# General Annex

GENERAL ANNEX

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Republic of the Phil nes
DEPARTMENT OF . RICULTURE
Office of the Secretary
Elliptical Road, Diliman
Quezon City 1100 Philippines

General Annex 1.

**ADMINISTRATIVE ORDER NO. 50**
Series of 2000

SUBJECT: Revising the Rates of Fees/Charges for Laboratory Analysis, Seed Testing and Field Inspection and Plant Quarantine Regulatory Services by the Bureau of Plant Industry

Pursuant to Executive Order No. 197, directing all Departments, Bureaus, Commissions, Agencies, Offices and Instrumentalities of the National Government, including government-owned and controlled corporations, to increase rates of fees and charges by not less than twenty percent (20%), the following fees shall be imposed by the Bureau of Plant Industry for Services rendered:

**Section I. LABORATORY ANALYSIS SERVICES**

| | | Fees and Charges |
|---|---|---|
| A. | PHYSICO-CHEMICAL ANALYSIS: | |
| | Proximate | P 850.00 |
| | Moisture | 105.00 |
| | Ash | 205.00 |
| | Total Nitrogen/Protein | 210.00 |
| | Crude Fat | 330.00 |
| | Specific Gravity | 100.00 |
| | pH | 115.00 |
| | Total Soluble Solids (TSS) | 80.00 |
| | Total Solids/Insoluble Solids | 170.00 |
| | Total Sugar/Starch | 270.00 |
| | Total Acidity | 165.00 |
| | Salt (%NaCl) | 200.00 |
| | Amylose | 285.00 |
| | Mineral (Ca, Mg, P, K, Fe, Mn) | 240.00 |
| | Vitamin C | 330.00 |
| | Free Fatty Acid (FFA) | 290.00 |
| | Saponification Value | 335.00 |
| | Sulfur Dioxide | 275.00 |
| | Cyanide | 300.00 |
| | Organic Matter | 240.00 |

QUALITY CONTROL SERVICES
BPI-7
RECEIVED
BY:
DOC. NO.
DATE:
Nanguna City

Received at PAL Satellite
Date: 06/05/02 4:00 PM
Sign

| | |
|---|---|
| Tannin | 180.00 |
| Formalin | 315.00 |
| Aw (Water Activity) | 150.00 |

B. SERVICE FEES FOR THE USE OF SOPHISTICATED TECHNIQUES AND EQUIPMENT

| | |
|---|---|
| Gas Chromatography | P 1,800.00 |
| UV-VIS Spectrophotometry | 1,400.00 |
| Infra-Red Spectrometer | 1,400.00 |
| Atomic Absorption Spectrometry | 1,400.00 |

C. PROCESSED PRODUCTS

| | |
|---|---|
| Nata de Coco | P 36.00/ 12 oz. bottle |
| Guava Jelly | 40.00/ 8 oz. bottle |
| Pineapple Jam | 35.00/ 8 oz. bottle |
| Mango Chutney | 40.00/ 8 oz. bottle |
| Soysauce | 20.00/ 350 ml. bottle |
| Vinegar | 15.00/ 350 ml. bottle |
| Nata Starter (Cocomilk) | 30.00/ liter |
| Nata Starter (Cocowater) | 5.00/ cup |
| Koji (Soysauce Starter) | 40.00/ 100 grams |
| Fruit Wine | 40.00/ 750 ml. bottle |
| Pure Culture | 120.00/ test tube |

D. MICROBIOLOGICAL ANALYSIS

| | |
|---|---|
| Water Analysis | P 720.00 |
| Anti-microbial Analysis | 775.00 |
| Microbiological Analysis | |
| a. Standard Plate Count | 370.00 |
| b. Yeast and Mold Count | 370.00 |
| c. Coliform Count | 370.00 |
| Aflatoxin | 3,000.00 |

E. PESTICIDE RESIDUE ANALYSIS

| | |
|---|---|
| Fruits and Vegetables | P 5,250.00 |
| Tobacco | 3,900.00 |
| Water | 3,400.00 |
| Fish | 5,200.00 |
| Urine and Blood | 3,950.00 |
| Milk and Fat | 3,950.00 |
| Soil | 4,350.00 |
| Special Samples | 5,250.00 |

F. PESTICIDE FORMULATION ANALYSIS

| | |
|---|---|
| Gas Chromatograph Method | P 2,530.00 |
| High Pressure Liquid Chromatography Method | 4,000.00 |
| UV-VIS Method | 2,360.00 |
| Conventional Method | 2,220.00 |

**Section II. SEED QUALITY CONTROL SERVICES**

A. FIELD INSPECTION

1. Up to 4 hectares

| | |
|---|---|
| For preliminary inspection | P 135.00/ ha. |
| For final inspection | 65.00/ ha. |

2. Additional hectares but not more than 19 hectares

| | |
|---|---|
| For preliminary inspection | P 65.00/ ha. |
| For final inspection | 35.00/ ha. |

B. SEED TESTING

| | |
|---|---|
| 1. Complete test for sample intended for certification | P 130.00/ sample |
| 2. Seed analysis for all crops: | |
| Purity | P 18.00/ sample |
| Germination | |
| a. Small Seeded | P 42.00/ sample |
| b. Big Seeded | 110.00/ sample |
| Moisture content determination (oven test) | 50.00/ sample |
| Seed Health | |
| a. Seedborne Virus | 130.00/ sample |
| b. Other Seedborne Virus | 42.00/ sample |
| Determination of other varieties and red rice | 30.00/ sample |
| Tetrazolium Test | |
| a. Small Seeded | 200.00/ sample |
| b. Big Seeded | 130.00/ sample |
| Vigor Test as listed in the ISTA Rules | 65.00/ sample |

3. Miscellaneous Fees

| | | |
|---|---|---|
| Seed Certification Tag | P | 1.80/ tag |
| Certified true copy of Report of Analysis | | 1.80/ tag |
| Orange International Seed Lot Certificate | | 600.00/ cert. |
| Green International Seed Lot Certificate | | 360.00/ cert. |
| Blue International Seed Lot Certificate | | 240.00/ cert. |

## Section III. PLANT QUARANTINE REGULATORY SERVICES

| | | |
|---|---|---|
| A. | Issuance of Permit to Import | |
| | Planting Materials | 20.00 |
| | Plant Products | 30.00 |
| B. | Issuance to Import for Potential Agricultural Pests (Small Animals, etc.) | 60.00 |
| C. | Inspection and Issuance of Phytosanitary Certificates (Export) | |
| 1. | Living plants for shipment, ten (10) pieces or less | 10.00 |
| | in excess of ten pieces, plus... | 1.00 |
| 2. | Plants in community pots or similar packaging materials or container, thirty (30) pieces or less (Any excess will be charged as another community pot) | 10.00 |
| 3. | Seeds, cuttings, rhizomes, bulbs, corms, grafts, scions and other materials capable of propagation | 15.00 |
| 4. | Plant products and other materials capable of harboring plant pests | 10.00 |
| D. | Inspection Fees (Import) | |
| 1. | Living plants for shipment, ten (10) pieces or less | 12.00 |
| | in excess of ten pieces, plus... | 1.20 |
| 2. | Plants in community pots or similar packaging materials or container, thirty (30) pieces or less. (Any excess will be charged as another community pot) | 15.00 |
| 3. | Seeds, cuttings, rhizomes, bulbs, corms, grafts, scions and other materials capable of propagation. | 10.00 |
| 4. | Plant products and other materials capable of harboring plant pests | 20.00 |

**Section IV. REPEALING CLAUSE** - This Order supercedes all other orders and/or circulars issued inconsistent herewith.

**Section V. EFFECTIVITY** - This Order takes effect fifteen (15) days after the publication in the official gazette or in one (1) newspaper of general circulation.

Approved by:

**EDGARDO J. ANGARA**
Secretary

Recommending Approval:

**BLO/UMPAR ADIONG, CESO II**
Director, Bureau of Plant Industry

December 5, 2000
/aom

General Annex 2.

# THE MINUTES OF UNDERSTANDING BETWEEN THE JAPANESE EVALUATION TEAM AND THE CONCERNED AUTHORITIES OF THE GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES FOR THE PESTICIDE MONITORING SYSTEM DEVELOPMENT PROJECT

With about six months left before the termination of the cooperation term of the Pesticide Monitoring System Development Project (hereinafter referred to as "the Project"), which started on 31 March 1997 as stated in the Record of Discussions (hereinafter referred to as "R/D"), the Japanese Evaluation Team organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yoshiaki Kano, visited the Republic of the Philippines in order to conduct an overall review and evaluation of the performance of the Project. In order to achieve this, a Joint Evaluation Team (hereinafter referred to as "the Team") was formed, consisting of the aforementioned Japanese and Philippine Team headed by Ms. Elsa M. Bayani.

The Team conducted a series of discussions with the Japanese experts and the Philippine counterparts assigned to the Project as well as concerned authorities of the Government of the Republic of the Philippines, made field surveys, and exchanged views among themselves. Mr. Ernesto M. ORDOÑEZ, Undersecretary, Department of Agriculture, received and agreed with the joint evaluation report submitted by the Team, attached hereto.

Metro Manila, 4 October 2001

YOSHIAKI KANO
Leader
Japanese Evaluation Team
Japan International Cooperation Agency
Japan

ERNESTO M. ORDOÑEZ
Undersecretary
Department of Agriculture
Republic of the Philippines

CESAR M. DRILON, Jr.
Officer-in-Charge
Fertilizer and Pesticide Authority and
Undersecretary
Department of Agriculture

BLO UMPAR ADIONG
Director
Bureau of Plant Industry
Department of Agriculture

# THE MINUTES OF MEETING
# OF JOINT EVALUATION
# ON THE JAPANESE TECHNICAL COOPERATION
# FOR
# THE PESTICIDE MONITORING SYSTEM DEVELOPMENT PROJECT

With about six months left before the termination of the cooperation term of the Pesticide Monitoring System Development Project (hereinafter referred to as "the Project"), which started on 31 March 1997 as stated in the Record of Discussions (hereinafter referred to as "R/D"), the Japanese Evaluation Team organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yoshiaki Kano, visited the Republic of the Philippines in order to conduct an overall review and evaluation of the performance of the Project. In order to achieve this, a Joint Evaluation Team (hereinafter referred to as "the Team") was formed, consisting of the aforementioned Japanese and the Philippine Team headed by Ms. Elsa M. Bayani.

The Team conducted a series of discussions with the Japanese experts and the Philippine counterparts assigned to the Project as well as with the concerned authorities of the Government of the Republic of the Philippines, made field surveys, and exchanged views among themselves.

As a result of the discussions, the Team agreed to submit to their respective governments the Joint Evaluation Report attached hereto.

Metro Manila, 4 October 2001

YOSHIAKI KANO
Leader
Japanese Evaluation Team
Japan International Cooperation Agency
Japan

ELSA M. BAYANI
Leader
Philippine Evaluation Team
National Nutrition Council, Department of Agriculture
Republic of the Philippines

# JOINT EVALUATION REPORT
# ON
# THE JAPANESE TECHNICAL COOPERATION
# FOR
# THE PESTICIDE MONITORING SYSTEM DEVELOPMENT PROJECT

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## 1. INTRODUCTION

Based on the Record of Discussions (hereinafter referred to as "R/D") and the Tentative Schedule of Implementation (hereinafter referred to as "TSI") signed on 29 January 1997, the Governments of Japan and the Republic of the Philippines have been implementing the Project since 31 March 1997. The five-year Project is due for completion on 30 March 2002.

## 2. OUTLINE OF THE PROJECT

In accordance with the R/D and TSI agreed upon in January 1997, the outline of the Project is as follows:

- Project Purpose

  To develop a comprehensive system for monitoring pesticide residues and pesticide formulations.

- Outputs

1) Capability on pesticide residue and pesticide formulation analyses is improved.
2) Methods and technology of Supervised Pesticide Residue Trials (SPRT) in crops are improved.
3) Methods of Pesticide Residue Monitoring (PRM) are improved.
4) Necessary information to establish Maximum Residue Limits (MRL) and the Pesticide Safe Use Direction are provided to the responsible agencies.
5) Activities to disseminate safe handling and proper use of pesticides are improved.

## 3. MEMBERS OF THE JOINT EVALUATION TEAM

3-1. JAPANESE EVALUATION TEAM

(1) Mr. Yoshiaki KANO: Team Leader

Managing Director, Tsukuba International Center, JICA

(2) Dr. Yasuhiro KATO: Pesticide Analysis/Pesticide Trials

Director of Chemistry Division, The Institute of Environmental Toxicology

(3) Dr. Takashi WATANABE: Safe and Judicious Use of Pesticides/Food Safety

Deputy Director, Environmental Fate and Behavior Inspection Division, Agricultural Chemicals Inspection Station

(4) Dr. Takeshi KOJIMA: Evaluation Analysis

Manager, Overseas Environmental Planning Division, EX Corporation

(5) Ms. Yuko ISHIZAWA: Planning Evaluation

Staff, Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department, JICA

3-2. PHILIPPINE EVALUATION TEAM

(1) Ms. Elsa M. BAYANI: Team Leader

Executive Director, National Nutrition Council, Department of Agriculture

(2) Dr. Leonila M. VARCA: Pesticide Analysis/Pesticide Trials

University Researcher, National Crop Protection Center, University of the Philippines Los Banos

(3) Mr. Simeon A. CUYSON: Safe and Judicious Use of Pesticides

Executive Director, Crop Protection Association of the Philippines

(4) Dr. Aida R. AGUINALDO: Food Safety

Deputy Director, Food and Nutrition Research Institute, Department of Science and Technology

(5) Ms. Zenaida M. VILLEGAS: Evaluation Analysis/Planning Evaluation

Chief, Project Packaging and Resource Management Division, Department of Agriculture

## 4. OBJECTIVES OF THE EVALUATION

(1) To make a comprehensive and objective evaluation of the achievements of the Project with reference to the contents of the R/D, TSI and other relevant official agreements.

(2) To highlight the lessons learned in the implementation of the Project.

(3) To make recommendations to the authorities of both Governments concerning issues relevant to the Project sustainability.

## 5. EVALUATION OF THE PROJECT

### 5-1. FIVE EVALUATION CRITERIA

The Team conducted the evaluation of the Project according to Project Cycle Management (PCM) method as follows:

(1) Efficiency

Efficiency of the Project implementation is analyzed focusing on the relationship between inputs and outputs in terms of timing, quantity, quality, and the linkages with other cooperation scheme of JICA and other organizations. Efficiency means how much of the inputs were converted to the outputs given the Project time frame.

(2) Effectiveness

Effectiveness concerns the extent to which the Project Purpose indicated in the Project Design Matrix (PDM) has been achieved or is expected to be achieved in relation to the outputs, and also the extent to which the output in the PDM has been achieved.

(3) Impact

Impact of the Project is identified as positive or negative changes resulting directly or indirectly from the Project. These changes include both expected and unexpected ones.

(4) Relevance

Relevance of the Project is assessed based on the Project Purpose and Overall Goal in connection with the national development policies and programmes of the Government of the Republic of the Philippines.

(5) Sustainability

Sustainability of the Project is forecast based on the institutional, financial and technical aspects by examining the extent to which the achievement of the Project is sustained or expanded after the assistance is completed.

5-2. Evaluation Method

This evaluation was conducted by the Team with reference to the R/D, the TSI and the PDM through analysis of reports, field visits, interviews, and discussions with the personnel involved in the Project. The evaluation was based on the following criteria: Efficiency, Effectiveness, Relevance, Impact, and Sustainability.

The PCM evaluation method requires a PDM which summarizes the framework of the Project. The PCM method has been applied throughout the period of the planning and the implementation of the Project. The PDM was formulated at the start of the planning.

The Team reviewed this PDM, other existing project documents, and the information given by the Project personnel, and formulated the PDM for the evaluation of the Project ($PDM_E$), which is attached as Annex 1.

## 6. RESULTS OF THE EVALUATION

### 6-1. EFFICIENCY

#### 6-1-1. Quantity, Quality, and Timing of Inputs

(1) Dispatch of Japanese Experts

Nine (9) long-term experts in six (6) fields of specialty and 14 short-term experts have been dispatched to the Project. The list of Japanese experts dispatched is attached as Annex 2.

(2) Counterpart Training in Japan

Seventeen (17) counterparts completed training in Japan. The list of couterpart personnel trained in Japan is attached as Annex 3.

(3) Equipment provided by the Japanese side

A total of 118 million Japanese yen was provided for the equipment. Some specialized equipment purchased in the Philippines were not delivered on time. The list of major machinery and equipment is attached as Annex 4.

