

付 属 資 料

- 1 . ミニッツ
- 2 . 合同中間評価報告書
- 3 . プロジェクト体制図
- 4 . 組織図 (PCC、水牛遺伝子プール、NESF)
- 5 . プロジェクトとヌエバエシ八州政府との協力関係についての覚書
- 6 . プロジェクトの広報パンフレット

**MINUTES OF DISCUSSIONS
OF
THE JOINT COORDINATING COMMITTEE
FOR THE MID-TERM EVALUATION
ON
THE WATER BUFFALOES AND
BEEF CATTLE IMPROVEMENT PROJECT
IN
THE REPUBLIC OF THE PHILIPPINES**

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), dispatched the Japanese Evaluation Team (hereinafter referred to as "the Team") headed by Mr. Hidetaka FUNO to the Republic of the Philippines from January 13th to 24th, 2003 for the purpose of conducting the joint mid-term evaluation for the Water Buffaloes and Beef Cattle Improvement Project in the Republic of the Philippines (hereinafter referred to as "the Project").

The Joint Evaluation Committee, which consists of members from JICA and members from institutions of the Republic of the Philippines, was jointly organized for the purposes of conducting the mid-term evaluation and preparation of necessary recommendations to the respective governments.

After intensive study and analysis of the activities and achievements of the Project, the Joint Evaluation Committee prepared the Joint Mid-term Evaluation Report (hereinafter referred to as "the Report"), which was presented to the Joint Coordinating Committee.

The Joint Coordinating Committee discussed the major issues pointed out in the Report, and agreed to recommend to the respective governments the matters attached hereto.

Manila, January 22nd, 2003



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Japanese Evaluation Team
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ATTACHMENT

1. The Joint Evaluation Committee, which was jointly organized by JICA and the Government of the Republic of the Philippines, has presented to the Joint Coordinating Committee the Report attached hereto.
2. The Joint Coordinating Committee has made certain comments and suggestions on the Report presented by the Joint Evaluation Committee, and has assured to take necessary measures to implement the Project successfully and achieve the Project's purpose in the remaining two years.
3. The Revision of the Project Design Matrix (PDM) will be continuously discussed to set up appropriate objectively verifiable indicators for monitoring the progress of the Project activities, and proposed by the Project at the next Joint Coordinating Committee scheduled in April 2003.

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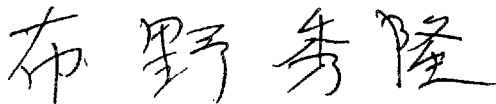
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**JOINT MID-TERM EVALUATION REPORT
ON
THE WATER BUFFALOES AND
BEEF CATTLE IMPROVEMENT PROJECT
IN
THE REPUBLIC OF THE PHILIPPINES**

Manila, January 22, 2003

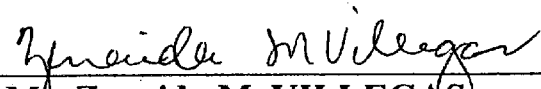
**JAPAN - PHILIPPINES
JOINT MID-TERM EVALUATION COMMITTEE**



Mr. Hidetaka FUNO

Leader


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Japan International Cooperation Agency



Ms. Zenaida M. VILLEGAS

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Abbreviation

BAI	Bureau of Animal Industry
DA	Department of Agriculture
DA-RFU	Department of Agriculture-Regional Field Unit
FAPs	Foreign Assisted Projects
LGUs	Local Government Units
NABC	National Artificial Breeding Center
NDA	National Dairy Authority
NEDA	National Economic and Development Authority
NESF	Nueva Ecija Stock Farm
PCC	Philippine Carabao Center
UNAIP	Unified National Artificial Insemination Program

I . INTRODUCTION

Agriculture in the Philippines is an important sector, which is about 15 % of the GDP and employs about 33% of its whole workforce. The output of the livestock products accounts for 25% of that of the whole agricultural products. However, the Philippines does not produce sufficient amount of the livestock products such as milk and beef for itself. In this connection, the Department of Agriculture (DA) classified water buffaloes and beef cattle as key commodities to make good use of the grassland, to promote the milk and meat production, and to increase the income of small-scale farmers.

