm	0	0	0	0	0	0	0	0	
d. Sample Processing 427	Glassware assorted	1	0.5	0.5	0.5	0.5	0.5	0.5	4	
	Beaker, Flask, Separatory funnel,	0	0	0	0	0	0	0	0	
	volumetric flask	1	1	1	1	1	1	1	7	
e. Sample Analyzing 501	GC-ECD	2	0	2	2	2	1	2	11	
	Dual detector : ECD dual	0	0	0	0	1	0	0	1	
	Injector (split/splitless, cold on-column), Electronic Pressure control	2	0	2	2	2	2	2	12	
e. Sample Analyzing 502	GC-NPD	3	0	2	2	2	1	2	12	
	Dual detector : NP-FID dual	0	0	0	0	1	0	0	1	
	Injector (split/splitless, cold on-column), Electronic Pressure control	3	0	2	2	2	2	2	13	
e. Sample Analyzing 503	GC-FPD	2	0	1	1	1	1	1	7	
	Detector : EPD single	1	0	0	0	0	0	0	1	
	Injector (split/splitless, cold on-column), Electronic Pressure control	2	0	1	1	1	1	1	7	
e. Sample Analyzing 504	GC-FID (for formulation analysis)	0	2	0	0	0	0	0	2	
	Dual detector : FID dual	0	0	0	0	0	0	0	0	
	Injector (packed column , cold on-column), Electronic Pressure control	0	2	0	0	0	0	0	2	
e. Sample Analyzing 505	High performance liquid chromatograph (w/Auto injector, UV, Fluorescence)	2	0	1	1	1	1	1	7	
	Detector: Fluorescence, UV-VIS	0	1	0	0	0	0	0	1	
	Automatic injector Gradient system: High pressure 3 pumps	3	0	1	1	1	1	1	8	
e. Sample Analyzing 506	High performance liquid chromatograph (w/Auto injector, UV, Multi spectrum)	0	1	0	0	0	0	0	1	
	Detector: UV-VIS, Multi-detector, CDD	0	0	0	0	0	0	0	0	
	Automatic injector Gradient system: High pressure 3 pumps	0	1	0	0	0	0	0	1	

Table 4-22 Equipment to be Provided in the Project (5)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)								Reference
		Central		Baguio	Cebu	Cag. de Oro	Bicol	Davao	Total	
		PR	FA							
e. Sample Analyzing 507	UV-VIS spectrophotometer	1	1	1	1	1	1	1	7	
	Dual beam	0	0	0	0	0	0	0	0	
	Wavelength range : 190 to 900 nm Data processing system	1	1	1	1	1	1	1	7	
e. Sample Analyzing 508	Gas chromatograph-Mass spectrometer system	1	0	0	0	0	0	0	1	
	Detector : QMSD	0	0	0	0	0	0	0	0	
	Injector (packed column , cold on-column), Electronic Pressure control	1	0	0	0	0	0	0	1	
e. Sample Analyzing 509	Infrared spectrophotometer	0	1	0	0	0	0	0	1	
	Fourier-Transform Infra-red Spectrophotometer	0	0	0	0	0	0	0	0	
	Wavenumber: 4600 to 400cm-1	0	1	0	0	0	0	0	1	
e. Sample Analyzing 510	Air compressor for GC	1	1	0	0	0	0	0	2	
	Using Air flow: 30L/min.	0	0	0	0	0	0	0	0	
	6.2L*4.1W*5.8Hcm	0	0	0	0	0	0	0	0	
f. Electrical Supplies 601	Voltage regulator,15KVA	0	0	1	1	1	1	0	4	
	Input : AC220V+-15%, 60Hz, 1 ϕ	0	0	0	0	0	0	0	0	
	Output :AC220V+-15%, 60Hz, 1 ϕ Capacity : 15KVA	2	0	1	1	1	1	1	7	
g. Laboratory Furniture 701	Laboratory Center table (w/ Exhaust duct)	3	2	0	0	0	0	2	7	
	Dimensions : 240W * 150D * 80/171H cm	0	0	0	0	0	0	0	0	
	Exhaust duct 2M, Sink, 700W*600D* 930H mm	6	2	0	0	0	3	3	14	
g. Laboratory Furniture 702	Laboratory center table (without Exhaust duct)	4	3	0	0	0	0	2	9	
	Dimensions : 240W * 150D * 80H cm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
g. Laboratory Furniture 703	Laboratory side table	14	8	0	0	0	2	4	28	
	Dimensions : 240W * 75D * 80H cm	0	0	0	0	0	0	0	0	
		8	4	0	0	0	3	3	18	
g. Laboratory Furniture 704	Laboratory side table	10	5	0	0	0	0	4	19	
	Dimensions : 240W * 100D * 80H cm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
g. Laboratory Furniture 705	Work table	1	1	0	0	0	1	1	4	
	Dimensions : 150W * 75D * 80H cm	0	0	0	0	0	0	0	0	
		4	2	0	0	0	1	1	8	
g. Laboratory Furniture 706	Stainless steel table	1	1	0	0	0	0	1	3	
	Dimension: 240L*150W*80Hcm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
g. Laboratory Furniture 707	Laboratory sink	2	1	2	1	1	2	1	10	
	Sink : Stainless steel, SUS304	0	0	0	0	0	0	0	0	
	Dimensions : 180W * 75D * 80H cm	4	2	2	2	2	3	3	18	

Table 4-22 Equipment to be Provided in the Project (6)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)								Reference
		Central		Bagnio	Cebu	Cag. de Oro	Bicol	Davao	Total	
		PR	PA							
g. Laboratory Furniture 708	Laboratory sink (3-sinks type)	1	1	0	0	0	1	1	4	for washing room
	Sink : Stainless steel, SUS304 Dimensions : 300W * 75D * 80H cm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
g. Laboratory Furniture 709	Laboratory sink(Small)	4	4	0	0	0	0	3	11	for Sample receiving room
	Sink : Stainless steel, SUS304 Dimensions : 90W * 80D * 93H cm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
g. Laboratory Furniture 710	Chemical cabinet	13	13	1	1	1	4	7	40	
	Dimensions : 120W * 40D * 180H cm	0	0	0	0	0	0	0	0	
		2	2	1	1	1	1	1	9	
g. Laboratory Furniture 711	Stool	26	14	0	0	0	8	10	58	
	Seat, 32cm diameter, covered with vinyl leather, height adjustable from app. 48 to 62cm, 4 legs, made of steel.	0	0	0	0	0	0	0	0	
		26	14	0	0	0	10	10	60	
g. Laboratory Furniture 711	Assembling shelf	20	12	0	0	0	0	6	38	
	Dimensions : 120L*60W*180Hcm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
g. Laboratory Furniture 712	Air conditioner, window type	0	0	0	5	5	7	0	17	7 additional requested for Bicol
	Cooling capacity : 24000 BTU/hr (6050kcal/h) Dimensions : 670W*696D*450H mm Weight : 73kg	0	0	0	0	0	0	0	0	
		0	0	0	5	5	7	0	17	
g. Laboratory Furniture 713	Fire extinguisher(CO2 gas type)	8	4	5	5	5	5	5	37	CO2 type is better for equipment
	Weight of agent : 4.6kg Dimension : 270*163*940(H) mm	0	0	0	0	0	0	0	0	
		8	4	5	5	5	5	5	37	
g. Laboratory Furniture 714	Exhaust fan	0	0	0	0	0	6	0	6	
	25cm, AC220v 3-phase, with shutter & power cable (on/off switch)	0	0	0	0	0	0	0	0	
		6	0	0	0	0	7	7	20	
g. Laboratory Furniture 715	Fume cupboard (draft chamber), with blower	0	0	1	1	1	1	0	4	for Satellite to be provided with equipment
	Equipped w/dry exhaust gas removal unit, Deodorizing device, Piping materials for water, Exhaust Duct with blower	0	0	0	0	0	0	0	0	
		0	0	1	1	1	1	0	4	
g. Laboratory Furniture 716	Fume cupboard (draft chamber)	3	1	0	0	0	0	1	5	Exhaust gas removal can't be provided in arch. work.
	Equipped w/dry exhaust gas removal unit, Deodorizing device, Piping materials for water	0	0	0	0	0	0	0	0	
		2	2	0	0	0	0	1	5	
g. Laboratory Furniture 717	Emergency shower	0	0	1	1	1	1	0	4	for staff's safety (for satellite to be provided with equipment)
	Emergency station with shower and eye wash, pipe included.	0	0	0	0	0	0	0	0	
		2	0	1	1	1	1	1	7	
h. Extension Equipment 801	Folding table	20	0	0	0	0	0	4	24	
	180W * 45D * 70H cm	0	0	0	0	0	0	0	0	
		10	0	0	0	0	0	3	13	

Table 4-22 Equipment to be Provided in the Project (7)

Section No.	Item (Specification)	Quantity (Top: Designed, Middle : currently operating, Bottom : Requested)								Reference
		Central		Baguio	Cebu	Cag. de Oro	Bicol	Davao	Total	
		PR	FA							
h. Extension Equipment 802	Folding chair	40	0	0	0	0	0	8	48	
	22mm diameter, 49W *52D *74H cm	0	0	0	0	0	0	0	0	
		20	0	0	0	0	0	6	26	
h. Extension Equipment 803	Slide projector	1	0	1	1	1	1	1	6	
	Screen, Lense, F3.5, 70-120mm, 3 Halogen Lamp, 24V-250Watt	0	0	0	0	0	0	0	0	
		1	0	1	1	1	1	1	6	
h. Extension Equipment 803	Bookshelf	4	2	0	0	0	0	1	7	Installed in Library
	6 shelves, made of steel, with 35-bookend, 95W*26D*187H cm	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	
h. Extension Equipment 804	OHP set (w/screen)	1	0	1	1	1	1	1	6	
	Screen, tripod stand type, Writing roll attachment, Roll film, A4 size, Halogen Lamp, 24V-250Watt, OHP stand	1	0	0	0	0	0	0	1	
		1	0	1	1	1	1	1	6	
h. Extension Equipment 805	Projector system	1	0	0	0	0	0	0	1	Simplified system
	Projection-type TV, Screen, VTR, Power amp. Speaker, Microphone	0	0	0	0	0	0	0	0	
		1	0	0	0	0	0	0	1	
h. Extension Equipment 806	Video editing system	1	0	0	0	0	0	0	1	Simplified system
	VTR*3, Monitor TV, Editing controller, Console	0	0	0	0	0	0	0	0	
		1	0	0	0	0	0	0	1	
h. Extension Equipment 808	Computer set(computer, display, printer, table, chair, software)	2	1	1	1	1	1	1	8	
	Personal Computer(i486), Printer, Software	0	0	0	0	0	0	0	0	
	Supply, Computer Table, Chair	2	1	1	1	1	1	1	8	
h. Extension Equipment 809	Fax machine	1	0	1	1	1	1	1	6	
	Normal paper use (A4, LTR)	0	0	0	0	0	0	0	0	
		1	0	1	1	1	1	1	6	
h. Extension Equipment 810	Hand sprayer (for liquid type)	1	0	0	0	0	0	0	1	
	Tank capacity : 17.3 liter	0	0	0	0	0	0	0	0	
	Liquid capacity : 11.3 liter Max. pressure : 7kg/cm2	0	0	0	0	0	0	0	0	
h. Extension Equipment 811	Duster, knapsack type (for powder type)	1	0	0	0	0	0	0	1	
	Chemical tank capacity : 13 liter	0	0	0	0	0	0	0	0	
	Fuel tank capacity : 1.2 liter Engine type : 2-cycle, air cooled, gasoline Max. dust flow rate : 5 Ea/min	0	0	0	0	0	0	0	0	

(4) Basic Design Drawings

The following drawings were prepared for the basic design of this project. They are attached in the end of this report.

PAL-Central

Plot Plan

Main Building, Ground Floor Plan

Main Building, Second Floor Plan

Main Building, Elevation and Section

Main Building, Elevation and Section

Annex, Green House

PAL-Davao

Plot Plan

Plan, Elevation, Section

5. Construction Planning

5-1 Basic Construction Policy

The consultant will provide the following services in accordance with the progress of the project.

(1) Collaboration in procedures of the construction contract

To represent the BPI in carrying out the pre-tender meeting and carry out the tendering in the presence of a representative of the owner. To investigate and evaluate the details of construction to be submitted by the successful tenderer and provide necessary instructions.

(2) Collaboration in applying approvals and permits relevant to the project

To assist the owner to obtain prompt approvals and permits from the authorities concerned, in cooperation with the local consultants.

(3) Procedure of payment approval

To examine and approve requests for payment to be presented by the contractor at the end of each stage of the work.

(4) Work reports

To hold periodical meetings and present reports to the BPI. To compile monthly reports and submit them to the BPI, the Japanese Embassy, the JICA Office, etc.

(5) Direction of the work

To hold meetings regularly at the site to confirm workmanship and progress of the work, and to give necessary instructions to the contractor. To give instructions as to local construction method with the assistance of the local consultant.

(6) Examination and approval

To examine shop drawings, fabrication drawings for the equipment, and samples of construction materials, to give approval to the contractor, and to assist inspections at each work stage from commencement to completion.

The following are special concerns in the construction stage.

- (a) To create and keep close relations among the people concerned to this project in the Philippine and the Japanese authorities, people concerned to construction work, and all others relevant to the project, for the purpose of successful completion of the project upon schedule. In particular, close contact shall be kept between the two sites of PAL-Central and PAL-Davao, as the construction work at these two sites will proceed simultaneously for some periods.
- (b) To provide advice and instructions for the owners regarding maintenance and repairs of the facilities after the project handing-over.

The working design stage, the construction stage, and the operation stage after project completion are consecutive flow of the project, and the sections or people in charge should be consistent throughout these stages. It will be advisable to establish a project construction committee as shown below in the BPI, to clarify who will be responsible for what, during the construction stage.

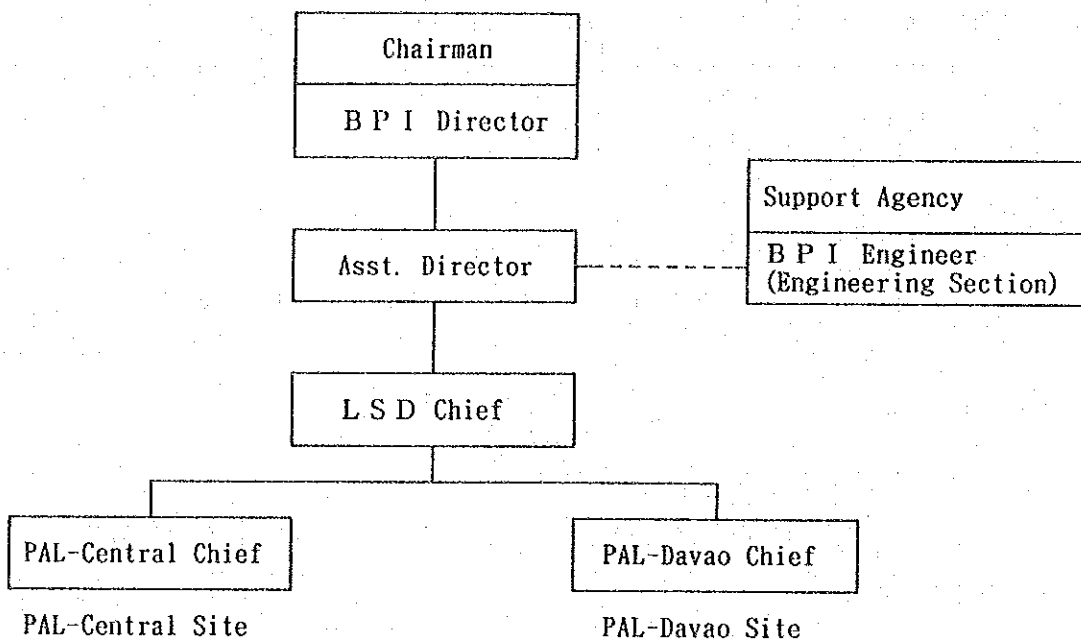


Figure 4-19 Project Construction Committee

The BPI Director will become the chairperson of the committee, who will make decisions and give instructions as necessary for smooth progress of the construction work. The BPI engineer will give technical advice. As was mentioned in the preceding section of this report, PALs will entrust their facility maintenance to the BPI engineering section, so it will be advisable to appoint the engineer in the project construction committee to serve as the maintenance engineer after the project. He should be able to participate in site meetings during the construction work, especially the operation and maintenance instruction sessions before the handing-over of the project. Through these experiences he will grasp the building components and systems, and will be able to deal with problems in the future.

- (c) Philippines' middle to large general contractors are assumed to have ample experience and reliable engineering skills, though they may require improvement in terms of construction work schedule management or safety control, etc. In a Grant Aid project, Philippine general contractors join as subcontractors under the Japanese general contractor. The Japanese general contractor, therefore, should keep in mind

the need to transfer their technology to the Philippine subcontractors during the grant aid project.

As there are no special technology required in this project, it does not seem necessary to send a special work force from Japan.

5-2 Construction Situation and Implementation Methods

In general, post-tension prestressed concrete construction is popularly applied to middle-and high-rise buildings in the Philippines, because structural steel is expensive and seismic force is rather minor. Low buildings are usually of concrete blocks or wooden construction. Precast concrete panels are widely used for exterior walls.

In construction sites 2" x 4" lumber is commonly used as form support and 12 mm thick plywood for sheeting. Construction machinery is easily available in the cities from commercial construction machinery lease companies. The lease companies association establishes unified lease fees, which are listed in a guidebook issued every other year.