(4) Supplementary Expenditure for Local costs borne by the Japanese side

The Japanese side provided a part of the Project costs, amounting to 50.5 million Japanese yen, in order to implement the Project activities more effectively. This amount which includes the cost of land preparation for Supervised Pesticide Residue Trials (SPRT), was provided timely and has contributed to achieving the Outputs. The breakdown of the budget is shown in Annex 5.

(5) Assignment of counterpart staff

A total of 84 counterpart personnel has been assigned to the Project inclusive of contractual personnel. The list of the counterpart personnel is attached as Annex 6.

(6) Provision of land and facilities

The land and facilities required for implementation of the Project have been provided. Due to some technical reasons in the operation of the SPRT, a relocation of the field trial had to be made necessitating the additional budget, which was borne by the Japanese side.

(7) Local costs borne by the Philippine side

The Philippine side has allocated a total of 54.9 million pesos for the maintenance of equipment, travel expenses, wages for contractual personnel, etc. The list of local costs borne by the Philippine side is attached as Annex 7.

6-1-2. Linkages Between Inputs and Outputs

Japanese side

(1) Dispatch of experts

Almost all the fields of specialization of experts were appropriate.

While there was a two-month gap between the two experts on Residue Monitoring, there was no delay in this activity because a short-term expert was dispatched.

A long-term expert in the field of Dissemination of Safe Handling and Proper Use of Pesticides was dispatched in the second year, although it was planned in the third year. It was decided that Information Dissemination should be a part of the Project from the beginning.

(2) Counterpart training

All the counterparts who received training in Japan did some feedback by making a presentation on

what they learned to their colleagues. Some of the counterparts have been utilizing, in some aspects of their daily works, the experience and knowledge acquired from the training.

(3) Linkages with the other type of cooperation

Before the Project started, the National Pesticide Analytical Laboratory (NPAL) and Davao PAL were constructed and the equipment for all the PALs were provided by the Grant Aid of the Government of Japan entitled the Project for Improvement of the National Monitoring Program on Pesticide Residue in Agriculture and the Environment and Pesticide Formulation. The Project has been designed to develop a comprehensive system for monitoring pesticide residues and pesticide formulations by utilizing these facilities and equipment provided by the Grant Aid project.

Philippine side

(4) Institutional mechanism

Institutional initiatives needed for the Project should be strengthened by both the FPA and BPI management.

Likewise, a BPI mechanism could facilitate conduct of regular dialogues between experts and counterparts as well as movement of personnel and documents to and from the main office.

6-2. Effectiveness

6-2-1 Project Purpose Level

Project Purpose: To develop a comprehensive system for monitoring pesticide residues and pesticide formulations

- The information on the registered pesticides has been collected.
- The system of Pesticide Residue Monitoring has been improved.
- The agencies concerned recognized the importance of continuous implementation of the Pesticide Residue Monitoring.
- The methods of SPRT have been improved and the importance of utilization of SPRT data has been recognized by BPI and FPA.
- With regard to the safe and proper use of pesticides, the linkages among the concerned agencies have been enhanced and FPA has upgraded its capability to implement these activities.
- These activities have to be strengthened through closer coordination between BPI and FPA, thereby resulting in the realization of the Project purpose.

The important components of the pesticide monitoring system have been implemented by the Project. The counterparts have gained sufficient capability of implementing these activities by themselves.

6-2-2. Output Level

Output 1: Capability on pesticide residue and pesticide formulation analysis is improved.

Pesticide Formulation Analysis

- A draft Manual for formulation analysis was prepared and has been revised based on 31 methods for pesticide formulation analysis, which were tested and validated by the Project. Based on the experience with 31 methods, the technical capability of the counterparts has been upgraded to a level and quality necessary for them to analyse most pesticide active ingredients.
- A Collection Scheme on pesticide formulation monitoring was prepared by the joint efforts between BPI and FPA, and is expected to be completed by the end of the Project term. Based on the developed Collection Scheme, the pesticide formulation monitoring was conducted on 220 samples which were purposively collected at different locations in 8 regions.

Pesticide Residue Analysis

- The applicability and performance of improved 14 analytical methods with new clean-up procedures were confirmed for 8 pesticides in 7 crops and some other matrices such as soil, meat, oil and animal fat.
- A draft Manual on pesticide residue analysis was prepared based on the analysis methods tested and validated by the Project.
- The methods were used for routine analysis and disseminated to 5 Satellite PALs.
- Ten (10) new methods for multi-residue analysis of 29 pesticides were tested and validated in various samples including 31 crops. One of these methods has been applied to Pesticide Residue Monitoring for 14 pesticides in 5 crops.

Output 1 has been achieved.

Output 2: Methods and technology of SPRT in crops are improved.

- A draft Manual on SPRT was prepared.
- Nineteen (19) SPRTs for ten (10) crops were planned and implemented.
- The pesticide residue data of 23 pesticide/crop combinations have been collected and reviewed.
- Considering the importance of the banana industry in the Philippines, SPRT on bananas has been planned and implemented.

Output 2 has been achieved.

Output 3: Methods of Pesticide Residue Monitoring are improved.

- The combinations of major agricultural crops and pesticides were prioritized.
- A draft set of guidelines for PRM is being prepared.
- Based on these guidelines, PRM was conducted on 5 priority crops and 14 pesticides in 6 PALs .

It is expected that Output 3 will be achieved by the end of the Project.

Output 4: Necessary Information to establish MRLs and a safe use direction of pesticides are provided to the relevant agencies.

- Necessary data for establishing MRLs were obtained and a few cases of simulation were conducted for understanding the flow of MRLs establishment.
- Based on Codex MRLs, the tentative MRLs were introduced.
- Risk assessment for some pesticides was conducted by applying Food Factors and either tentative MRLs or SPRT data.

It is expected that by using Codex MRLs, Output 4 will be achieved by the end of the Project,

Output 5: Activities to disseminate safe handling and proper use of pesticides are improved.

- Information materials for promoting the safe handling and proper use of pesticides were well prepared and disseminated to the farmers and other stakeholders through the concerned agencies, such as Agricultural Training Institute (ATI), Crop Protection Association of the Philippines (CPAP), and Local Government Units (LGUs.).

Output 5 has been achieved.

6-3. IMPACT

(1) Technical impact

The Project has introduced new methods for pesticide analysis which use less organic solvents. This can contribute to less pollution to the environment and hazard to the analysis.

(2) Institutional impact

Both FPA and BPI understood their mandates and functions clearly through the Project implementation. This means that BPI supports FPA's activity by providing scientific data of both the formulation and residue analyses. Mutual understanding of their mandates and functions helped to strengthen their

cooperation. This Project has helped to increase the level of awareness and appreciation among other agencies on their respective responsibilities towards the food safety. Moreover, the Bureau of Agriculture and Fisheries Product Standards (BAFPS), a newly created agency under the Department of Agriculture (DA), would benefit from the Project outputs.

(3) Other Impacts

The Project enhanced farmers' awareness on the safe and proper use of pesticides through the information dissemination activities. It also enhanced the awareness and practice of pesticide users and handlers including dealers, distributors, and extension agents.

6-4. RELEVANCE

The FPA and BPI, together with the other agencies of the DA, help in the implementation of the food security programme of the Philippines, specifically ensuring adequate and safe food supply. The Project Purpose is relevant to the FPA's mandate to regulate the pesticide formulations and to promote the safe and proper use of pesticides as well as to the BPI's mandate to provide pesticide analytical data. The comprehensive system for monitoring pesticide residues and pesticide formulations provides the tool for FPA to perform its regulatory functions. Consequently, the pesticide monitoring system is expected to contribute to the supply of safe foods.

6-5 SUSTAINABILITY

6-5-1. INSTITUTIONAL SUSTAINABILITY

At the start of the Project, the coordination between FPA and BPI posed some constraints. Despite these constraints, however, the gains of the Project should be sustained by mainstreaming to the regular functions of FPA and BPI.

6-5-2. FINANCIAL SUSTAINABILITY

The Japanese side has provided the costs for necessary equipment which are indispensable for operating the PALs. To continue the analytical activities with the same level of those at present, necessary budgetary prioritization should be made by FPA and BPI.

6-5-3. TECHNICAL SUSTAINABILITY

The counterparts have achieved a sufficient level of capability. However, there is a need for continuing education program to ensure that their knowledge and skills are updated and upgraded.

## 7. CONCLUSION

All the outputs are expected to be achieved by the end of the Project based on the efficient utilization of inputs from the Philippine side as well as the Japanese side.

To make the pesticide monitoring system more effective, the continuous implementation of activities on each component, the strengthening of linkages among the Project components are required.

The overall goal of ensuring safe food supply can be achieved by continuing the Project which allows accumulation of scientific data. The enhance the coordination between and commitment of BPI and FPA will contribute further to achieving the goal.

## 8. RECOMMENDATIONS

(1) To ensure sustainability, mainstreaming of the Project activities should be undertaken to include appropriate deployment of contractual and casual personnel, and provision of necessary budget for the maintenance of the PALs.

(2) A three-year integrated plan should be prepared by BPI and FPA to strengthen the national program on pesticide monitoring in agriculture taking into consideration targets, activities, personnel, budget, and progress of each activity, among others. Based on this plan, DA is requested to take necessary measures for the realization of the plan. Further, the results of monitoring should be disseminated and applicable regulations enforced.

(3) For registration of new pesticides, crop residue trials should be done in the Philippines in accordance with the SPRT guidelines and consultations made with concerned stakeholders. Thereafter, the label information should reflect the results of the trials.

(4) The DA should strengthen the linkages between and among its bureaus and attached agencies and other stakeholders to sustain the gains from the Project.

ANNEX 1. Project Design Matrix for Evaluation (PDM$_E$)

Project Name: Pesticide Monitoring System Development in the Republic of the Philippines

Duration: March 1997 to February 2002

Target Area: The Republic of the Philippines

Target Group: BPI's staff and FPA's staff

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|---|---|---|---|
| **OVERALL GOAL**<br>Safe food within tolerable levels of pesticide residue is supplied to the market. | • Necessary measure such as trading ban can be taken when the crops of which the pesticide residue level exceeds the MRLs | • DA's quarterly statistics<br>• Records on the trading ban | 1. Abnormal weather does not affect the target areas.<br>2. Unregistered pesticide formulations are not imported illegally.<br>3. Imported crops are inspected regularly. |
| **PROJECT PURPOSE**<br>To develop a comprehensive system for monitoring pesticide residues and pesticide formulations | 1 Information on the registered pesticide is kept in good order.<br>2 Pesticide Residue Monitoring and activities to disseminate the safe and proper use of the pesticide are implemented continuously.<br>3 Systematic and scientific monitoring of pesticide is implemented continuously.<br>4 Systematic SPRT is implemented continuously. | • Results of the Pesticide Residue Monitoring in the crops<br>• Records of detection of the crops of which the pesticide residue level exceeded the MRL, or the records on the trading ban.<br>• Records of the pesticide formulation analysis. | |
| **OUTPUTS**<br>1 Capability on pesticide residue and pesticide formulation analysis is improved. | 1-1 All the PAL staff in charge of the residue analysis can analyze the pesticide in 29 crops by 14 methods newly introduced.<br>1-2 All the PAL staff in charge of the residue analysis can analyze 14 pesticide in 5 crops by the methods for Multi-Residue Analysis newly introduced.<br>1-3 All the PAL staff in charge of the formulation analysis can analyze 31 active ingredients by 12 methods using the HPLC, 9 methods using the GC, 4 methods of titration and colorimetry.<br>1-4 All the pesticide formulations registered in the Philippines can be analyzed. | 1 Questionnaire to the C/P on the analytical skill<br>1 PAL's records of analysis<br>1 Records of the training course<br>1 Situation of the manuals preparation<br>1 Identification of the reports to the FPA | 1. PAL's technical staff and field staff are properly allocated.<br>2. The farmers use the pesticide in a safe and proper manner. |
| 2 Methods and technology of Supervised Pesticide Residue Trials in crops (SPRT) are improved. | 2-1 FPA staff is able to prepare guidelines for the SPRT.<br>2-2 BPI staff are entrusted to the SPRT by pesticide formulation manufacturers on contract and is able to conduct the SPRT compatible to the international requirements. | 2 Questionnaire to the C/P on capability of guideline preparation and evaluation of the results<br>2 Records of the SPRT<br>2 Situation of the manuals preparation | |
| 3 Methods of Pesticide Residue Monitoring (PRM) are improved. | 3 The C/P in charge can conduct the Pesticide Residue Monitoring Survey for priority combinations of 5 crops and 14 pesticide in cooperation with the satellite PALs.<br>4 The C/P in charge understand a series of procedures to establish the MRLs and can collect necessary data. | 3 Situation of the manuals preparation of the Pesticide Residue Monitoring<br>3 Identification of staff allocation and implementation organization<br>3 Records of the Pesticide Residue Monitoring Survey<br>4 Questionnaire to the C/P on the procedures to establish the MRLs | |
| 4 Necessary information to establish MRLs and a safe use direction of pesticides are provided to the relevant agencies. | 5-1 The C/P in charge (mainly FPA staff) understand the current situation of farmers, and prepare information necessary to the manufacturers, dealers and the farmers and provide it to the relevant agencies. | 4 Identification of the information provided to the relevant agencies.<br>5 Records of questionnaire survey of the farmers | |
| 5 Activities to disseminate safe handling and proper use of pesticides are improved. | 5-2 The C/P can prepare the training programs for the relevant agencies to conduct the training course. | 5 Identification of information provided to the manufacturers, dealers and the farmers<br>5 Training programs and seminar texts for the relevant agencies | |

## ACTIVITIES

1-1 To introduce more appropriate methods to analyze pesticide residue.
  1) Acquisition of skills in operating new analysis instruments which were provided by the Grant Aid.
  2) Introduction of extraction and clean-up methods.
  3) Introduction of methods for Multi-Residue Analysis.
1-2 To update and prepare manuals for the residue analysis.
1-3 To introduce more appropriate methods to analyze pesticide formulations.
  1) Acquisition of skill in operating new analysis instruments which were provided by Japanese Grant Aid.
  2) Introduction of appropriate methods for chemical and physical analysis.
  3) Monitoring of the pesticide formulations
1-4 To update and prepare manuals for the formulation analysis.
1-5 Training of the staff to analyze the pesticide residues and pesticide formulations.
2-1 Determination of priority combinations of crops and pesticides.
2-2 Introduction of appropriate methods and technology of the Supervised Pesticide Residue Trials in crops (SPRT).
2-3 Training of the staff in charge of the SPRT.
2-4 Preparation of manuals for the SPRT.
3-1 Introduction of more appropriate methods for the Pesticide Residue Monitoring.
  1) Review of current methods for sampling
  2) Review of methods for pesticide monitoring in other countries
  3) Improvement of methods for the Pesticide Residue Monitoring (FPA and BPI jointly determine the pesticide and crops to be analyzed and require the budget)
4-1 Introduction of more appropriate methods to estimate the Food Factors from the National Food Consumption Survey in order to establish MRLs.
4-2 Estimation of the Food Factors to establish MRLs.
4-3 Scientific advice to the relevant agencies to establish MRLs and to prepare the safe use direction of pesticides.
5-1 Planning and designing training programs for the safe use of pesticides.
5-2 Preparation of information on the safe use of pesticides.
5-3 Planning of training to promote safe use of pesticide and its implementation.

## INPUTS

Japanese side

(1) Dispatch of Long-term Experts
  1) Team Leader 60.0 M/M
  2) Project Coordinator 60.3 M/M
  3) Pesticide Residue Analysis 54.7 M/M
  4) Pesticide Formulation Analysis 24.0 M/M
  5) Supervised Pesticide Residue Trials in Crops 60.8 M/M
  6) Dissemination of Safe Use of Pesticide 41.3 M/M

(2) Dispatch of Short-term Experts
  1) Pesticide Residue Analysis 4.0 M/M
  2) Pesticide Formulation Analysis 2.0 M/M
  3) Supervised Pesticide Residue Trials in Crops 8.5 M/M
  4) Pesticide Residue Monitoring 5.3 M/M
  5) Dissemination of Safe Use of Pesticide 3.0 M/M
  6) MRL establishment 3.4 M/M
  7) Registration System 2.0 M/M
  8) Project Evaluation by PCM 0.3 M/M

(3) Acceptance of Philippine Counterparts
  C/P training in Japan: Total 31.6 M/M for 17 persons

(4) Provision of Machinery and Equipment (Million JPY)
  1) Provided Equipment 108,016
  2) Accompanied Equipment 10,421
  3) Japan's expenses for local cost 53,127

Philippine side*

(1) Project staff
  1) Project Director
  2) Deputy Project Director
  3) Project Manager
  4) Research Staff and Other Administrative Staff

(2) Land, Buildings, Facilities and Equipment

(3) Budget for Project Management and Running, including the budget to purchase reagents

(4) Experimental Fields for the Supervised Pesticide Residue Trials in Crops

* Figures to be provided at the end of the Project

1. Necessary number of staff are allocated to the Project.
2. PAL's technical staff and field staff are properly allocated.
3. Necessary material and utilities such as reagents, electricity, water, gas, etc. are supplied in a secure condition.
4. Experimental fields for the supervised pesticide residue trials in crops are available and well maintained.
5. Staff to deliver information to the farmers are available.

