付　属　資　料

1．合同評価報告書

2．合同委員会報告用資料

MINUTES OF UNDERSTANDING OF THE JOINT EVALUATION ON THE JAPANESE TECHNICAL COOPERATION FOR THE PHILIPPINE RICE RESEARCH INSTITUTE PROJECT - IN THE REPUBLIC OF THE PHILIPPINES

With about nine months left until the termination of the cooperation period of "The Philippine Rice Research Institute Project" (hereinafter referred to as "the Project") on July 31, 1997, which started on August 1, 1992, 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") and headed by Dr. Yoshihiro AKAMA 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 was formed consisting of the aforementioned Japanese and a Philippine Evaluation Team headed by Dr. Ester L. LOPEZ.

The teams conducted interviews with the Japanese experts and the Philippine counterparts assigned to the Project, had a series of discussions with the Philippine authorities concerned, made field surveys, and exchanged views among themselves.

As a result, both teams agreed to forward to their respective Governments a summary of the evaluation and recommendations which are referred to in the document attached hereto.

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Maligaya, Munoz, Nueva Ecija, October 22, 1996

JOINT EVALUATION REPORT
ON THE JAPANESE TECHNICAL COOPERATION
FOR
THE PHILIPPINE RICE RESEARCH INSTITUTE PROJECT
IN
THE REPUBLIC OF THE PHILIPPINES

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I. INTRODUCTION

The Government of the Republic of the Philippines requested technical cooperation to the Government of Japan with the aim of promoting research and training activities in rice technology in the Philippine Rice Research Institute (hereinafter referred to as "PhilRice"), thus contributing to the improvement of rice technology in the Philippines.

Both Governments have implemented the Philippine Rice Research Institute Project (hereinafter referred to as "the Project") since August 1, 1992. The Project is scheduled to be implemented for five years.

Japanese technical assistance has been provided to support four main activities described below.

(1) RESEARCH AND TRAINING PLANNING
- 1) Research planning
  - Evaluation of present research work
  - Emphasis of research subjects
- 2) Effective training design
  - Effective application of extension materials
  - Efficient transfer of newly developed technology

(2) VARIETAL IMPROVEMENT
- 1) Development of high yielding varieties with excellent grain quality and resistance to insect pests and diseases for specific agro-climatic conditions in the country
  - Selection of mother plants and evaluation of crosses
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  - F_1 raising test
  - Individual and pedigree selection
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  - Development of parental lines with tungro resistance
- 2) Development of rice cultivars for cool-elevated areas which are high yielding with excellent grain quality, resistant to shattering, and responsive to low levels of fertilizer
  - Hybridization by means of recurrent crossing
  - Individual and pedigree selection
  - Performance test

(3) SOILS AND FERTILIZERS
- 1) Development of fertilizer management technology for various agro-climatic conditions in rice growing areas
  - Analysis of the past data in main rice production areas
  - Classification of the nitrogen uptake patterns of rice plants at different fertilizer levels
  - Determination of the nitrogen fertility of soils by biological method
  - Development of simple method for determining the nitrogen fertility of soils
  - Development of the nitrogen fertilization technology
- 2) Establishment of models that will predict responses of rice growth with different levels of fertilizer application
  - Analysis of meteorological data of main rice production areas
  - Determination of growth parameters of rice
  - Establishment of crop models

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(4) AGRONOMY, PLANT PROTECTION, AGRICULTURAL MACHINERY, AND OTHER FIELDS

1) Improvement of cropping patterns
2) Integrated insect pest management
3) Farm mechanization
4) Other fields
   Evaluation of grain quality
   Biotechnology
   Farm management

With the cooperation period about to reach its termination, the Government of Japan and the Government of the Republic of the Philippines conducted a joint evaluation on the achievements of the Project.

2. MEMBERS OF THE JOINT EVALUATION TEAM

(1) THE JAPANESE EVALUATION TEAM

1) Dr. Yoshihiro AKAMA: Leader / Research Planning
Director, Department of Lowland Farming
Tohoku National Agricultural Experiment Station
Ministry of Agriculture, Forestry and Fisheries (hereinafter referred to as "M.A.F.F.")

2) Mr. Kenji FURUSAWA: Effect of Technical Cooperation
Senior Technical Official, Technical Cooperation Division
International Affairs Department, Economic Affairs Bureau, M.A.F.F.

3) Mr. Kuniaki NAGANO: Varietal Improvement
Senior Researcher, Laboratory of Rice Breeding, Department of Crop Development
Hokkaido National Agricultural Experiment Station, M.A.F.F.

4) Dr. Sumio ITO: Soils and Fertilizers
Head, Laboratory of Lowland Soil, Department of Agro-Environment Sciences
Hokkaido National Agricultural Experiment Station, M.A.F.F.

5) Ms. Kanako MORIGUCHI: Technical Cooperation
Staff, Agricultural Technical Cooperation Division
Agricultural Development Cooperation Department, JICA

(2) THE PHILIPPINE EVALUATION TEAM

1) Dr. Ester L. LOPEZ: Leader / Research Planning
Director, Crop Research Division, Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
Department of Science and Technology

2) Mr. Ricarte V. CASTRO: Effect on Technical Cooperation
Research Coordinator, Bureau of Agricultural Research, Department of Agriculture

3) Dr. Pedro B. ESCURO: Varietal Improvement
Plant Breeder, University of the Philippines Los Baños

4) Dr. Cezar P. MAMARIL: Soils and Fertilizer
Soil Fertility Expert, International Rice Research Institute

5) Ms. Lerma G. ABESAMIS: Technical Cooperation
Staff, Planning and Monitoring Service, Department of Agriculture

3. OBJECTIVES OF THE EVALUATION

(1) To make a comprehensive and objective evaluation of the achievements of the Project with regard to the contents of the R/D and other concerned official agreements. The period of the Project which is the subject of the evaluation is 5 years from August 1, 1992 to July 31, 1997 (including the scheduled activities and output).

(2) To make recommendations and suggestions to the authorities of the two Governments concerned after the termination of the cooperation period of the Project.

(3) To use the results and lessons obtained from the evaluation of the Project for cooperation planning and project implementation in similar cases in the future.

4. EVALUATION OF THE PROJECT

4-1. ITEMS OF THE EVALUATION

The joint evaluation team consisting of the Japanese Evaluation Team and the Philippine Evaluation Team conducted an evaluation survey with regard to the following items:

1) Project input
   Japanese input
      Dispatch of experts
      Acceptance of Philippine personnel in Japan
      Provision of machinery and equipment
      Supplement of local cost expenditure
      Dispatch of missions
      Others
   Philippine input
      Assignment of counterparts personnel and administrative personnel
      Provision of land, buildings, and facilities
      Allocation of recurrent expenses
      Supply and replacement equipment
      Implementation of security measures
      Others
2) Project activities and accomplishments
3) Impact of the Project
4) Result of the Project
5) Management of the Project
6) Future plans after the termination of the cooperation period

4-2. EVALUATION METHOD

The evaluation was conducted by examining the accomplishments of the Project with regard to the items listed in the R/D and the Tentative Schedule of Implementation (hereinafter referred to as "TSI") and validating these accomplishments through interviews and ocular inspections.

5. RESULTS OF THE EVALUATION

5-1. ACCOMPLISHMENT IN TERMS OF THE INPUT

5-1-1. JAPANESE INPUT

(1) Dispatch of experts

In accordance with the R/D, a total of six (6) long-term Japanese experts have been dispatched. These include a team leader, a coordinator, and personnel with expertise in varietal improvement and in soils and fertilizers.