Compared to Japanese construction companies, those in the Philippines do not seem to have strong relations with subcontractors. Therefore, management and supervision of work progress and engineering will be important.

In the light of this situation in addition to specific site conditions, the following shall be reviewed and investigated for the construction purpose.

- (1) The PAL-Central construction site is located in the BPI's Nursery Compound, where some other buildings are being constructed or planned to be. The PAL-Davao site is located in the DNCRDC Compound, also surrounded with other laboratories and office buildings. Due care needs to be given at both sites for safety precautions such as erecting a temporary fence around the site so that unauthorized persons cannot enter.
- (2) Well planned temporary work and construction schedules shall be made taking into account rainfall during typhoons and the rainy season.
- (3) Purchase of local materials shall be scheduled at an early stage, due to insufficient supply. The transport system from Manila to Davao

shall be investigated for the purpose of construction materials delivery to the Davao site.

- (4) Care shall be taken to protect structural concrete work from adverse effects of heavy rain in the rainy season and from high temperature.
- (5) The construction periods are scheduled as 11 months for PAL-Central and 6 months for PAL-Davao. Their construction schedules will coincide for at least 6 months. A well planned whole work schedule shall be prepared, with special consideration for proper progress during these 6 months.

5-3 Supervisory Plan

The following are basic policies in the construction supervision stage:

- (1) Facilities
 - a. To keep close contact with the authorities and people concerned and to coordinate their views;
 - b. To communicate with the contractor frequently and give appropriate advice on the site as necessary for the smooth progress of construction work;
 - c. To keep close communication between the two sites to cater for simultaneous construction progress;
 - d. To grasp the material procurement period considering the distance from Manila to Davao so as not to cause unnecessary delay in the work schedule, because both local and imported materials are transported from Manila;
 - e. To care for safety precautions, as there are various other buildings around the sites.

The size of the projects sites are approx. 2,640 m² for PAL-Central and 430 m² for PAL-Davao. Aware of the above principles for supervising services at this size of project, a field representative of the consultant

will be stationed at the PAL-Central site for management and supervision of the work, and he/she will visit the PAL-Davao site a few times a month. In addition, engineers concerned with structural, electrical, mechanical and plumbing design will be sent to both sites in accordance with the progress of construction, in order to discuss, inspect and provide instructions when necessary.

(2) Equipment

- a. To deliver and install the equipment at two laboratories at once, to shorten the work period.

Equipment installation schedule

First year : Analytical equipment at PAL-Central

PAL-Davao

Second year: 1. Equipment for training and data management at PAL-Central

PAL-Cebu and PAL-CDO

2. PAL-Baguio, PAL-Bicol

- b. To check the progress of building restoration at the existing satellites during the first year. The restoration work will have to be completed before the equipment installation in the second year.
- c. To attend the equipment inspection in Japan before shipping as necessary, to ensure quality and performance.
- d. To conduct final inspections and trial run before handing-over, and to submit the certificate to the Government of the Philippines.
- e. To instruct and assist training of the Filipino engineers during the installation, adjustment and trial run, as to skills for operation, spot-check and repairs.

Two representatives of the consultant will supervise the sites during the installation work, who will administer the work schedule, equipment delivery, installation and adjustment. Regular meetings will be held in Manila about once a month, where the progress of work, any problems encountered will be discussed.

5-4 Procurement Plan for Materials

(1) Procurement of Materials

Construction materials are produced on the ASTM Standards. Basic materials such as concrete, reinforcing bars, lumber, stones and pipes are available in the Philippines. Some finishing materials are insufficient in color and design variety or quality. Those required with special performance are mostly imports from Japan or U.S.A. Electric wires sometimes cause fires due to their low product quality.

In principle, materials for constructing the buildings will be procured in the Philippines, together with some from Japan. Laboratory instruments for precision analysis and their peripheral devices to be supplied in grant are not manufactured in the Philippines.

Table 4-23 Procurement of Materials

Materials	Country	Reference (Selection reasons & notes)
<Construction Materials>		
Cement	Philippines	The quality varies a little, but does not present problems in compressive strength.
Sand, gravel	Philippines	The quality varies considerably depending on the supply source.
Reinforcing bars	Philippines	Products of reliable plants will be used.
Concrete blocks	Philippines	A lot of products are available in wide variety.
Wooden frames	Philippines	Locally available, in good quality.
Plywood	Philippines	Locally available, in good quality.
Lumber	Philippines	Plenty of good cheap lumber is available. It is prohibited to cut certain species.
Stones	Philippines	Plenty of cheap marble is available in good quality.
Tiles	Philippines	Local products have a little variety of color and size, though are in rather poor quality in size precision. As areas to be tiled will not very large in this project, Philippine products will be sufficient.
Aluminum sash	Japan	Produced only for house use and are not very satisfactory in strength, finish, as well as water and air tightness

Doors and windows	Philippines	Locally available, with no problems in quality and quantity.
Glass	Philippines	Glass for the green house, requiring special quality, will be Japanese products.
Paint	Philippines	Local products of good quality are available in quantity. Japanese manufacturers own local companies.
Vinyl floor tiles	Japan	Chemical-proof vinyl floor tiles are not produced locally. Ordinary vinyl tiles are available, but inappropriate as to strength, precision and variety.
Decorative gypsum board	Japan	Locally unavailable.
Folded steel plate	Japan	Folded steel plate with special baked finish are imports from Japan.
<Electrical Materials>		
Conduits accessories	Philippines	Manufactured locally, but there are problems in accessories.
Wires, cables	Japan	Some are manufactured locally but are not favorable in quality (insulation, vinyl covering) and quantity.
Lighting fixtures	Japan	Local products are inappropriate in quality and safety precautions. Fluorescent and incandescent lamps will be local products.
Lightning Rod	Philippines	Locally available in good quality.
<Mechanical Materials>		
Pipes, fittings	Philippines	Locally available in good quality.
Sanitary wares	Philippines	Locally available in good quality. Faucets and metal fittings are rather poor in quality and quantity.
Air conditioners	Japan	Local products are for house use, expensive and have a little variety.
Pumps	Japan	All imported; expensive and a little variety.
Equipment	Japan	Laboratory equipment for precision analysis and their peripheral devices are not produced in the Philippines. (Those available, such as PCs, will be purchased locally.)

(2) Transport from Japan

a. Construction Materials

Davao port is a large, well equipped port, capable for loading and unloading of export and import goods. It is possible to ship materials from Japan to Davao directly, but the shipping quantity will not be very large, as the PAL-Davao building is rather small. It will be more practical to ship all the materials to Manila, and divide them into those to the PAL-Central site and those to Davao. Materials to Davao will be transported in a regular freight ship. Transportation routes and periods are scheduled as follows:

1) PAL-Central

		<u>Customs Clearance</u>			
	7-10 days		1 day		
Japan	→	Manila	→	PAL-Central Site	13 to 18
1 day	(shipping)	5-7 days	(transport)		days

↓

	4 days		1 day		
2) PAL-Davao	(shipping)	Davao	→	PAL-Davao Site	20 to 25
		2 days	(transport)		days

b. Equipment

Most of the equipment will be shipped to Manila, unloaded, cleared the Customs, and transported to each satellite. Equipment to PAL-Bicol will be directly shipped to Cebu City, to which a direct ship goes from Japan. Equipment for each laboratory will be packed in separate cargoes in Japan to ensure collect shipping to each destination. Transportation routes and periods are scheduled as follows:

1) PAL-Central

		<u>Customs Clearance</u>			
	7-10 days		1 day		
Japan	→	Manila	→	PAL-Central Site	13 to 18
1 day	(shipping)	5-7 days	(transport)		days

2) PAL-Davao

		<u>Customs Clearance</u>			
	7-10 days		4 days	1 day	
Japan	→	Manila	→	Davao	→
1 day	(shipping)	5-7 days	(shipping)	2 days	(transport) site
					20 to 25
					days

3) PAL-CDO

		<u>Customs Clearance</u>			
Japan	7-10 days		4 days	1 day	
1 day	→ (shipping)	Manila	→ (shipping)	C de Oro	→ PAL-CDO Site
		5-7 days		2 days (transport)	20 to 25 days

4) PAL-Cebu

		<u>Customs Clearance</u>			
Japan	12-15 days		1 day		
1 day	→ (shipping)	Cebu	→ (transport)	PAL-Cebu Site	14 to 19 days
		5-7 days			

5) PAL-Bicol

		<u>Customs Clearance</u>			
Japan	7-10 days		2 days		
1 day	→ (shipping)	Manila	→ (transport)	PAL-Bicol Site	15 to 20 days
		5-7 days			

6) PAL-Baguio

		<u>Customs Clearance</u>			
Japan	7-10 days		2 days		
1 day	→ (shipping)	Manila	→ (transport)	PAL-Baguio Site	15 to 20 days
		5-7 days			

5-5 Tentative Schedule of the Project

The construction work will be carried out in two fiscal years. The work items and the construction periods are as shown below. After the notes are exchanged between the both governments (E/N), the BPI will enter into an agreement for consulting services with a Japanese consultant. The consultant will proceed with the verification of the agreement by the Government of Japan, while preparing working design documents in compliance with the agreement.

After completing the working design in about three months and having them approved by the BPI, the consultant will hold a pre-tender meeting and call for tenders from Japanese construction companies and trading corporations in the name of the BPI. The successful contractor will conclude a construction contract with the BPI, which shall be verified by the Government of Japan, and will start construction work. The BPI will complete the work in the area of its responsibilities during this period so as not to cause delay of the construction schedule.

Similar formalities will be repeated for the second year, after the E/N. The consultant will complete the working design in about 2.5 months, and will call for a tender from the trading corporations only.

Table 4-24 Works in Each Year

Phase	Work Items	Period
First Year	Construction of PAL-Central building and equipment installation (partly in the second year) Construction of PAL-Davao building and equipment installation	11 months
Second Year	Equipment installation at the four satellites (Baguio, Cebu, Cagayan de Oro, Bicol) Equipment (for training and data management) installation at PAL-Central	7.5 months

If the foundation work coincides with the rainy season, more costs will be needed for rain water discharge, safety precautions, etc. than that in the dry season. The foundation work period need be extended. It is therefore strongly recommended that the foundation work be scheduled during the dry season.

5-6 Scope of Responsibilities

The scope of responsibilities in accordance with the Grant Aid system is as shown in table 4-25.

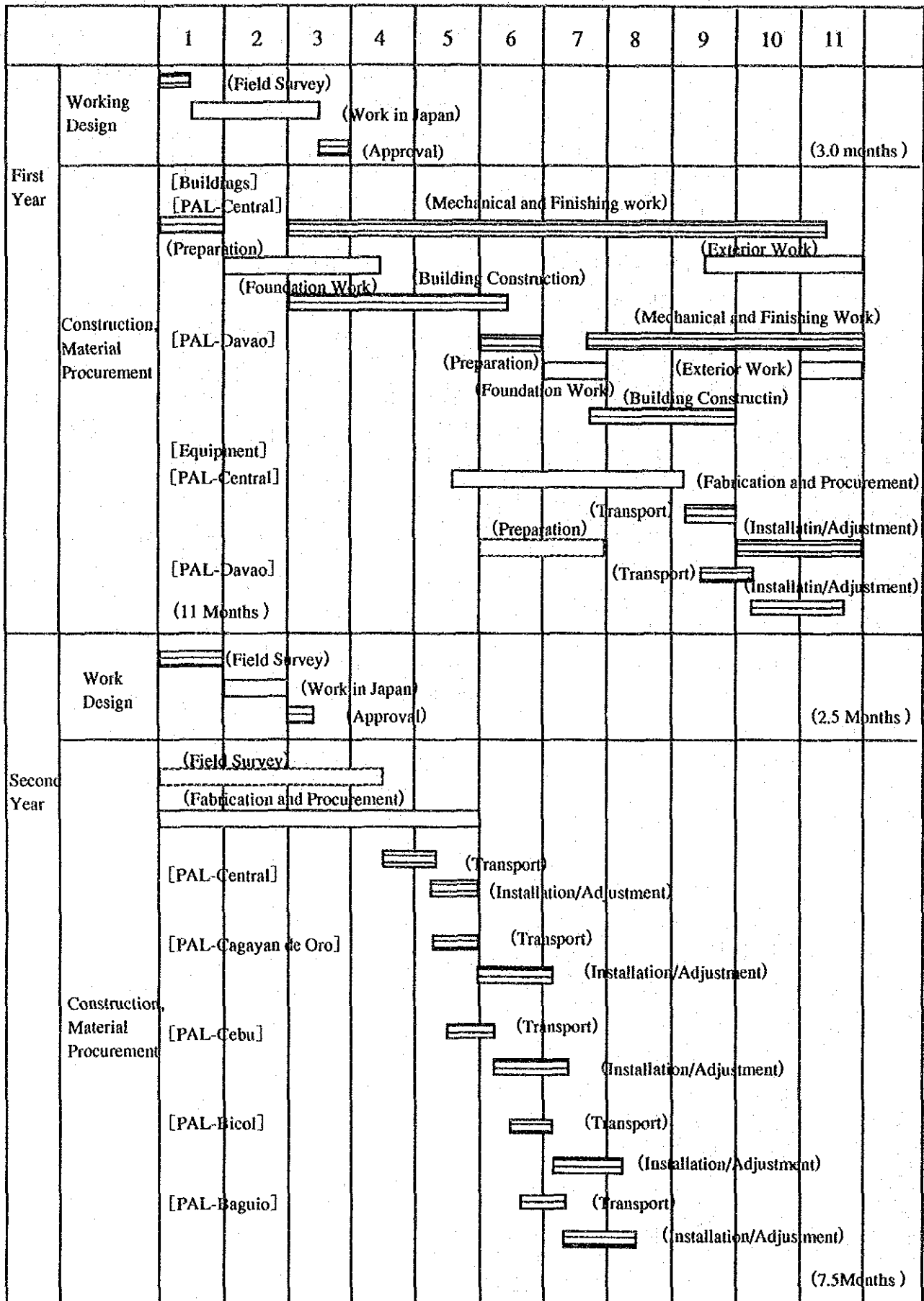
Table 4-25 Scope of Responsibilities

Site	Japan	Philippines
PAL-Central	Construction of the building Equipment supply	Securing the land Site preparation work Intake piping & connection of electric power and water supply Sewage piping & connection

		Application for permits & approvals necessary for implementing the work Relocation of lab. equipment from the existing PAL-Central building
PAL-Davao	Construction of the building Equipment supply	Securing the land Site preparation work Intake piping & connection of electric power and water supply Sewage piping & discharge (approx. 50 m) Relocation of electric line by Davao Lighting Corporation Application for permits & approvals necessary for implementing the work Relocation of lab. equipment from the existing PAL-Central building
PAL-Baguiyo Cebu CDO	Equipment supply	Restoration of electric and plumbing systems required for new equipment (Restoration of buildings as necessary)
PAL-Bicol	Equipment supply	Restoration of the present building to use as PAL-Bicol

The cost to be borne by the Philippines is estimated at approximately 3,942,000 pesos. (Details of the estimation are shown in ANNEX 9.)

Table 4-26 Tentative schedule of the Project



6. Technical Cooperation and Programs of Other Donors

A request proposal for technical cooperation to PALs are jointly submitted by the BPI and FPA to the Government of Japan through the NEDA. The BPI plans construction of new PAL buildings and upgrading of equipment under Grant Aid as the first stage of improving the national monitoring network of pesticide residues. With the aid of technical cooperation in the second stage, the BPI intends improvement of analytical skills, utilization of data to pesticide control administration, and establishment of the Philippine's own MRL. And Grant Aid and technical cooperation are regarded indispensable for achieving their goals. PALs will receive assistance under the technical cooperation, after their facilities and equipment are intensified through Grant Aid, or in utilizing accumulated data for FPA's pesticide management. In other words, it is the objective of technical cooperation to let PALs take the maximum advantage of Grant Aid. The request proposal asked for three experts in pesticide residue monitoring, one in formulation analysis, and two in pesticide registration/ legal regulations.

In accordance with the upgrading of laboratory equipment as well as considerable increase of amount of analysis, the improvement of analytical skills and work efficiency will become more important. JICA has dispatched an expert since 1991, who has been instructing extraction technique. As this project include some instruments that are new to PALs' staff, like GC/MS, technical assistance from the experts will be indispensable.

Pesticide residue monitoring is to identify minimum amount of agricultural chemicals from among mixtures of various confusing ingredients, and analysts have to be proficient in interpreting and evaluating analysis data. In order to develop such data to be internationally qualified ones, standardization of analysis at each PAL, and compliance to the internationally approved standards such as Good Laboratory Practice (GLP) remain as a challenge in the future. Expertized advice in these areas will also be anticipated.

PALs are eager to conduct examinations of pesticide residual levels in crops as the basis for establishment of MRL, however, it is only experienced in small scale examinations. Assistance from the experienced experts will be advantageous for creating effective and efficient examination schedules. The establishment of MRL suitable to the Philippines is a new trial of the government, therefore, expertized advice in terms of

strategy for how to develop the MRL, with reference to the procedures in Japan, will be needed.

As was detailed in Chapter 4.3. Implementation-Management Program, several committees are to be established for the project implementation. The JICA experts are to join the PAC and the PTC. Thus, the technical cooperation expected for this project is not merely to give instructions on how to operate the instruments, but to transfer integrated technical skills. The study team, therefore, anticipate that the technical cooperation be realized in order to intensify the effect of Grant Aid.