## PRE-CONDITIONS

1. Budget and staff are allocated to the FPA and the BPI.
2. PALs are constructed and equipment are installed on schedule by the Grant Aid.
3. The relevant agencies understand the Project well and t each role required.

## ANNEX 2. LIST OF JAPANESE EXPERTS DISPATCHED

### 1. Long-term Japanese Experts

| NAME | ASSIGNMENT | DURATION |
|---|---|---|
| HIKARU KAZANO | Team Leader | 3/31/1997-3/30/2002 |
| YASUO OIZUMI | Project Coordinator | 3/31/1997-5/13/1999 |
| TOSHIO SUZUKI | Pesticide Formulation Analysis | 3/31/1997-3/30/1999 |
| YASUO KITAMURA | Supervised Pesticide Residue Trials in Crops | 3/31/1997-3/30/2000 |
| OSAMU MATANO* | Pesticide Residue Analysis | 6/24/1996-6/23/1998 |
| YOSHIO IZAWA | Pesticide Residue Analysis | 9/7/1998-3/30/2002 |
| NOBUHIKO INOUE | Dissemination of Safe Handling and Proper Use of Pesticide | 10/5/1998-3/30/2002 |
| NAOKI HASHIMOTO | Project Coordinator | 5/3/1999-3/30/2002 |
| MAKOTO IRIE | Supervised Pesticide Residue Trials in Crops | 3/6/2000-3/30/2002 |

* Dispatched as an individual expert before the project

2. Short-term Japanese Experts

| NAME | ASSIGNMENT | DURATION |
|---|---|---|
| AKITOSHI SAKURAI | Supervised Pesticide Residue Trial | 9/25/1997-12/24/1997 |
| YASUHIDE TONOGAI | Market Basket System | 10/27/1997-1/6/1998 |
| KOKI MOTOHASHI | Supervised Pesticide Residue Trial | 1/27/1998-4/26/1998 |
| NOBUHIKO INOUE | Dissemination of Safe Handling and Proper Use of Pesticide | 4/2/1998-7/1/1998 |
| KIMIO KOMINE | Pesticide Residue Analysis | 7/1/1998-9/30/1998 |
| KOKI MOTOHASHI | Pesticide Residue Trial | 1/11/1999-3/27/1999 |
| MASAHIRO OKIHASHI | Market Basket Research | 3/14/1999-6/15/1999 |
| IWAO TAKASE | Improvement of pesticide regulation system | 3/14/1999-5/13/1999 |
| SHIGERU KOBAYASHI | Project Cycle Management | 3/11/1999-3/23/1999 |
| KAZUO OGURA | MRL establishment using locally generated data | 1/26/2000-3/8/2000 |
| YASUO HAYASHI | The operation/Troubleshooting of GC-MS | 2/21/2000-3/24/2000 |
| KINYA HIROSE | Provision of fundamental information for the establishment of Maximum Residue Limit(MRL) | 10/10/2000-12/8/2000 |
| KIYOSHI SOMEYA | Formulation and residue analysis of sulfur-containing fungicides | 1/22/2001-3/21/2001 |
| TSUNEO KOBATAKE | Provision of fundamental information for the establishment of Maximum Residue Limit(MRL) | 8/5/2001-10/4/2001 |

ANNEX 3. LIST OF PHILIPPINE COUNTERPART PERSONNEL TRAINED IN JAPAN

| NAME | SUBJECT | DURATION |
|---|---|---|
| Ms. Ma. Lou. De Mata | Pesticide formulation analysis | 9/15/1997-12/14/1997 |
| Ms. R.C. Barrera | Pesticide residue analysis | 9/15/1997-12/9/1997 |
| Ms. A. B. Olegario | Establishment of Maximum Residue Limits | 2/16/1998-3/20/1998 |
| Ms. P. B. Austria | Pesticide monitoring | 2/16/1998-3/20/1998 |
| Ms. C. A. Hernandez | Field test for pesticide residue analysis | 9/6/1998-12/8/1998 |
| Ms. C. T. Bautista | Method of dissemination for safe handling and proper use of pesticides | 9/6/1998-11/3/1998 |
| Ms. E. M. Laylo | Method for inspection of pesticide formulation | 9/6/1998-12/8/1998 |
| Mr. G. T. Yatco | Multi-residue analysis of pesticides | 9/7/1998-12/15/1998 |
| Mr. A. L. Villanueva, Jr. | The role of administrative organ for pesticide monitoring system on the basis of rational and judicious use of pesticides | 2/28/1999-3/11/1999 |
| Dr. Dario C. Sabularse | Information on the individual training course in the project planning and management seminar for project managers | 3/30/1998-4/10/1998 |
| Ms. N.C. Chen | Analytical technique of small amount of pesticide chemicals in environmental samples | 7/12/1999-10/10/1999 |
| Ms. J. M. M. Romualdez | Registration system of pesticides and quality | 9/16/1999-10/21/1999 |
| Ms. O.O. Bersamina | Pesticide analysis | 9/27/1999-12/19/1999 |
| Dr. W. M. Bautista | Data collection on various experiments for the establishment of pesticide maximum residues | 11/3/1999-11/30/1999 |
| Ms. M. K. Calingasan | Plant cultivation and pesticide application technique for SPRT | 8/20/2000-10/22/2000 |
| Mr. G. de los S. Caccam | Method of dissemination for safe handling and proper use of pesticides | 7/2/2000-7/30/2000 |
| Ms. J. C. Guray | Practice of dissemination for safe handling and proper use of pesticides | 1/28/2001-2/28/2001 |

## ANNEX4. LIST OF MAJOR MACHINERY AND EQUIPMENT PROVIDED BY JAPAN (Unit value>=500,000Yen)

| JFY | ITEM No. | Equipment,model,maker etc | Quantity | Total amount | Condition | Supplied place | Managing /using section |
|---|---|---|---|---|---|---|---|
| 1997 | 1 | Mitsubushi L300 Mini Bus | 2 | ¥2,700,000 | A | Japan | C-PAL=1, FPA=1 |
| | 3 | Isuzu 4x4 Station Wagon UB69GW | 1 | ¥1,800,000 | A | Jpan | BPI |
| | 39 | Diluter ML-530B | 2 | ¥1,044,000 | A | Japan | PRA |
| | 100 | Karl Fischer Moisture Titrators | 1 | ¥608,500 | A | Japan | PFA |
| 1998 | 1 | 4WD PICK-UP Diesel:ISUZU TFS54H | 2 | ¥2,800,000 | A | Japan | C-PAL=1, FPA=1 |
| | 4 | 4-Wheel Drive Tractor, ISEKI TK29F | 2 | ¥2,700,000 | A | Japan | BPI |
| | 24-1 | Split/Splitless Inlet With EPS | 1 | ¥538,000 | A | Japan | PFA |
| | 24-2 | Auto Sampler | 1 | ¥1,900,000 | A | Japan | PFA |
| | 24-3 | Chemstation For GC | 1 | ¥1,580,000 | A | Japan | PFA |
| | 24-4 | FID with EPC | 1 | ¥530,000 | A | Japan | PFA |
| | 29 | Colour Copy Printer RICOH | 1 | ¥1,400,000 | A | Japan | FPA |
| 2000 | 2 | Trailer,DELICA Model: DT-2000A S/NO.0630 | 1 | ¥570,000 | A | Japan | BPI |

BPI=Bureau of Plant Industry, FPA=Fertilizer and Pesticide Authority, C-PAL=Central PAL(Administration)

PRA=Pesticide Residue Analysis, PFA=Pesticide Formulation Analysis

## ANNEX 5. LIST OF LOCAL COSTS BORNE BY JAPANESE SIDE

(1,000 Yen)

| | 1997 | 1998 | 1999 | 2000 | 2001 | Total |
|---|---|---|---|---|---|---|
| General Local Cost | 5,400 | 4,590 | 4,545 | 5,964 | 2,418 | 22,907 |
| Local application program | | | 5,910 | 4,909 | 1,673 | 12,492 |
| Technical exchange | | | | 873 | 1,485 | 2,358 |
| Model infrastructure | | 12,736 | | | | 12,736 |
| Special seminar | | | | | 2,634 | 2,634 |
| Total | 5,400 | 17,326 | 10,455 | 11,736 | 8,210 | 53,127 |

ANNEX 6. LIST OF PHILIPPINE COUNTERPART PERSONNEL ASSIGNED TO THE PROJECT

| Name | Agency | Position | Duration | Training in Japan |
|---|---|---|---|---|
| **Management and Administration** | | | | |
| Domingo F. Panganiban | DA | Project Director | 3/ 1997~6/1998, 6/1999~2/2001 | |
| Cristino M. Collado | DA | Project Director | 6/1998~6/1999 | |
| Ernesto M. Ordoñez | DA | Project Director | 2/2001~ to date | |
| Gumersindo D. Lasam | DA | Deputy Project Director | 3/1997~6/1998 | |
| Edmund G. Sana | DA | Deputy Project Director | 6/1998~ to date | |
| Nerius I. Roperos | BPI | Project Manager | 3/1997~1/1999 | |
| Santiago R. Obien | BPI | Project Manager | 1/1999~4/1999 | |
| Conrado I. Gonzales | BPI | Project Manager | 4/1997~7/1999 | |
| Bio Umpar Adiong | BPI | Project Manager | 7/1999~ to date | |
| Elsa M. Bayani | FPA | Project Manager | 3/1997~6/1998 | |
| Alejo L. Villanueva, Jr. | FPA | Project Manager | 7/1998~10/1999 | |
| Cesar M. Drilon, Jr. | FPA | Project Manager | | |
| Virginia TD Pacaba | BPI | Co-Project Manager | 3/1997~5/2000 | |
| Adelaida C. Cahanap | BPI | Co-Project Manager | 5/2001~ to date | |
| Dario C. Sabularse | FPA | Co-Project Manager | 3/1997~ to date | |
| Norlito R. Gicana | FPA | Co-Project Manager | | |
| Paz B. Austria | BPI | Project Coordinator | 3/1997~10/2000 | (1997) ACIS, MAFF |
| Adelaida C. Cahanap | BPI | Project Coordinator | 10/2000~5/2001 | |
| Angela B. Olegario | FPA | Project Coordinator | 3/1997~1/1999 | (1997) ACIS, MAFF |
| Wernher M. Bautista | FPA | Project Coordinator | 1/1999~to date | (1997) ACIS, MAFF |
| **Residue Analysis** | | | | |
| Nimfa C. Chen | BPI | | 3/1997~ to date | (1999) NIAS, MAFF |
| Rowena C. Barrera | BPI | | 3/1997~ to date | (1997) NIAS, MAFF |
| German T. Yatco | BPI | | 3/1997~ to date | (1998) OPIPH |
| Ofelia O. Bersamina | BPI | | 3/1997~ to date | (1999) APIPH |
| Grace G. Nifas | BPI | | 5/1998~ to date | |
| Sonny B. Conde | BPI | | 1/2000~ to date | |
| Jacqueline M. Romualdez | FPA | | 3/1997~1/1998 | (1999) ACIS, MAFF |
| Bella Fe D. Carmona | FPA | | 1/1998~1/1999 | |
| Digna B. Pucan | FPA | | 1/1997~1/1999 | |
| Alisa M. Sibal | FPA | | 7/2000~to date | |

| Name | Agency | Position | Duration | Trai...g in J... |
|---|---|---|---|---|
| **Formulation Analysis** | | | | |
| Esperanza DG Uy | BPI | | 3/1997~ to date | |
| Erlinda M. Laylo | BPI | | 3/1997~ to date | (1998) ACIS, MAFF |
| Samuel L. Fontanilla | BPI | | 3/1997~ 11/1997 | |
| Alexander B. Faustino | BPI | | 7/1997~3/1998, 42001~ to date | |
| Lilibeth B. Cariaso | BPI | | 3/1997~ to date | |
| Jocelyn V. Calma | BPI | | 3/1997~ to date | |
| Bella Fe D. Carmona | FPA | | 3/1997~6/1998, 1/1999~ to date | |
| Perla C. Aceveda | FPA | | 2/1998~1/1999 | |
| **SPRT** | FPA | | | |
| Ma. Lourdes de Mata | BPI | | 3/1997~~6/1998~~ to date | (1997) ACIS, MAFF |
| Nelly R. Migano | BPI | | 3/1997~4/2001 | |
| Sonny Conde | BPI | | 2/2001~ to date | |
| Samuel L. Fontanilla | BPI | | 2/2001~ to date | |
| Francisco R. Manipon | BPI | | 11/1998~ to date | |
| Marina K. Calingasan | BPI | | 11/1998~ to date | (2000) JPPA |
| Gil L. Magsino | FPA | | 3/1997~6/1998 | |
| Cecile A. Hernandez | FPA | | 3/1997~ to date | (1998) JPPA |
| Nemher M. Bautista | FPA | | 1/1999~ to date | |
| Nicasio Chuck G. Liwag | FPA | | 1/1998~ to date | |
| **PRM** | | | | |
| Paz B. Austria | BPI | | 3/1997~ to date | |
| Nimfa C. Chen | BPI | | 3/1997~ to date | |
| Esperanza DG. Uy | BPI | | 3/1997~ to date | |
| Angela B. Olegario | FPA | | 3/1997~1/1999 | |
| Aida V. Ordas | FPA | | 1/1999~4/2000 | |
| Ma. Lourdes M. Cruz | FPA | | 1/1999~ to date | |
| Lorenzo M. Fabro Jr. | FPA | | 10/98~ to date | |
| **MRL** | | | | |
| Angela B. Olegario | FPA | | 3/1997~1/1998, 2/1998~6/1998 | |
| Wilma N. Obcemea | FPA | | 6/1998~1/1999 | |
| Aida V. Ordas | FPA | | 1/1998~2/1998, 1/1999~4/2000 | |
| Gil L. Magsino | FPA | | 3/1997~6/1998 | |
| Nemher M. Bautista | FPA | | 6/1998~ to date | |
| Bella Fe D. Carmona | FPA | | 1/1998~1/1999 | |
| Angela B. Olegario | FPA | | 110/1997~6/1998 | |
| Digna B. Pucan | FPA | | 1/1998~1/1999 | |
| Jacqueline M. Romualdez | FPA | | 1/1999~ to date | |
| Joseph A. Solangon | FPA | | 7/1998~11/2000 | |
| Paz B. Austria | BPI | | 3/1997~ to date | |
| Jocelyn V. Calma | BPI | | 3/1997~ to date | |

| Name | Agency | Position | Duration | Training in Japan |
|---|---|---|---|---|
| IDG | | | | |
| Rodolfo I. Maliwat | FPA | | 3/1997~9/19997 | |
| Neri S. Pescadera | FPA | | 6/1998~1/1999 | |
| German S. Caccam | FPA | | 1/1999~ to date | (2000) PPO, ZenNch, Private Co. |
| Corazon T. Bautista | FPA | | 3/1997~ to date | (1998) Plant Protection Office |
| Jacqueline M. Romualdez | FPA | | 6/1998~ 1/1999 | |
| Geregorio M. Arboleda Jr. | FPA | | 1/1999~ to date | |
| Joan C. Guray | FPA | | 11/1997~ to date | (2000) Plant Protection Office |
| Samuel L. Fontanilla | BPI | | 3/1997~ to dtae | |
| Ofelia O. Bersamina | BPI | | 3/1997~ 3/1999 | |
| **Gen Mngt. & Finance** | | | | |
| Elizabeth Ramiro | BPI | | 3/1997~ to date | |
| Leonida orales | BPI | | 3/1997~ to date | |
| Estrella T. Pineda | FPA | | 3/1997~ to date | |
| **Secretatial & Mngt.** | | | | |
| Walfredo Cinco | BPI | | 3/1997~ to date | |
| Arlene C. Firmalino | BPI | | | |
| Yolanda C. Sabado | FPA | | 9/1997~ to date | |
| Cesar V.Train | FPA | | 1/1999~ 12/1999 | |
| Jasmin Palo | FPA | | 1/2000~to date | |