In line with the R/D and the TSI, short-term experts were also dispatched as necessary. At present, twenty (20) short-term experts have been dispatched to the Philippines; four (4) additional experts are scheduled to be dispatched to the Philippines before the end of the Project.

Japanese experts have been dispatched in accordance with the R/D and the TSI. Technical transfer has been favorably carried out (Annex 1).

(2) Acceptance of trainees

Training of counterparts in Japan started in fiscal year 1992 (the Japanese fiscal year starts on April 1 and ends on March 31, and is hereinafter referred to as "FY"). At present, twenty two (22) counterparts have visited Japan to participate in technical training, while two additional counterparts are scheduled to visit Japan as trainees before the end of the Project. All trainings have been efficiently implemented according to schedules (Annex 2).

(3) Provision of machinery and equipment

Machinery and equipment were provided in order to carry out the Project activities effectively (Annex 3). All equipment and machinery provided or brought by the experts have contributed to the development and enhancement of the activities on the Project. It is also expected that they will contribute more in the future development of PhilRice (Annex 3).

(4) Supplementation of expenditure of local cost

The Japanese side paid part of the project management cost in order to implement the Project efficiently and effectively. Likewise, supplemental expenses were provided by the Japanese side (Annex 4).

(5) Dispatch of study teams

1) Consultation Study Team

A Consultation Study Team visited the Philippines from January 25 to February 3, 1993 in order to formulate the Work Plan (W/P) of the Project. The team and the authorities concerned with the Government of the Republic of the Philippines reached an agreement on the contents of the W/P.

2) Technical Guidance Team (Mid-term evaluation)

A Technical Guidance Team visited the Project site from March 28 to April 8, 1995 in order to evaluate the activities of the Project over the previous 3 years. This evaluation team observed that the activities of the Project were being implemented nearly on schedule, so there was no need to amend the R/D and TSI. A joint committee meeting was held during the visit of the team where staff members of the Project presented their activities and accomplishments.

5-1-2. PHILIPPINE INPUT

(1) Provision of land, buildings, and facilities

The Philippine Government provided land, buildings, and facilities required for the Project. The facilities and equipment were donated through a JICA Grant Aid Program in March 1991; the PhilRice Building has, for 5 years , been very effectively utilized for the Project.

(2) Allocation of budget

The Philippine Government contributed to the Project through a budget allocated for operating costs related to the Project. The Philippine side allocated 612 million pesos in four-and-a-half years from the start of the Project in 1992 to October 1996 for the whole operation of PhilRice (Annex 5,10).

(3) Assignment of counterparts and other personnel

The Philippine counterparts and other personnel were well assigned to the Project. Some of the counterparts, however, were not assigned on a full-time basis (Annex 6,11).

(4) Supply and replacement of machinery and equipment

The machinery and equipment are in good condition at present. However, additional purchases and renewal of parts will be necessary after the termination of the Project. For this reason, an allocation of additional budget will be needed.

5-2. PROJECT ACTIVITIES AND ACCOMPLISHMENT

5-2-1. RESEARCH AND TRAINING PLANNING

(1) Research planning

1) Evaluation of present research work

The Project analyzed the present situation and problems of rice production, labor productivity in rice production, and the relationship between rice yield and meteorological conditions. Further, the Expert commented on the future prospects of agro-economical aspects of rice production in the Philippines.

It is expected that the objective will be attained by the end of July 1997.

2) Emphasis of research subjects

PhilRice identified the most important future research subject as high productivity in rice production. Moreover, the Expert made recommendation on the creation of research subjects and system for research planning of PhilRice.

Furthermore, the Expert suggested the importance of the Component Technology and Technology System in research. Because the component technology consists of several technical elements from several specific research fields, an integrated interdisciplinary approach concerned with several specific research fields is needed. The technology system is integrated with concerned component technologies also by interdisciplinary approach.

Hence, if the special teams are organized at PhilRice, the Technology System will be integrated with concerned areas of technology development.

By all indications, the objective will be attained by the end of July 1997.

(2) Effective training design

1) Effective application of extension materials

The Project implemented the video production training course to improve knowledge and skills on the utilization of video in technology transfer. Counterparts have acquired basic skills for video production.

The Expert transferred the video production skills. As a result, 15 PhilRice staff were trained and 15 video programs were produced, which are utilized to implement the training courses.

By the end of the Project, the objective will be attained.

2) Efficient transfer of newly developed technology

The Project implemented the PhilRice-JICA Collaborative Training Program on Rice Production and Promotion for the National Rice Research and Development Network.

Thirty (30) master trainers participated in the program. They will serve as major channels for the transfer of new technologies on rice production.

By the end of the Project, the objective will be attained.

5-2-2. VARIETAL IMPROVEMENT

(1) Development of high yielding varieties with excellent grain quality and resistance to insect pests and diseases for specific agro-climatic conditions in the country

1) Selection of mother plants and evaluation of crosses

Growth performance was determined at every dry (DS) and wet (WS) seasons for the *Japonica* and *Indica* germplasm transplanted at 3-4 staggered time. Data have been collected, analyzed, and summarized to facilitate selection of parents for use in hybridization.

The counterparts acquired the selection techniques. It is certain that the objective will be attained by the end of July 1997.

2) Hybridization

The Experts and counterparts made 800 or more crosses in 8 crop seasons from 1993 to 1996. They emphasized *Indica/Japonica* crosses. As a result, the counterparts acquired the method to incorporate favorable (high yield, excellent grain quality) genes from donor parents into the leading Philippine varieties.

The counterparts acquired the hybridization techniques. The objective will be completed by the end of July 1997.

3) F_1 raising test

The Experts and counterparts raised a total of 600 F_1 crosses in 8 crop seasons for hybrid verification and production of F_2 seeds. Half of them were used for recurrent crossing.

The objective will be attained by the end of July 1997.

4) Individual and pedigree selections

The Experts and counterparts made plant selections from 24 out of 100-200 hybrid populations in F_{2-8}. The rest of the crosses was generation advanced following the bulk method, eliminating some undesirable traits in each crop season.

The counterparts acquired the techniques of plant selection. It is certain that the objective will be attained by the end of July 1997.

5) Performance test

The Experts and counterparts initially selected 15 elite lines for the 1996 DS test, while in the 1996 WS they were increased to 50 entries.

Also, they developed a promising line, PJ3 (Hinohikari / IR64), with high yield performance of 9 t/ha in the 1996 DS. It has 19% yield advantage over IR64. It is followed by other promising lines such as PR26673-6A, PR26673-6B, and PR26710-B3-20.

Continuous selection among these promising lines will provide new entries in the Phase I of the multilocation trials of the National Cooperative Trials (NCT I). Hence, the objective will be attained as planned.

6) Development of parental lines with tungro resistance

Tungro-resistant germplasms such as IR22(m)-1, ARC11554, Utri Merah, etc. were used as donors to the leading varieties, generating about 15 crosses each in DS and WS at PhilRice Maligaya.

The Experts and counterparts subjected hybrid populations of 10-20 crosses to single-plant selection. Selected plants of 50-300 were raised in line-rows for plant and line selections both at tungro-hot spots in Cotabato and in Isabela.

Promising resistant lines that were selected are:

PJ(T)4=IR22(m)-1/PSB Rc4

PJ(T)5=IR22(m)-1/PR223399-6(1)

These have been tested on-site for their performance since 1996 WS.

It is certain that the objective will be attained by the end of July 1997.