It is suggested that the necessity for LC/MS be examined again during the technical cooperation from the experts' view.

The request from the Government of the Philippines stated the technical cooperation period as five years starting October 1993 (renewable). As the technical cooperation is considered on the basis of the implementation of this project, the cooperation should start in the middle of 1996, after this project is completed.

Regarding assistance from other donations, most of the programs that the BPI is involved in are, as referred to in Chapter 3.3. Projects and/or Programs of Other Donors, interested in IPM or crop protection in agricultural production areas. There are no projects directly supporting PALs. Meanwhile, as shown in recommendations from the ADB for the development of Philippines' own MRL in 1987, the role of this project and the technical cooperation will become more significant in the future.

CHAPTER 5

PROJECT EVALUATIONS AND CONCLUSIONS

CHAPTER 5 PROJECT EVALUATION AND CONCLUSIONS

1. Effects Expected from the Project

Table 5-1 shows the current problems that PALs are encountering, countermeasures considered in this project, and its expected effects.

Table 5-1 Current Problems and Project Effects

macroaspects		- Improvement * Conditions
Current Problems	Countermeasures	Improvement and Conditions
1. Inadequate standards and enforcing power against indiscriminate use of pesticides.	<ul style="list-style-type: none"> - Upgrading of analytical equipment - New laboratory buildings for PAL-Central & PAL-Davao - New satellite in Bicol 	<ul style="list-style-type: none"> - Prompt examinations under PALs' leadership to contribute to the establishment of the Philippines' own MRL and relevant laws. * FPA shall establish the relevant laws.
2. Sample collection is difficult in some areas due to unfavorable road conditions.	<ul style="list-style-type: none"> - New satellite in Bicol - A vehicle for sample collection 	<ul style="list-style-type: none"> - PAL-Bicol will enable prompt sample collection and analysis in Region 5. - PALs' staff can collect samples themselves. * Efficient sample collection in rural areas.
3. Distribution of false or adulterated pesticides may lead to ineffective crop production.	<ul style="list-style-type: none"> - Improvement of PAL-Central's formulation analysis unit in terms of facilities and equipment. 	<ul style="list-style-type: none"> - Frequent check of increased number of formulations under the FPA's leadership. - Smooth preparation of data by PALs on commission; data to be attached at the time of pesticide registration. * Reconsideration of the revolving fund system.

-
4. Incomplete observance of the Direction for Safe Usage of Pesticides, due to inadequate knowledge
- Upgrading of training capacity at PAL-Central
 - Providing training and seminars for extension workers, ATI's agricultural engineers, etc.
 - * Education to farmers in rural areas.
-

microaspects

Current Problems	Countermeasures	Improvement and Conditions
1. Insufficient analysis due to shortage and defects of current equipment. Inability to correspond to increase of pesticide with diversifying variety.	<ul style="list-style-type: none"> - Upgrading of analytical equipment - New laboratory buildings for PAL-Central & PAL-Davao - New satellite in Bicol. 	<ul style="list-style-type: none"> - Analysis capacity will augment about 4.7 times. - Able to supply data and information useful for the pesticide control administration.

2. Evaluation of the Project

This project is expected to be particularly beneficial in the following fields:

- a. Safe food supply and good health of the Filipino nation as a result of intensive monitoring of pesticide residues in crops
- b. Improvement of life standards as a result of intensive monitoring of pesticide residues in the environment
- c. Safety of the farmers during pesticide diffusion

Beneficiaries of a. and b. will be the entire Filipino nation. With regard to farmers, beneficiaries of c., considerable numbers are assumed to be exposed to pesticides during diffusion, calculated as that people in agriculture, forestry and fisheries count for approximately 45% of the Filipino work force. In these circumstances, this project will be highly beneficial to the Filipino nation.

While international migration of agricultural products is expanding rapidly, the world becomes increasingly aware of international standardization in industrial products, food, environment and various other

sectors. The Philippines will have to comply with such international criteria. The Philippines is one of the world's leading export nations of bananas and mangos, and the monitoring of pesticide residues in these crops will have an important role in the expansion of exportation.

PALs have been conducting analysis of agricultural chemicals for approximately 18 years since its establishment, and the staff are well experienced in the operation of the laboratory instruments to be provided in this project. Some new instruments like GC/MS to be supplied to PAL-Central will require additional operational training. In view of the mainstream of pesticide analysis methodology, adoption of GC/MS in PALs is regarded as appropriate. PALs plan to expand their staff personnel in accordance with the development of operations through this project. Supplementary budgets from the FAPF are also to be availed concomitant to the expansion of operations. Therefore, the facilities and equipment intensified throughout this project will be managed and maintained by the Government of the Philippines utilizing their own budgets and personnel.

It is determined in this project that a new satellite will be established in Bicol by remodeling an existing building with laboratory equipment appropriate to the capability of PAL-Bicol. The BPI once founded PAL-Davao in the same manner. Newly employed staff are to take practical training for six months at PAL-Central before they are assigned to PAL-Bicol, and the chief of PAL-Central will assume the position of satellite chief for an initial period. The BPI's plan for PAL-Bicol appears specific and reasonable.

The Department of Agriculture is deeply concerned with the intensification of the monitoring system for safe food supply and establishment of the Philippines' own MRL. This project will assist the DA in achieving these objectives. Accordingly, it will contribute to the improvement of health and life standards of the Filipino nation. Past records show that management ability and operation programs of the BPI and PALs have no difficulties in implementation of the project and in general management of the programs afterwards. This project is therefore well worth realizing through Grant Aid from Japan, with considerable benefit thereby engendered.

3. Recommendations

The following recommendations are presented for the implementation of the project as well as the smooth and effective operation of PALs to attain their ultimate goals.

(1) Adequate budget and personnel planning

A supplementary budget is to be appropriated to this project to manage expanded operation of PALs with proof that it is a foreign-assisted project. Past foreign assisted projects were all granted with the supplementary budgets from the FAPF without exception. What is also important is that the budget should be available in time for operation programs. The application for the budget needs due consideration in terms of both amount and time.

With regard to personnel planning, 14 persons and 10 are to be employed at PAL-Central and PAL-Bicol respectively. These new staff should be employed well before the expansion or commencement of laboratory operation so that they can take enough training beforehand.

(2) Necessity for technical cooperation

As was stated in Chapter 4.6. Technical Cooperation and Programs of Other Donors, technical assistance of Japanese experts is expected for the improvement of work efficiency and operation of new equipment; for instance, sample processing speed-up, GC/MS operation method, data evaluation and data bank formulation strategy, together with many others. Technical assistance is also anticipated in utilizing analysis data into pesticide control administration, such as the development of the Philippines' MRL.

(3) Collaboration and coordination among authorities concerned with the development of MRL

Various factors need to be examined for the setting-up of MRL suitable to the Philippines, such as health and sanitation of the Filipinos, safety of the farmers, and environmental sanitation, as stated in Chapter 4.3. Implementation-Management Program.

For this examination, not only the DA and its affiliating agencies but other institutions like the Department of Health and the Department of Science and Technology will have interest in this matter. Therefore, it is recommended that a basic framework be formed in the early stages, clarifying which institution is responsible for what. It is suggested that this

will allow the smooth cooperation of these authorities to realize prompt establishment of MRL.

(4) Coordination with the DA's Regional Integrated Agricultural Research Centers in each region

PALs are to collect basic data for MRL through cultivating crops, applying pesticides and collecting crop samples with the cooperation of RIARC in each region. PALs are then to analyze crop samples and obtain data of pesticide in question. A well organized systematic examination schedule needs to be created for obtaining reliable data. For this purpose, close coordination between PALs and RIARCs is indispensable.

(5) Establishment of the project construction committee in the BPI, concerned with the project throughout the period, as referred to in Chapter 4.5-1 Basic Construction Policy (Figure 4-19.)

(6) Completion of the works under the responsibilities of the Government of the Philippines, as mentioned in Chapter 4.5-5 Tentative Schedule of the Project (Table 4-26), in time for building construction and equipment installation in Grant Aid

The existing satellites in Baguio, Cebu and Cagayan de Oro will be capable of operating new equipment after some restoration of their current utility systems. It is recommended that, taking advantage of this opportunity, these satellite buildings will have their interiors and exteriors reviewed thoroughly, so that they may function for a period of long standing, with no need of further restoration.

ANNEX

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1. MEMBERS OF THE STUDY TEAM

(1) Basic Design Study Phase 1

<u>Name</u>	<u>Specialty and Title</u>
Teizo IGARASHI	Leader Deputy Managing Director, Grant Aid Management Dept., JICA
Tsuneo KOBATAKE	Pesticide Residue Inspector Section Chief, Plant Protection Div., Agricultural Production Bureau, Ministry of Agriculture, Forestry and Fisheries
Hisatoshi OKUBO	Project Coordinator First Basic Design Study Div. Grant Aid Study & Design Dept., JICA
Ryoichi KIBE	Chief Engineer / Facilities Planner 1 Yokogawa Architects & Engineers, Inc.
Keiichi IDE	Facilities Planner 2 Yokogawa Architects & Engineers, Inc.
Takeshi KOJIMA	Pesticide Control Planner Yokogawa Architects & Engineers, Inc.
Kazumi UENO	Equipment Planner Overseas Merchandise Inspection Co., Ltd.

1. MEMBERS OF THE STUDY TEAM

(2) Basic Design Study Phase 2

<u>Name</u>	<u>Specialty and Title</u>
Shigetaka SABURI	Leader Pesticide Inspection Administrator Director, Second Inspection Div., Agricultural Chemicals Inspection Station, MAFF
Tsuneo KOBATAKE	Pesticide Residue Inspector Chief, Pesticide Residue Section Agricultural Chemicals Inspection Bureau, MAFF
Hisatoshi OKUBO	Project Coordinator First Basic Design Study Div. Grant Aid Study & Design Dept., JICA
Ryoichi KIBE	Chief Engineer / Facilities Planner 1 Yokogawa Architects & Engineers, Inc.
Keiichi IDE	Facilities Planner 2 Yokogawa Architects & Engineers, Inc.
Takeshi KOJIMA	Pesticide Control Planner Yokogawa Architects & Engineers, Inc.
Kazumi UENO	Equipment Planner Overseas Merchandise Inspection Co., Ltd.

1. MEMBERS OF THE STUDY TEAM

(3) Draft Mission

<u>Name</u>	<u>Specialty and Title</u>
Shigetaka SABURI	Leader Pesticide Inspection Administrator Ex-Director, Second Inspection Div., Agricultural Chemicals Inspection Station, MAFF
Tsuneo KOBATAKE	Pesticide Residue Inspector Chief, Pesticide Residue Section Agricultural Chemicals Inspection Bureau, MAFF
Hisatoshi OKUBO	Project Coordinator Consultant Contract Div. Procurement Dept., JICA
Ryoichi KIBE	Chief Engineer / Facilities Planner 1 Yokogawa Architects & Engineers, Inc.
Takeshi KOJIMA	Pesticide Control Planner Yokogawa Architects & Engineers, Inc.

2. STUDY SCHEDULE

(1) Basic Design Study Phase 1

Date	Movement	Accommodation	Activities
Jan.			
31 Mon.	Tokyo to Manila	Manila	Courtesy visit to the Japanese Embassy, JICA
Feb.			
1 Tue.			Courtesy visit to and meeting with BPI presentation of the inception report and questionnaire
2 Wed.	Manila to Davao	Davao	Courtesy visit to Undersecretary of DA, BPI meeting, FPA meeting, PAL-Central site survey in Quezon, ATI meeting
3 Thu.			PAL-Davao site survey, meeting
4 Fri.	Davao to Cebu	Cebu (Davao)	PAL-Cebu site survey, meeting Ide remains in Davao to continue the site survey.
5 Sat.	Davao to Cebu	Cebu	PAL-Cebu site survey
6 Sun.	Cebu to Manila	Manila	Team meeting (initial draft minutes of discussions)
7 Mon.			BPI meeting, draft minutes of discussions
8 Tue.			BPI meeting, FPA meeting, NEDA meeting
9 Wed.			Signing on the Minutes of Discussions, report to the Japanese Embassy and JICA
10 Thu.	Manila to Tokyo		Government staff (Igarashi, Kobatake, Okubo) return to Tokyo.
	Manila to Cagayan de Oro		Consultant staff: field survey Ide and Ueno visit Cagayan de Oro
11 Fri.			Meeting
	Cagayan de Oro to Manila		Observation of PAL-CDO
12 Sat.		Manila	Field survey
13 Sun.			Team meeting, data sorting
14 Mon.	Manila to Baguio	Baguio	Observation of PAL-Baguio (Kibe, Kojima, Ueno)
	Manila to Bicol	Bicol	PAL-Bicol site survey (Ide)
15 Tue.	Baguio to Manila		Discussion in PAL-Baguio, research on a similar project (PhilRice)
	Bicol to Manila	Manila	Infrastructure survey at PAL-Bicol site
16 Wed.		Manila	BPI meeting
17 Thu.			BPI meeting, receiving replies to the questionnaire
18 Fri.			BPI meeting, draft technical notes, receiving replies to the questionnaire
19 Sat.			Market research
			PAL-Central site survey
20 Sun.			Team meeting, data sorting
21 Mon.			BPI meeting, signing on the Technical Notes, report to JICA
22 Tue.	Manila to Tokyo		Consultant staff return to Tokyo.

(2) Basic Design Study Phase 2

Date	Travel	Activities
May		
11 Wed.	Tokyo to Manila	Courtesy visit to JICA and Japanese Embassy
12 Thr.		PAL-Central proposed site survey Courtesy visit to BPI Presentation of the Interim Report
13 Fri.		Meeting w/ BPI: Interim Report, Questionnaire
14 Sat.		Team meeting, field survey
15 Sun.	Manila to Davao	Team meeting (draft minutes of discussions)
16 Mon.	Davao to Manila	PAL-Davao proposed site survey, meeting
17 Tue.		Meeting w/ BPI: Interim Report, visit to FAO
18 Wed.		Meeting w/ BPI: Interim Report, draft minutes Courtesy visit to Undersecretary of DA Visit to ADB
19 Thr.		Signing on the Minutes of Discussions, Report to JICA and Japanese Embassy Visit to similar projects
20 Fri.	Manila to Tokyo	Government staff return to Tokyo
21 Sat.		Consultant staff: field survey, meeting w/BPI Field survey of construction situation and equipment market
22 Sun.		Team meeting, data sorting
23 Mon.		PAL-Central site survey
24 Tue.	Manila to Cebu	
	Cebu to Manila	PAL-Central site survey
	Manila to Naga	
25 Wed.	Naga to Manila	Meeting w/ BPI: replies to Questionnaire
26 Thr.		Meeting w/ BPI: replies to Questionnaire Technical Notes draft
27 Fri.		Signing on Technical Notes, Report to JICA and Japanese Embassy
28 Sat.	Manila to Tokyo	Three of the consultant team members return to Tokyo. The remaining one continues study.
29 Sun.	Manila to Davao	
30 Mon.		PAL-Davao site survey
31 Tue.		PAL-Davao site survey
June		
1 Wed.	Davao to Manila	PAL-Davao site survey
2 Thr.		Meeting w/ BPI, Field survey of construction situation
3 Fri.		Field survey of construction situation
4 Sat.	Manila to Tokyo	

(3) Draft Mission

Date	Travel	Activities
July		
31 Sun.	Tokyo to Manila	Consultant staff (2) arriving in Manila
August		
1 Mon.	Tokyo to Manila	Consultant staff: courtesy visit to BPI, discussions Government staff (3) arriving in Manila courtesy visit to the Embassy Team meeting
2 Tue.		Meeting w/ BPI: Draft Final Report
3 Wed.		Meeting w/ BPI: Draft Final Report, draft minutes
4 Thr.		Meeting w/ BPI: Draft Final Report, draft minutes Signing on the Minutes of Discussions PAL-Central site survey
5 Fri.		Meeting w/ NEDA Report to JICA and Japanese Embassy Team meeting
6 Sat.	Manila to Tokyo	Returning to Japan

3. LIST OF PEOPLE INTERVIEWED

Department of Agriculture (DA)

Mr. Roberto S. Sebastian	Secretary of DA
Dr. Manuel Lantin	Undersecretary for Regional Operations, Research and Trainings
Ms. Cecilia Q. Astilla	Project Development Officer III (Japan Desk) IADCCO
Mr. Nestor F. Estoesta	Project Development Officer, IADCCO

Bureau of Plant Industry (BPI)

Dr. Nerlus I. Roperos	Director
Dr. Santiago J. Pablo	Assistant Director
Dr. Virgilia T.D. Pacaba	Chief, Laboratory Services Division
Ms. Paz B. Austria	Chief, Pesticide Analytical Laboratory Section
Dr. Lydia C. Crisostomo	Consultant
Mr. Johnson Mercader	Consultant
Ms. Rustica S. Bautista	Chief, Crop Protection Division
Ms. Teresita C. Silva	Chief, Agricultural Engineering Division

Fertilizer and Pesticide Authority (FPA)

Mr. Frank C. Cornejo	Administrator
Dr. Ricard T. Deang	Deputy Executive Administrator
Ms. Bella Carmona	

Agriculture Training Institute (ATI)

Mr. P. W. Resman	Chief, Specialist Services Division
Ms. Rosario R. Icarro	Chief, Planning Monitoring and Evaluation Division
Mr. Roberto T. Masbang	Chief, Extension Communication Division