## ANNEX 7. LIST OF LOCAL COSTS BORNE BY THE PHILIPPINE SIDE

Maintenance & Other Operating Expenses

| | YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1997 | | 1998 | | 1999 | | 2000 | | 2001 | |
| | BPI | FPA | BPI | FPA | BPI | FPA | BPI | FPA | BPI | FPA |
| Travelling | 112,780.00 | 81,400.00 | 300,000.00 | 2,000,000.00 | 290,000.00 | 2,000,000.00 | 1,000,000.00 | 2,000,000.00 | 2,000,000.00 | 2,000,000.00 |
| Communications | 73,410.00 | | 120,000.00 | 120,000.00 | 68,000.00 | 120,000.00 | 350,000.00 | 120,000.00 | 400,000.00 | 120,000.00 |
| Repair & Maintenance of Govt. Vehicles. | 54,880.00 | | 10,000.00 | | 32,000.00 | 30,000.00 | 682,000.00 | 30,000.00 | 610,000.00 | 30,000.00 |
| Supplies & Materials | 401,760.00 | 167,750.00 | 300,000.00 | 767,040.00 | 1,379,000.00 | 767,040.00 | 4,500,000.00 | 767,040.00 | 5,000,000.00 | 878,400.00 |
| Transportation Expenses | 1,000.00 | | 45,000.00 | | 174,000.00 | 50,000.00 | 554,000.00 | 50,000.00 | 280,000.00 | 50,000.00 |
| Water, Illumination & Power | 247,640.00 | 33,494.00 | | 144,658.00 | 271,000.00 | 44,658.00 | 1,000,000.00 | 42,325.00 | 1,500,000.00 | 58,052.00 |
| Training & Seminar | 3,300.00 | | 280,000.00 | 250,000.00 | 22,000.00 | 250,000.00 | 400,000.00 | 250,000.00 | 450,000.00 | 250,000.00 |
| Gasoline, Oil & Lubricant | 110,490.00 | 3,770.00 | | 324,000.00 | 20,000.00 | 300,000.00 | 300,000.00 | 300,000.00 | 300,000.00 | 300,000.00 |
| Fidelity Bond & Insurance Premium | | | | 350,000.00 | | 30,000.00 | | 30,000.00 | | 30,000.00 |
| Other Services | 2,287,940.00 | 202,456.00 | 750,000.00 | 1,256,000.00 | 950,000.00 | 1,620,000.00 | 2,800,000.00 | 1,620,000.00 | 3,000,000.00 | 1,620,000.00 |
| TOTAL | 3,293,200.00 | 488,870.00 | 1,805,000.00 | 5,211,698.00 | 3,206,000.00 | 5,211,698.00 | 11,586,000.00 | 5,209,365.00 | 13,540,000.00 | 5,336,452.00 |

# ANNEX 8. Achievement of Activities

Activities Based on TSI

## PESTICIDE RESIDUE ANALYSIS GROUP

| Subject | Item | Activities | Indicator Target | Duration | Person In-Charge | Content of the Activity | Accomplishment | Final Target | Rate,% | Post Proj Plan |
|---|---|---|---|---|---|---|---|---|---|---|
| The analytical methods of pesticide residues are improved | To introduce more appropriate resicue analytical method | Familiarization w/ the instrument & review existing method(s) of analysis | No. of detectors | 1997 - 2001 | N.Chen<br>R.Barrera<br>G.Yatco<br>O.Bersamina<br>G. Nifas | Familiarization w/ the GC operations & basic maintenance skills were acquired through daily sample analysis | GC operations & parameter setting skills have been acquired and being used in daily analysis. | Develop & implement the skills & knowledge to operate the instruments for use in the daily activities of pesticide residue analysis | GC 95% | |
| | | a.Gas Chromatogragh<br>Electron Capture<br>Flame Photometric<br>Nitrogen Phosphorous | | | | Check up & basic maintenance of all the GC's in the 5 PAL Satellites were conducted | Basic GC operation & maintenance skills have been dissemenated from NPAL to the PAL Satellites. | | | Periodical check up (once or twice a year) must be done to keep the performance of the instruments |
| | | Mass Spectrometer | | 2000 | | GC/MS operation and maintenance technique have been learned. | Maintenance procedures such as changing the filament,vacuum pump oil & cleaning of the ion source have been conducted | Daily maintenance of the instruments can be conducted by the counterparts | GC/MS 80% | |
| | | b. High Performance Liquid Chromatograph (HPLC)<br>UV-VIS<br>Fluorescence<br>Diode Array (DAD)<br>Conductivity | 4 | 1997-2001 | N.Chen<br>R.Barrera<br>G.Yatco<br>O.Bersamina<br>G. Nifas | HPLC methods were applied to service samples using the UV-VIS & Fluorescence<br>Comparison of HPLC and GC methods have been studied.<br>Max absorbance of pesticides were measured for HPLC analysis. | Basic operation skills has been acquired in 2 detectors. Since the applicable samples to HPLC were limited, further practice through analysis is expected. | To further develop the skills to handle & operate DAD & Conductivity detectors by using them with samples that require these detectors<br>FL,DAD & Conductivity detectors can be used for confirmatory purpose to scan the spectra of contaminants when needed | HPLC 85% | If the apropriate maintenance is conducted based on sufficient budget the instrument together with the acquired skills & knowledge will contribute to attain the requirement of residue analysis. |
| | | c. UV-VIS Spectrophotometer | 1 | 1997-2001 | N.Chen<br>R.Barrera<br>G.Yatco<br>O.Bersamina<br>G. Nifas | UV spectra of crop contaminants on clean up stages were determined in the Visible region. | Knowledge and skills in the operation of the spectrophotometer have been acquired. | | UV-VIS 95% | |
| | | d. Gel Permeation Chromatograph (GPC) | 1 | 1997-2001 | N.Chen<br>R.Barrera<br>G.Yatco<br>O.Bersamina<br>G. Nifas | Basic theory & operaton procedures were studied | Basic knowledge in the conditioning of column & operation of GPC was acquired. Initialized the operation by injection of pesticide standards, done manually (not connected to computer) | To accommodate samples that contain high pigment, high fat/lipics for GPC analysis. | GPC 70% | |

# PESTICIDE RESIDUE ANALYSIS GROUP

| Subject | Item | Activities | Indicator Target | Duration | Person in-Charge | Content of the Activity | Accomplishment | Final Target | Rate,% | Post Prol Plan |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Introduction of more appropriate extraction & clean-up methods (Validate/modify single residue analysis) | crop-pesticide combinations 14 | 1997 - 2001 | N.Chen R.Barrera G.Yatco O.Bersamina G. Nitas | New analytical methods were introduced with new clean-up techniques (See attached Single Residue Methods, 11 crop-pes) ticide combinations) | The methods were used for daily service analyses of animal fat, meat, oil and soil in addition to crop samples<br>The methods were disseminated to 5 PAL Satellites | Reliable methods for new pesticide/crop combinations w/ a target recovery of >70% & CV of <10% can be developed & be used for pesticide residue analysis | 90% | Capability to develop methods for new crop/pesticide combinations is continuously improved<br>Can conduct residue analysis on a wide range of pesticide compounds in different sample matrices |
| | | Introduction of new methods for multi-residue analysis | no. of methods 10 | 1997 - 2001 | N.Chen R.Barrera G.Yatco O.Bersamina G. Nitas | New analytical methods were introduced.<br>A new method for pesticide residue monitoring was selected & validated | The methods are being used in the daily sample analysis<br>The developed method is being used for pesticide residue monitoring activity with 5 crops/14 pesticide combinations | Additional 5 pesticides using the newly developed method for pesticide residue monitoring is being studied<br>A target recovery of >70% and CV<10% can also be developed | 90% | If the items essential for residue analysis such as analytical columns GC consumables, pesticide standards are properly supplied & the instruments are properly maintained, the acquired skills & knowledge can contribute well to the activities of BPI & FPA |
| | | Train PAL staff on the technique to analyze pesticide residues.<br>a.Training on Instrumentation<br>b.Training of extraction & clean-up<br>c.Training on new methods to analyze pesticide residue | no. of trainings<br>5<br>3<br>4 | 1997 2001 | N.Chen R.Barrera G.Yatco O.Bersamina G. Nitas | Training needs for PAL staff in the field of pesticide residue analysis were identified<br>4 CP trainings abroad<br>2 local trainings<br>Proper dissemination of the knowledge acquired to the 5 Satellite laboratories | The knowledge & skills acquired resulted in the ability of the analyst to perform well and better with regard to pesticide residue analysis<br>Dissemination of analytical techniques to the 5 PAL Satellites were accelerated thru regular meetings & evaluation | CPs are technically prepared to lead the activities of the group in pesticide residue analysis<br>CPs are able to conduct residue analysis training by themselves<br>CPs can conduct the service samples & monitoring analysis with the validated & updated methods | 90% | To encourage CPs to participate & present papers in scientific fora. |

# PESTICIDE RESIDUE ANALYSIS GROUP

| | Item | Activities | Indicator Target | Duration | Person In-Charge | Content of the Activity | Accomplishment | Final Target | Rate,% | Post Proj Plan |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Integration of Methods on pesticide residue analysis<br><br>Integration/compilation of a manual for pesticide residue analysis. | no. of manuals<br><br>1 | 1997-2001 | N.Chen<br>R.Serrera<br>G.Yatco<br>C.Sersamina<br>G.Nilas | Compilation of the analytical methods for the preparation of manual on pesticide residue analysis | The newly developed analytical procedures were integrated and compiled.<br><br>Compiled single & multi residue methods into manuals | Some new developments in the analytical procedures are considered for updating. | 80% | The compiled analytical methods can be updated yearly by conducting validation & recovery studies for new pesticides<br><br>Progressive updating of analytical manuals to keep up with the latest trends in pesticide residue analysis |

# PESTICIDE FORMULATION ANALYSIS GROUP

| Activities Based on TSI | | | | | | | | Accomplishment | | Final Target | Rate (%) | Post Project Plan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | Item | Activities | Duration | Counterpart | Indicator | Target | Acc | Content of Activity | Accomplishment | | | |
| The Analytical Methods for the Analysis of Pesticide Formulation are improved | To introduce Appropriate Formulation Analytical Methods | Familiarization with the Instrument<br>a. GC-FID<br>b. GCMS | 1997~ | Uy, Layio, Cariaso, Caima, Faustino | no. of det. /no. of active ingredient | 1/8/ 1/2 | 1/16 , 1/2 | Familiarization with GC operations and basic maintenance and troubleshooting skills were acquired through daily sample analyses. | ・Appropriate parameter setting has been acquired corresponding to the sample.<br>・Basic maintenance and trouble shooting on the instruments has been conducted. | Acquire the skills and knowledge to operate the instrument s and use them for the routine pesticide formulation analyses. Basic maintenance of the instruments can be conducted by the CPs. | 90% | ・Periodic check up (once or twice a year) by the dealers must be done to keep the performance of the instrument.<br>・Allocate budget for preventive maintenance |
| | | c. HPLC | 1997~ | Uy, Layio, Cariaso, Caima, Faustino | do | 4/20 | 4/17 | Familiarization with HPLC operations and the basic maintenance skills were acquired through daily sample analyses. | - do - | | | |
| | | d. UV-VIS Spectrophotometer | 1997~ | Uy, Layio, Cariaso | do | 1/5 | 1/5 | Familiarization with Spectrophotometer operations and the basic maintenance skills were acquired through daily sample analyses. | - do - | | | |
| | | e. FTIR | 1997~ | Uy | do | 1/5 | 1/5 | Familiarization with FTIR operations and the basic maintenance skills were acquired through sample analyses. | - do - | | | |

# PESTICIDE FORMULATION ANALYSIS GROUP

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Introduction of New Appropriate Methods to Analyze Pesticide Formulation | 1998~ 2001 | Uy, Layio, Cariaso, Caima, Faustino | no. of active ingredient | 36 | 31 | Analytical methods were modified and validated. | Thirty-one methods were validated. Capability to develop a new method for a new formulation has been acquired. If the items essential for analyses such as chemical reagents and pesticide standards are properly supplied, and the instruments are properly maintained, the acquired skills and knowledge will fully contribute to the requirement of the authorities. | A reliable method for a new pesticide formulation can be validated and developed by CPs. | 86% | *To continue on the development/ validation of methods of different active ingredients when required.* |
| | | Monitoring of Pesticide Formulation<br>a Preparation of proposal<br>b. collection and analysis<br>c. preparation of MOA | 1999~ 2001 | Uy, Carmona, Layio, Cariaso, Caima, Faustino | no. of proposal prepared<br>no. of samples collected<br>no. of MOA prepared | 1<br>325<br>1 | 1<br>220<br>0 | Planned , prepared, and tested applicability of monitoring program proposed by the group by conducting the *pesticide formulation monitoring* . | •A proposal was prepared to conduct monitoring .<br>A total of 220 samples were collected and 199 formulation samples analyzed using the improved methods. | The monitoring activity should be coordinated with FPA by using the reliable analytical method. The results of the analysis should be evaluated and be reflected to the pesticide regulatory activity of FPA.<br>A MOA is prepared on the conduct of monitoring which will define role of concerned agencies<br>A monitoring scheme is in place. | 100%<br>67% | •To conduct regular dialogue for proper target setting to meet the purpose of monitoring to fully discuss and use the results to the pesticide regulatory activity of FPA in the future. At present, accumulation of the analytical data by BPI to survey the situation of the formulation on the market can be conducted. |
| | | To Integrate Methods and Update Manuals on Pesticide Formulation Analysis | 1998~ 2001 | Uy, Caima | no. of manual | | 1 | Methods are adapted, modified, developed and validated | Methods validated are compiled | Validated analytical methods are compiled to be a standard method for formulation analysis. | 40% | To update manual once a year |
| | | Training of the Technique to Analyze Pesticide Formulation | 1998~ 2001 | Uy, Layio, Cariaso, Caima, Faustino | no. of training | | 1 | 2 Conduct of training to NPAL and satellite staff | Demonstrated the analysis of pesticides using HPLC in the Pesticide analysis training conducted in Dec. 1999 and Jan.-Feb. 2000 | Pesticide formulation analytical techniques are disseminated | 200% | To prepare training module for the conduct of training to interested parties |

# SUPERVISED PESTICIDE RESIDUE TRIALS (SPRT) GROUP

| Activities based on TSt | | | | | Activity & Accomplishment | | Final Target | Rate(%) | Post-Project Plan | |
|---|---|---|---|---|---|---|---|---|---|---|
| Subject | Item | Activities | Duration | in charge | Content of activity | Accomplishment | | | | |
| Improvement of SPRT Technique | Determination of priority combination of crops and pesticides | Collection of information on the crops and pesticides | 1997 | | Prepared a list of fifteen priority crops such as mango rice etc. (1/1) | Understood present status of crop production and consumption | Acquisition of survey technique through investigation of pesticide usage of farmers | 100% | CPs can implement their activity by themselves because they have understood the methods. | |
| | | Collection of information on crop cultivation and cultural practices | 1997-2001 | | Prepared a survey form, Collected data for 11 crops (11/11) | Understood actual pesticide usage by farmers | | | | |
| | | Determination of crop/pesticide combination | 1997-2001 | | Evaluated 15 crop/pesticide combinations (15/14) | Selected main crops and pesticides among several crop groups | | | | |
| | Introduction of appropriate methods and technology of SPRT | Selection of field trial sites | 1997-2001 | | Selected five trial sites (5/4) | Understood principles of SPRT by CPs of trial sites | Acquisition of SPRT planning and operation technique | 95% | Continue conducting SPRT. | Establishment of SPRT system in RP for pesticide registration. |
| | | Detailed planning for each field trial | 1997-2001 | | Detailed planning of 20 trials ( 20/24) | Acquired knowledge in designing SPRT | | | | |
| | | Conduct of field trial | 1997-2001 | | Conducted 19 trials, one on-going (19/24) | Acquired knowledge of different methods of pesticide application, sample collection and analysis | | | | |
| | Training of personnel for SPRT | Training and workshop for SPRT | 1997-1998 2001 | | Conducted two seminars & one workshop. One training (for November, 2001) (4/3) | Disseminated knowledge of SPRT to others | Establishment of understanding on SPRT among reseachers and personnel of pesticide industry | 100% | Continue training candidate SPRT researchers. | |
| | Preparation of SPRT manual | | 1998-2001 | | Prepared SPRT manual (1/1) | Reviewed and evaluated SPRT results performed by the group | Distribution of SPRT manual | 100% | | |