In the Philippines, DA has been promoting and implementing Artificial Insemination (AI) in collaboration with the Local Government Units (LGUs) to improve the livestock and improve its productivity. However, due to the shortage of AI technicians, the program has not made remarkable achievements. In addition, the Philippines' insufficient techniques of sire and dam selection, and low AI success rate of farmers are also serious problems.

Under such circumstances, the Government of Japan received an official request from the government of the Philippines for Project-Type Technical Cooperation to promote AI training for technicians and improve sire and dam selection.

For that purpose, JICA dispatched the Preliminary Study Team in October 1999 and the Second Study Team in July 2000. Both governments signed the Records of Discussion (R/D). The Project commenced in October 2000, for a five year implementation period. Thereafter, the Project Consultation Team was dispatched in July 2001.

After two and a half year of Project implementation, a Joint Evaluation Committee was formed to conduct for the mid-term evaluation of the Project. The purpose of the Committee is to evaluate the progress of the project activities, and to recommend a number of measures that should be taken for the smooth implementation of the Project in the remaining cooperation period.

II. OUTLINE OF THE PROJECT

1. Objectives of the Project

(1) Overall Goal

Improvement of productivity of water buffaloes and beef cattle in the Republic of the Philippines.

(2) Project Purpose

Development of relevant techniques for improving water buffaloes and beef cattle in the pilot area.

2. Outputs of the Project

- (1) Improvement of selection techniques of sire and dam of water buffaloes and beef cattle.**
- (2) Improvement of feeding and management techniques, and related teaching methods of technicians of PCC, BAI and LGUs.**
- (3) Improvement of the artificial insemination techniques of PCC, BAI and LGUs.**
- (4) Improvement of training programs of feeding management skills for farmers.**

3. Activities of the Project

- (1) Improvement of selection techniques of sire and dam**
 - a. To survey and analyze actual situation**
 - b. To establish selection methods of sire and dam**
- (2) Improvement of feeding and management techniques**
 - a. To survey and analyze actual situation**
 - b. To establish a systematic technique for feeding management**
 - c. To establish health management techniques**
 - d. To implement training courses for technicians of PCC, BAI and LGUs**
- (3) Improvement of the artificial insemination**
 - a. To survey and analyze actual situation**
 - b. To produce high-quality frozen semen**
 - c. To transfer effective techniques of artificial insemination to the technicians of PCC, BAI and LGUs**
 - d. To promote preserving and handling techniques of frozen semen**
 - e. To implement training courses for technicians of the PCC, BAI and LGUs**
- (4) Development of training programs**

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- a. To develop training program and material
- b. To implement training courses for model farmers
- c. To evaluate the results of training courses

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III. OBJECTIVES OF THE EVALUATION

Evaluation study was conducted with the purpose of

- (1) Evaluating the progress of the activities and the degree of the achievements of the Project through the joint study and meetings with experts and their counterparts based on the Record of Discussion (R/D), the Plan of Operation (PO) and Project Design Matrix (PDM),
- (2) Evaluating the Project in terms of the five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability), and
- (3) Consulting on measures that should be taken for the smooth implementation of the Project in the remaining cooperation period, and making reports and recommendations to both governments.

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IV. METHOD OF EVALUATION WITH FIVE CRITERIA

1. Items of the Evaluation

The Project will be evaluated by the Joint Evaluation Committee, which is composed of the Japanese Evaluation Team and the Philippine Evaluation Team, in accordance with the R/D, PO and PDM. These activities include report analysis, field survey, and discussions with concerned officials staff members based on the five evaluation criteria described below.

1) Relevance

Relevance refers to the validity of the project's purpose and the overall goal in connection with the development policy of the recipient government as well the needs of beneficiaries.

2) Effectiveness

Effectiveness refers to the extent to which the expected benefits of the project have been achieved as planned, and examines if the benefit was brought about as a result of the project (not of external factors).

3) Efficiency

Efficiency refers to the productivity of the implementation process, examining if the input of the project was efficiently converted into the output.

4) Impact

Impact refers to direct and indirect, positive and negative impact caused by implementing the project, including the extent to which the overall goal has been attained

5) Sustainability

Sustainability refers to the extent to which the recipient country can further develop the project, and the benefits generated by the project can be sustained under the recipient country's policies, technology, systems and financial state.