National Economic & Development Authority (NEDA)

Mr. Pam D. Quizon	Senior Economic Development Specialist
Ms. Alely A. Bernardo	Chief Economic Development Specialist, ASPAC Division

Ms. Susan Ortega	Agricultural Staff
Ms. Elizabeth R. Lat	Agricultural Staff

Davao

Mr. Alejandro I. Yadao	DA Regional Director
Mr. Pablo C. Piatos Jr.	Superintendent Agriculturist OIC of DNCRDC
Mr. Dennis B. Araillo	OIC DA Regional Office
Ms. Dahlia D. Cervantes	Chemist III, PAL-Davao
Ms. Evangeline N. Rodoriguez	Chief Agriculturist, DA Regulatory Division
Mr. Isidro M. Gandia	Regional Officer, Region XI, DA
Mr. Alma B. Mahinay	Regional Officer, Region XI, DA

Cebu

Mr. Rodolfo C. Drais Ceso III	Regional Director, Regional Office VII
Mr. Jose F. Quitazol	Assistant Regional Director for Technical Service, Regional Office VII
Ms. Alicia Q. Estrada	DA Regional Office Chief Administrative Division
Ms. Lazarah S. Tacudin	DA Regional Office, Budget Finance Officer
Ms. Rachel Cadelifia	DA Regional Office, Chief Biologics Vaccine
Ms. Marina Hermos	DA Regional Office, Planning Officer
Ms. Antonio R. Yap	DA Regional Office, Research Division Chief
Ms. Marciana Jarina	DA Regional Office, Chief, Regulatory Division
Mr. Conrado B. Santos	Station Superintendent Mandaue Experiment Station
Ms. Bernadette A. Ibarra	Chief, PAL-Cebu
Ms. Jocelyn M. Yap	Senior Chemist, PAL-Cebu
Ms. Theresa Corpuz	Senior Chemist, PAL-Cebu

Cagayan de Oro

Mr. Ernesto C. Olifernes	DA Regional Office O.I.C. Office of the Asst. Regional Director for Administration
Ms. Jorena Lemoncito	Chief, PAL-Cagayan de Oro
Ms. Judith Flores	Chemist II, PAL-Cagayan de Oro
Mr. Roberto Lastimosa	FPA Region 10 Coordinator

Bicol

Ms. Fe D. Laysa	DA Regional Director
Mr. Mango J. Dancel Jr.	DA Regional Office, Chief, Research Division
Mr. Ernesto N. Panato	Chief, Planning and Monitoring Division

Baguio

Mr. Ceferino A. Baniqued	Superintendent, BNCRDC
Ms. Natividad B. Villanueva	Chief, PAL-Baguio
Ms. Joy S. Calavan	Chemist III, PAL-Baguio
Mr. Lorna F. Beldad	Chemist III, PAL-Baguio

Food Development Center

Ms. Leah F. Tlongson-Bargan	Chief, Industry Liaison and Information
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National Crop Protection Center

Dr. Tejada

Food and Agricultural Organization

Dr. Peter E. Kenmore	Regional Programme Coordinator
Dr. Kevin de Wayne Gallagher	Deputy Regional Programme Coordinator

Asian Development Bank (ADB)

Mr. Hiroshi Yoneda	Project Specialist, Education, Health & Pollution (East)
Mr. Takashi Matsuo	Project Economist, Agriculture Dept.
Ms. Siew Tuan Chew	Project Specialist, Agriculture Dept.

Japanese Embassy

Mr. Yugo Matsuda

Mr. Katsuhiko Yamauchi

Mr. Ryoichi Shikanoya

First Secretary

First Secretary

Consul, Japanese Consulate at Davao

JICA Manila Office

Mr. Akihiko Hashimoto

Mr. Satoshi Machida

Mr. Katsumi Yoshida

Resident Representative

Deputy Resident Representative

Assistant Resident Representative

JICA Experts

Mr. Kazuo Ogura

Mr. Akira Nagaoka

Mr. Seiichi Kato

Pesticide Residue Analysis (BPI)

Agricultural Research and Development
(IADCCO)

Agricultural Extension and Training
Program (ATI)

4. MINUTES OF DISCUSSIONS

(1) Basic Design Study Phase 1

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY (I) ON
THE PROJECT FOR IMPROVEMENT OF THE NATIONAL
MONITORING PROGRAM ON PESTICIDE RESIDUE
IN AGRICULTURE AND THE ENVIRONMENT AND
PESTICIDE FORMULATION
IN
THE REPUBLIC OF THE PHILIPPINES

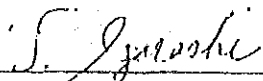
In response to a request from the Government of the Republic of the Philippines, the Government of Japan has decided to conduct a Basic Design Study on the Project for Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and Pesticide Formulation (herein after referred to as "the Project"), and has entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a study team headed by Mr. Teizo Igarashi, Deputy Managing Director, Grant Aid Management Department, JICA, from 31st January to 22nd February, 1994.

The team has discussions with the officials concerned of the Government of the Philippines and conduct field surveys in the study areas.

In the course of discussions and the field survey, both parties have confirmed the main item described on the attached sheets. The team will proceed to further work and prepare an Interim Report.

Manila, 9th February, 1994

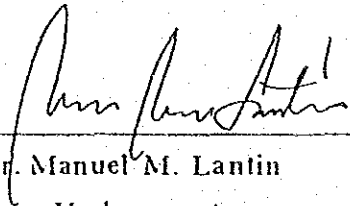


Mr. Teizo Igarashi

Leader

Basic Design Study Team

JICA



Dr. Manuel M. Lantin

Undersecretary

Department of Agriculture

Philippines

ATTACHMENT

1. Objective

The objectives of the Project are to construct new buildings for central and satellite Pesticide Analytical Laboratories (PALs) and to upgrade their equipments, thus contributing to the establishment of an effective national network on pesticide residue monitoring to create awareness on the proper use of pesticides and their adverse effects to human life and the environment and to establish the Maximum Residue Limits (MRLs) in the Philippines.

2. Project sites

The sites of the Project are listed in Annex I in a priority order. The map is shown in Annex II.

3. Responsible and Executing Agencies

The Department of Agriculture is the responsible agency and the Bureau of Plant Industry is the implementing agency of the Project.

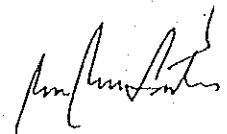
4. Items requested by the Government of the Philippines

- 1) After discussions with the Basic Design Study Team, the items described in Annex III were finally requested by the Philippines side as the Project components.
- 2) However, the final components, both specifications and quantity, will be decided after a further study in Japan and a Basic Design Study (2) to be dispatched in the near future.

5. Japan's Grant Aid system

- 1) The Philippine side has understood the system of Japan's Grant Aid explained by the team.
- 2) The Philippine side will take necessary measures, as described in Annex IV, for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

S. J.



6. Other relevant issues

In case that Japan's Grant Aid is extended to the Project, the following condition will be applied:

- 1) the Government of the Philippines will allocate the necessary budget for the operation and maintenance of the facilities and equipment provided for the Project.
- 2) the Department of Agriculture will provide the necessary personnel for operation and maintenance of the facilities and equipment provided for the Project.

7. Tentative Schedule of the Study

- 1) The consultants will proceed to further studies in the Philippines until 22nd February, 1994.
- 2) Based on the Minutes of Discussions and the results of the study, JICA will compile an interim report and explain its contents during the Basic Design Study (2) to be dispatched around May 1994.

S. J.

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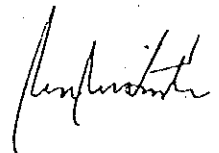
Annex I

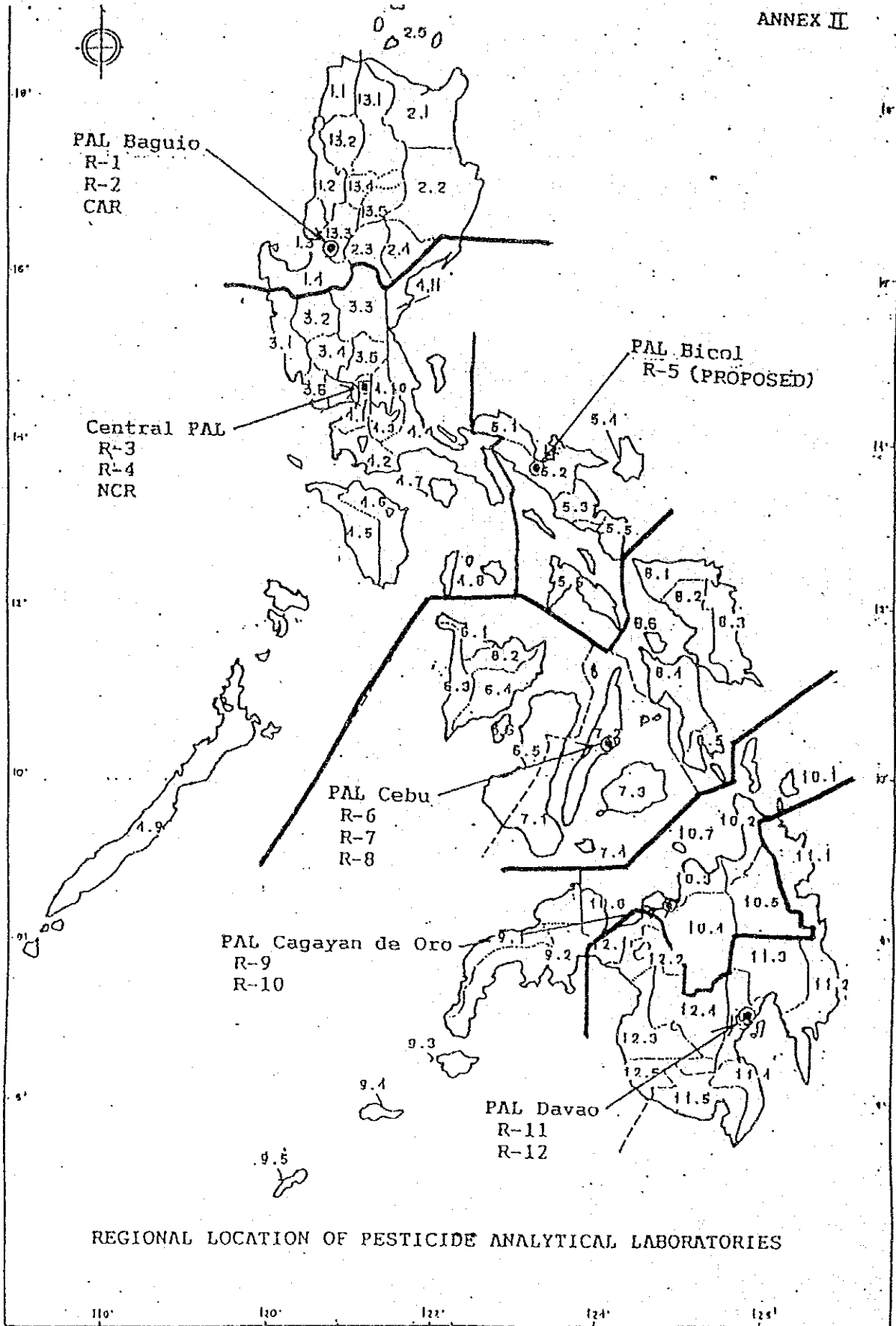
Project Sites

The sites of the Project are the following:

<u>PAL</u>	<u>Location</u>	<u>Priority</u>
1. PAL Central	Manila/ Quezon city	A
2. PAL Baguio	Baguio	A
3. PAL Cebu	Cebu	A
4. PAL Cagayan de Oro	Cagayan de Oro	A
5. PAL Davao	Davao	A
6. PAL Bicol	Bicol (proposed)	B

J. J.





REGIONAL LOCATION OF PESTICIDE ANALYTICAL LABORATORIES

J. J.

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Annex III

Items requested by the Philippine Side

1. Construction of three new PALs

- 1) PAL Central 2675 m²
- 2) PAL Bicol 420 m²
- 3) PAL Davao 420 m²

2. Equipment and apparatus

1/3

ITEMS	Number of Units						TOTAL
	Manila	Bagio	Cebu	Cag de Oro	Bicol	Davao	
a. Sample Collection							
Vehicle(4WD)with refrigerator	1	1	1	1	1	1	6
Motorcycle	2	2	2	2	2	2	12
b. Sample storage							
Refrigerator(for std. soln.)	2	1	1	1	1	1	7
Refrigerator(for sample ext.)	2	1	1	1	1	1	7
Freezer			1	1	2	2	6
Freezer(for Std. of Pesticides)	1						1
Freezer(for sample homogenized)	2						2
Cold Room(-20C) (for Samples,1.8m*2.7m)	1						1
Cold Room(+5C) (for Samples,1.8m*2.7m)	1						1
c. Sample Extraction							
Blender(heavy duty food processor)	8	3	3	3	3	3	23
Homogenizer (w/spare generator shaft 2-S,2-M,2-L)	6	2	2	2	3	3	18
Grinder(for cereals)	1			1	1	1	4
Shaker							
horizontal/vertical	3	1	1	1	1	1	8
rotary	1						1
with water bath	2	1	1	1	1	1	7
Soxhlet extraction apparatus(6 ports)	2	1	1	1	1	1	7
Ultrasonic bath							
large	1						1
small	3	1	1	1	1	1	8
d. Sample Processing							
Analytical Balance	2	1	1	1	1	1	7
Top loading balance(0-3000g)&(0-300g)	6	1	1	1	1	1	11
Distilling apparatus (Stand, mantle heater, glassware)	3	1	1	1	1	1	8
Cooled water circulator	1	1	1	1	1	1	6
Water bath	3	1	1	1	1	1	8
Mantle heater	6	3	3	3	3	3	21
Rotary vacuum evaporator w/accessories	8	4	4	4	4	4	28
Cooling aspirator	4	2	2	2	2	2	14
Magnetic stirrer w/hot plate	8	4	4	4	4	4	28
Automated Gel Permeation Chromatograph	1						1
Vacuum pump	3	1	1	1	1	1	8
Vacuum manifold	2	1	1	1	1	1	7
GPC column system (column, pump, fraction collector, UV monitor)	1	1	1	1	1	1	6

JY

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ITEMS	Number of Units						TOTAL
	Manila	Bagio	Cebu	Cag de Oro	Bicol	Davao	
d. Sample Processing							
Laboratory Oven (activation column adsorbents)	2	1	1	1	1	1	7
Dehumidifier (desiccator) (for column store)	2	1	1	1	1	1	7
Muffle furnace	1						1
Water Purifier with Demineralizer	3	1	1	1	1	1	8
Drying oven (for glassware)	2	1	1		1	1	6
Ultrasonic pipette washer	2	1	1	1	1	1	7
Centrifuge:							
bench-top	3	1	1	1	1	1	8
large(250ml)	2	1	1	1	1	1	7
Ice making machine	1	1	1	1	1	1	6
pH meter	3	1	1	1	1	1	8
Laboratory cart	10				3	3	16
Glassware assorted	2	1	1	1	1	1	7
e. Sample Analyze							
Gas Chromatograph							
with ECD	2	2	2	2	2	2	12
with NPD	3	2	2	2	2	2	13
with FPD	2	1	1	1	1	1	7
with FID	2						2
High performance liquid chromatograph w/Auto injector, UV, Fluorescence	3	1	1	1	1	1	8
w/Auto injector, UV, Multi spectrum	1						1
Data processor	13	6	6	6	6	6	43
UV-VIS Spectrophotometer	2	1	1	1	1	1	7
Gas Chromatograph-Mass Spectrometer system	1						1
Infrared Spectrophotometer	1						1
HPLC-MS	1						1
f. Electrical supplies							
Uninterruptible Power Supply	2	1	1	1	1	1	7
Generator	2	1	1	1	1	1	7
Voltage Regulator	2	1	1	1	1	1	7
g. Laboratory Furniture and Fittings							
Laboratory Center table	8				3	3	14
Laboratory side table	12				3	3	18
Working table	6				1	1	8
Laboratory sink	6	2	2	2	3	3	18
Reagent shelf	4	1	1	1	1	1	9
Stool	40				10	10	60
Air conditioner			5	5			10
Fire extinguisher(CO2 gas type)	6	2	2	2	2	2	16
Fire extinguisher(powder type)	6	3	3	3	3	3	21
Exhaust fan	10				7	7	24
Fume cupboard (draft chamber)	4	1	1	1	1	1	9
Clean bench	1						1

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Annex IV

Undertakings by the Government of Republic of the Philippines

1. To secure the land necessary for the construction the Project facilities.
2. To clear, level and reclaim for the construction site prior to commencement of the Project.
3. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the site, if necessary.
4. To ensure speedy unloading, tax exemption, custom clearance of the products under the grant at the port of disembarkation.
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the Verified Contracts such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work.
6. To exempt Japanese national involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Philippines with respect to the supply of equipment /machines and services under the Verified Contracts.
7. To bear commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
8. To bear all expenses, other than those to be covered by the Grant Aid necessary for the execution of the Project.
9. To assign exclusive counterpart technicians/engineers, and etc. for the Project.
10. To use and maintain properly and effectively the facilities constructed and equipment purchased under the Grant.