# PESTICIDE RESIDUE MONITORING GROUP *

| Based on TSI | | Activities | Duration | Counterpart | Performance indicator | Activity & Accomplishment | | Final target | Rate (%) | Post-project plan |
|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | | | | Content of activity | Accomplishment | | | |
| Improvement of the methods and technology for pesticide residue monitoring | Introduction of more appropriate methods of pesticide residue monitoring | Survey of existing pesticide residue monitoring in the Philippines | 1997 – 1999 | Paz Austria<br>Malou Cruz<br>Lorenzo Fabro | | a. Review the procedures of PRM from collection of samples, evaluation of reports and utilization of data. | • Identified sampling stations, priority crops collected and pesticides analyzed.<br>• Determine utilization of data generated. | Planning of scientifically reasonable residue monitoring | 100 | Residue monitoring should be implemented systematically and reasonably based on significance of monitoring where Philippine pesticide policy is firmly defined |
| | | Survey of the pesticide residue monitoring systems in other countries | 1997 – 1999 | Paz Austria<br>Malou Cruz<br>Lorenzo Fabro | Number of studies evaluated | b. Gather information regarding PRM. | • Collected reports of PRM from countries.<br>• Acquired information on sample collection, analytical method and evaluation/reporting of results objective/approach. | | 100 | |
| | | Improvement of technology on pesticide residue monitoring | 1999 – 2001 | Paz Austria<br>Malou Cruz<br>Lorenzo Fabro | Number of surveys conducted, Number of National Pesticide Residue Profile evaluated | c. Collect data regarding the criteria on the selection of crops and pesticides to be given priorities | • Set criteria for the selection of priority crops and pesticides to be analyzed. | Periodical practice of residue monitoring | 80 | |
| | | | | Fely Bersamina, Pesticide Residue Analysis Group | | d. Coordinated with PRA group on the application of validated methods of analysis. | • Methods of analysis were validated by PRA Group for PRM samples. | Systematic compilation of monitoring results | | |
| | | | | Paz Austria<br>Malou Cruz<br>Lorenzo Fabro | | e. Conducted preliminary PRM. | • Specified monitoring purpose and management of monitoring data.<br>• Conducted PRM on 5 priority crops and 14 pesticides in 6 PAL's.<br>• Prepared guidelines for PRM. | | 90<br>50 | |

* Formerly Market Basket Research group

# MAXIMUM RESIDUE LIMIT GROUP

| Activities based on TSI | | | | | Activity & Accomplishment | | Final Target | Rate(%) | Post-Project Plan |
|---|---|---|---|---|---|---|---|---|---|
| Subject | Item | Activities | Duration | In charge | Content of activity | Accomplishment | | | |
| Provision of the necessary information for establishing MRLs and the pesticide safe use direction to responsible agency | Introduction of more appropriate methods to estimate food factor from the food consumption data | Survey on local food consumption data | 1997~ 1999 | | Reviewed available FNRI & FAO documents on Philippine food consumption data. | Collected food consumption data needed for food factor estimation. | Completion of local food factors necessary for local MRL establishment (44 local food factors). | 100% | Improvement & updating of local food factors necessary for local MRL establishment through research collaboration with other concerned government agencies such as FNRI. Data collection & information gathering can be performed using internet. Concerned personnel has to attend international conference such as Codex committee to catch up with world trend. |
| | Determination of food factor | Estimation of food factor | 1997~ 1999 | | Collected local food factor based on FNRI. Compared local food factor data of FNRI with Codex & other countries. | Acquired basic knowledge on the importance of local food factor data on local MRL establishment. | | | |
| | Provision of scientific advice for establishing MRLs and safe use direction to concerned agency | Estimation of tentative value for MRLs | 2000~ 2001 | | Prepared crop groupings based on FAO. Proposed tentative MRLs based on SPRT data. | Understood the scientific procedures on MRL establishment using SPRT data. | Acquiring ability to collect, review & evaluate data necessary to establish MRL | 95% | Procedures of MRL establishment have been understood by CPs although detailed handling of data is not fully comprehended and therefore some guidance is still necessary. Important data should be managed & preserved at FPA. |
| | | Review & evaluation of tentative MRLs | 2000~ 2001 | | Reviewed residue monitoring data & tentative MRLs. | Understood how to evaluate MRL based on residue monitoring data. | | | |
| | | Review of registered pesticides | 1997~ 2001 | | Suveyed pesticide usage. Reviewed & updated pesticide registration data. | Improved the method of collection & management of registration data. Learned actual pesticide usage. | Understanding the relationship between actual pesticide usage & GAP | 95% | Manpower & budget for registration data management should be increased. |
| | | Provision of scientific advice for MRL establishment | 2001 | | (Due) | | Acquiring ability to propose MRL for official adoption. | | All conditions mentioned have to be satisfied. |

# INFORMATION DISSEMINATION GROUP

| Activities based on TSI | | | | | Activity & Accomplishment | | | Rate | Post-Project Plan |
|---|---|---|---|---|---|---|---|---|---|
| Subject | Items | Activities | Duration | Person in charge | Contents of Activity | Accomplishment | Final Target | (%) | |
| The necessary information for safe handling and proper use of pesticide is provided to agencies | To design training program on safehandling and proper use of pesticides | Evaluation of existing manuals gathering of information | 1997 ~ 1998 | H.KAZANO N.INOUE | Visited 12 agencies NCPC,IRRI,FAO,WHO, PhilRice,ATI,DA,etc | Materials were relatively old and mostly dealt with IPM methods | FPA may provide the necessary information on safe handling and proper use of pesticide to farmers and agencies | 100 | FPA should come up with updated information materials and coordinates with CPAP and other agencies for inputs and dissemination |
| | | | | | Reviewed a total 55 published information materials | | | | |
| | | | | | Conducted survey on the knowledge,attitude and practices of pesticide formulators/repackers,distributor/dealers, and farmers in terms of the safe use of pesticed ; 508 farmers, 298 companies | The results showed that farmers have good knowledge and favorable attitude in terms of pesticide safe use but poor practice cited | | | |
| | To prepare manuals on safe handling and proper use of pesticides for dissemination to dealers and users | Preparation of manuals and other information materials for pesticide users and dealers | 1998 ~ 1999 | N.INOUE | Prepared training manuals and transparencies (OHP sheets) ,PMDP bulletin containing information on safe handling and update on PMDP activities ; manuals 1,500pieces ,OHP 50pieces , comics 20000,quaterly bulletin 1000 each | Prepare the manuals with CPAP and other agencies | FPA may prepare the necessary information on safe handling and proper use of pesticideto farmers and agencies | 90 | Information materials with messages focusing on the effects and consequences of pesticide misuse should also be prepared in coordination with CPAP and NGOs |
| | To conduct training program on safe handling and proper use of pesticide | Conduct training on the safe handling and proper use of pesticides for users. distributors and dealers | 1998~ 2001 | N.INOUE | Conducted a seminar for a total of 831agricultural technicians from 11provinces as trainer's training | Provide some information to farmers and agencies | FPA may conduct the training program on safe handling and proper use of pesticide | 90 | FPA should conduct the training with CPAP,and other responsible agencies |
| | | | | | Conducted 4 sessions for 153 ATI staff and LGU FFS facilitators | | | | |
| | | | | | Conducted pilot study of Pest Control Diary keeping campaign in 3 areas | | | | |

General Annex 3.

February 24, 2003

Mr. Osamu NAKAGAKI
Resident Representative
Japan International Cooperation Agency Philippine Office

Follow-up Cooperation Certificate
DA-BPI

Department of Agriculture, Bureau of Plant Industry (DA-BPI) duly received the repairing parts from Japanese Government and Follow-up cooperation mission delegated by Japan International Cooperation Agency, JICA, installed necessary parts to repair equipment and gave some training and important notices to maintain equipment effectively as following attached documents.

We hereby certified that NPAL, PAL-Cagayan de Oro, PAL-Cebu, PAL-Davao, PAL-Bicol and PAL-Baguio received above mentioned follow-up cooperation as follows;

1. Repairing parts list received by DA-BPI
2. Recommendations to laboratory management
3. Working lists by mission in each PAL
4. Remaining measures after mission

Philippines:
Department of Agriculture
Bureau of Plant Industry

Mr. Clarito M. Barron
Assistant Director
Bureau of Plant Industry

Ms. Adelaida C. Cahanap
Chief, Laboratory Service Devision
Bureau of Plant Industry

Mission:
Follow-up cooperation
Japan International Cooperation Agency

Mr. Kazumi Ueno
Leader
Follow-up cooperation mission

Mr. Akihiro Kitamura
member
Follow-up cooperation mission

Repairing parts list for Follow-up Cooperation of Pesticide Monitoring Project

| No | Equipment Name | Specifications | Manufacturer | NPAL | PAL Davao | PAL CDO | PAL Cebu | PAL Bagio | PAL Bicol | Q'ty | Part No |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Gas Chromatograph | Insulator(1um、500g)、3001-12502(for GC/ECD6890) | GL Science | 1 | | | | | 1 | 2 | 3001-12502 |
| 2 | Gas Chromatograph | Air dryer 3001-17101(Connect to GC piping) | GL Science | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 3001-17101 |
| 3 | Gas Chromatograph | Organic material remover、3001-17201(Connect to GC piping) | GL Science | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 3001-17201 |
| 4 | Gas Chromatograph | Tub cutter、3001-31501(Connect to GC piping) | GL Science | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 3001-31501 |
| 5 | Gas Chromatograph | 1/4"Pipe (10m coil)、3004-38312(Connect to GC piping) | GL Science | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 3004-38312 |
| 6 | Gas Chromatograph | Connecting pipe for Hydrogen cylinder SUS316 2m, CGA350 Left-M22/14 Left-regulator | GL Science | | | 2 | 2 | 2 | 2 | 8 | CGA350 |
| 7 | Gas Chromatograph | Connecting pipe for Air cylinderSUS316 2m , CGA540 Right-M22/14 Right-regulator | GL Science | | | 1 | 1 | 1 | 1 | 4 | CGA540 |
| 8 | Gas Chromatograph | Connecting pipe for Nitrogen cylinder SUS316 2m CGA555 Left-M22/14 Right-regulator | GL Science | | | 2 | 2 | 2 | 2 | 8 | CGA555 |
| 9 | Gas Chromatograph | Regulator with air cut and discharge valve for Hydrogen cylinder CGA350-Left | GL Science | 2 | 1 | | | | | 3 | CGA350 |
| 10 | Gas Chromatograph | Regulator with air cut and discharge valve for air cylinder CGA540-Right | GL Science | 2 | 1 | | | | | 3 | CGA540 |
| 11 | Gas Chromatograph | Regulator with air cut and discharge valve for Nitrogen cylinder, CGA555-Left | GL Science | 2 | 1 | | | | | 3 | CGA555 |
| 12 | Gas Chromatograph | Connecting pipe for Helium cylinder SUS316 2m CGA580 Right-M20.9/14 Left-regulator | GL Science | | | 2 | 2 | 2 | 2 | 8 | CGA580 |
| 13 | Gas Chromatograph | Regulator with air cut and discharge valve for Helium cylinder, CGA580-Right | GL Science | 2 | 1 | | | | | 3 | CGA580 |
| 14 | Gas Chromatograph | 1/4"Union (SUS)、0100-0128 | Agilent Technologies | 16 | 8 | 8 | 8 | 8 | 8 | 56 | 0100-0128 |
| 15 | Gas Chromatograph | Plunger motor 07673-60620(for GC/FPD 6890) | Agilent Technologies | 1 | | | | | | 1 | 07673-60620 |
| 16 | Gas Chromatograph | Plunger carrier assembly 07673-61275(for GC/FPD 6890) | Agilent Technologies | 1 | | | | | | 1 | 07673-61275 |
| 17 | Gas Chromatograph | O-ring, Curette transfer line tube, 0905-1101(for GC/FPD 5890) | Agilent Technologies | | 1 | | | | | 1 | 0905-1101 |
| 18 | Gas Chromatograph | O-ring, Curette Jet cartridge、0905-1103(for GC/FPD 5890) | Agilent Technologies | | 1 | | 1 | | | 2 | 0905-1103 |
| 19 | Gas Chromatograph | FID sample、18710-60170(for GC 6890) | Agilent Technologies | 1 | | | | | | 1 | 18710-60170 |
| 20 | Gas Chromatograph | NPD sample 18789-60060(for GC 6890) | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 18789-60060 |
| 21 | Gas Chromatograph | ECD giga bore liner、19233-20625(for GC/ECD 6890) | Agilent Technologies | | | | 1 | | | 1 | 19233-20625 |
| 22 | Gas Chromatograph | Column adapter for packed inlet(for 0.53mm)、19244-80540(for GC/ECD3 6890) | Agilent Technologies | 1 | | | | | | 1 | 19244-80540 |
| 23 | Gas Chromatograph | NPD Jet、19244-80560(for GC/NPD 6890) | Agilent Technologies | | 2 | | | | | 2 | 19244-80560 |
| 24 | Gas Chromatograph | EPC control board、19245-60016(for GC/FPD 5890) | Agilent Technologies | | 1 | | | | | 1 | 19245-60016 |
| 25 | Gas Chromatograph | Presser sensor board for packed inlet, 19245-60020(for GC/FPD 6890) | Agilent Technologies | 1 | | | | | | 1 | 19245-60020 |
| 26 | Gas Chromatograph | FPD phosphine filter、19256-80010(for GC/FPD 5890) | Agilent Technologies | | 1 | 1 | | 1 | 1 | 4 | 19256-80010 |
| 27 | Gas Chromatograph | Base weldment、19256-80540(for GC/FPD 5890) | Agilent Technologies | | 1 | | | | | 1 | 19256-80540 |
| 28 | Gas Chromatograph | Jet weldment、19256-80580(for GC/FPD 5890) | Agilent Technologies | | 1 | | | | | 1 | 19256-80580 |
| 29 | Gas Chromatograph | FPD sample、19305-60580(for all GC 6890) | Agilent Technologies | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 19305-60580 |
| 30 | Gas Chromatograph | Digital flow meter、220-1170(for GC/FPD 6890) | Agilent Technologies | 1 | 1 | | | | | 2 | 220-1170 |
| 31 | Gas Chromatograph | Poly imide seal resin 、500-1200(for GC/ECD GC/NPD6890) | Agilent Technologies | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 500-1200 |
| 32 | Gas Chromatograph | 1/8"Nut/Ferrule、5080-8750(for all GC6890) | Agilent Technologies | 3 | 3 | 3 | 3 | 3 | 2 | 17 | 5080-8750 |
| 33 | Gas Chromatograph | Ferrule bespel 1/4 inch、5080-8774(for GC/ECD3 6890) | Agilent Technologies | 1 | | | | | | 1 | 5080-8774 |
| 34 | Gas Chromatograph | 1/4"Nut/Ferrule (10/pk)、5180-4105 | Agilent Technologies | 4 | 2 | 2 | 2 | 2 | 2 | 14 | 5180-4105 |
| 35 | Gas Chromatograph | 1/8" Union、5180-4127(for all GC 6890) | Agilent Technologies | 12 | 8 | 6 | 6 | 6 | 4 | 40 | 5180-4127 |
| 36 | Gas Chromatograph | 1/4"-1/8" Union、5180-4131 | Agilent Technologies | 6 | | | | | | 6 | 5180-4131 |
| 37 | Gas Chromatograph | 1/4"NPT-1/8" Swage lock adapter 5180-4143 | Agilent Technologies | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 5180-4143 |