(2) Development of rice cultivars for cool elevated areas which are high yielding with excellent grain quality, resistant to shattering, and responsive to low levels of fertilizer

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1) Hybridization by means of recurrent crossing

The Experts and counterparts evaluated the cold tolerance of *Japonica* varieties (Japanese, Chinese-Yunnan, etc) at cool-elevated sites in Benguet and Ifugao. Cold-tolerant germplasms of Japanese and Chinese varieties, etc. were used as donors at PhilRice Maligaya, generating 10-20 crosses and succeeding F_1s in every crop season.

It is certain that the objective will be attained by the end of July 1997.

2) Individual and pedigree selections

The Experts and counterparts selected plants and pedigree lines from 10-20 hybrid populations and succeeding 100-300 lines at cool-elevated sites in Benguet and Ifugao.

The counterparts acquired techniques of plant and pedigree selections at cool-elevated sites. It is certain that the objective will be attained by the end of July 1997.

3) Performance test

Ahead of schedule, the Expert and counterparts tested 15 elite lines for their performance in 1995 WS. These were trimmed down to 6 in the following DS test.

They also selected a highly cold-tolerant promising line with good grain quality, PJ2, from a foundation line IR61728-4B-2-1, which has been tested in the multilocation test of the NCT I since 1996 DS.

This line will continue to be included in this test until it is either recommended for release or is dropped out of the test. Hence, the objectives will be attained by the end of July 1997.

5-2-3. SOILS AND FERTILIZER

(1) Development of fertilizer management technology for various agro-climatic conditions in rice growing areas

1) Analysis of the past data in main rice production areas

The Expert and counterparts analyzed data on rice production collected from main rice production areas. The results clearly showed that Central Luzon had the highest total rice production, followed by Cagayan Valley, Western Visayas, and Southern Tagalog. Northern and Southern Mindanao have good climate and fertile soil and supposed to have a high potential to become major rice production areas if irrigation system is developed.

The objective indicated in the TSI is understood to have been attained.

2) Classification of the nitrogen uptake patterns of rice plants at different fertilizer levels

The Expert and counterparts undertook fertilization experiment and made it clear that nitrogen uptake requirements at PhilRice Experiment Station for grain yield of 7 t/ha was 100-110 kg/ha during the dry season. Desirable nitrogen uptake patterns for each yield level will be determined shortly.

The objective should be attained by the end of July 1997.

3) Determination of the nitrogen fertility of soils by biological method

The Expert and counterparts determined nitrogen fertility of soils collected from rice growing areas around the country using dry soil. Fresh wet soils from PhilRice Experiment Station were evaluated also for their suitability to practical field fertilization use. Amount of available soil nitrogen was about 70 kg/ha in the dry season and about 40 kg/ha in the wet season.

The counterparts have adopted this method of determination. It is certain that the objective will be attained by the end of July 1997.

4) Development of simple method for determining the nitrogen fertility of soils

The Expert and counterparts developed a simple method for determining the nitrogen fertility of soils in which the amount of available nitrogen was estimated using the chemical method (extraction with pH7.0 phosphate buffer solution). The chemical method showed a positive relationship with nitrogen fertility as determined by biological method.

Counterparts can analyze the availability of soil nitrogen with this method. It is certain that the objective indicated in the TSI could be attained.

5) Development of nitrogen fertilization technology

The Expert and counterparts conducted a series of fertilizer experiments and generated information useful to formulate the appropriate nitrogen fertilizer recommendations. The experiments have attained grain yields as high as 8 t/ha. Nitrogen fertilizer applied as basal, at tillering, and panicle initiation stages produced uptake efficiencies of 34, 49, and 71%, respectively.

The counterparts have acquired the knowledge and skills of undertaking fertilizer experiments.

It is anticipated that the objectives will be attained by the end of July 1997.

(2) Establishment of models that will predict responses of rice growth with different levels of fertilizer application

1) Analysis of the meteorological data of main rice production areas

The Expert and counterparts collected and analyzed meteorological data from 21 locations. In terms of weather variables, high yields in Central Luzon could be partly explained by higher solar radiation in this region. On the other hand, high yields in Northern and Southern Mindanao could be partly due to differences between maximum and minimum temperatures and lower minimum temperature.

The objective indicated in the TSI has been attained.

2) Determination of the growth parameters of rice

The Expert and counterparts undertook field experiments and collected the growth parameters of rice for developing the crop model.

It is certain that the objective will be attained by the end of July 1997.

3) Establishment of crop models

The Expert and counterparts modified the Development Stage (DVS) model, and developed the new model to predict Leaf Area Index (LAI) and Dry Matter (DM) accumulation under varying nitrogen applications. Evaluation of the new crop model will be undertaken shortly.

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It is anticipated that the objective will be attained by the end of July 1997.

5-2-4. AGRONOMY, PLANT PROTECTION, AGRICULTURAL MACHINERY, AND OTHER FIELDS

(1) Improvement of cropping pattern

The Experts transferred the models for Estimation of Nitrogen Mineralization in Soil (ENMS) and Nitrogen Fertilizer Application and Tillage Depth Recommendation System (NA-TDRS) and made recommendation on optimal nitrogen fertilizer management by using these models.

The models will be used in other rice-based farming systems (RBFS) on-farm research sites in the Philippines.

It is certain that the objective will be attained by the end of July 1997.

(2) Integrated insect pest management

The Experts and counterparts framed procedures for Integrated Pest Management (IPM) research. For basic research in IPM, a method for studying the ovicidal effect of selected *Indica* and *Japonica* rice cultivars on eggs of white-backed planthopper was introduced, along with guidelines on the study of rice insect pest population dynamics. The potential of sex pheromones for monitoring the population of stemborers in Nueva Ecija was also evaluated.

The Experts provided techniques for studying golden apple snail ecology in direct-seeded rice. Together with the PhilRice counterparts, they determined the dispersal behavior and emergence rate of aestivating snail.

It is certain that the objective will be attained by the end of July 1997.

(3) Farm mechanization

The Experts and counterparts developed prototypes of Maligaya reaper and paddy seeder.

In 1995, reaping trials and fine-tuning modifications were done and resulted to a second model. The third model was designed by counterparts.

Although fabrication of the first model of direct seeder was completed, some points to improve were found. A second model was developed by the improvement of these points and was initially tested.

The objective will certainly be attained by the end of July 1997.

(4) Other fields

1) Evaluation of grain qualities

The Experts transferred to counterparts techniques for sensory and physical/chemical evaluation of grain quality. These techniques include procedures for moisture content determination, milling degree and rice freshness assessment, and tests for cooking quality.

2) Biotechnology

The Expert transferred techniques for a new method in anther culture. A scheme on handling anther culture materials was proposed.

Counterparts acquired techniques for gene mapping, transformation, and DNA finger printing through training in Japan.

3) Farm Management

A mathematical programming software called Micro-NAPS was designed based on the original Japanese version. This user-friendly pull down menu software can be used as decision-aid tool to handle various farm management problems to a complicated stochastic quadratic programming model. A user's manual and a system reference manual were also written in English for ease of operation and technical assistance to users.

It is anticipated that the objective will be attained by the end of July 1997.

5-3. PROJECT'S IMPACT

5-3-1. IMPACT

(1) Technical impact

As a result of the technical transfers by Japanese Experts and training of counterparts in Japan, the level of technical competence of PhilRice researchers has remarkably improved. In addition, the level of research activities at PhilRice has also improved. Further, machinery and equipment provided have contributed to raise the level of research activities in conjunction with facilities and other equipment which were donated through a JICA Grant Aid Program in March 1991.

Many Filipino researchers and/or technicians from other research institutes have visited PhilRice as the results of research activities which have become known in the Philippines.