4. MINUTES OF DISCUSSIONS

(2) Basic Design Study Phase 2

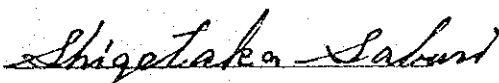
MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY (II) ON
THE PROJECT FOR IMPROVEMENT OF
THE NATIONAL MONITORING PROGRAM ON PESTICIDE RESIDUE
IN AGRICULTURE AND THE ENVIRONMENT
AND PESTICIDE FORMULATION
IN
THE REPUBLIC OF THE PHILIPPINES

In response to a request from the Government of the Republic of the Philippines, the Government of Japan has decided to conduct a basic design study on the Project for Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and Pesticide Formulation (hereinafter referred to as "the Project"), and has entrusted the study to the Japan International Cooperation Agency (JICA).

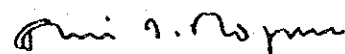
JICA sent to the Philippines a study team (I) from 31st January to 22nd February, 1994. An interim report has been prepared based on the results of discussions, field surveys and technical examination in Japan. In order to explain the contents of the report to the Philippine side and to conduct a further study, JICA sent a study team (II) headed by Mr. Shigetaka Saburi, Director, Second Inspection Division, Agricultural Chemicals Inspection Station, Ministry of Agriculture, Forestry and Fisheries from 11th May to 4th June, 1994.

In the course of discussions, both parties have confirmed the main items described on the attached sheets. The team will proceed to further work and prepare the Basic Design Study Report.

Manila, 19th May, 1994



Mr. Shigetaka Saburi
Leader
Basic Design Study Team
JICA



Mr. Nerius I. Roperos
Director
Bureau of Plant Industry
The Philippines

ATTACHMENT

1. Objective

The objectives of the Project are to construct new buildings for central and satellite Pesticide Analytical Laboratories (PALs) and to upgrade their equipment, thus contributing to the establishment of an effective national network on pesticide residue monitoring to create awareness on the proper use of pesticides and their adverse effects to human health and the environment and to establish the Maximum Residue Limits (MRLs) in the Philippines.

2. Components of the Interim Report

The Government of the Philippines has agreed and accepted in principle the components of the Interim Report proposed by the Team.

3. Project Sites

The sites of the Project are listed in Annex I. The proposed construction site for the PAL-Central is shown in Annex II.

4. Executing Agency

The Department of Agriculture is the responsible agency and the Bureau of Plant Industry is the implementing agency of the Project.

5. Items requested by the Government of the Philippines

- 1) The items requested are shown in a priority order in Annex III.
- 2) However, the final component, both specifications and quantity, will be decided after a further study in Japan.

6. Japan's Grant Aid system

- 1) The Philippine side has understood the system of Japan's Grant Aid explained by the team.
- AP
- S S

2) The Philippine side will take necessary measures, as described in Annex IV, for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. Other relevant issues

1) In case that Japan's Grant Aid is extended to the Project, the following conditions will be applied:

- i) the Government of the Philippines will allocate the necessary budget for the operation and maintenance of the facilities and equipment provided by the Project.
- ii) the Department of Agriculture will provide the necessary personnel for operation and maintenance of the facilities and equipment provided by the Project.

2) Apart from the requested items shown in Annex III, the Philippine side has expressed the need for a dormitory for trainees and a staff canteen at PAL-Central. The Japanese side, however, has suggested that a different funding source, such as the KR-II counterpart fund be sought for.

3) In order that the Project be sustainable, the Japanese side has strongly suggested that:

- i) the Philippine side establish a system where a certain category of analyses are to be charged for;
- ii) and that BPI retain a certain portion of the above income for operation and maintenance.

8. Tentative Schedule of the Study

1) The consultants will proceed to further studies in the Philippines until 4th June, 1994.

2) The Philippine side will send further comments, if any, to JICA, Manila not later than 3rd June, 1994.

3) Based on the Minutes of Discussions and the results of the study, JICA will compile a draft final report and

dispatch a mission around July to explain the contents of
the report.

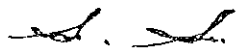
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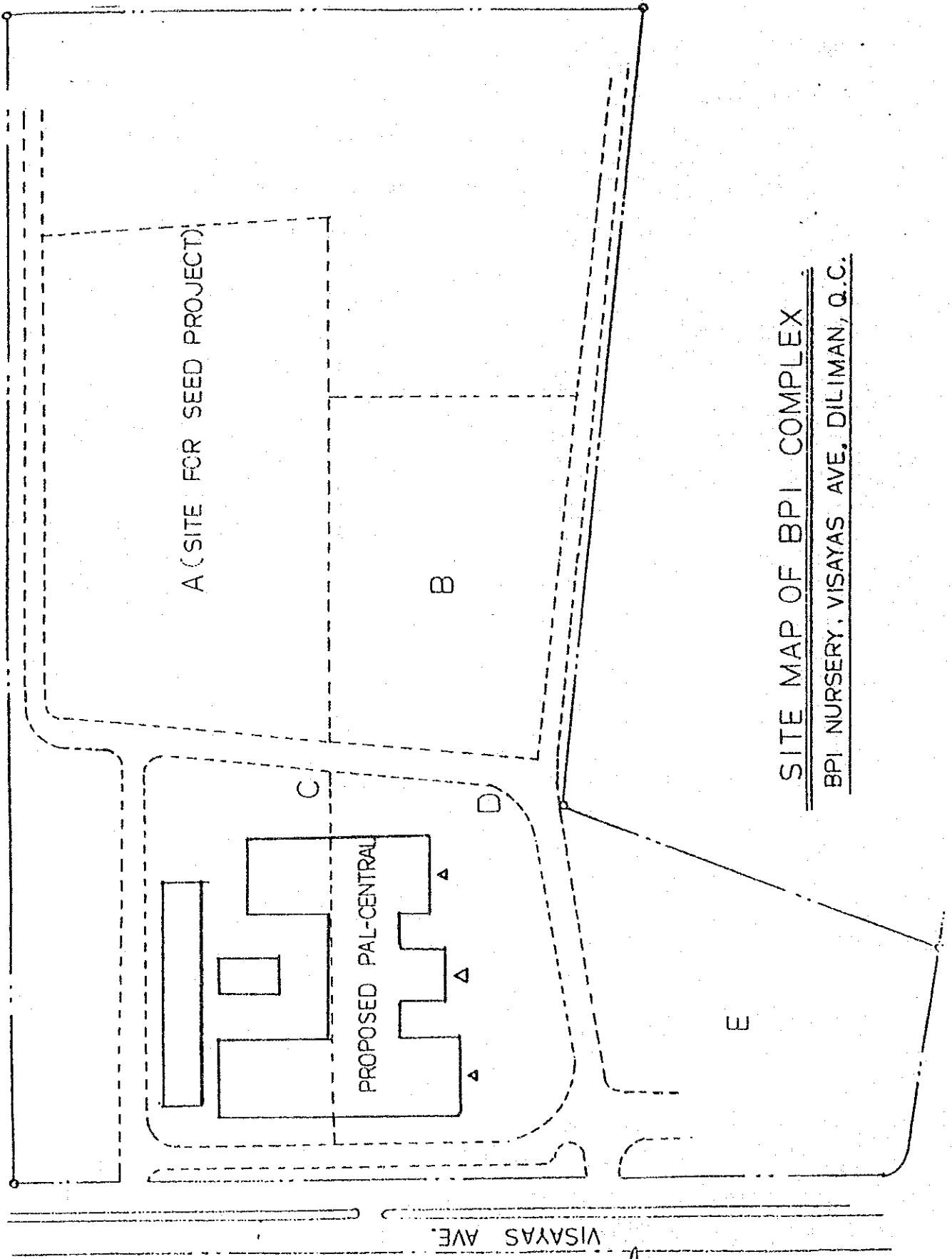
Annex I

Project Sites

The sites of the Projects are the following:

1. Central PAL - Quezon City, Metro Manila
2. PAL Baguio - Guisad Valley, Baguio City
3. PAL Cebu - Mandaue City, Cebu
4. PAL Cagayan de Oro - Macabalan, Cagayan de Oro City
5. PAL Davao - Bago O'shiro, Davao City
6. PAL Bicol - San Agustin, Pili, Camarines Sur





SITE MAP OF BPI COMPLEX
BPI NURSERY, VISAYAS AVE, DILIMAN, Q.C.

VISAYAS AVE.

Annex III

Items requested by the Philippine Side

1. Construction of two new PALs

New Central PAL 2675 m² Priority A

PAL Davao 420 m² Priority A

2. Equipment and apparatus

See attached lists.



Annex IV

Undertakings by the Government of Republic of the Philippines

1. To secure land necessary for the construction of the Project facilities.
2. To clear, level and reclaim for the construction sites prior to commencement of the Project.
3. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the sites, if necessary.
4. To ensure speedy unloading, tax payment, customs clearance at ports of disembarkation in the Philippines and internal transportation therein of the products purchased under the Grant.
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the Verified Contracts such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work.
6. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Philippines with respect to the supply of the products and services under the Verified Contracts.
7. To bear advising commissions of the Authorization to Pay (A/P) and payment commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
8. To bear all expenses other than those to be covered by the Grant Aid necessary for the execution of the Project.
9. To assign exclusive counterpart engineers/technicians, for the Project.
10. To use and maintain properly and effectively the facilities constructed and equipment purchased under the Grant.

P

S. S.

4. MINUTES OF DISCUSSIONS

(3) Draft Mission

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON
THE PROJECT FOR IMPROVEMENT OF
THE NATIONAL MONITORING PROGRAM ON PESTICIDE RESIDUE
IN AGRICULTURE AND THE ENVIRONMENT
AND PESTICIDE FORMULATION
IN
THE REPUBLIC OF THE PHILIPPINES
(CONSULTATION ON DRAFT REPORT)

The Japan International Cooperation Agency (JICA) sent a study team (I) from 31st January to 22nd February, 1994 and a study team (II) from 11th May to 4th June, 1994, on the Project for Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and pesticide Formulation (hereinafter referred to as "the Project") to the Republic of the Philippines.

Through discussions, field surveys, and technical examination of the results in Japan, the team has prepared the draft report of the study.

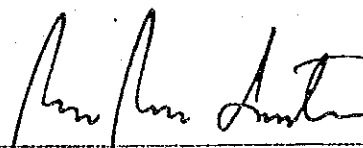
In order to explain and to consult the Philippine side on the components of the draft report, JICA sent to the Philippines a Study Team (hereinafter referred to as "the Team"), headed by Mr. Shigetaka Saburi, Ex-Director, second Inspection Division, Agricultural Chemicals Inspection Station, Ministry of Agriculture, Forestry and Fisheries from 31st July to 6th August, 1994.

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

Manila, 4th August 1994



Mr. Shigetaka Saburi
Leader
Basic Design Study Team
JICA



Dr. Manuel M. Lantin
Undersecretary
Department of Agriculture
Philippines

ATTACHMENT

1. Components of Draft Report

The Government of the Philippines has agreed and accepted in principle the components of the Draft Report proposed by the Team.

2. Responsible and Executing Agencies

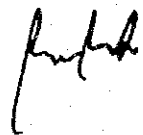
The Department of Agriculture is the responsible agency and the Bureau of Plant Industry is the Implementing agency of the Project.

3. Grant Aid Program extended by Japan

- 1) The Philippine side has understood the system of Japan's Grant Aid explained by the Team.
- 2) The Government of the Philippines will take necessary measures described in Annex II for smooth implementation of the Project, on the condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

4. Further Schedule

- 1) The Philippine side will send further comments on the Draft Report, if any, to JICA, not later than 15th August, 1994
- 2) The Team will prepare the final report in accordance with the confirmed items, considering comments and suggestions by the Philippine side on the Draft Final Report. The Final Report will be sent to the Government of the Philippines around October, 1994.



5. Other Important Issues Related to the Project

- 1) Both side have confirmed all the items appearing in the Minutes of Discussions signed on 19th May, 1994, a copy of which has been reproduced in the Draft Final Report.
- 2) The Government of the Philippines will make internal arrangements, such as securing clearance from the Investment Coordination Committee (ICC), which are essential to facilitate the prompt implementation of the Project.
- 3) The Philippine side will take necessary measures to satisfy the internal criteria concerning environment assessment proposed by the Department of Environment and Natural Resources.
- 4) The Government of the Philippines will allocate the necessary budget for the operation and maintenance of the facilities and equipment provided by the Project.
- 5) The Department of Agriculture will provide the necessary qualified personnel for operation and maintenance of the facilities and equipment provided by the project.
- 6) The Philippine side has requested the following equipment to be included in the project. The team will convey the request to the Government of Japan. However, the final components of the project will be decided after further consultation within the Government of Japan.

Equipment requested to be included in the Project

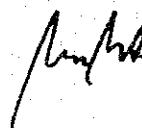
	Item	Unit	Site
1.	Atomic Absorption Spectrophotometer	1	Central
2.	Laboratories oven	1	Cagayan de Oro
	Grinder	1	
	Top loading balance	1	
	vacuum pump	1	
	air compressor	1	
3.	Soxhlet apparatus with six ports	1	Davao
4.	Motorcycle	1	Cebu
		1	Bicol

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Undertakings by the Government of the Republic of the Philippines

1. To secure land necessary for the construction of the Project facilities.
2. To clear, level and reclaim for the construction sites prior to commencement of the Project.
3. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the sites, if necessary.
4. To ensure speedy unloading, tax payment, customs clearance at ports of disembarkation in the Philippines and internal transport therein of the products purchased under the Grant.
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the Verified Contracts such facilities as may be necessary for their entry into the Philippines and stay therein for the performance of their work.
6. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the Philippines with respect to the supply of the products and services under the Verified Contracts.
7. To bear advising commissions of the Authorization to Pay (A/P) and payment commissions to the Japanese foreign exchange bank for the banking services upon the Banking Arrangement.
8. To bear all expenses other than those to be covered by the Grant Aid necessary for the execution of the Project.
9. To assign exclusive counterpart engineers/technicians, for the Project.
10. To use and maintain properly and effectively the facilities constructed and equipment purchased under the Grant.



5. TECHNICAL NOTES

(1) Basic Design Study Phase 1

TECHNICAL NOTES
ON
THE PROJECT FOR IMPROVEMENT OF THE NATIONAL MONITORING
PROGRAM ON PESTICIDE RESIDUE
IN AGRICULTURE AND THE ENVIRONMENT
AND PESTICIDE FORMULATION
IN
THE REPUBLIC OF THE PHILIPPINES

The minutes of Discussion on the Basic Study (hereinafter referred as "the Study") (I) on the Project for Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and Pesticide Formulation (hereinafter referred as "the Project") was concluded between JICA Basic Design Study Team (hereinafter referred as "the JICA Team") and the Department of Agriculture (hereinafter referred as "the DA") of the Government of the Republic of the Philippines on February 9, 1994

Following the conclusion of Minutes of Discussion of the Project, the JICA Team continued technical discussions and field survey in the Philippines up to February 22, 1994.

The JICA Team and Bureau of Plant Industry (hereinafter referred as "the BPI") of the DA made several discussions as described hereinafter. These contents of the discussions will be examined and described in the Interim Report of Basic Design Study.

1. Projected site for construction of Central Pesticide Analysis Laboratory (hereinafter referred as "PAL-Central")

The JICA Team discussed with the BPI about the projected site for construction of PAL-Central, based on the following conditions (see the site map herein attached);

(1) The original proposed site suggested by the BPI for the Project is site "B".

(2) The BPI constructs National Seed Quality Control Services building at site "A"

(3) The BPI has a plan to construct a building of their administration section at site "C" or "D"

Therefore, the JICA Team concluded to nominate "B", "C", "D" or "E" as the projected site of PAL-Central. Selection of the site will be discussed with suggestion of the Basic Design during the second stage of the Study which will be started after the Government of Japan decide to implement the Project with the examination of the results of the first stage of the Study.

2. Positioning of Pesticide Analysis Laboratory (hereinafter referred as "PAL")

The BPI is a component of the DA. At present, the BPI provide technical support for all the existing PALs. With respect to the budget allocation, although some of these PALs are managed by the Regional Office of the DA, the BPI has a plan to manage all the PALs directly in both the technical support and the budget allocation, as mentioned below (see the present organizational situation of PALs herein attached).

- (1) PAL-Central and PAL-Baguio are now managed directly by the BPI including their budget allocation.
- (2) PAL-Cebu, PAL-Cagayan de Oro and PAL-Davao are now managed by the Regional Office of the DA to which they are geographically located, but the BPI will reiterate the request for the direct management of these PALs to the DA.
- (3) As for PAL-Bicol, the construction of which is requested in the Project, the BPI will request the direct management of it to the DA.

Therefore, the BPI will manage all the PALs directly in future.