| No | Equipment Name | Specifications | Manufacturer | NPAL | PAL Davao | PAL CDO | PAL Cebu | PAL Bagio | PAL Bicol | Q'ty | Part No |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | Gas Chromatograph | 1/8" Tee, 5180-4160(for all GC 6890) | Agilent Technologies | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 5180-4160 |
| 39 | Gas Chromatograph | O-ring, 5180-4181(for GC/ECD1 6890) | Agilent Technologies | | | 1 | | 3 | | 4 | 5180-4181 |
| 40 | Gas Chromatograph | 1/8" piping, 5180-4196(for all GC 6890) | Agilent Technologies | 4 | 3 | 3 | 3 | 3 | 2 | 18 | 5180-4196 |
| 41 | Gas Chromatograph | Trap for Hydrogen gas (1/4"), 5182-3424 | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 5182-3424 |
| 42 | Gas Chromatograph | Trap for Helium gas (1/4"), 5182-3426 | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 5182-3426 |
| 43 | Gas Chromatograph | Trap for Nitrogen gas (1/4"), 5182-3441 | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 5182-3441 |
| 44 | Gas Chromatograph | Zero air (for air), 5182-3485 | Agilent Technologies | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 5182-3485 |
| 45 | Gas Chromatograph | Ceramic insulator kit 5182-9722(for GC/NPD 6890) | Agilent Technologies | 6 | 4 | 4 | 4 | 4 | 2 | 24 | 5182-9722 |
| 46 | Gas Chromatograph | ECD sample, 5183-0379(for all GC 6890) | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 5183-0379 |
| 47 | Gas Chromatograph | Column cutter, 5183-4620(for GC/ECD GC/NPD 6890) | Agilent Technologies | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 5183-4620 |
| 48 | Gas Chromatograph | Capillary column connector (Fused Silica), 705-0925(for GC/ECD GC/NPD6890) | Agilent Technologies | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 705-0925 |
| 49 | Gas Chromatograph | Switch rod, G1530-40010 (for GC/NPD2 6890) | Agilent Technologies | 1 | 1 | | | 1 | 1 | 4 | G1530-40010 |
| 50 | Gas Chromatograph | AC board, G1530-60051(for GC/NPD 6890) | Agilent Technologies | 1 | | | | | | 1 | G1530-60051 |
| 51 | Gas Chromatograph | Key board bezel, G1530-60745(for GC/ECD 6890) | Agilent Technologies | | | | | | 1 | 1 | G1530-60745 |
| 52 | Gas Chromatograph | Oven flapper motor G1530-60945(for GC/FID_4828 6890) | Agilent Technologies | 1 | | | | | | 1 | G1530-60945 |
| 53 | Gas Chromatograph | Main board ROM, G1530-61706(for GC/NPD 6890) | Agilent Technologies | 11 | 4 | 5 | 5 | 5 | 3 | 33 | G1530-61706 |
| 54 | Gas Chromatograph | EPC proportional valve, G1531-60610(for GC/ECD 6890) | Agilent Technologies | | | | | 3 | | 3 | G1531-60610 |
| 55 | Gas Chromatograph | Solenoid valve, G1531-60610(for GC/NPD 6890) | Agilent Technologies | | | | 1 | | | 1 | G1531-60610 |
| 56 | Gas Chromatograph | ECD EPC module, G1533-60520(for GC/ECD 6890) | Agilent Technologies | 1 | | | | 1 | | 2 | G1533-60520 |
| 57 | Gas Chromatograph | ECD Heater sensor, G1533-60625(for GC/ECD 6890) | Agilent Technologies | | | | | 1 | | 1 | G1533-60625 |
| 58 | Gas Chromatograph | ECD makeup adapter weldment, G1533-80565(for GC/ECD 6890) | Agilent Technologies | 6 | 4 | 4 | 4 | 4 | 2 | 24 | G1533-80565 |
| 59 | Gas Chromatograph | NPD collector G1534-20530(for GC/NPD 6890) | Agilent Technologies | | | 0 | | | | 0 | G1534-20530 |
| 60 | Gas Chromatograph | NPD collector funnel G1534-20530(for GC/NPD 6890) | Agilent Technologies | 9 | 4 | 4 | 4 | 4 | 2 | 27 | G1534-20530 |
| 61 | Gas Chromatograph | NPD signal board G1534-60010(for GC/NPD 6890) | Agilent Technologies | | 1 | 1 | | | | 2 | G1534-60010 |
| 62 | Gas Chromatograph | NPD interface board G1534-60020(for GC/NPD 6890) | Agilent Technologies | | | 1 | | | | 1 | G1534-60020 |
| 63 | Gas Chromatograph | Bead Assy, G1534-60570(for GC/NPD 6890) | Agilent Technologies | 6 | 4 | 1 | 4 | 4 | 2 | 21 | G1534-60570 |
| 64 | Gas Chromatograph | NPD inter-connect, G1534-60610(for GC/NPD 6890) | Agilent Technologies | | 1 | 1 | | | | 2 | G1534-60610 |
| 65 | Gas Chromatograph | NPD EPC module, G1534-60720(for GC/ECD2 6890) | Agilent Technologies | 1 | | | | 1 | | 2 | G1534-60720 |
| 66 | Gas Chromatograph | FPD weldment, G1535-60555(for GC/FPD 5890) | Agilent Technologies | | 1 | 1 | | 1 | 1 | 4 | G1535-60555 |
| 67 | Gas Chromatograph | EPC module(FPD), G1535-60720(for GC/FPD 6890) | Agilent Technologies | | | | 2 | | | 2 | G1535-60720 |
| 68 | Gas Chromatograph | Jet cartridge, G1535-80500(for GC/FPD 6890) | Agilent Technologies | | | 1 | 1 | | | 1 | G1535-80500 |
| 69 | Gas Chromatograph | EPC module (Packed inlet), G1543-60500(for GC/ECD 6890) | Agilent Technologies | | | | 1 | | | 1 | G1543-60500 |
| 70 | Gas Chromatograph | Split bent flow line, G1544-20620(for GC/FID 6890) | Agilent Technologies | 2 | | | | | | 2 | G1544-20620 |
| 71 | Gas Chromatograph | EPC module for split inlet G1544-60500(for GC/FID_7513 6890) | Agilent Technologies | 1 | | | | | | 1 | G1544-60500 |
| 72 | Gas Chromatograph | Split vent trap replacement kit G1544-60610(for GC/FID 6890) | Agilent Technologies | 2 | | | | | | 2 | G1544-60610 |
| 73 | Gas Chromatograph | EPC module(On-column inlet), G1545-60500(for GC/ECD 6890) | Agilent Technologies | | | 1 | | | | 1 | G1545-60500 |
| 74 | Gas Chromatograph | EPC module for on-column inlet, G1545-60500(for GC/ECD 6890) | Agilent Technologies | | 1 | | | | | 1 | G1545-60500 |

Repairing parts list for Follow-up Cooperation of Pesticide Monitoring Project

| No | Equipment Name | Specifications | Manufacturer | NPAL | PAL Davao | PAL CDO | PAL Cebu | PAL Bagio | PAL Bicol | Q'ty | Part No |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 75 | Gas Chromatograph | Heater/Sensor, On-column, G1545-60520(for GC/NPD 6890ff) | Agilent Technologies | | 1 | | | | | 1 | G1545-60520 |
| 76 | Gas Chromatograph | On-column inlet weldment, G1545-80507(for GC/FID 6890) | Agilent Technologies | 1 | | | | | | 1 | G1545-80507 |
| 77 | Gas Chromatograph | EPC control board G1575-60010(for GC/NPD 6890) | Agilent Technologies | 1 | 0 | | | | | 1 | G1575-60010 |
| 78 | Gas Chromatograph | Trap for Hydro-carbon (Air), HT200-4 | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | HT200-4 |
| 79 | Gas Chromatograph | Oxygen trap for ECD, LIOT-2 | Agilent Technologies | 5 | 2 | 2 | 2 | 2 | 1 | 14 | LIOT-2 |
| 80 | Gas Chromatograph | Clip for trap, MC-1 | Agilent Technologies | 16 | 8 | 8 | 8 | 8 | 8 | 56 | MC-1 |
| 81 | Gas Chromatograph | Moisture trap (1/4"), MT400-4 | Agilent Technologies | 2 | 1 | 1 | 1 | 1 | 1 | 7 | MT400-4 |
| 82 | Gas Chromatograph | Clip for oxygen trap, UMC-3(for GC/ECD 6890) | Agilent Technologies | 10 | 4 | 4 | 4 | 4 | 2 | 28 | UMC-3 |
| 83 | Gas Chromatograph | Clip for moisture trap for air, UMC-4 | Agilent Technologies | 4 | 2 | 2 | 2 | 2 | 2 | 14 | UMC-4 |
| 84 | Gas Chromatograph | Ball valve (1/4"), SS-43S4 | North Tokyo valve fitting | 16 | 8 | 8 | 8 | 8 | 8 | 56 | SS-43S4 |
| 85 | Portable refrigerator | Cooling unit 1610 081 10X9(Portable refrigerator MRFT-66001DS) | Sawafuji denki | | | 1 | | 1 | | 2 | 1610 081 10X9 |
| 86 | Ice maker | Solenoid valve, 625 813 5020(for Ice maker SIM-P30) | Sanyo | 1 | | | | | | 1 | 625 813 5020 |
| 87 | Ice maker | Sensor, 625 814 0727(for SIM-P30) | Sanyo | 1 | | | | | | 1 | 625 814 0727 |
| 88 | Ice maker | Pump motor 625-813-3811(for SIM-P30) | Sanyo | | | | 1 | | 1 | 2 | 625-813-3811 |
| 89 | Water distillation apparatus | Scale remover, 111790(for SA-2000E) | Eyra | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 111790 |
| 90 | Water distillation apparatus | Ion exchange resin 112040(for ERN-15) | Eyra | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 112040 |
| 91 | Water distillation apparatus | Ion exchange resin 112050(for ERN-25) | Eyra | 2 | 1 | 1 | 1 | 1 | 1 | 7 | 112050 |
| 92 | Rotary evaporator | Metal aspirator, 119110(for CA-1100A) | Eyra | | 2 | | | | | 2 | 119110 |
| 93 | Rotary evaporator | Rotary joint, 142500 272mm TS29(for CA-1100A) | Eyra | | 1 | | | | | 1 | 142500 |
| 94 | Rotary evaporator | Vacuum seal set (2), 142610(for CA-1100A) | Eyra | | 1 | | | | | 1 | 142610 |
| 95 | Rotary evaporator | Vacuum cock, 999200(for CA-1100A) | Eyra | | 2 | | | | | 2 | 999200 |
| 96 | Rotary evaporator | Sleeve pin (2) 142650(for CA-1100A) | Eyra | | 1 | | | | | 1 | 142650 |
| 97 | Water distillation apparatus | Boiler, 146980(for SA-2000E) | Eyra | | | | 1 | | | 1 | 146980 |
| 98 | Water distillation apparatus | Fixed ring for boiler, 147030(for SA-2000E) | Eyra | | | | 1 | | | 1 | 147030 |
| 99 | Cooling aspirator | F cheese exchange set, 186510(for CA-1100A) | Eyra | | | | | 2 | 2 | 4 | 186510 |
| 100 | Cooling aspirator | Rubber (Fuchidori), 187630 1.5m(for CA-A) | Eyra | | | | 2 | | | 2 | 187630 |
| 101 | Water distillation apparatus | Motor cover, 999759(for CA-A) | Eyra | | | | 2 | | | 2 | 999339 |
| 102 | Water distillation apparatus | Active carbon filter TCC-1(for SA-2000E),112281 | Eyra | 6 | 3 | 3 | 3 | 3 | 3 | 21 | TTC-1 |
| 103 | Water distillation apparatus | Ion exchange cartridge, IE-2 (for SA-2000E),112370 | Eyra | 2 | 1 | 1 | 1 | 1 | 1 | 7 | |
| 104 | High Performance Liquid Chromatograph | Dynamic mixer, 810-1221(for HPLC L-7000) | Hitachi | 1 | | | | | | 1 | 810-1221 |
| 105 | pH meter | Triode electrode, 9157BN(for 720A) | Meditorial | | | | | 1 | | 1 | 9157BN |
| 106 | pH meter | Printed circuit board for 720A | Meditorial | 2 | 1 | | | 1 | | 4 | |
| 107 | Ultra sonic cleaner | ON/OFF switch (for 5210E-MTH) | Yamato | | 1 | | | | | 1 | |
| 108 | Ultra sonic cleaner | ON/OFF switch, (for 5210) | Yamato | 1 | | | | | | 1 | |
| 109 | Ultra sonic cleaner | ON/OFF switch (for 8210) | Yamato | 1 | | | | | | 1 | |
| 110 | Ultra sonic cleaner | O-ring(for5210E-MTH) | Yamato | | 1 | | | 1 | | 2 | |
| 111 | Ultra sonic cleaner | PC board(for 5210E-MTH) | Yamato | | 1 | | | | | 1 | |

Repairing parts list for Follow-up Cooperation of Pesticide Monitoring Project

| No | Equipment Name | Specifications | Manufacturer | NPAL | PAL Davao | PAL CDO | PAL Cebu | PAL Bagio | PAL Bicol | Q'ty | Part No |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 112 | Ultra sonic cleaner | PC board( for 5210) | Yamato | 1 | | | | | | 1 | |
| 113 | Ultra sonic cleaner | PC board (for 8210) | Yamato | 1 | | | | | | 1 | |
| 114 | Ultra sonic cleaner | Output coil(for 5210E-MTH) | Yamato | | 1 | | | 1 | | 2 | |
| 115 | Ultra sonic cleaner | Tank Assy( for 5210E-MTH) | Yamato | | 1 | | | | | 1 | |
| 116 | Ultra sonic cleaner | Transistor (for 5210E-MTH) | Yamato | | 1 | | | | | 1 | |
| 117 | Ultra sonic cleaner | Transistor (for 5210) | Yamato | 1 | | | | | | 1 | |
| 118 | Ultra sonic cleaner | Heater (for 5210E-MTH) | Yamato | | 1 | | | 1 | | 2 | |
| 119 | Ultra sonic cleaner | Bezel Assy(for 5210E-MTH) | Yamato | | 1 | | | 1 | | 2 | |
| 120 | Ultra sonic cleaner | Mounting ring(for 5210E-MTH) | Yamato | 1 | 1 | | | 1 | | 2 | |
| 121 | Ultra sonic cleaner | Mechanical timer (for 5210E-MTH) | Yamato | | 1 | | | | | 1 | |
| 122 | Ultra sonic cleaner | Mechanical timer (for 5210) | Yamato | 1 | | | | | | 1 | |
| 123 | Ultra sonic cleaner | Temperature sensor (for 5210E-MTH) | Yamato | | 1 | | | | | 1 | |
| 124 | Ultra sonic cleaner | Transformer (for 5210E-MTH) | Yamato | | 1 | | | 1 | | 2 | |
| 125 | Ultra sonic cleaner | Transformer (for 5210) | Yamato | 1 | | | | | | 1 | |
| 126 | Ultra sonic cleaner | Transformer (for 8210) | Yamato | 1 | | | | | | 1 | |
| 127 | Homogenizer | ball race, 0593800 S25N-18G/25G(for T-25) | Labo world online Japan | 6 | 3 | 3 | 3 | 3 | 3 | 21 | 593600 |
| 128 | Homogenizer | Shaft 0593700 S25N (for T-25) | Labo world onlin Japan | 3 | 2 | 2 | 2 | 2 | 2 | 13 | 593700 |
| 129 | Homogenizer | Teflon bearing 1951200 S25N-18G/25G(for T-25) | Labo world online Japan | 24 | 10 | 10 | 10 | 10 | 10 | 74 | 1951200 |
| 130 | Gas Chrometograph | ECD cell, G1533-60576(for GC/ECD 6890) | Agilent Technologies | 7 | 4 | 4 | 4 | 4 | 1 | 24 | |

## Recommendations to laboratory management

1. Gas usage for GCs

He gas for both Back inlet and Frot inlet as carrier gas

Nitrogen gas for both Back detector and Front detector as makeup gas

To minimize to consume He gas and to replace spare parts

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< Cost estimation comparison>

1. Prerequisite condition, for example;

Operate 74 hours a week.

Operate 5 days a week, 10 hours a day and twice 12 hours over night additionally.

Operate 40 week a year. → 2960 hours / year

Carrier gas flow rate is 5ml/min( 300ml/h).

Make up gas flow rate is 30ml/min(1800ml/h).

7,000,000ml / cylinder

P9,000 / He cylinder, P400 / N2 cylinder.

24 hours / day, 7weeks / week, 52 weeks / year → 8736 hours / year

2. Before

Front inlet and Front detector was connected to N2

Back inlet and Back detector was connect to He

Operation : 74 hours x 40 week = 2960 hours / a year

He usage Column carrier 5ml/min + Make up 30 ml/min = 35 ml/min

= 2100ml/h

2100 ml/h x 2960 h/year = 6,216,000 ml/year

6,216,000 ml/year / 7,000,000ml / cylinder = 0.9 cylinder / year

0.9 cylinder / year x P9,000 / He cylinder = P8,100 / year

3. After

Both inlet in connecting to He. Both detector connecting to N2

Operation : 74 hours x 40 week = 2960 hours / a year

Keep 5 ml/min make up gas when not using. 8736 – 2960 h/year

He usage Column carrier 5ml/min = 300ml/h

300 ml/h x 2960 h/year = 888,000 ml/year

888,000 ml/year / 7,000,000ml / cylinder = 0.12 cylinder / year

| | |
|---|---|
| | 0.12 cylinder / year x P9,000 / He cylinder = P1,080 / year |
| N2 usage | Make up 30 ml/min = 1800ml/h |
| | 1800 ml/h x 2960 h/year = 5,328,000 ml/year (in operation) |
| | Make up 5 ml/min = 300ml/h |
| | 300 ml/h x (8736 – 2960) h/year = 1,732,800 ml/year (not operation) |
| | 5,328,000 ml/year + 1,732,800 ml/year = 7,060,800 ml/year (totally) |
| | 7,060,800 ml/year / 7,000,000ml / cylinder = 1.0 cylinder / year |
| | 1.0 cylinder / year x P400 / N2 cylinder = P400 / year |
| | P1,080 / year (He) + P400 / year (N2) = P1,480 / year (total) |

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2. Gas flow and electrify to GC after working hour for stand-by GC

   To maintain sensitivity of GCs and extend their life.

3. Standard operation procedure

   To reconsider standard operation procedures for each analysis for all laboratory to optimize cost and performance.