Moreover, the number of visitors from foreign countries has increased and some of them have stayed at PhilRice to carry out joint research projects.

(2) Institutional impact

With the facilities and equipment provided by the Project supplementing the ones given through the Grant Aid Program and the improved technical capability of PhilRice staff, the status of PhilRice as a research institution has been considerably enhanced resulting to more collaborative work with national and international research agencies. These also lead to quality research output, earning for PhilRice many recognition and awards.

(3) Economic impact

With an excellent environment to conduct research because of better research facilities and equipment and readily available supplies and materials, PhilRice is now known for its high research standards and research output.

Thus, the budget of PhilRice is being increased year by year with rising expectations among the Filipino people.

(4) Social and cultural impact

Interaction and close association of PhilRice researchers with their Japanese Experts positively influenced their work behavior and attitude. Among the traits that they highly regard from the Japanese Experts are: dedication to work, discipline, diligence, strong team spirit, and punctuality.

A more lasting impact of this association which will prevail even after the Project has ended is the spirit of goodwill, friendship, and understanding between peoples of different cultures.

(5) Environmental impact

No immediate impact of the Project on the environment can be identified. However, high yield, more efficient nitrogen use and management, and better techniques and methods for IPM research will certainly improve the environmental impact of rice production by farmers.

5-3-2. EXTENT OF IMPACT

(1) Project level

During the implementation of the Project activities, most of the counterparts improved their technical abilities.

The research activities which are described in the TSI are part of the PhilRice research program; hence, Japanese Experts are essentially part of the PhilRice as members of its technical staff.

(2) PhilRice level

Filipino counterparts and co-project staff feel that there is a high degree of applicability of the transferred technologies in improving research outputs and efficiency. Although the Expert's main involvement is in the Project where he works, there are opportunities to transfer his knowledge/developed techniques to other PhilRice researchers. These are accomplished through the conduct of seminars and presentations/introduction of the new technologies during the Expert's stay in the Philippines.

In addition, research results are being applied to actual farming through the activities of the Technology Promotions Division of PhilRice.

Some short-term experts visited the University of the Philippines, College of Agriculture with their counterparts to implement joint research activities or to acquire new information.

(3) Regional/National level

Enthusiastic production cooperatives and rice farmers all over the Philippines have been to PhilRice to seek new technology and new rice varieties.

PhilRice has also requested local people to cooperate in practical testing and farm investigation, which has resulted in a close mutual relationship between PhilRice and local people.

Further, it is expected that high productivity at specific agro-climatic conditions will be attained by using improved varieties and techniques for rice production.

(4) Macro level

Networking among National Agricultural Research Systems (NARS) is now in place; hence, there is a greater opportunity for PhilRice to share the transferred technologies with other countries.

5-4. PROSPECTS FOR SUSTAINABILITY

5-4-1. PROSPECTS FOR ORGANIZATIONAL SUSTAINABILITY

(1) Implementing agency

PhilRice belongs to the Department of Agriculture (DA) and is equivalent to the Bureau of the Ministry of Agriculture organizationally. This position is stable.

In addition, food security is one of the top priority agenda of the Philippine government. PhilRice addresses the problems of a very important food crop in the Philippines. Consequently, PhilRice's relevance as an agency is assured. It is expected that its activities will further expand in scope.

(2) Operation and management system of this Project

The organizational set-up of this Project allowed a great range of collaboration and cooperation between JICA and PhilRice.

The concept of "staff counterparting" with every Expert being assigned with a Filipino specialist/s proved a good strategy in transferring technology, developing team effort, and fostering harmonious working relationship among the Project staff.

The Project as part of the PhilRice program is directly managed by the Director of PhilRice in consultation with the Japanese Project team leader. The operations and management system will be further strengthened by the creation of a new office of the Deputy Director for Research and Development.

(3) Reorganization of PhilRice

There is no plan to have a major reorganization of PhilRice. However, a separate office for Research and Development will be formed to be headed by a Deputy Director. This move aims to strengthen management of research and technology promotion. At present, there is only one Deputy Director for Administration and Finance.

5-4-2. PROSPECTS FOR FINANCIAL SUSTAINABILITY

(1) Necessary expenses

Regular salaries and maintenance and operating expenses are provided for in the PhilRice annual budget. After the Project, it is expected that the Philippine government will support the necessary expenses for PhilRice to continue and further improve its research activities.

(2) Stable public assistance

The Philippine side adequately financed costs during the Project period. The Philippine government is giving great importance to food security. With rice as the staple food of the majority of the Filipinos, rice research will continue to get strong support. There will be no problems in securing sufficient budget for the next fiscal year.

5-4-3. PROSPECTS FOR PHYSICAL AND TECHNOLOGICAL SUSTAINABILITY

(1) Contents of technical transfer and appropriateness of a technical level

Six (6) long-term and 20 short-term experts were dispatched from the beginning of the Project to October 1996. Techniques of Research Planning, Varietal Improvement, Soils and Fertilizers, Agronomy, Plant Protection, Agricultural Machinery, Evaluation of Rice Qualities, Biotechnology, Farm Management, and Agricultural Extension were transferred through daily work, trainings, and seminars.

(2) Stability of transferred techniques

Among the 30 counterparts, including counterparts of short-term experts, only 2 counterparts moved to other organizations. Most of the counterparts have stayed at PhilRice.

There are expected to be no problems if maintenance and management of equipment is turned over to the PhilRice.

(3) Development of successors

PhilRice has a strong staff development program. This will insure availability of capable staff to handle future projects..

5-4-4. RESTRICTION FACTOR FOR MANAGEMENT

There was no restriction factor for the management of this Project because of good relationship between Experts and counterparts, except for the following physical factors, which are not solely the responsibility of PhiRice: poor communication facilities between the Project site and Manila and Japan; inadequate power supply which affect the conduct of experiments; and lack of housing facilities in the project site prompting the Japanese experts to live in the city 30 km from the Project site.

6. CONCLUSIONS AND RECOMMENDATIONS

6-1. SUMMARY OF THE EVALUATION

The Project accomplished the major activities laid out in the TSI. It is expected that the remaining activities will be completed at the end of the Project period in July 1997. The project contributed significantly to the rice program of the Philippines called "*Gintong Ani*" (Golden Harvest), one of the top priorities of the government.

Significant accomplishments of the Project are the following:

- analyzed the present Philippine rice situation and problems, labor cost, and land productivity
- formulated framework/concept for project planning and implementation which encourages interdisciplinary approach and complementation between the Project and mainstream PhilRice program
- trained 15 PhilRice staff in video production which resulted to 15 video programs on different aspects of rice production and 30 rice production key trainers

- developed a highly cold-tolerant and good grain quality promising line, PJ2 and a high yielding, excellent grain quality lowland promising line, PJ3. Both lines are being tested under the NCT I since 1996 DS
- selected 2 promising tungro-resistant lines, PJ(T)4 and PJ(T)5. Both lines are undergoing on-site testing since 1996 WS
- undertook a series of nitrogen fertilizer experiments and soil analysis which will be used in the development of appropriate fertilization guideline
- conducted experiments to gather relevant parameters which will be used in the development of a new crop model for a more realistic prediction of rice yield
- developed software and user-friendly manual for an optimal nitrogen fertilizer recommendation at different tillage levels. This will be tested in selected areas in the country
- developed procedures for rice IPM research in the Philippines and conducted studies on the ecology of golden apple snail
- developed a design using rotary blade cutting principle and fabricated the second prototype Maligaya rice reaper
- developed a second prototype of rice direct seeder
- designed a sensory evaluation scoring system and introduced a more accurate method of physical/chemical analysis for grain quality
- introduced a new method of anther culture and a scheme for handling anther culture materials and acquired techniques for gene mapping, transformation and DNA finger printing through training in Japan
- introduced a decision-aid tool software for farm management and produced a user-friendly manual for ease of operation

Sustainability in terms of organizational stability and assurance of budget allocation for the continuation of the Project activities is ensured in the coming years.