Manila, 21st February, 1994

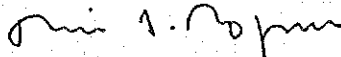
For JICA Team

For the Government of
the Republic of the Philippines

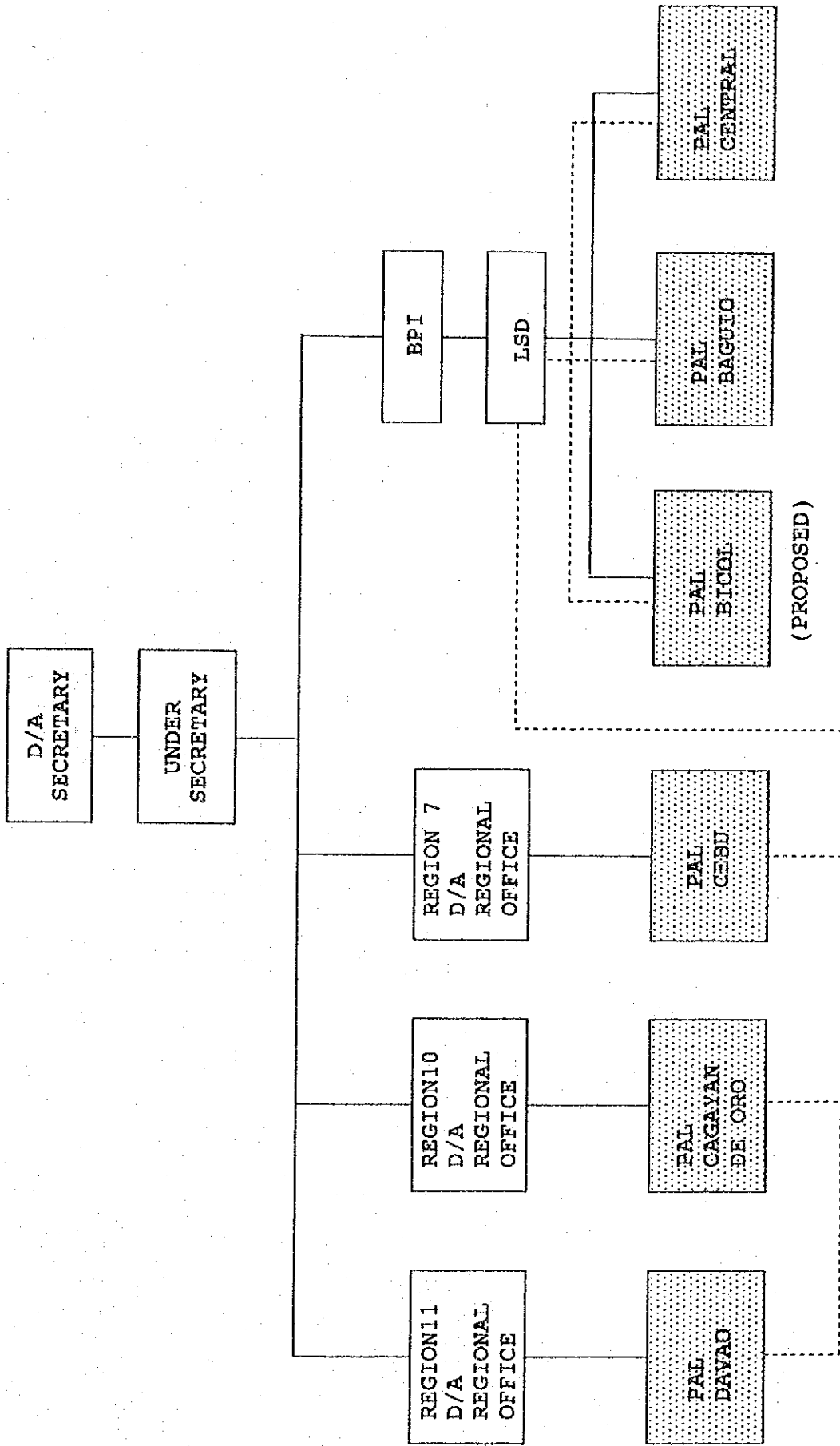
By:

By:


Mr. Ryoichi Kibe
Chief Architects,
Basic Design Study Team, JICA


Dr. Nerius I. Roperos
Director, Bureau of Plant Industry
Department of Agriculture

PRESENT ORGANIZATIONAL SITUATION OF PALS

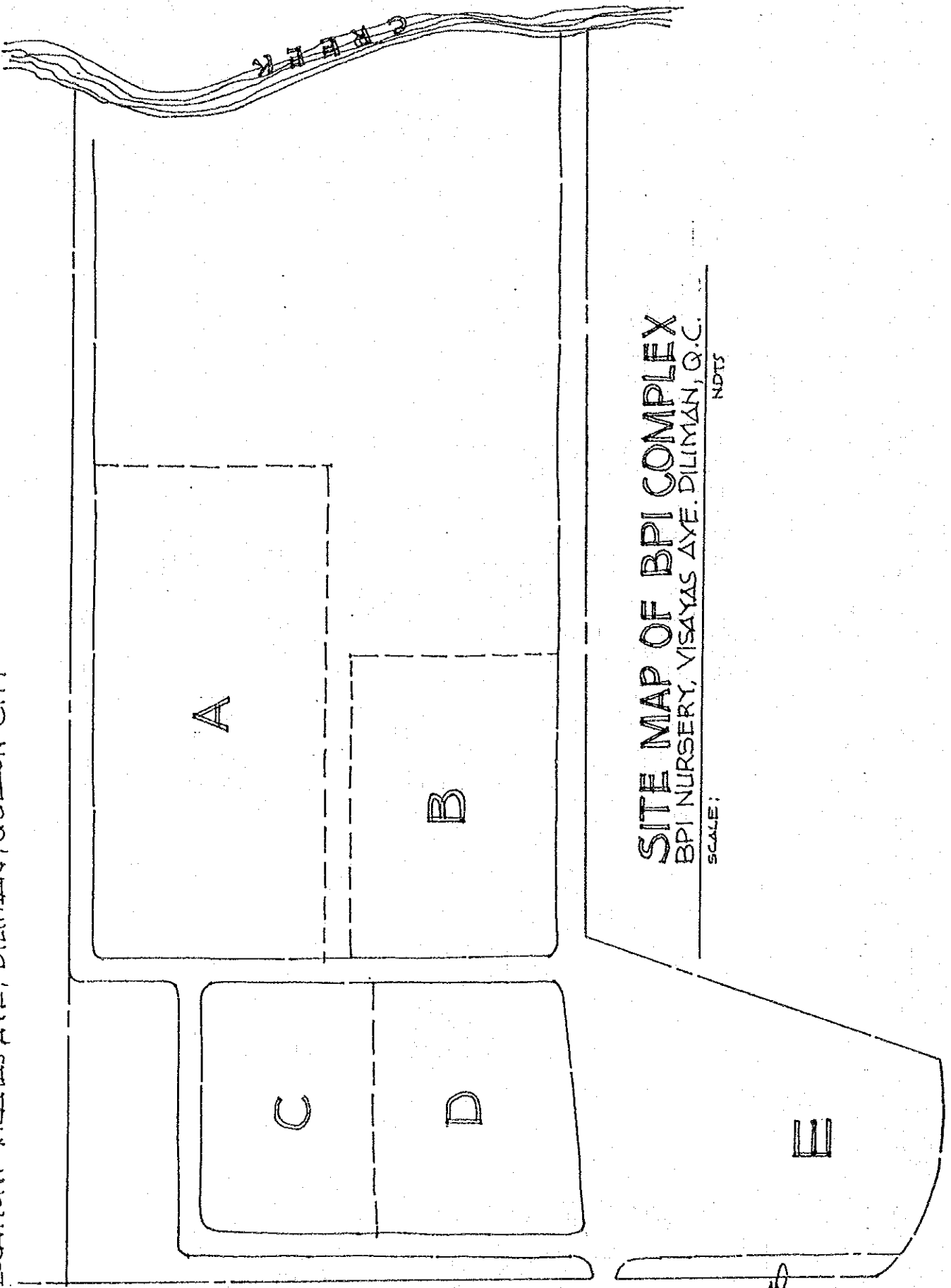


— ADMINISTRATIVE (BUDGET, PERSONNEL)

- - - TECHNICAL SUPPORT ONLY

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PROJECT: PHILIPPINE - JAPAN PESTICIDE LABORATORY IMPROVEMENT PROJECT
LOCATION: VISAYAS AVE, DILIMAN, QUEZON CITY



VISAYAS AVE.

SITE MAP OF BPI COMPLEX
BPI NURSERY, VISAYAS AVE. DILIMAN, Q.C.

SCALE: _____ NDT'S

5. TECHNICAL NOTES

(2) Basic Design Study Phase 2

TECHNICAL NOTES

ON

THE PROJECT FOR IMPROVEMENT OF THE NATIONAL MONITORING
PROGRAM ON PESTICIDE RESIDUE
IN AGRICULTURE AND THE ENVIRONMENT
AND PESTICIDE FORMULATION

IN

THE REPUBLIC OF THE PHILIPPINES

The Minutes of Discussion on the Basic Study (hereinafter referred as "the Study") (II) on the Project for Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and Pesticide Formulation (hereinafter referred as "the Project") was concluded between JICA Basic Design Study Team (hereinafter referred as "the JICA Team") and the Department of Agriculture (hereinafter referred as "the DA") of the Government of the Republic of the Philippines on May 19, 1994.

Following the conclusion of Minutes of Discussion of the Project, the JICA Team continued technical discussions and field survey in the Philippines up to May 27, 1994.

The JICA Team and Bureau of Plant Industry (hereinafter referred as "the BPI") of the DA made several discussions as described hereinafter. These contents of the discussions will be examined and described in the Draft Final Report of Basic Design Study.

1. The concerned DA-BPI officials have emphasized the importance of establishing a satellite PAL in Bicol of the same scale as the other satellites for the following reasons:
 - a) There is a projected increase in vegetable production

in the region considering the vast targetted production area of 43,320 hectares under the Departments Key Commercial Crop Development Program.

b) The medium term plan of the DA includes the development of Region 5 (Bicol) as the vegetable bowl in Luzon.

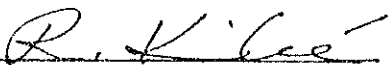
2. With this, Mr. Ide of the JICA Team and Mrs. Paz Austria of BPI visited the proposed PAL building in Bicol on May 24-25, 1994. Said building was found appropriate provided that it is renovated to suit the laboratory requirements.
3. However, the JICA Team suggested that the volume of operations and activities of PAL-Bicol be scaled down using lesser number of equipment or to a sampling station level because PAL-Bicol will be a new satellite that will be manned mostly by new staff. In addition, the scaling down will likewise reduce the budgetary requirements of the project.
4. The DA-BPI concerned officials maintained their position to establish a full scale Pesticide Analytical Laboratory Satellite in Region 5 (Bicol), with the assurance of providing the needed analytical staff requirement. Additional budget will be included in General Appropriations Act (GAA) in 1996.

Manila, 27th May, 1994

For JICA Team

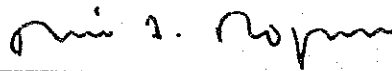
For the Government of the
Republic of the Philippines

By:



MR. RYOICHI KIBE
Chief Architects,

By:



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6. BREAKDOWN OF WORK COSTS TO BE BORNE BY
THE GOVERNMENT OF THE PHILIPPINES

(1) Site Preparation Work		
a. PAL-Central		1,220,000 pesos
b. PAL-Davao		110,000 pesos
	Total	1,330,000 pesos
(2) Electric Power Intake Wiring		
a. PAL-Central		300,000 pesos
b. PAL-Davao		220,000 pesos
c. PAL-Bicol		245,000 pesos
	Total	765,000 pesos
(3) Water Supply Intake Piping		
a. PAL-Central		35,000 pesos
b. PAL-Davao		40,000 pesos
	Total	75,000 pesos
(4) Telephone Intake Piping		
a. PAL-Central		25,000 pesos
b. PAL-Davao		30,000 pesos
	Total	55,000 pesos
(5) Sewage Water Discharge Piping		
a. PAL-Central		60,000 pesos
b. PAL-Davao		50,000 pesos
	Total	110,000 pesos
(6) Restoration of Existing Satellites (Baguio, Cebu, Cagayan de Oro)		
@ 100,000 x 3		300,000 pesos
(7) Restoration of a Building for PAL-Bicol		
		1,225,000 pesos
(8) Restoration of the electric line currently running through the PAL-Davao site		
		82,000 pesos

	Grand Total	3,942,000 pesos

7. PRIORITY LIST OF REQUESTED EQUIPMENT

EQUIPMENT IN PAL-Central(Pesticide Residue Monitoring UNIT)

1

Equipment	Purpose	Existing Equipment		Date of Purchase	Present Condition	Requested	Priority(number)			Additional
		Number&Type	Brand				A	B	C	
a. Sample Collection										
Vehicle(4WD) with refrigerator	Sampling					1	1			
Motorecycle	Sampling					2		1	1	
b. Sample Storage										
Refrigerator	Std. Soln. Storage	1 (7")	Westinghouse	1976		1	1			
Refrigerator	Sample Storage	2 (No Frost)	Kelvinator	1976		1		1		
Freezer	Sample Storage	1 (Chest Freez	Westinghouse		not functional					
Freezer (for sample homogenized)	Sample Storage					2	2			
Cold Room (-20C) (1.8m*2.7m)	Sample Storage					1	1			
Cold Room (+5C) (1.8m*2.7m)	Sample Storage					1	1			
c. Sample Extraction										
Blender (heavy duty food processor)	Sample Preparation	1 (Heavy duty)		1976		8	4	2	2	
Homogenizer	Sample Preparation					6	2	2	2	
Grinder (fo cereals)	Sample Preparation			1976		1	1			
Shaker (horizontal/vertical)	Sample Extraction	1	Edmund Buhler	1976		2	1	1		
Shaker (rotary)	Sample Extraction	1	Naber	1976		1		1		
Shaker (with water bath)	Sample Extraction					1		1		
Soxhlet extraction apparatus (6 ports)	Sample Extraction			1976		1		1		
Ultrasonic bath (large)	Sample Extraction					1	1			
Ultrasonic bath (small)	Sample Extraction	1	Sonorox			2	1	1		
d. Sample Processing										
Analytical Balance	Weighing	1	Sartorius	1976		1	1			
Top loading balance	Weighing	1	Mettler	1976	not functional	4	3	1		
Beam balance	Weighing	1 (Beam)	Ohaus	1976						
Distilling apparatus	Distillation	2		1976		2	1	1		
Cooled water circulator	Cooling	2 (Water coole	Haake G	1984		1		1		
Water bath	Warming			1976		2	1		1	
Mantle heater	Warming					3	2	1		
Rotary vacuum evaporator w/accessories	Concentration	3 (Rotavapor)	Buchi	1976		6	6			
Cooling aspirator	Cooling					3	3			
Magnetic stirrer w/hot plate	Stirring					6	2	2	2	
Automated gel permeation chromatograph	Purification					1	1			
Vacuum pump	Suction	1				2		2		
Vacuum manifold	Solid Phase Extraction					1		1		
GPC column system	Purification					1	1			
Laboratory oven	Activation Column Adsorbents	4	Heraeus	1976	not functional	1	1			
Dehumidifier (dessiccator)	Column Storage					1	1			
Muffle furnace	Activation Column Adsorbents	1	Naber	1976		1		1		
Water distillation	Water Purification	1	Koltterman		not functional	2	1	1		
Deminerizer Apparatus	Water Purification	1 (Neral)	KKS Aquamatic	1976						
Washing machine	Glassware Washing	1	Thiele	1984						
Drying oven (for glassware)	Glassware Washing					1	1			
Ultrasonic pipette washer	Pipette Washing					1	1			
Centrifuge (bench-top)	Separation					2	1	1		
Centrifuge (large 250ml)	Separation					1	1			
Ice making machine	Ice Making					1			1	
pH meter	pH Measuring					2	1	1		
Laboratory cart	Sample Carrying					6	4	1	1	
Glassware assorted						1	1			
e. Sample Analyzing										
Gas chromatograph with ECD	Determination	2	DANI	1979	not functional	2	2			
Gas chromatograph with ECD	Determination	2	Carlo Erba	1976						
Gas chromatograph with NPD	Determination	2	Carlo Erba	1976		3	3			
Gas chromatograph with NPD	Determination	1	Packard	1980						
Gas chromatograph with FPD	Determination	1 (GC-7AG)	Shimadzu	1981		2	2			
Recorder	Recording	1 (Dual record	Servogor	1976						
Recorder	Recording	1	Kipp&Zonen	1976						
Recorder	Recording	4	Servogor	1976						
Recorder	Recording	1	Shimadzu	1981						
Integrator	Recording	1	Shimadzu							
Hydrogen generator	Hydrogen Generation	1	Elhygen		not functional					
Gas purifier (N2)	Gas Purification	1	Tokyo,Japan							
Air generator		1	Chrompak							
Gas leak detector	Gas Leak Detection	1								
Air compressor		1								
HPLC (UV, Fluorescence)	Determination	1	Spectra Physics		not functional	3	2	1		
Dehumidifier	Dehumidifying	1	National							
HPLC (UV, Multi spectrum)	Determination									
Data processor	Recording					10	10			
UV-VIS spectrophotometer	Determination	1 (UV-Vis De	Shimadzu			1	1			
Gas chromatograph-Mass spectrometer	Determination					1	1			
HPLC-MS	Determination					1	1			
Automic absorption spectrometer	Determination									1
f. Electrical supplies										

EQUIPMENT IN PAL-Central(Pesticide Residue Monitoring UNIT)