4. Consultation from manufacturer

   Over 50% of problems needs no spare parts to solve them, but only information can solve them..

   If you can transfer the problems precisely to the local agent or manufacturer, you can solve them free of charge.

   Contact local agent and Agilent:

   Edward Keller (Philippines), Inc.

   rico.domingo@edwardkeller.com.ph

   francis.moreno@edwardkeller.com.ph

   hector.bacalso@edwardkeller.com.ph

   In case of emergency, Mr. Akihiro Kitamura of Agilent Technologies

   akihiro_kitamura@agilent.com

5. Budget for spare parts and consumables

   Necessary consumables list will be submitted later by mission.

The Follow-up Cooperation mission of Pesticide Monitoring Project

February 22, 2003

Working list for follow-up cooperation　　Laboratory: NPAL　　Date: February 22, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 1 | All GCs, Gas supplys | ·Plumbing tubing to the GC isn't correct.<br>·Some gas filters connected to each GC is saturated. | ·Removed all gas filter installed each GCs and installed a gas filter into each gas line.(one filter per one gas tank)<br>·Gas plumbing changed; He is supplied to both Inlet, N2 to both Detector.<br>·Exchanged the ROM (6890A ) with latest version. | |
| 2 | 6890A ECD1 (US00005287) | ·Back ECD makeup gas is not controled to set point.<br>·Front ECD signal out put too high at room temp | ·Install Oxgen trap to Make up gas(N2) line.<br>·Front ECD CELL and both makeup gas adapter exchange.<br>·Excanged EPC module for back ECD<br>·After the injection supplies exchanged, leakcheck execution.<br>·After the signal check, user STD sample injection. | ·Back ECD is not exchang as it was exchanged in Jan 2001. One of supplied new ECD cell is for stock. |
| 3 | 6890A ECD2 (US00005165) | ·Back ECD makeup gas is not controled to set point.<br>·Can not push power switch smoothly.<br>·All parts in NPD is dirty | ·Install Oxgen trap to Make up gas(N2) line.<br>·Front ECD CELL and makeup gas adapter exchange.<br>·Exchanged push rod for power switch.<br>·Exchanged EPC module for back ECD<br>·Cleaned NPD JET and lid.<br>·Exchanged NPD ceramics kit and collector.<br>·After the injectionsupplies exchanged, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 4 | 6890A ECD3 (US00004820) | | ·Install Oxgen trap to Make up gas(N2) line.<br>·Both ECD CELL and makeup gas adapter exchange.<br>·After the injectionsupplies exchanged, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 5 | 6890A NPD1 (US00005313) | ·All parts in NPD is dirty<br>·Installed jet at front NPD is for packed column, not capillary column. | ·Cleaned NPD JET and lid.<br>·Exchanged NPD ceramics kit and collector.<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | ·Front NPD doesn't reinstall as no stock of capillary jet. Please install after getting correct jet. |
| 6 | 6890A NPD2 (US00005070) | ·All parts in NPD is dirty. | ·Cleaned NPD JET and lid.<br>·Exchanged NPD ceramics kit and collector.<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | |

Working list for follow-up cooperation　　Laboratory: NPAL　　Date: February 22, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 7 | 6890A NPD3<br>(US00007227) | ・All parts in NPD is dirty<br>・No insulation at bottom both detector | ・Install Oxgen trap to Make up gas(N2) line.<br>・Front ECD CELL and makeup gas adapter exchange.<br>・Cleaned NPD JET and lid.<br>・Exchanged NPD ceramics kit and collector.<br>・After the injectionsupplies exchanged, leakcheck execution.<br>・After the signal check, user STD sample injection. | |
| 8 | 5890A FPD1<br>(3336A62163) | ・Ne leak in EPC senser board<br>・ALS plunger error occure | ・Exchange EPC senser board<br>・Exchange plunger carriage and plunger motor<br>・After the injectionsupplies exchange, leakcheck execution.<br>・After the signal check, user STD sample injection. | This ALS was not used for a few year for the problem. It can be used now. |
| 9 | 6890A FPD2<br>(US00007653) | | ・After the injectionsupplies exchange, leakcheck execution.<br>・After the signal check, user STD sample injection. | |
| 10 | 6890A FID1<br>(US00004828) | ・Oven shut down<br>・The insert doesn't come out in on-col inlet. | ・Oven flap motor exchange.<br>・On-Col Shell exchange(There are the obstruction of ferrure and the bend of Shell)<br>・All 1/4inc frrure and nut replace.<br>・After the injectionsupplies exchange, leakcheck execution.<br>・FID JET and collector cleaning.<br>・After the signal check.(FID AUX is He,because there is no N2) | |
| 11 | 6890A FID2<br>(US00004827) | ・ It begins to choke it with splitventline. | ・Split vent trap kit , spliter tube exchange.<br>・All 1/4inc frrure and nut replace.<br>・After the injectionsupplies exchange, leakcheck execution.<br>・FID JET and collector cleaning.<br>・After the signal check.(FID AUX is He,because there is no N2) | ・ Recommend to exchange an ignitor assy(p/n G1531-60680) by BPI |
| 12 | 6890A FID3<br>(US00007513) | ・Splitvent flows only to-10ml/min , when set flow 60ml/min<br>・Screw of the column adapter is crushed for front FID. | ・Split/splitless EPC exchange.<br>・Spliter tube exchange.<br>・All 1/4inc frrure and nut replace.<br>・After the injectionsupplies exchange, leakcheck execution.<br>・FID JET and collector cleaning.<br>・After the signal check.(FID AUX is He,because there is no N2) | ・ Recommend to exchange a culumn adapter (p/n 19244-80610) by BPI<br>・A creaking sound from oven flap moter. Recommend exchange it as soon as possible. |

Working list for follow-up cooperation  Laboratory: NPAL  Date: February 22, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 13 | 5973A GC/MS (US70820546) | ・Ion souce dirty.<br>・A ghost peak comes out by the STD sample. | ・He gas line trap exchange.<br>・Split vent trap kit , spliter tube exchange.<br>・Ion source cleaning , two filament exchange.<br>・Foreline pump oil exchange.<br>・System TP FAN cleaning.<br>・After the injectionsupplies exchange, leakcheck execution.<br>・Autotune exploitation.<br>・Blank run , solvent injection , STD sample of custmer injection exploitation. | ・The ghost peak of STD chromatgram come from STD itself (contamination) , because a ghost peak can't be confirmed by blank run , the solvent injection. |
| 14 | Homogenizer | Teflon bearing has consumed. | Change Teflon bearings and supply of ball races and rods. | |
| 15 | Water distilled apparatus | PAL has never change ion exhange resin and cartridges. They cannot find necessary resin in | Install ion exchange cartridge and replace resin. | After replacing ion exchange resin, no problem. |
| 16 | pH meter | No display. | Change PC boards for two pH meter. | |
| 17 | Ultrasonic cleaner | Timer s/w is sometimes not functional. | Timer is functional, so no problem. | |
| 18 | Ice making machine | No icemaking. | Sorenoide valve was replaced. | |
| 19 | High pressure liquid chromatograph | It is difficult to maintain HPLC because of limited usage. | Explanation of maintenance by manufacturer's manual | |

Working list for follow-up cooperation  Laboratory: PAL-Cagayan de Oro  Date: January 31, 2003

| Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|
| 6890A NPD1 (US00007503) | ·There are both ceramic insulator kit damage and collector dirty in the front and the back NPD.<br>·A signal sometimes became 0 with front NPD suddenly, and all the NPD parts related to the electricity were removed with a user.<br>· It has taling in the back NPD. | ·Change ROM (6890A )<br>·Change NPD ceramics kit, collector.<br>·After changing the injection supplies, check leakage.<br>·Change NPD board, electrometer and inter connect.<br>·Cleaning NPD JET<br>·After the signal check, inject user STD samples by user. | · This GC has been used very seldom because electrometer and inter connect were defective. It can use from now on. |
| 6890A NPD2 (US00007493) | ·There are some damage in ceramic insulator kit and collector dirty in the front NPD.<br>·There is collector dirty in the back NPD | ·Change ROM (6890A )<br>·Change NPD ceramics kit and collector<br>·After change injection supplies, check leakage.<br>·Clean NPD JET<br>·After check the signal, inject user STD sample by user<br>·Change photomultiplier | · This GC was not operational because of left problem after June 2002. It can use from now on. |
| 6890A FPD (US00007603) | ·Some std can't be detected with 0.02ppm. | ·Change ROM (6890A )<br>·After changing injection supplies, check leakage.<br>·After checking signal, inject user STD sample by user. | ·It has already repaired by BPI, after the mission 2 years ago. Now it can use without problem. |
| 6890A ECD1 (US00007520) | ·A front ECD signal is high.<br>· It leaks from on column injection.<br>· Low sensitivity in case of using usual column. | ·Change ROM (6890A )<br>·Change Both of ECD CELL and makeup gas line.<br>·After changing injection supplies, check leakage.<br>·After signal check, inject user STD sample by user. | |
| 6890A ECD2 (US00007592) | · Low sensitivity in case of using usual column. | ·Change ROM (6890A )<br>·Change Both of ECD CELL and makeup gas line.<br>·After the injection supplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | |

Working list for follow-up cooperation　　Laboratory: PAL-Cagayan de Oro　　Date: January 31, 2003

| Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|
| GC utilities and others | ・Connection between gas cylinder and regulator is not so fit.<br>・Gas filter connected to each GC has already saturated. | ・Change each connector between gas cylinder and regulator.<br>・Install one gas filter for each gas cylinder instead of for each GC, considering maintenance cost. | No leakage in gas lines.<br>Trap holders procured from Japan cannot fix traps, so they must be changed for H2, N2, He. |
| Homogenizer | Teflon bearing has consumed. | Change a Teflon bearing and supply of ball races | |
| Water distilled apparatus | It cannot make distilled water. They cannot find necessary resin in the Philippines. | Install ion exchange cartridge and replace resin. | It can produce distilled water.<br>Introduce a local agent for the apparatus. |
| Portable refrigerator | It cannot work because of failure of inside compressor. | Change a compressor. | PAL can use now. |
| High pressure liquid chromatograph | It is difficult to maintain HPLC because of limited usage. | Explanation of maintenance by manufacturer's manual | |

Working list for follow-up cooperation  Laboratory: PAL-Cebu  Date: February 5, 2003

| Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|
| 6890A NPD1 (US00007507) | ·There are ceramic insulator kit damage and collector dirty in both front and back NPD.<br>·Hydrogen gas flow are fluctuated in Front NPD. | ·Change ROM (6890A )<br>·Change NPD ceramics kit and collector.<br>·After changing the injection supplies, check leakage.<br>·Cleaning NPD JET<br>·Change solenoide valve for NPD H2<br>·After the signal check, inject user STD samples by user. | |
| 6890A NPD2 (US00007488) | ·There are some damages in ceramic insulator kit and collector dirty in the front NPD.<br>·Both on-column and packed connect to nitrogen gas as carrier-gas. | ·Change ROM (6890A )<br>·Change NPD ceramics kit and collector<br>·Connect only on-column to Helium gas<br>·After change injection supplies, check leakage.<br>·Clean NPD JET<br>·After check the signal, inject user-STD sample by user | |
| 6890A FPD (US00007499) | ·Oven sensor has been removed and installed to NPD2 by BPI.<br>·AUX of FPD connects to both He and N2.<br>·Leakage from FPD Jet. | ·Change ROM (6890A )<br>·After changing injection supplies, check leakage.<br>·AUX of FPD connects to only He.<br>·Check signal. | Recommend to install an oven sensor (P/N G1530-61030) by BPI. |
| 6890A ECD1 (US00007522) | ·A back ECD signal is high. | ·Change ROM (6890A )<br>·Change Both of ECD CELL and makeup gas line.<br>·After changing injection supplies, check leakage.<br>·After signal check, inject user STD sample by user. | |
| 6890A ECD2 (US00007352) | ·Low sensitivity in case of using usual column.<br>·Auto injector has had a plunger error since last week.<br>·Display shows 14.7 even though no flow from packed inlet. | ·Change ROM (6890A )<br>·Change Both of ECD CELL and makeup gas line.<br>·Change packed EPC module.<br>·After the injection supplies exchange, check leakage..<br>·After the signal check, user STD sample injection. | Recommend to install an solenoide valve (P/N 18593-61020) by BPI because of plunger error. |

Working list for follow-up cooperation　　Laboratory: PAL-Cebu　　Date: February 5, 2003

| Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|
| GC utilities and others | ・Connection between gas cylinder and regulator is not so fit.<br>・Gas filter connected to each GC has already saturated. | ・Change each connector between gas cylinder and regulator.<br>・Install one gas filter for each gas cylinder instead of for each GC, considering maintenance cost.<br>・Install a zero air generator for air gas line. | No leakage in gas lines.<br>Trap holders procured from Japan cannot fix traps, so they must be sent for H2, N2, He by manufacturer later.<br>Pre-filter in the zero air generator must be sent by manufacturer later. |
| Homogenizer | Teflon bearing has consumed.<br>All rods were broken. | Change a rod and Teflon bearing and supply of ball races | |
| Water distilled apparatus | It cannot make distilled water. They cannot find necessary resin in the Philippines.<br>Boiler was broken. | Install ion exchange cartridge and replace resin.<br>Replace new boiler made of glass and connect to lines. | Introduce a local agent for the apparatus.<br>Water pressure is very low recently, it cannot make distilled water in day time. Consider increasing water pressure. |
| Cooling aspirator | Upper boxes were broken on aspirator.<br>Rubber coverd upper box was damaged. | Change upperbox and rubber for each cooling aspirator. | Keep clean inside box to protect parts from scale. |
| Ice making machine | Motor was broken. | Repalce motor. | |
| High pressure liquid chromatograph | It is difficult to maintain HPLC because of limited usage. | Explanation of maintenance by manufacturer's manual | |

Working list for follow-up cooperation  Laboratory: PAL-Davao  Date: February 12, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 1 | All GCs. Gas supplys | ·Plumbing tubing to the GC isn't correct.<br>·Some gas filters connected to each GC is saturated. | ·Removed all gas filter installed each GCs and installed a gas filter into each gas line.(one filter per one gas tank)<br>·Gas plumbing changed: He is supplied to both Inlet. N2 to both Detector.<br>·Exchanged the ROM (6890A ) with latest version. | |
| 2 | 6890A ECD1<br>(US00005278) | ·Dosen't use a few years as can not use Cool On-Column Inlet<br>·Pressure display of cool on-col inlet still stay 0(zero) | ·Install Oxgen trap to Make up gas(N2) line.<br>·Both ECD CELL, ~~makeup gas line~~ column adapter exchange.<br>·Exchanged EPC module of Cool On-Column Inlet<br>·After the injection supplies exchanged. leakcheck execution.<br>·After the signal check. user STD sample injection. | This GC was not used a few year for the problem. It can be used now. |
| 3 | 6890A ECD2<br>(US00005303) | ·Can not turn power ON.<br>·Some error message appear when ChemStation software start up | ·Install Oxgen trap to Make up gas(N2) line.<br>·Both ECD CELL, ~~makeup gas line~~ column adapter exchange.<br>·Exchanged push rod for power switch.<br>·After the injectionsupplies exchanged. leakcheck execution.<br>·After the signal check. user STD sample injection. | |
| 4 | 6890A NPD1<br>(US00004826) | ·All parts in NPD is dirty | ·Cleaned ~~NPD~~ front ~~JET~~ body and lid. ~~and~~<br>·Exchanged NPD ceramics kit and collector, back NPD JET<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 5 | 6890A NPD#2<br>(US00004826)<br>4827 | ·All parts in NPD is dirty<br>·Temp senser for coll on-column inlet is defective. | ·Cleaned ~~NPD JET and~~ lid.<br>·Exchanged NPD ceramics kit and collector, NPD JET.<br>·Replace heater/senser assy for cool on-column inlet.<br>·After the injectionsupplies exchange. leakcheck execution.<br>·After the signal check. user STD sample injection. | |
| 6 | 5890A FPD<br>(3336A62238) | ·Blow fuses on the main board.<br>·Low sensitivity of FPD | ·Excange 6ch EPC board<br>·Exchanged FPD detector<br>·After the injectionsupplies exchange. leakcheck execution.<br>·After the signal check, user STD sample injection. | This GC was not used a few year for the problem. It can be used now. |