The transferred technologies by experts to their counterparts and training of PhilRice researchers in Japan are expected to be utilized in PhilRice as well as other researchers in the Research and Development network.

Provided machinery and equipment are expected to be effectively used and maintained by PhilRice.

The impact of the Project can be seen in the following:

- improved level of technical competence of PhilRice researchers
- increased level of research activities and output of PhilRice
- increased level of financial support for PhilRice
- enhanced collaborative work nationally and internationally
- better work attitude of PhilRice staff
- better working relationship and cooperation between Japanese and Filipino researchers

The impact of the Project is felt not only at the project and PhilRice levels but also in institutions outside of PhilRice. The farmers also stand to benefit from the project through improved technologies developed by PhilRice.

6.2. RECOMMENDATIONS

From the above results, it has been confirmed that the transfer of technology in all areas, including research and training planning, varietal improvement, and soils and fertilizers have nearly been completed in line with the initial guidelines.

As the counterparts are actively utilizing the transferred technology at present, all technology transfers related to this project are expected to be completed by the end of the project period.

It is suggested that the transferred technologies be continually and efficiently used in the conduct of future PhilRice research activities.

As for project financing, the PhilRice budget has increased steadily each year and local costs have been adequately covered throughout the project implementation. For this reason, it is expected that a PhilRice budget will be secured until the end of the project period.

It is expected that Experts will finish transferring technology in line with the TSI of the Project by the end of the Project period at the latest, and that the goals of the Project as described in the R/D, such as the promotion of rice technology research and training activities at PhilRice, will be attained within the five year cooperation period. Accordingly, it is expected that there will be no need for follow up or extension of this Project.

However, the PhilRice organization has only been in existence for 10 years, and while it is staffed with excellent researchers, they are only in their 20s or 30s and have limited research experiences. In order to fulfill the purposes behind the establishment of PhilRice, provision of advanced technology is important to achieve higher level of rice productivity.

ANNEX 1. Dispatch of Japanese Experts

(1) Long-Term Experts

(October,1996)

Field	Name	Dispatched Duration
Leader	Dr. Hotoshi TAKAHASHI	Aug. 11, 1992 ~ Jul. 31, 1997
Coordinator	Mr. Masaru IMAMURA	Aug. 1, 1992 ~ Jul. 31, 1997
Varietal Improvement	Mr. Susumu MIZUNO Mr. Toshio ITO	Sep. 6, 1992 ~ Sep. 7, 1994 Aug. 24, 1994 ~ Jul. 31, 1997
Soils and Fertilizers	Dr. Koji YOSHIDA Mr. Teruhisa MOTOMATU	Oct. 13, 1992 ~ Feb. 12, 1995 Jan. 13, 1995 ~

(2) Short-Term Experts

(October,1996)

Field	Name	Position	Dispached Duration
FY.1992			
Agricultural machinery (Rice Reaper)	Engr. Hiroyuki Takahashi	BRAIN*	93. 2.15 ~ 93. 3.31
FY. 1993			
Audiovisual technology	Mr. Masao Yoshida	Developemt specialist, JICA	93. 5.30 ~ 93. 6.19
Entomology	Dr. Hiroo Kan'no	M.A.F.F.	93. 9. 1 ~ 93.10.31
Biotechnology	Mr. Nunetoshi Aikawa	Hokkaido prefectural office	94. 1.20 ~ 94. 4.10
Agricultural machinery (Rice reaper)	Engr. Tatsushi Togashi	M.A.F.F.	94. 2.25. ~ 94. 4 10
Grain quality evaluation	Mr. Toshio Ogawa	M.A.F.F.	94. 3.17 ~ 94. 4.30
Crop modelling /Physiology	Dr. Masaharu Yajima	M.A.F.F.	94. 3.17 ~94. 4.28
FY.1994			
Instrumentation	Mr. Mikio Takagi	Shimazu INC. Co.	94. 6. 5 ~ 94. 6.11
Agronomy	Dr. Hirokazu Sumida	M.A.F.F.	94. 6.13 ~ 94. 7.30
Instrumentation	Mr. Yoshimitsu Odaira	Ota keiki Co.	94. 8.29 ~ 94. 9. 4
Crop modelling /Physiology	Dr. Masaharu Yajima	M.A.F.F.	94.10.10 ~ 94.11. 5
Agricultural machinery (Paddy seeder)	Engr.Nobuyuki Sawamura	M.A.F.F.	94.10.17 ~ 94.12. 8
Grain quality evaluation	Dr. Ken'ichi Otsubo	M.A.F.F.	95. 1.24 ~ 95. 3.10
Entomology	Dr. Takashi Wada	M.A.F.F.	95. 2. 7 ~ 95. 4. 2
FY. 1995			
Farm management	Dr. Teruaki Nanseki	M.A.F.F.	95. 7.10 ~ 95. 8. 5
Agricultural machinery (Paddy seeder)	Engr. Nobuyuki Sawamura	M.A.F.F.	95.11. 7 ~ 95.12.14

*Bio-oriented Technology Research Advancement Institution

(continued)

Field	Name	Position	Dispatched Duration
Agricultural Extension	Mr. Kunio Koyama	Nigata prefectural office	96. 1.17 ~ 96. 3.15
Entomology	Mr. Masaichi Tsurumachi	M.A.F.F.	96. 2.26 ~ 96. 3.31
Agronomy	Dr. Hirokazu Sumida	M.A.F.F.	96. 3.11 ~ 96. 4.10
Agricultural machinery (Rice reaper)	Engr. Tatsushi Togashi	M.A.F.F.	96. 3.19 ~ 96. 5. 4
FY. 1996			
Agro-economics	Mr. Jinzo Saito	M.A.F.F.	96. 8.20 ~ 96.10.20
Crop modelling /Physiology	Dr. Masaharu Yajima	M.A.F.F.	96.10.21 ~ 96.11.23

ANNEX 2. Acceptance of Trainees

Field	Name/Position	Training Period	Affiliation/Destination
1. FY 1992			
1) Administration (Director)	Dr. Santiago R. OBIEN (Director)	1993.03.29 - 1993.04.15	JICA Head Quarters, National Agriculture Research Center (NARC), etc.
2) Agricultural Machinery	Engr. Manuel Jose C. REGALADO (Sr. Sci. Research Specialist)	1993.02.08 - 1993.10.22	Tsukuba International Agricultural Training Center, JICA (TIATC)
2. FY 1993			
1) Plant Breeding	Ms. Emily R. CORPUZ (Sci. Research Specialist)	1993.05.06 - 1993.11.13	National Agriculture Research Center (NARC)
2) Soils and Fertilizers	Mr. Constancio A. ASIS JR. (Sci. Research Specialist)	1993.05.06 - 1993.12.23	National Agriculture Research Center (NARC)
3) Entomology	Mr. Edgar M. Libetario (Sr. Sci. Research Specialist)	1993.05.13 - 1993.11.13	Kyushu National Agricultural Experiment Station in Kumamoto
4) Grain Quality Evaluation	Ms. Nanette V. ZULUETA (Sci. Research Specialist)	1993.05.26 - 1993.12.03	National Food Research Institute (NFRI)
5) Rice Cultivation Technology	Mr. Fernando D. GARCIA (Sci. Research Specialist)	1994.01.31 - 1994.11.18	Tsukuba International Agricultural Training Center, JICA (TIATC)