2

Equipment	Purpose	Existing Equipment		Date of Purchase	Present Condition	Requested	Priority(number)			Additional
		Number&Type	Brand				A	B	C	
Uninterruptible power supply	Emergency Power Supply					2				
Generator	Electric Generation					2				
Voltage regulator	Voltage Regulation					2				
g. Laboratory Furniture and Fittings										
Laboratory center table	Lab. Table					6	6			
Laboratory side table	Lab. Table					8	8			
Work table	Lab. Table					4	4			
Laboratory sink	Sink					4	4			
Reagent shelf	Reagent Storage					2	2			
Stool	Lab. Chair					26	26			
Air conditioner	Temperature Control	7								
Fire extinguisher (CO2 gas type)						4	4			
Fire extinguisher (powder type)						4		4		
Exhaust fan	Ventilation	3	3D			6				
Fume cupboard (Draft chamber)	Solvent Handling					2	2			
Clean bench	Bio-efficacy					1				
Movable rack (for glassware storage)	Movable Glassware Storage					6	6			
Solar energy heater	Water Heater					1	1			
Emergency shower	Shower					2				
Incinerator	Solvent Incineration					1				
h. Extension Equipment										
Library table	Library					4	4			
Library chair	Library					16	16			
Folding table	Training					10	10			
Folding chair	Training					20	20			
Locker	Staff					20	20			
Television (projection type)	Training					1	1			
Television (34inch)	Training					1	1			
Video	Training					2	2			
Video movie camera	Training					1	1			
Video editor system	Training					1	1			
Slide projector	Training					1	1			
OHP set (w.screen)	Training	1		1976	not functional	1	1			
Computer set	Data Processing					2	2			
Modem system (w/software)	Data Processing					1		1		
Photocopier (w/software)	Data Processing					1	1			
Photocopier	Data Processing	1 (Xerox machine)			not functional	1	1			
Car for administration	Administration					1	1			
Typewriter (manual)	Data Processing			1974		2	1	1		
Fax machine	Data Processing					1	1			
Coaster	Transportation					1	1			
						278	220	32	10	1

EQUIPMENT IN PAL-CENTRAL (Formulation Analysis Unit)

1

Equipment	Purpose	Existing Equipment			Date of Purchase	Present Condition	Requested	Priority(number)			Additional Request
		Number&Type	Brand					A	B	C	
a. Sample Collection											
b. Sample Storage											
Refrigerator (for std. soln.)	Std. Soln. Storage						1	1			
Refrigerator (for sample ext.)	Sample Storage						1	1			
Freezer (for std. of Pesticides)	Std. Soln. Storage	2(Upright)	Admiral		(1) not functional		1	1			
c. Sample Extraction											
Shaker (horizontal/vertical)	Sample Extraction						1	1			
Shaker (with water bath)	Sample Extraction						1	1			
Soxhlet extraction apparatus (6 ports)	Sample Extraction	1			not functional		1	1			
Ultrasonic bath (small)	Sample Extraction	1	Sonorex		not functional		1	1			
d. Sample Processing											
Analytical Balance	Weighing	1	Sartorius				1	1			
Top loading balance	Weighing	1	Sartorius				2	1	1		
Distilling apparatus	Weighing						1	1			
Water bath	Cooling	2			not functional		1		1		
Aquarium	Warming	1									
Heater	Warming	1			not functional						
Mantle heater	Warming										
Rotary vacuum evaporator w/accessories	Concentration	1 (Rotavapor)	Buchi	1976			2	2		1	
Cooling aspirator	Cooling						1	1			
Magnetic stirrer w/hot plate	Stirring	1					2	2			
Vacuum pump	Suction	1					1		1		
Vacuum manifold	Solid phase extraction						1		1		
Laboratory Oven	Activation column adsorbents						1	1			
Dehumidifier (dessiccator) (for column storage)	column storage						1		1		
Water purifier with demineralizer	Water Purification						1	1			
Washing machine	Glassware Washing	1	Thiele	1980	not functional		1	1			
Drying oven (for glassware)	Glassware drying	1	Heracus				1	1			
Ultrasonic pipette washer	Pipette Washing			1976			1	1			
Centrifuge (bench-top)	Separation	1 (Mini)	Hettich				1	1			
Centrifuge (large 250ml)	Separation						1		1		
Ice making machine	Ice Making										
pH meter	pH Measuring	1 (model410)	WTW		not functional		1	1			
Laboratory cart	Sample Carrying						4	2	1	1	
Glassware assorted							1	1			
e. Sample Analyzing											
Gas chromatograph with FID	Determination	3	Carlo Erba	1976	not functional		2	2			
Gas chromatograph with FID	Determination	2	DANI	1976	not functional(1)						
Recorder	Recording	3	Scrvoger	1976							
Recorder	Recording	1	Kipp&Zonen	1976							
Hydrogen generator	Hydrogen Generation	1	Elhygen		not functional						
Air compressor		1									
HPLC (UV, Fluorescence)	Determination	1	Waters								
Recorder	Recording	1	Ominiscribe								
Dehumidifier	Dehumidifying	1	National		not functional						
HPLC (UV, Multi spectrum)	Recording						1	1			
Data processor	Recording	1 (Integrator)	Shimadzu				3	3			
UV-VIS spectrophotometer	Determination	1	Shimadzu				1	1			
Infrared spectrophotometer	Determination	1			not functional		1	1			
Melting/boiling point apparatus	Determination	1 (model510)	Buchi								
f. Electrical supplies											
g. Laboratory Furniture and Fittings											
Laboratory center table	Lab. table						2	2			
Laboratory side table	Lab. table						4	4			
Work table	Lab. table						2	2			
Laboratory sink	Sink						2	2			
Reagent shelf	Reagent Storage						2	2			
Stool	Lab. chair						14	14			
Air conditioner	Temperature control	6			not functional(1)						
Fire extinguisher (CO2 gas type)							2	2			
Fire extinguisher (powder type)							2			2	
Exhaust fan	Ventilation						4				
Fume cupboard (Draft chamber)	Solvent Handling						2	2			
Movable rack (for glassware storage)	Movable glassware storage						2	2			
Emergency shower	Shower						1				
h. Extension Equipment											
Computer set	Data processing						1	1			
Typewriter (manual)	Data processing	1									
							83	65	9	4	

EQUIPMENT IN PAL-BAGUIO

Equipment	Purpose	Existing Equipment				Priority (number)			Additional Request
		Number & Type	Brand	Date of Purchase	Present Condition	Requested	A	B	
a. Sample Collection									
Vehicle(4WD) with refrigerator	Sampling					1	1		
Motorcycle	Sampling					2	1	1	
b. Sample Storage									
Refrigerator (for std. soln.)	Std. Soln. Storage					1	1		
Refrigerator (for sample ext.)	Sample Storage	1	Kelvinator	1982	not functional	1		1	
Freezer (for std. of Pesticides)	Std. Soln. Storage	1 (Upright)	W. Westinghouses	1984	not functional				1
c. Sample Extraction									
Blender (heavy duty food processor)	Sample Preparation	1 (Jurgen Mix)	Hamilton	1982	not functional	3	1	1	1
Homogenizer	Sample Preparation	1 (Ultra Turrax)		1982	not functional	2	1	1	
Shaker (horizontal/vertical)	Sample Extraction					1	1		
Shaker (rotary)	Sample Extraction	1		1984					
Shaker (with water bath)	Sample Extraction					1	1		
Soxhlet extraction apparatus (6 ports)	Sample Extraction					1	1		
Ultrasonic bath (small)	Sample Extraction	1	Bandolin Sonorex	1984		1	1		
d. Sample Processing									
Analytical balance	weighing	1	Sartorius	1982	not functional	1	1		
Top loading balance	weighing	1 (Top pan)	Sartorius	1982	not functional	1	1		
Distilling apparatus	Distillation					1		1	
Cooled water circulator	Cooling			1982	not functional	1		1	
Water bath	Warming					1	1		
Mantle heater	Warming					3	1	1	1
Rotary vacuum evaporator	Concentration	1	Buchi	1982		4	1	2	1
Cooling aspirator	Cooling					2	1	1	
Magnetic stirrer w/hot plate	Stirring					4	1	2	1
Vacuum pump	Suction	1	Minni A	1984		1		1	
Vacuum manifold	Solid Phase Extraction					1		1	
GPC column system	Purification					1	1		
Laboratory Oven	Activation Column Adsorbents	1	Heraeus (Germany)	1982	not functional	1	1		
Dehumidifier (dessicator)	Storage Column					1	1		
Muffle furnace	Activation Column Adsorbents	1	Heraeus (Germany)		not functional	1			1
Water Purifier with Demineralizer	Water Purification		KOTTERMANN			1	1		
Washing machine	Glassware Washing	1	Miele (Germany)	1982	not functional	1	1		
Drying oven (for glassware)	Glassware Drying	1	Heraeus(Germany)	1982	not functional	1	1		
Ultrasonic pipette washer	Pipette Washing					1	1		
Centrifuge (bench-top)	Separation	1	Heraeus	1982	not functional	1		1	
Centrifuge (large 250ml)	Separation					1	1		
Ice making machine	Ice Making					1		1	
pH meter	pH Measuring					1	1		
Glassware assorted						1	1		
e. Sample Analyzing									
Gas Chromatograph	Determination								
with ECD	Determination	2	Packard	1982	not functional	2	2		
with NPD	Determination	2	Packard	1982	not functional	2	2		
with FPD	Determination					1		1	
Hydrogen generator	Hydrogen Generation		Elthygen		not functional				
High performance liquid chromatograph w/Auto injector, UV, Fluorescence	Determination					1	1		
Data processor	Data Processing	2		1982	functional	6	5	1	
UV-VIS spectrophotometer	Determination		Perkin-Elmer	1982	not functional	1	1		
f. Electrical supplies									
Uninterruptible power supply	Emergency Power Supply					1	1		
Generator	Electric Generation			1982	not functional	1	1		
Voltage regulator	Voltage Regulation					1	1		
g. Laboratory Furniture and Fittings									
Laboratory sink	Sink					2	2		
Reagent shelf	Reagent Storage					1	1		
Fire extinguisher (CO2 gas type)						2	2		
Fire extinguisher (powder type)						3			3
Fume cupboard (draft chamber)	Solvent Handling					1	1		
Emergency shower	Shower					1		1	
h. Extension Equipment									
Television (34inch)	Training					1	1		
Video	Training					1	1		
Slide projector	Training					1	1		
OHP set (w.screen)	Training					1	1		
Computer set	Data Processing					1	1		
Modem system (w/software)	Data Processing					1			1
Photocopier	Data Processing					1	1		
Typewriter (manual)	Data Processing					1		1	
Fax machine	Data Processing					1	1		
						80	52	20	8
									2

EQUIPMENT IN PAL-CEBU

1

Equipment	Purpose	Existing Equipment				Priority(number)			Additional Request
		Number & Type	Brand	Date of Purchase	Present Condition	Requested	A	B	
a. Sample Collection									
Vehicle(4WD) with refrigerator	Sampling	1	Volkswagen	1984	not functional	1	1		
Motorcycle	Sampling					2	1		1
b. Sample Storage									
Refrigerator	Std. Soln. Storage					1		1	
Refrigerator	Sample Storage	1 (no frost)	Kelvinator	1984		1	1		
Freezer	Sample Storage					1	1		
Freezer	Std. Soln. Storage	1 (Upright Fro	Westinghouse	1984					
c. Sample Extraction									
Blender (heavy duty food processor)	Sample Preparation	1	Hamilton	1984		3	2	1	
Homogenizer	Sample Preparation	1 (Ultra Turra	Janke&Kunke	1983	not functional	2	1	1	
Grinder (fo cereals)	Sample Preparation	1(Micro Beating Mill)		1983					
Shaker (horizontal/vertical)	Sample Extraction					1		1	
Shaker (rotary)	Sample Extraction	1 (Mechanical	Edmud Buhler	1983					
Shaker (with water bath)	Sample Extraction					1		1	
Soxhlet extraction apparatus (6 ports)	Sample Extraction	1				1		1	
Ultrasonic bath (small)	Sample Extraction	1 (RK100)				1		1	
d. Sample Processing									
Analytical balance	weighing	1	Sartorius	1983	not functional	1	1		
Digital balance	weighing	1	Sartorius	1983					
Top loading balance	weighing	1 (Triple Beam)		1983		1	1		
Distilling apparatus	Distillation	1				1	1		
Cooled water circulator	Cooling	1 (Water Cooler)		1983		1	1		
Water bath	Warming	1		1983		1		1	
Hot plate	Warming	2	Heidolph	1983					
Electric stove	Warming	1		1984	not functional				
Mantle heater	Warming								
Rotary vacuum evaporator w/accessories	Concentration	1 (Rotavapor)	Buchi	1984		4	2	1	1
Cooling aspirator	Cooling					2	1	1	
Magnetic stirrer w/hot plate	Stirring					4			4
Vacuum pump	Suction	1 (Mini vacuum)		1983		1		1	
Vacuum manifold	Solid Phase Extraction					1		1	
GPC column system	Purification					1	1		
Laboratory oven	Activation column adsorbents	1		1983		1		1	
Dehumidifier (desiccator)	Storage column					1	1		
Muffle furnace	Activation column adsorbents	1		1983					
Water purifier with demineralizer	Water Purification	1 (Water Distiller)		1983	not functional	1	1		
Washing machine	Glassware Washing	1		1983					
Drying oven (for glassware)	Glassware Drying	1	Heracous	1983		1	1		
Ultrasonic pipette washer	Pipette Washing					1	1		
Centrifuge (bench-top)	Separation	1	Heracous	1983		1		1	
Centrifuge (large 250ml)	Separation					1		1	
Ice making machine	Ice Making					1		1	
pH meter	Determination					1	1		
Laboratory cart		1 (Laboratory Wagon)		1983					
Glassware assorted						1	1		
e. Sample Analyzing									
Gas chromatograph with ECD	Determination	2 (model427)	PACKARD	1983	not functional	2	2		
with NPD	Determination	1 (model427)	PACKARD	1983	not functional	2	2		
with FPD	Determination					1		1	
Nitrogen gas cylinders		8		1983					
Hydrogen generator	Hydrogen Generation	1	Elhygen	1984	not functional				
Pressure regulators		3		1983	not functional(1)				
Recorder	Recording	4							
Air compressor		1	KNF Neuberger	1983	not functional				
Air compressor		1	Vappa						
HPLC (UV, Fluorescence)	Determination					1	1		
Data processor	Determination					6	5		1
UV-VIS spectrophotometer	Determination		Perkin-Elmer	1983	not functional	1	1		
f. Electrical supplies									
Uninterruptible power supply	Emergency Power Supply					1	1		
Generator	Electric Generation	1	Bosch	1983		1	1		
Voltage regulator	Voltage Regulation					1	1		
g. Laboratory Furniture and Fittings									
Laboratory sink	Sink					2	1	1	
Reagent shelf	Reagent Storage					1	1		
Air conditioner	Temperature control	5	Carrier	1984	not functional	5	5		
Fire extinguisher (CO2 type)		3 (ABS Dragon)				2	2		
Fire extinguisher (powder type)									
Exhaust fan	ventilation	1				3			3
Fume cupboard (Draft chamber)	Solvent Handling					1	1		
Emergency shower	Shower					1			1
h. Extension Equipment									
Television (34inch)	Training					1	1		

EQUIPMENT IN PAL-CEBU

2

Equipment	Purpose	Existing Equipment				Present Condition	Requested	Priority(number)			Additional Request
		Number & Type	Brand	Date of Purchase				A	B	C	
Video	Training						1	1			
Slide projector	Training						1	1			
OHP set (w.screen)	Training						1	1			
Computer set	Data Processing						1	1			
Modem system (w/software)	Data Processing						1			1	
Photocopier	Data Processing						1	1			
Typewriter (manual)	Data Processing		1 Olympia	1983			1		1		
Fax machine	Data Processing						1	1			
合計							86	54	20	12	0

EQUIPMENT IN PAL-Cag. de Oro

1

Equipment	Purpose	Existing Equipment				Requested	Priority(number)			Additional Request
		Number & Type	Brand	Date of Purchase	Present Condition		A	B	C	
a. Sample Collection										
Vehicle(4WD) with refrigerator	Sampling					1	1			
Motorcycle	Sampling					2		1	1	
b. Sample Storage										
Refrigerator	Std. Soln. Storage					1	1			
Refrigerator	Sample Storage					1		1		
Freezer	Sample Storage					1	1			
c. Sample Extraction										
Blender (heavy duty food processor)	Sample Preparation	1	Janke & Kunkel		not functional	3	2	1		
Homogenizer - Shaker mixer	Sample Preparation	1	Jurgen			2	1	1		
Grinder (fo cereals)	Sample Preparation	1	(Beating Mill)	1982		1		1		
Shaker (horizontal/vertical)	Sample Extraction					1	1			
Shaker (rotary)	Sample Extraction	1		1982		1				
Shaker (with water bath)	Sample Extraction					1		1		
Soxhlet extraction apparatus (6 ports)	Sample Extraction					1		1		
Ultrasonic bath (small)	Sample Extraction					1				1
d. Sample Processing										
Analytical balance	weighing					1	1			
Top loading balance	weighing	1	(Triple Beam Ohaus	1982		1		1		
Distilling apparatus (stand, mantle heater,	Distillation	1	Kotterman	1982	not functional	1	1			
Cooled water circulator	Cooling					1	1			
Water bath	Warming	1		1982		1				1
Mantle heater	Warming					3	1	1	1	
Rotary vacuum evaporator w/accessories	Concentration	1	Buchi (Switzerland)			4	2	1	1	
Cooling aspirator	Cooling					2	2			
Magnetic stirrer w/hot plate	Stirring					4		1	3	
Vacuum pump	Suction	1	Heraeus	1982		1		1		
Vacuum manifold	Solid Phase Extraction					1		1		
GPC column system	Purification					1	1			
Laboratory oven	Activation column adsorbents	1	Heraeus	1982		1		1		
Dehumidifier (desiccator) (for column st	Storage column					1		1		
Water purifier with demineralizer	Water Purification					1	1			
Washing machine	Glassware Washing	1		1982	not functional	1				
Drying oven (for glassware)	Glassware Drying	1	Heraeus	1982		1				
Ultrasonic pipette washer	Pipette Washing					1	1			
Centrifuge (bench-top)	Separation	1	Heraeus	1982		1				1
Centrifuge (large 250ml)	Separation					1		1		
Ice making machine	Ice Making					1				1
pH meter	pH Measuring					1	1			
Glassware assorted						1	1			
e. Sample Analyzing										
Gas chromatograph	Determination									
with ECD	Determination	2 (Model 427)	Packard	1982	1-functional	2	2			
with NPD	Determination	2 (Model 427)	Packard	1982	1-functional	2	2			
with FPD	Determination					1		1		
Hydrogen generator	Hydrogen Generation	1	Dosapro-Milton Rox		not functional					
High performance liquid chromatograph										
w/Auto injector, UV, Fluorescence	Determination					1	1			
Date processor	Data processing					6	5	1		
UV-VIS spectrophotometer	Determination	1	Perkin-Elmer	1982	not functional	1	1			
f. Electrical Supplies										
Uninterruptible power supply	Emergency Power Supply					1	1			
Generator - Electric generator	Electric Generation	1	Boshi			1	1			
Voltage regulator	Voltage Regulation					1	1			
g. Laboratory Furniture and Fittings										
Laboratory sink	Sink					2		1	1	
Reagent shelf	Reagent Storage					1		1		
Air conditioner	Temperature control				2not functional	5	5			
Fire extinguisher (CO2 gas type)						2	2			
Fire extinguisher (powder type)						3		1	2	
Fume cupboard (draft chamber)	Solvent Handling					1	1			
Emergency shower	Shower					1		1		
h. Extension Equipment										
Library table	Library					1	1			
Library chair	Library					4	4			
Television (34inch)	Training					1	1			
Video	Training					1	1			
Slide projector	Training					1	1			
OHP set (w.screen)	Training					1	1			
Computer set (computer, display, printer, ta	Data Processing					1	1			
Modem system (w/software)	Data Processing					1				1
Photocopier	Data Processing					1	1			
Typewriter (manual)	Data Processing					1		1		
Fax machine	Data Processing					1	1			
						91	54	23	14	0