2. Members of the Joint Evaluation Committee

2-1. Japanese side

(1) Mr. Hidetaka FUNO: Leader

Deputy Director

Livestock and Horticulture Division

Agricultural Development Cooperation Department

- Japan International Cooperation Agency
- (2) Mr. Hiroshi TAKEMOTO: Feeding Management
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National Livestock Breeding Center
 - (3) Mr. Yutaka HASHIYADA: Sire and Dam Selection / Artificial Insemination
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Agricultural Development Cooperation Department
Japan International Cooperation Agency

2-2. Philippine side

- (1) Ms. Zenaida M. VILLEGAS: Leader
Division Chief
Project Packaging & Resource Mobilization Division
Project Development Service
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- (2) Ms. Angelita D. MARTIR
Project Development Officer
Special Project Coordination & Management Assistance Division
Department of Agriculture
- (3) Dr. Laarni Z. CABANTAC
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Farm Integrated Animal Health Production Program & Officer-In-Charge
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(4) Ms. Geraldine V. SOMBERO

Senior Economic Development Specialist

National Economic Development Authority, Region III

(5) Mr. Eric P. PALACPAC

Division Chief, Program Monitoring & Evaluation Division

Philippine Carabao Center

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3. Schedule of the Evaluation

Date & Time	Activities
Jan.14(Tue)	Courtesy call to NEDA and BAI
Jan.15 (Wed)	Courtesy call to PCC The 1 st Joint Evaluation Committee (confirm the schedule and the method of evaluation) Field survey at PCC
Jan.16(Thu)	Report from Philippine C/P Field survey at model farmers Interview to Philippine C/P
Jan.17(Fri)	Courtesy call to Governor Field survey and meeting at NESF Interview to Philippine C/P
Jan.18(Sat)	Field survey at local farmers Moving to Manila
Jan.19(Sun)	Preparing Evaluation Report
Jan.20(Mon)	Meeting for the smooth implementation of the Project with DA and PCC
Jan.21(Tue)	The 2 nd Joint Evaluation Committee (draft of Evaluation Report)
Jan.22(Wed)	The 3 rd Joint Evaluation Committee (final arrangement and signing of Evaluation Report) Joint Coordinating Committee
Jan.23(Thu)	Signing of Minutes of Meeting

V. RESULTS OF THE EVALUATION WITH FIVE CRITERIA

Based on the evaluation survey regarding the achievement of the Project, the Project was evaluated in terms of the five criteria as follows.

1. Relevance

Overall goal of the Project is the improvement of the productivity of water buffaloes and beef cattle in the Philippines.

In the Philippines, it is important to promote backyard raising of beef cattle and water buffalo as these two species are efficient converters of grasses and other farm residues into meat and milk. On the other hand, the country is heavily reliant on imports for milk and beef.

Under the circumstances, the Government of the Philippines is implementing the Ginintuang Masaganang Ani (GMA) Livestock Program, which is a part of the *Medium-Term Agricultural Development Plan (1999-2004)*. The strategy of the program is to modernize livestock farming, of which ultimate beneficiaries are the small-scale livestock farmers. The target of the program is that 10% growth rate in livestock population, 30% level of contribution of livestock and poultry to the total farm income, and annual 4% increase in the value of production of the local livestock will have been achieved by 2004.

In addition, the government of the Philippines is currently implementing the Unified National Artificial Insemination Program (UNAIIP). The purpose of UNAIIP is to unify the existing Artificial Insemination (AI) promotion programs and to extend AI services nationwide.

JICA places high priority in its cooperation in the fields of poverty alleviation and the improvement of the income status of small-scale farmers.

Therefore, it can be said that the goal of the Project is highly relevant to the policy of Philippine Government as well as the needs of its beneficiaries.

2. Effectiveness

2-1. Effectiveness in terms of Project Purpose

It is expected that the Project Purpose will be achieved as anticipated, through the achievement of Project Activities.