(Continued)

Field	Name/Position	Training Period	Affiliation/Destination
3. FY 1994			
1) Information Network	Ms. Virginia F. RECTA (Sr. Sci. Research Specialist)	1994.04.13 - 1994.08.27	Okinawa International Center (OIC), National Agriculture Research Center (NARC), etc.
2) Agricultural Technology Extension	Ms. Zyla C. MACASIEB (Supvg. Sci Res. Specialist)	1994.05.10 - 1994.07.31	Tokyo International Center (TIC)
3) Plant Pathology	Ms. Ma. Rufelie R. SOTES (Sci. Research Specialist)	1994.05.07 - 1994.10.29	National Agriculture Research Center (NARC)
4) Farm Management	Dr. Sergio R. FRANCISCO (Supvg. Sci Res. Specialist)	1994.07.05 - 1995.12.15	National Agriculture Research Center (NARC)
5) Agricultural Machinery Testing and Evaluation	Engr. Artemio B. VASALLO (Sr. Sci. Research Specialist)	1995.02.27 - 1995.06.23	Tsukuba International Agricultural Training Center, JICA (TIATC)
4. FY 1995			
1) Plant Breeding	Mr. John C. DE LEON (Sci. Res. Specialist)	1995.05.16 ~ 1995.11.24	National Agriculture Research Center (NARC)
2) Administration of Institute	Mr. Ronilo A. BERONIO (Deputy Director)	1995.05.24 ~ 1995.06.13	JICA, MAFF, NARC, etc.
3) Plant Physiology	Dr. Pompe C. STA. CRUZ (Chief Sci. Res. Specialist)	1995.06.01 ~ 1995.10.01	National Institute of Agro-Environmental Sciences (NIAES)
4) Audio-visual Education	Ms. Karen E.T. BARROGA (Sr. Sci. Res. Specialist)	1995.08.22 ~ 1995.09.23	Okinawa International Center, JICA (OIC)

(Continued)

Field	Name/Position	Training Period	Affiliation/Destination
5) Agricultural Machinery	Engr. Ricardo F. ORGE (Sr. Sci. Res. Specialist)	1996.02.26 ~ 1996.11.15	Tsukuba International Agricultural Training Center, JICA (TIATC)
5. FY 1996			
1) Grain Quality Evaluation	Mr. James A. PATINDOL (Sr. Sci. Res. Specialist)	1996.05.13 - 1996.10.19	National Food Research Institute (NFRI)
2) Biotechnology	Ms. Ma. Gina V. MARAMARA (Sci. Res. Soecialist)	1996.05.13 - 1996.10.05	National Institute of Agrobiological Resources (NIAR)
3) Soils and Fertilizers	Ms. Jocelyn B. BAJITA (Sci. Res. Specialist)	1996.06.03 - 1996.08.24	Obihiro, Hokkaido International Center
4) Plant Protection	Ms. Lina B. FLOR (Sci. Res. Specialist)	1996.06.03 - 1996.09.20	Faculty of Agriculture, Kobe University
5) Farm Management	Mr. Rogelio D. COSIO (Sci. Res. Specialist)	1996.07.15 - 1996.12.15	National Agriculture Research Center (NARC)

ANNEX 3. Provision of Machinery and Equipment

(Pesos)

Year	Purchased in the Philippines	Purchased in Japan	Brought by Experts	Total
FY 1992	3,228,714	5,735,000	632,785	9,596,499
FY 1993	3,695,904	9,825,400	459,559	13,980,863
FY 1994	6,439,923	8,121,500	817,581	15,379,004
FY 1995	5,274,592	4,392,000	722,315	10,388,907
FY 1996	1,717,000	6,910,000	750,000	9,377,000
TOTAL	20,356,133	34,983,900	3,382,240	58,722,273

*: Estimate

ANNEX 4. Suplementation of expenditure for local cost

F.Y.	Yen
1992	5,000,000
1993	5,400,000
1994	5,400,000
1995	5,000,000
1996	4,500,000*

*Estimate

ANNEX 5. PhilRice Corporate Operating Budget (1992 - 1996)

PARTICULAR	AMOUNT (P '000) 1992	1993	1994	1995	1996
A. General Administration & Support Services	18,575	23,902	24,089	28,823	25,110
B. Support to Operations					
Seed Production and Health	5,114	6,347	4,737	7,821	14,778
Farm Operations	1,743	1,913	2,600	2,475	2,713
Sub-total	6,857	8,260	7,337	10,296	17,491
C. Operations					
Research					
Rice Varietal Improvement	12,697	11,613	15,904	18,606	21,092
Planting and Fertilizer Management	5,703	5,827	10,045	9,839	9,800
Rice-based Farming Systems	1,281	1,145	2,165	1,485	1,820
Integrated Pest Management	4,859	4,451	8,912	11,255	11,694
Engineering and Mechanization	2,692	2,538	4,924	4,727	6,516
Social Science and Policy Research	2,081	1,994	3,972	2,491	4,335
Chemistry and Food Science	1,668	1,502	4,450	2,547	4,968
Subtotal	31,181	29,071	50,272 a/	49,950	60,225 d/
Technology Transfer					
Technology Demonstration				8,283	5,193
Training				3,457	6,767
Communication and Publication				4,909	6,696
Sub-total	7,281	9,460	23,438 b/	16,649	18,656
Support to Rice R&D Network		1,000	34,299 c/	5,541	10,014
TOTAL	61,894	72,493	139,415	108,059	131,496
Gintong Ani Program (GAP or GPEP)*			1,800	32,472	63,931
GRAND TOTAL			141,215	140,531	195,427

a/-Includes congressional initiative of P8.5 M (Net of 15% reserve)
b/-Includes congressional initiative of P8.5 M (Net of 15% reserve)
c/-Includes congressional initiative of P17.0 M (Net of 15% reserve)
d/-Includes congressional initiative of (P16.0 M (Net of 20% reserve)
*/-Flagship Program of DA

ANNEX 6. Counterparts' Assignment and Fields

(Management, Administration)

Name	Duration	Training in Japan	Position
Dr. Santiago R. OBIEN	August, 1992 ~	JICA, MAFF / 1992	Director
Mr. Ronilo A. BERONIO	August, 1992 ~	JICA, MAFF / 1995	Deputy Director
Ms. Eleanor L. RETALES	August, 1992 ~ March, 1996		Chief, Administrative Division
Ms. Virginia F. RECTA	August, 1992 ~ August, 1996	JICA / 1994	Head, Planning & Collaborative Programs Office
Engr. Eulito U. BAUTISTA	August, 1996 ~		Head, Planning & Collaborative Programs Office

(Varietal Improvement)

Name	Duration	Training in Japan	Position
Mr. Hilario C. DELA CRUZ Jr.	September, 1992 ~		Chief, Plant Breeding & Biotechnology Division (PBBD)
Ms. Thelma F. PADOLINA	September, 1992 ~		Senior Science Research Specialist, PBBD
Mr. Renando O. SOLIS	February, 1993 ~ October, 1994		Senior Science Research Specialist, PBBD
Ms. Emily R. CORPUZ	November, 1993 ~	MAFF / 1993	Science Research Specialist II, PBBD

Y. A.

(Soils and Fertilizers)