EQUIPMENT IN PAL-BICOL

1

Equipment	Purpose	Existing Equipment				Priority (number)			Additional Request
		Number & Type	Brand	Date of Purchase	Present Condition	Requested	A	B	
a. Sample Collection									
Vehicle(4WD) with refrigerator	Sampling					1	1		
Motorcycle	Sampling					2	1		1
b. Sample Storage									
Refrigerator (for std. soln.)	Std. Soln. Storage					1	1		
Refrigerator (for sample ext.)	Sample Storage					1	1		
Freezer	Sample Storage					2	2		
c. Sample Extraction									
Blender (heavy duty food processor)	Sample Preparation					3	2		1
Homogenizer	Sample Preparation					3	1	1	1
Grinder (fo cereals)	Sample Preparation					1	1		
Shaker (horizontal/vertical)	Sample Extraction					1	1		
Shaker (with water bath)	Sample Extraction					1		1	
Soxhlet extraction apparatus (6 ports)	Sample Extraction					1		1	
Ultrasonic bath (small)	Sample Extraction					1	1		
d. Sample Processing									
Analytical balance	Weighing					1	1		
Top loading balance	Weighing					1	1		
Distilling apparatus	Distillation					1	1		
Cooled water circulator	Cooling					1	1		
Water bath	Warming					1		1	
Mantle heater	Warming					3	1	1	1
Rotary vacuum evaporator	Concentration					4	3	1	
Cooling aspirator	Cooling					2	2		
Magnetic stirrer w/hot plate	Stirring					4	1	1	2
Vacuum pump	Suction					1		1	
Vacuum manifold	Solid Phase Extraction					1		1	
GPC column system	Purification					1	1		
Laboratory oven	Activation column adsorbents					1	1		
Dehumidifier (dessiccator)	Storage column					1		1	
Water purifier with demineralizer	Water Purification					1	1		
Drying oven (for glassware)	Glassware Drying					1	1		
Ultrasonic pipette washer	Pipette Washing					1	1		
Centrifuge (bench-top)	Separation					1		1	
Centrifuge (large 250ml)	Separation					1	1		
Ice making machine	Ice Making					1			1
pH meter	pH Measuring					1	1		
Laboratory cart	Sample Carrying					3	2		1
Glassware assorted						1	1		
e. Sample Analyzing									
Gas chromatograph with ECD	Determination					2	2		
Gas chromatograph with NPD	Determination					2	2		
Gas chromatograph with FPD	Determination					1		1	
High performance liquid chromatograph w/Auto injector, UV, Fluorescence	Determination					1	1		
Data processor	Data Processing					6	5	1	
UV-VIS spectrophotometer	Determination					1	1		
f. Electrical supplies									
Uninterruptible Power Supply	Emergency Power Supply					1	1		
Generator	Electric Generation					1	1		
Voltage Regulator	Voltage Regulation					1	1		
g. Laboratory Furniture and Fittings									
Laboratory center table	Lab. Table					3	2	1	
Laboratory side table	Lab. Table					3	2	1	
Work table	Lab. Table					1	1		
Laboratory sink	Sink					3	3		
Reagent shelf	Reagent Storage					1	1		
Stool	Lab. Chair					10	8		2
Air conditioner	Temperature Control								
Fire extinguisher (CO2 gas type)						2	2		
Fire extinguisher (powder type)						3		2	1
Exhaust fan	Ventilation					7	6		1
Fume cupboard (Draft chamber)	Solvent Handling					1	1		
Emergency shower	Shower					1	1		
h. Extension Equipment									
Television (34inch)	Training					1	1		
Video	Training					1	1		
Slide projector	Training					1	1		
OHP set (w.screen)	Training					1	1		
Computer set	Data Processing					1	1		
Modem system (w/software)	Data Processing					1			1
Photocopier	Data Processing					1	1		
Typewriter (manual)	Data Processing					1		1	
Fax machine	Data Processing					1	1		
						112	81	18	13
									7

EQUIPMENT IN PAL-DAVAO

1

Equipment	Purpose	Existing Equipment				Priority(number)			Additional Request
		Number & Type	Brand	Date of Purchase	Present Condition	Requested	A	B	
a. Sample Collection									
Vehicle(4WD) with refrigerator	Sampling					1	1		
Motorcycle	Sampling					2	1		1
b. Sample Storage									
Refrigerator (for std. soln.)	Std. Soln. Storage		1 LABLINE	Fm:MNL		1	1		
Refrigerator (for sample ext.)	Sample Storage					1	1		
Freezer	Sample Storage					2	2		
Freezer (for std. of Pesticides)	Std. Soln. Storage								1
c. Sample Extraction									
Blender (heavy duty food processor)	Sample Preparation		1 HBS	Fm: MNL		3	2		1
Blender	Sample Preparation	1 (Osterizer)	National	Fm:FSD not functional		3	1	1	1
Homogenizer	Sample Preparation					1	1		
Grinder (fo cereals)	Sample Preparation					1	1		
Shaker (horizontal/vertical)	Sample Extraction					1			1
Shaker (rotary)	Sample Extraction					1			1
Shaker (with water bath)	Sample Extraction					1			1
Soxhlet extraction apparatus (6 ports)	Sample Extraction					1		1	
Ultrasonic bath (small)	Sample Extraction					1		1	
d. Sample Processing									
Analytical balance	weighing					1	1		
Top loading balance	weighing		1 Mettler	Fm: MNL		1	1		
Industrial laboratory balance	weighing			Fm:Soil Pro.					
Distilling apparatus	Distillation					1	1		
Cooled water circulator	Cooling	1		not functional		1	1		
Water bath	Warming	1		not functional		1	1		
Mantle heater	Warming					3		2	1
Rotary vacuum evaporator w/accessories	Concentration	1		1990(MNL)		4	4		
Hot plate	Warming	1		1989(M not functional)					
Cooling aspirator	Cooling					2	2		
Magnetic stirrer w/hot plate	Stirring					4		2	2
Vacuum pump	Suction					1			1
Vacuum manifold	Solid Phase Extraction					1			1
GPC column system	Purification					1	1		
Laboratory oven	Activation column adsorbents					1	1		
Dehumidifier (desiccator)	Storage column	2		Fm:MNL		1	1		
Muffle furnace	Activation column adsorbents					1			1
Water purifier with demineralizer	Water Purification					1		1	
Washing machine	Glassware Washing	1	Miele	Fm:MNL		1			
Drying oven (for glassware)	Glassware Drying	1	Heracus	Fm:MNL		1	1		
Ultrasonic pipette washer	Pipette Washing					1	1		
Centrifuge (bench-top)	Separation					1			1
Centrifuge (large 250ml)	Separation					1	1		
Ice making machine	Ice Making					1			1
pH meter	pH Measuring	1 (Mini)	Hack	Fm:FSDC		1	1		
Laboratory cart	Sample Carrying					3	1	1	1
Glassware assorted						1	1		
e. Sample Analyzing									
Gas chromatograph with ECD	Determination	1(model427)	Packard	1989(M not functional)		2	2		
Gas chromatograph with NPD	Determination	1 (model3800)	DANI	1990(M not functional)		2	2		
Gas chromatograph with FPD	Determination					1		1	
Gas chromatograph tools		1		1990(Local purchase)					
Gas tank(Nitrogen)		2		1990(MNL)					
Gas tank(Hydrogen)		1		1990(NML)					
Air compressor		1		Fm:MNL					
LPG Tank		1		(Fm: FSDC)					
Recorder	Recording	1	Packard	Fm:Cebu					
HPLC (UV, Fluorescence)	Determination					1	1		
Data processor	Data processing					6	5	1	
UV-VIS Spectrophotometer	Determination					1	1		
Flame photometer	Determination	PPP 1	Petrascourt	Fm: FSDC		1	1		
f. Electrical Supplies									
Uninterruptible power supply	Emergency Power Supply					1			
Generator	Electric Generation					1			
Variable transformer		1	Pioneer	1990(Local purchase)					
Voltage regulator	Voltage Regulation	1		1990(Local purchase)		1			
g. Laboratory Furniture and Fittings									
Laboratory center table	Lab. table					3	3		
Laboratory side table	Lab. table					3	3		
Work table	Lab. table					1	1		
Laboratory sink	Sink					3	1	1	1
Reagent shelf	Reagent Storage					1	1		
Stool	Lab. chair					10	8		2
Air conditioner	Temperature control	1	Folders	(MNL) not functional					
Fire extinguisher (CO2 gas type)						2	2		
Fire extinguisher (powder type)						3		2	1

EQUIPMENT IN PAL-DAVAO

2

Equipment	Purpose	Existing Equipment				Requested	Priority(number)			Additional Request
		Number & Type	Brand	Date of Purchase	Present Condition		A	B	C	
Exhaust fan	ventilation	1 (Ex-12)	3D	1989(MNL)		7				
Fume cupboard (draft chamber)	Solvent Handling					1	1			
Emergency shower	Shower					1				
h. Extension Equipment										
Library table	Library					1	1			
Library chair	Library					4	4			
Folding table	Training					3	2		1	
Folding chair	Training					6	4	2		
Television (34inch)	Training					1	1			
Video	Training					1	1			
Slide projector	Training					1	1			
OHP set (w.screen)	Training					1	1			
Computer set (computer,display,printer,la)	Data Processing					1	1			
Modem system (w/software)	Data Processing					1			1	
Photocopier	Data Processing					1	1			
Typewriter (manual)	Data Processing					1		1		
Fax machine	Data Processing					1	1			
						126	79	17	19	3

8. MEMORANDUM OF THE DA'S REGIONAL OFFICE CHIEF
(REGION 5)



Republic of the Philippines
DEPARTMENT OF AGRICULTURE
Office of the Secretary
Elliptical Road, Diliman, Quezon City

MEMORANDUM -

To : Director Nerius I. Roperos
Bureau of Plant Industry
Manila

FROM : Dr. *Fe Laysa*
Department of Agriculture
Region V

SUBJECT : Building of Bicol PAL

Relative to the Bureau of Plant Industry project proposal entitled "Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and Pesticide Formulation", please be informed that I agree to the use and renovation of the building visited by the JICA 2nd Basic Design Mission as a PAL satellite station as long as the equipment and vehicles requested are provided by the project. It will be recalled that this is the same building that was earmarked during the conceptualization of this project.

We look forward to the inclusion of Bicol PAL to the final scope of the project.

May 26, 1994

9. LETTER FROM THE BPI'S DIRECTOR TO THE PHASE 2
STUDY TEAM LEADER



Republic of the Philippines
Department of Agriculture
BUREAU OF PLANT INDUSTRY
Manila

692 San Andres St.
Malate, Manila
Philippines

Tel. Nos. 57-17-26
58-62-01
57-17-76

Mr. Shigetaka Saburi
Team Leader
2nd Basic Design Mission

Dear Mr. Saburi:

This is to request your consideration for our proposal to include a two (2) room dormitory with 10 beds for ladies and 10 beds for men, a canteen with a capacity of 10 tables with 4 seats each.

The need for these facilities stem from:

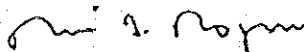
1. A projected increase of training activities and education/awareness campaign for the National Capital Region and nearby Regions 3, 4 and 5 from 1 to 2 trainings per month with an average of 5 days period per session.
2. With the recent bilateral agreements between four (4) member countries of the Technical Cooperation of Developing Countries (TCDC), the Philippines through the Central Pesticide Analytical Laboratory will conduct trainings on pesticide residue to an average of 3-4 participants/country.
3. To provide temporary shelter to an average of four (4) staff of the Central PAL who often times render overtime services to complete the activities that need continuous operation.
4. The dormitory and canteen facilities will cater to approximately 40-60 trainees/month.

The annual training program and schedule is attached for your ready reference.

We trust that this merits your favorable evaluation and acceptance of our request.

Thank you and regards.

Very truly yours,


NERIUS I. ROPEROS
Director

Encl.: a/s
May 27, 1994

TRAININGS TO BE CONDUCTED BY
PESTICIDE ANALYTICAL LABORATORY (PAL)

A. Under the Technical Cooperation of Developing Countries
(TCDC)

Philippines to:

1. China - OJT Training on Pesticide Residue and Formulation Analysis
2. Ivory Coast - Training on Pesticide Residue Monitoring and Pesticide Use
3. Pakistan - Training on Pesticide Residue Monitoring and Use
4. Thailand - Toxicity and Impact of Pesticide on Non-Target Agricultural Site

B. Other Agencies Requesting Training on Pesticide Analysis

1. Environmental Management Bureau (EMB)
2. Bureau of Fisheries and Aquatic Resources (BFAR)
3. Bureau of Animal Industry (BAI)
4. Central Luzon State University (CLSU)
5. National Pollution Control Commission (NCPC)

C. PAL In-House Review

10. REFERENCE MATERIALS

Bureau of Plant Industry

1. Pesticide Administration in the Philippines
 - a. P.D. 1144, May 30, 1977
 - b. FPA Rules and Regulation No.1, Series of 1977
 - c. The Fertilizer and Pesticide Authority, Chapter 5 of Pesticide Management
 - d. Number of pesticides and their ingredients according to types (Agricultural and Household use)
 - e. List of registered pesticides according to their active ingredients
 - f. List of registered pesticide products according to companies (Agricultural and Household use)
 - g. Guidelines on FPA Board Resolution No.01 (1993) on Organotin, Azinophos Ethyl, Methyl Parathion, Endosulfan and Monocrotohos
2. Statistics of Pesticide in the Philippines
 - a. Sales amount of pesticides as in kgs of active ingredient (1988-1992)
 - b. Philippine Annual Pesticide Information, 1984-1992
 - c. Pesticide importation (in detail according to types) for the calendar years 1980-1991
3. National Pest and Disease Profile
 - a. National pest and disease profile cited from BPI Annual Report 1991
 - b. Brief profile about the Crop Protection Division and the Crop Production Division
4. Budget for the BPI
 - a. Budget ceiling of the BPI for 1993
 - b. Budget allocation in the Department of Agriculture and BPI's budget specification
 - c. Financial Plan 1994 for the Pesticide Analytical Section (for Manila and Baguio only)
 - d. 1995 Budget of the Pesticide Analytical Laboratory
 - e. 1995 Work Plan of the Pesticide Analytical Section, Laboratory Services Division
 - f. PAL-Baguio's Work Plan for 1994 and 1995
5. KR-2 (Pesticide Management)
 - a. Brief history
 - b. List of agricultural chemicals (insecticides, herbicides and fungicides) provided under Japanese Commodity Grant with KR-2, 1990-1993
6. Consumption of Crops
 - a. Statistics of selected crops 1989-1992 (in calendar year) on Abaca, Banana, Cabbage, Cacao, Calamansi, Cassava, Coconut, Coffee, Eggplant, Garlic, Mango, Mongo, Onion, Peanut, Pineapple,, Rubber, Sugarcane, Tobacco and Tomato
 - b. Export of major commodities (for agricultural products) 1991-1993, with statistic sheets
 - c. Imported fruits and vegetables in 1993, with statistics sheets
 - d. Supply and utilization accounts (1878-1991) on Ampalaya, Bell pepper, Cabbage, Chayote, Cucumber, Eggplant, Garlic, Ginger, Habitchuelas, Onion, Patola, Pechay, Radish, Squash, Tomato, Upo, Soybeans, Mongo and Peanut