Working list for follow-up cooperation  Laboratory: PAL-Davao  Date: February 12, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 7 | Homogenizer | Teflon bearing has consumed. | Change a rod and Teflon bearing and supply of ball races | |
| 8 | Water distilled apparatus | Even though changing resin in last December, the display shows I/E resin saturated. They cannot find necessary resin in the Philippines. | Install ion exchange cartridge and replace resin. | After replacing ion exchange resin, no problem. |
| 9 | pH meter | No dispalay | Change PC board. Attached electrode was out of order. so it was replaced new one in stock. | Calibration was conducted. |
| 10 | Ultrasonic cleaner | It cannot use because of no oscillation. | Repalce PC board and tank with oscillators. | Drain pipe on tank is different position from existing tank. so tank is installed after making other hole. |
| 11 | Rotary evaporator | It made abnormal sound. | Repalce two seal parts. | No more abnormal sound. |
| 12 | High pressure liquid chromatograph | It is difficult to maintain HPLC because of limited usage. | Explanation of maintenance by manufacturer's manual | |

Working list for follow-up cooperation — Laboratory: PAL-Bicol — Date: February 15, 2003

| No | Equipment name | Present situations | Works executed | Remarks. |
|---|---|---|---|---|
| 1 | All GCs, Gas supplys | ·Plumbing tubing to the GC isn't correct.<br>·Some gas filters connected to each GC is saturated. | ·Removed all gas filter installed each GCs and installed a gas filter into each gas line.(one filter per one gas tank)<br>·Gas plumbing changed; He is supplied to both Inlet, N2 to both Detector.<br>·Exchanged the ROM (6890A ) with latest version.<br>·Exchanje glass insert of packed inlet.<br>·Cleaned column adapter for packed inlet and metal insert for cool on-col. | No N2 tank this site have. Connecting He tank to N2 line for ONLY checking NPD and FPD, but can't ECD. |
| 2 | 6890A ECD (US00007599) | ·Push rod for main power dosen't move smoothly.<br>·When push "Enter" key, enter twice.<br>·Tube near column adapter of back ECD solderd, it was one case of ECD contamination | ·Installed Oxgen trap into Make up gas(N2) line.<br>·Exchanged BackECD CELL and both makeup gas line adapter.<br>·Install insulation to bottom of both detectors..<br>·Exchangeed push rod of power switch and key board.of GC.<br>·After the injection supplies exchanged, leakcheck execution.<br>~~·After the signal check, user STD sample injection.~~ | We can't check ECDs becase no N2 tank in this site. ECD have to check from back ~~graung~~ ground signal at room temp after install N2 cylinder.. |
| 3 | 6890A NPD (US00007487) | ·All parts in NPD is dirty<br>·Low sensitivity and peak have tailing | ·Cleaned both NPD JET.<br>·Exchanged NPD ceramics kit and collector.<br>·Install insulation to bottom of both detectors.<br>·After the injectionsupplies exchange, leakcheck execution.<br>~~·After the signal check, user STD sample injection.~~ see attached notice. | This GC was not used a few year for the problem. It can be used now.<br>P.P→ BACK DET. |
| 4 | 6890A FPD (US00007504) | ·Low sensitivity of FPD<br>·Flame dosen't light automaticaly<br>·Error "back detector makeup gas shutdown" was occurred twice a week | ·Exchanged FPD<br>·Exchange proportional valve in FPD EPC module<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 5 | Homogenizer | Teflon bearing has consumed. | Change a rod and Teflon bearing and supply of ball races | |
| 6 | Water distilled apparatus | Cartridge and ion exchange resin were replaced about 4 years ago.<br>They cannot find necessary resin in the Philippines. | Install ion exchange cartridge and replace resin. | |
| 7 | Ice making machine | It cannot make ice because of motor failure. | Replace motor. | It can make ice ~~cube~~, but no cube. because of transformer problem. |
| 8 | Cooling aspirator | T-shape pipe was damaged by organic solution. | Change T-shape pipe and necessary parts. | ~~New T-shape pipe is a little bigger than old one, so it cannot install cooling aspirator.~~<br>~~Manufacturer should send adaptable T-shape pipe~~ T.Ueno |
| 9 | High pressure liquid chromatograph | It is difficult to maintain HPLC because of limited usage. | Explanation of maintenance by manufacturer's manual | |

Working list for follow-up cooperation  Laboratory: PAL-Bagiuo  Date: February 20, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 1 | All GCs, Gas supplys | ·Plumbing tubing to the GC isn't correct.<br>·Some gas filters connected to each GC is saturated. | ·Removed all gas filter installed each GCs and installed a gas filter into each gas line.(one filter per one gas tank)<br>·Gas plumbing changed; He is supplied to both Inlet, N2 to both Detector.<br>·Exchanged the ROM (6890A ) with latest version. | Trap holders procured from Japan cannot fix traps, so they must be sent for H2, N2, He by manufacturer later.<br>Pre-filter in the zero air generator must be sent by manufacturer later because of some cracks. |
| 2 | 6890A ECD1<br>(US00007600) | ·Front detector thermal shutdown occure.<br>·Can not push power switch smoothly. | ·Install Oxgen trap to Make up gas(N2) line.<br>·Both ECD CELL, makeup gas ~~line~~ exchange.<br>·Filed hole for switch rod. adapter<br>·After the injection supplies exchanged, leakcheck execution.<br>·After the signal check, user STD sample injection. | This GC was not used for 7 month for the problem. It can be used now. |
| 3 | 6890A ECD2<br>(US00007601) | ~~·Can not turn power ON.~~<br>·Can not push power switch smoothly.<br>·N2 leak in EPC module of front ECD. | ·Install Oxgen trap to Make up gas(N2) line.<br>·Both ECD CELL, makeup gas ~~line~~ exchange.<br>·Exchanged push rod for power switch. adapter<br>·Exchanged EPC module for front ECD<br>·After the injectionsupplies exchanged, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 4 | 6890A NPD1<br>(US00007526) | ·All parts in NPD is dirty | ·Cleaned NPD JET and lid.<br>·Exchanged NPD ceramics kit and collector.<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 5 | 6890A NPD2<br>(US00007524) | ·All parts in NPD is dirty<br>·H2 flow rate of front NPD doesn't stable. | ·Cleaned NPD JET and lid.<br>·Exchanged NPD ceramics kit and collector.<br>·Exchanged EPC module for front NPD<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | |
| 6 | 6890A FPD<br>(US00007490) | ·Flame does't light soon.<br>·Signal out decrease after afwe injection.<br>·Low sensitivity of FPD | ·Exchanged FPD<br>·After the injectionsupplies exchange, leakcheck execution.<br>·After the signal check, user STD sample injection. | This GC was not used for 3 month for the problem. It can be used now. |

Working list for follow-up cooperation  Laboratory: PAL-Bagiuo  Date: February 20, 2003

| No | Equipment name | Present situations | Works executed | Remarks |
|---|---|---|---|---|
| 7 | Homogenizer | Teflon bearing has consumed. | Change a ~~rod and~~ Teflon bearing and supply of ball races | |
| 8 | Water distilled apparatus | PAL has never change ion exhange resin and cartridges. They cannot find necessary resin in the Philippines. | Install ion exchange cartridge and replace resin. | After replacing ion exchange resin, no problem. Recycling resin will be inform later. |
| 9 | pH meter | No stable conditions and electrode is mulfunction. | Change PC board and electrode. Performance of electrode is not confirmed because of old buffer solutions. | Hardware condition is stable. Performance of electrode will be checkde by new pH solutions. |
| 10 | Ultrasonic cleaner | It cannot use because of no oscillation. | Repalce PC board, but it cannot work. | Oscillation unit will be installed later by BPI after receiving parts from Japan. |
| 11 | Cooling aspirator | T-shape pipe has crack because of organic solvent. | T-shape pipe was replaced. | |
| 12 | High pressure liquid chromatograph | It is difficult to maintain HPLC because of limited usage. Autosampler was defective. | Explanation of maintenance by manufacturer's manual | Necessary information will be informed later. |
| 13 | Portable Refrigerator | not working | change compressor and working well | |

The Follow-up Cooperation of Pesticide Monitering Project
Remaining measures after mission

22-Feb-03

Japanese Side

| Site | Problems found by mission | measures | Responsibility |
|---|---|---|---|
| All PALs | Trap folders for gas cylinder cannot fix traps because of different size. (Trap for GC) | Necessary trap folders will be sent to NPAL. | Agilent |
| All PALs | It is difficult to purchase ion exchange resin in the Philippines. (Water distilling app.) | Local agent for distillation aparatus will be introduced. The method of resin reclamation will be provided to each PAL through NPAL. | Consultant |
| NPAL | Pre-filter for zero air generator has cracks. (GC) | New pre-filter will be sent to NPAL. | Agilent |
| PAL-Cebu | Pre-filter for zero air generator has cracks. (GC) | New pre-filter will be sent to NPAL. BPI can install later. | Agilent |
| PAL-Davao | Pre-filter for zero air generator has cracks. (GC) | New pre-filter will be sent to NPAL. BPI can install later. | Agilent |
| PAL-Baguio | Pre-filter for zero air generator has cracks. (GC) | New pre-filter will be sent to NPAL. BPI can install later. | Agilent |
| PAL-Baguio | Performance of electrode is not confirmed because of old buffer solutions. (pH meter) | Performance of electrode will be checked by new pH buffer solutions from manufacturer. | Consultant |
| PAL-Baguio | Replace PC board, but it cannot work. (Ultrasonic cleaner) | Oscillation unit will be installed later by BPI after receiving parts from Japan. | Consultant |

Philippine Side

| Site | Problems found by mission | measures | Responsibility |
|---|---|---|---|
| NPAL(Residue unit) | Installed packed inlet jet for front NPD (NPD1) | Recommende to install all parts for NPD after getting correct jet | BPI |
| NPAL(Formulation unit) | Flame of front FID does not light intemittently. (FID2) | Recommend to exchange an ignitor assy (p/n G1531-60680) by BPI. | BPI |
| NPAL(Formulation unit) | Screw of column adapter is crushed for front FID. (FID3) | Recommend to exchange a column adapter (p/n 19244-80610) by BPI. | BPI |
| NPAL(Formulation unit) | A creaking sound from oven flap moter. (FID3) | Recommend to exchange it as soon as possible. | BPI |
| PAL-Cagayan de Oro | An oven sensor of FPD-GC has been removed to NPD-GC. | Recommend to install an oven sensor for FPD-GC. | BPI |
| PAL-Cebu | Auto injector for ECD-GC has had a plunger error since last week. | Recommend to install a sorenoide valve for auto injector. | BPI |
| PAL-Cebu | Water pressure is very low recently, so it cannot make distilled water in day time. | Recommend to consider increasing water pressure. | BPI |
| PAL-Bicol | This PAL does not have N2 cylinder now. (GC) | Recommend to procure N2 cylinder as soon as possible. | BPI |
| PAL-Bicol | Icemaking machine makes ice by changing new motor, but cannot make cube because of transformer problem. (Ice making machine) | Recommend to change new transformer. | BPI |

8-years (1997-2004)
grand target - 28,000
grand actual - 6,680 — 23%

General Annex 4

Pesticide Analytical laboratory (PAL) Target vs. Actual Accomplishments per PAL Activity (1997-2004)

| ACTIVITY (Number of Samples Analyzed) | ACCOMPLISHMENT PER YEAR | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1993 (Actual) | Annual Target (Proposed) | 1997 (Actual) | Percent (Actual vs. Target) | 1998 (Actual) | Percent (Actual vs. Target) | 1999 (Actual) | Percent (Actual vs. Target) | 2000 (Actual) | Percent (Actual vs. Target) | 2001 (Actual) | Percent (Actual vs. Target) | 2002 (Actual) | Percent (Actual vs. Target) | 2003 (Actual) | Percent (Actual vs. Target) | *2004 (Actual) | Percent (Actual vs. Target) | Total Actual | Total % |
| A. Pesticide Residue Monitoring | | | | | | | | | | | | | | | | | | | |
| 1. NPAL | | 1,000 | 477 | 47% | 452 | 45% | 0 | 0% | 324 | 32% | 446 | 45% | 462 | 46% | 477 | 48% | 76 | 8% | 1,785 | 44.63% |
| 2. Baguio-PAL | | 500 | 537 | 107% | 494 | 99% | 314 | 63% | 500 | 100% | 413 | 83% | 254 | 51% | 224 | 45% | 178 | 36% | 1,883 | 47.08% |
| 3. Bicol - PAL | | 500 | | | | | | | | | | | 117 | 23% | | | 10 | 2% | 127 | 12.70% |
| 4. Cebu - PAL | | 500 | 519 | 104% | 455 | 91% | 209 | 42% | | | | | 160 | 32% | | | 120 | 24% | 489 | 19.56% |
| 5. Cag. De Oro - PAL | | 500 | 246 | 49% | 302 | 60% | 321 | 64% | 341 | 68% | 400 | 80% | 167 | 33% | 72 | 14% | 169 | 34% | 1,470 | 36.75% |
| 6. Davao - PAL | | 500 | | | | | | | 257 | 51% | 360 | 72% | 214 | 43% | 77 | 15% | 18 | 4% | 926 | 46.30% |
| Sub-total | 1,806 | 3,500 | 1,779 | 51% | 1,703 | 49% | 844 | 24% | 1,422 | 41% | 1,619 | 46% | 1,374 | 39% | 850 | 24% | 571 | 16% | 6,680 | 23.86% |
| B. Pesticide Residue Analytical Services | | | | | | | | | | | | | | | | | | | 10,710 |
| 1. NPAL | | 500 | 220 | 44% | 187 | 37% | 227 | 45% | 327 | 65% | 209 | 42% | 419 | 84% | 469 | 94% | 281 | 56% | 1,932 | 96.60% |
| 2. Baguio-PAL | | 100 | 3 | 3% | 30 | 30% | 9 | 9% | 46 | 46% | 36 | 36% | 23 | 23% | 7 | 7% | 43 | 43% | 164 | 20.50% |
| 3. Bicol - PAL | | 100 | | | | | | | | | | | | | | | | | | |
| 4. Cebu - PAL | | 100 | | | 26 | 26% | 61 | 61% | 28 | 28% | 24 | 24% | 20 | 20% | 2 | 2% | 2 | 2% | 137 | 19.57% |
| 5. Cag. De Oro - PAL | | 100 | | | 100 | 100% | 89 | 89% | 138 | 138% | 203 | 203% | 259 | 259% | 187 | 187% | 304 | 304% | 1,180 | 168.57% |
| 6. Davao - PAL | | 100 | 162 | 162% | 56 | 56% | 103 | 103% | 200 | 200% | 206 | 206% | 317 | 317% | 149 | 149% | 242 | 242% | 1,217 | 173.86% |
| Sub-total | 545 | 1,000 | 385 | 39% | 399 | 40% | 489 | 49% | 739 | 74% | 678 | 68% | 1038 | 104% | 814 | 81% | 872 | 87% | 4,630 | 57.88% |
| C. Pesticide Formulation Services | | | | | | | | | | | | | | | | | | | 1,470 |
| 1. NPAL | 46 | 100 | 199 | 199% | 247 | 247% | 355 | 355% | 262 | 262% | 353 | 353% | 280 | 280% | 217 | 217% | 237 | 237% | 1,704 | 213.00% |
| Sub-total | 46 | 100 | 199 | 199% | 247 | 247% | 355 | 355% | 262 | 262% | 353 | 353% | 280 | 280% | 217 | 217% | 237 | 237% | 1,704 | 213.00% |
| D. Pesticide Formulation Monitoring | | | | | | | | | | | | | | | | | | | 2,100 |
| 1. NPAL | | 200 | 20 | 10% | 52 | 26% | 67 | 34% | 53 | 27% | 94 | 47% | 131 | 66% | 53 | 27% | 59 | 30% | 457 | 28.56% |
| Sub-total | 0 | 200 | 20 | 10% | 52 | 26% | 67 | 34% | 53 | 27% | 94 | 47% | 131 | 66% | 53 | 27% | 59 | 30% | 457 | 28.56% |
| F. Farmer Surveys on Pesticide Usage | | | | | | | | | | | | | | | | | | | 329 |
| 1. NPAL | | | | | | | | | 29 | | | | | | | | | | 29 |
| 2. Baguio-PAL | | | | | 385 | | 168 | | 173 | | 166 | | 81 | | 103 | | 205 | | 896 | 1,281 |
| 3. Bicol - PAL | | | | | | | | | | | | | 60 | | | | 65 | | 125 | |
| 4. Cebu - PAL | | | 229 | | 109 | | 108 | | 75 | | 100 | | 63 | | 100 | | 122 | | 568 | 906 |
| 5. Cag. De Oro - PAL | | | | | 48 | | 80 | | 176 | | 162 | | 61 | | 85 | | 59 | | 623 | 671 |
| 6. Davao - PAL | | | 226 | | 136 | | 200 | | 163 | | 152 | | 74 | | 50 | | 98 | | 737 | 1,339 |
| Sub-total | | | 455 | | 678 | | 556 | | 616 | | 580 | | 339 | | 338 | | 549 | | 2,978 | |

Note: * As of Nov. 2004

4,111