Name	Duration	Training in Japan	Position
Dr. Rolando T. CRUZ	March, 1995 ~		Chief, Soils, Water Management, Agronomy and Plant Physiology Division (AWAPPD)
Dr. Teodula M. CORTON	October, 1992 ~		Supervising Science Rresearch Specialist, AWAPPD
Mr. Wilfred B. COLLADO	February, 1993 ~ December, 1994		Science ResearchSpecialist I, AWAPPD
Mr. Rino R. VALDEZ	February, 1993 ~ December, 1994		Science Research Specialist I, AWAPPD
Dr. Pompe C. Sta CRUZ	October, 1992 ~ February, 1995	MAFF / 1995	Chief Science Research Specialist, AWAPPD
Mr. Constancio A. ASIS Jr.	November, 1994 ~ February, 1996	MAFF / 1994	Science Research Specialist I, AWAPPD
Mr. Fernando D. GARCIA	November, 1994 ~	JICA / 1994	Science Research Specialist II, AWAPPD

(Farm mechanization)

Name	Duration	Training in Japan	Position
Engr. Eulito U. BAUTISTA	February - March, 1993 February - April, 1994 October - December, 1994 November - December, 1995 March - May, 1996		Chief, Engineering and Mechanization Division (EMD)
Engr. Manuel Jose C. REGALADO	February - April, 1994 October - December, 1994 March - May, 1996	JICA / 1992	Senior Science Research Specialist, EMD
Engr. Bernardo D. TADEO	February - March, 1993 November - December, 1995		Senior Science Research Specialist, EMD
Engr. Joselito A. Damian	October - December, 1994 November - December, 1995		Science Research Specialist II, EMD

Y. A.

(Integrated insect pest management)

Name	Duration	Training in Japan	Position
Dr. Hilario D. JUSTO Jr.	February - April, 1994 February - March, 1996		Chief, Crop Protection Division (CPD)
Mr. Vic V. CASIMERO	September - October, 1993 February - March, 1994		Senior Science Research Specialist, CPD
Mr. Gerardo F. ESTOY Jr.	February - March, 1996		Senior Science Research Specialist, CPD

(Biotechnology)

Name	Duration	Training in Japan	Position
Dr. Nenita V. DESAMERO	January - April, 1994		Supervising Science Rresearch Specialist, PBBD
Ms. Cynthia C. BATO	January - April, 1994		Science Research Specialist, PBBD

(Evaluation on grain rice)

Name	Duration	Training in Japan	Position
Mr. James A. PATINDOL	March - April, 1994 January - March, 1995	MAFF / 1996	Senior Science Research Specialist I, Rice chemistry & food science Division (RCFS)
Ms. Nanette V. ZULUETA	March - April, 1994 January - March, 1995	MAFF / 1993	Science Rsearch Specialist I, RCFS
Ms. Evelyn M. HERRERA	March - April, 1994 January - March, 1995		Science Research Analyist, RCFS

(Plant physiology)

Name	Duration	Training in Japan	Position
Dr. Rolando T. CRUZ	October - November, 1994		Chief, (AWAPPD)
Dr. Pompe C. Sta CRUZ	October - November, 1994	MAFF / 1995	Chief Science Research Specialist, AWAPPD

(Agronomy)

Name	Duration	Training in Japan	Position
Mr. Rolando O. RETALES	June - July, 1994 March - April, 1996		Senior Science Research Specialist, AWAPPD
Ms. Madonna C. CASIMERO	June - July, 1994 March - April, 1996		Science Research Specialist, AWAPPD

(Farm management)

Name	Duration	Training in Japan	Position
Dr. Segfredo R. SERRANO	July - August, 1995		Chief, Socio-Economics & Statistics Division (SESD)
Dr. Sergio R. FRANCISCO	July - August, 1995	MAFF / 1994	Supervising Science Research specialist, SESD

(Agricultural extension technology)

Name	Duration	Training in Japan	Position
Ms. Zyla C. MACASIEB	January - March, 1996	JICA / 1994	Chief, Training Division
Ms. Marilde A. PUERTO	January - March, 1996		Science Research Analyst, Training Division

Y.A.

(Audio vidual)

Name	Duration	Training in Japan	Position
Mr. Roger F. BARROGA	May - June, 1993		Head, Communication & Publication Division (CPD)
Ms. Karen Eloisa T. BARROGA	May - June, 1993	JICA / 1995	Senior Science Research Specialist, CPD

(Agro-economics)

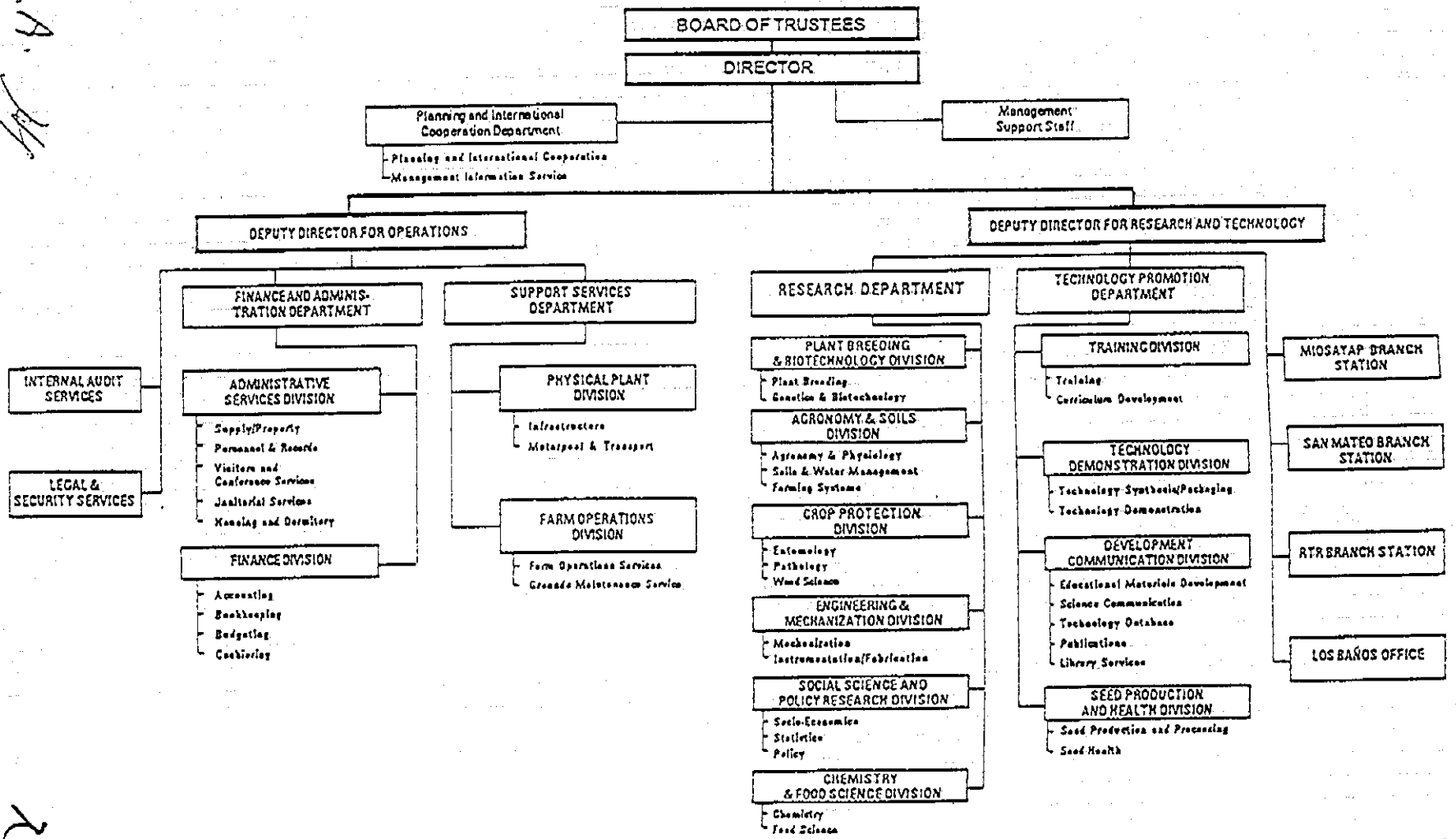
Name	Duration	Training in Japan	Position
Mr. Ronilo A. BERONIO	August - October, 1996	JICA / 1995	Deputy Director
Dr. Jacinto F. FABIOSA	August - October, 1996		Research Fellow, SESD

ANNEX 7. Organization of PhilRice

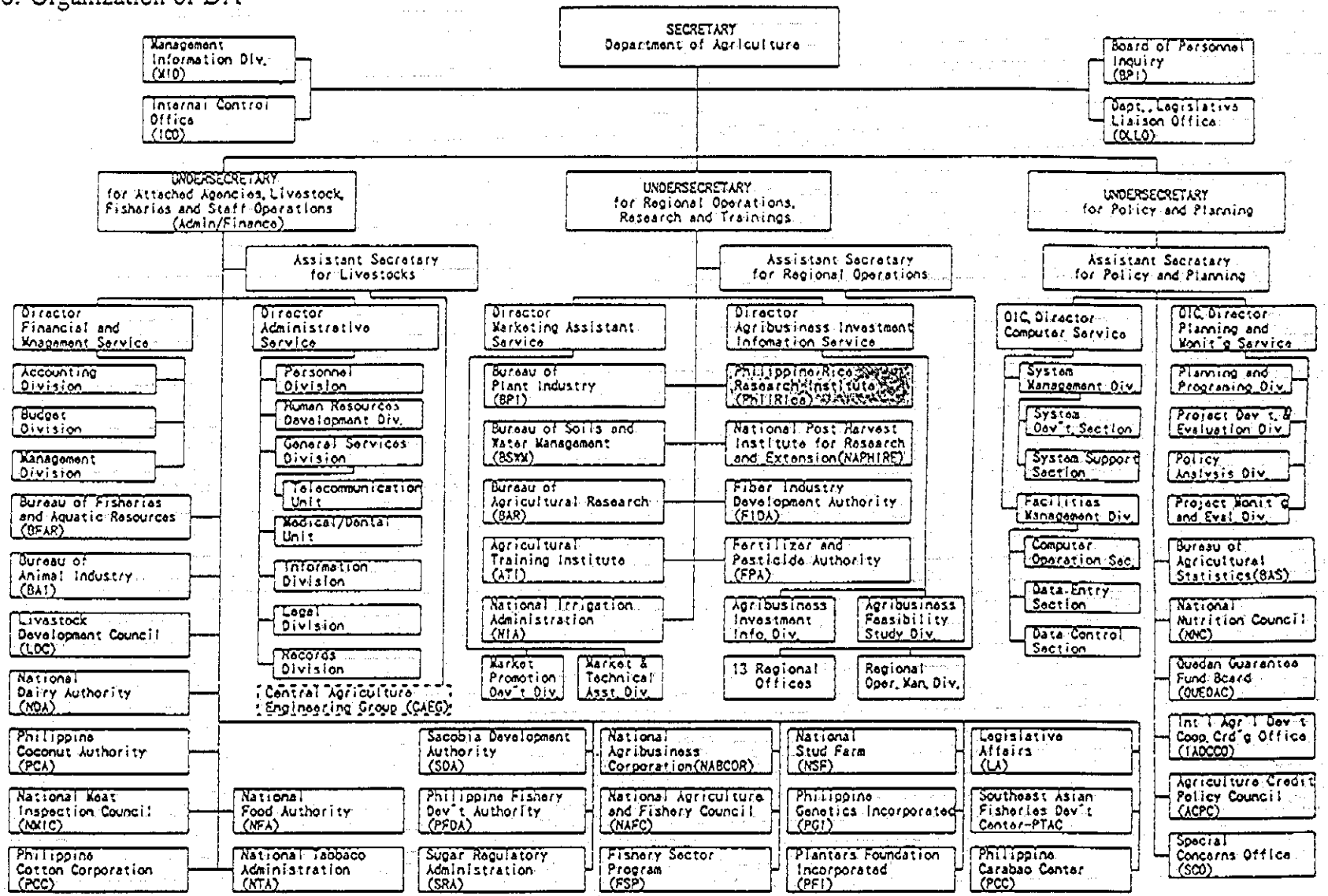
PHILIPPINE RICE RESEARCH INSTITUTE

ORGANIZATIONAL STRUCTURE

(CORPLAN 1995-2000)



ANNEX 8. Organization of DA



Department of Agriculture
Organization Chart

ANNEX 9.

Funds Appropriated to the Department of Agriculture (DA) for FY 1996

Agency	Personal Services	Maintenance and other Operating Expenses	Capital Outlays	TOTAL
Office of the Secretary	1,018,086,000	P 636,274,000	P 316,325,000	P 1,970,685,000
Agricultural Credit Policy Council	6,654,000	9,241,000	2,000,000	17,895,000
Fertilizer and Pesticide Authority	11,487,000	14,116,000	207,000	25,810,000
Fiber Industry Development Authority	58,255,000	34,195,000	3,390,000	95,840,000
Livestock Development and Fishery Council	3,354,000	4,690,000	181,000	8,225,000
National Agricultural and Fishery Council	18,010,000	66,672,000		84,682,000
National Meat Inspection Commission	2,930,000	14,126,000	4,500,000	21,556,000
National Nutrition Council	15,309,000	23,978,000	240,000	39,527,000
National Stud Farm	4,741,000	2,100,000		6,841,000
Philippine Carabao Center	8,948,000	11,522,000	1,690,000	22,160,000
Sacobia Development Authority	5,373,000	8,919,000	770,000	15,062,000
Bureau of Post Harvest for Research and Extension	18,703,000	13,291,000	1,644,000	33,638,000
TOTAL	1,171,850,000	839,124,000	330,947,000	P 2,341,921,000

ANNEX 10.

Funds Appropriated to the Attached Agencies of DA for FY 1996

Agency	Personal Services	Maintenance and other Operating Expenses	Capital Outlays	TOTAL
National Food Authority (NFA)		924,077,000	375,923,000	P 1,300,000,000
National Tobacco Administration (NTA)		152,600,000		152,600,000
Philippine Coconut Authority (PCA)		100,000,000		100,000,000
Philippine Fisheries Development Authority (PFDA)		10,050,000		10,050,000
Philippine Rice Research Institute (PhilRice)		132,265,000		132,265,000
Quedan and Rural Credit Guarantee Corporation (QUEDAN CORP.)			70,000,000	70,000,000
Sugar Regulatory Administration (SRA)		77,300,000		77,300,000
National Dairy Authority (NDA)		47,000000		47,000,000
TOTAL		1,443,292,000	445,923,000	P 1,889,215,000

ANNEX II. Assignment counterparts and other personnel

Title	1992	1993	1994	1995	1996
Project Manager	1	1	1	1	1
counterpart	12	23	28	24	17
Administrative Staff	8	8	8	8	8
Others (Guards, etc.)	16	16	16	16	16
Total	37	48	53	49	42