2-2. Major Achievements of Project Activities (See ANNEX 1)

(1) Sire and Dam Selection

1) Investigations of the Actual Conditions

Analysis had been carried out to evaluate the previously collected data on the present conditions of the 285 head of water buffalo dams based in Philippine Carabao Center (PCC), where the Project main site is located in. Average calving interval, milk yield and lactation period were also monitored. In Nueva Ecija Stock Farm (NESF), the Project sub site, all the Brahmans were identified individually because of lack of individual record to investigate production ability in the past. To insure systematic data collection, the forms were modified and the systems were formulated in both main and sub sites. The number of local staff was increased in both sites to support the implementation of the Project activities. A total of 393 farmers had been surveyed in Nueva Ecija, which was prepared for project activities to recognize the actual condition in the pilot area. Of these, 249 farmers were raising water buffalos, 101 farmers were raising beef cattle, and 43 farmers were raising both animals.

2) Progress of Activities

In terms of data management, gains are more evident at NESF. Before the Project started, there were no organized animal recording system and data management activities. However, since the inception of the Project, the staff members were taught how to properly collect, analyze, store and retrieve data with the aid of computers and using database programs.

At PCC, efforts have been made toward refining the current system of animal recording. There are some difficulties encountered along this line because the PCC has its own data recording system developed through the years. It is quite difficult for the concerned staff of PCC to just adopt the new system being proposed by the Japanese experts. Nevertheless, the counterpart on sire and dam selection hopes to develop a mechanism to address this concern.

The program of testing was designed in both sites, and the essential data were analyzed. Test dams were selected followed by breeding for the first examination. Considering that there is a small population in the Project sites, animals have to be selected strictly to insure that the data collection of milking, body weight and body measurement will be carried out accurately. Low

conception rate following AI was confirmed with 26.1% and 36.0% at PCC and NESF, respectively. Factors affecting the efficiency of AI should be investigated in both sites. The low conception rate of water buffaloes might be due to their different characteristics from cattle's in terms of physiological functions and reproductive abilities.

3) Activities of Extension

Seminars about the basic breeding program, including AI, were held three times with 111 participants. At the seminars, lectures on basic knowledge and methods were conducted. Participants were able to understand the systems of breeding and the theory of AI more deeply.

(2) Feeding Management

The Project purposes in PO are to improve the skills of the technicians at PCC, NESF, and LGUs by establishing feeding and health management technique based on the investigation of the actual conditions of local farmers, and to contribute to the improvement in the productivity of water buffaloes and beef cattle in Philippines by improving the breeding technique in Nueva Ecija.

The following is a summary of the achievements up to the present in the field of feeding management:

1) Investigation of the Actual Conditions

Investigations of the facilities of feeding management, the basis of feed production, and feeding methods were carried out in PCC, NESF and some local farms. The followings were mentioned as problems in PCC:

- a. Unstable production of the necessary amount of feed
- b. Lack of reliability of the basic data with respect to growth, milking performance, and feeding management.
- c. Malnutrition of the feeding cows
- d. Poor growth level of calves
- e. Inaccurate recording of milk yield

Therefore, it was agreed that the accurate data collection, calf nursing technique, milking technique, sanitary management, and the production and storage method of the feed crops would be investigated at PCC.

On the other hand, at NESF, it was pointed out that facilities were not fully utilized, and the following were mentioned as problems due to the lack of basic

skills of feeding management:

- a. Poor growth level of calves
- b. Shortage of the feed in the pastureland
- c. No data necessary for feeding management
- d. Malnutrition of the feeding cows

From the above, it was decided that data for feeding management would be collected and utilized, and the techniques for the feed production and storage, feeding management during dry season would be developed at NESF.

As for the investigation of local farmers, 'Farm Management' and 'Livestock Feeding Management' had been already analyzed and reported. Owing to the investigations, the actual conditions in the local farmers became clear, and the problems to be tackled in technology transfer were also grasped.

2) Systematic Feeding Management Technology

To establish the systematic feeding management technology, the following improvements have been achieved, based on the measures to raise the productivity i.e. securing feed production, accelerating the growth of calves, and milking technology at PCC:

- a. Grasping quantity of feed products and sampling for analysis
- b. Sanitary milking technology using milking parlor
- c. Stable growth of calves by improving nursing technique
- d. Securing roughage stably by utilizing the rest of crops

Early weaning of calves at 55 days allows the gradual introduction of roughage to the calf to stimulate its rumen development. This practice has helped improve the volume of milk harvested from the lactating animals. This may also help PCC to economize on maintaining the calves.

Although feeding management technique has been improved, milking performance has not made remarkable outputs. High proportion of old dams, functional disease on breasts and nipples, and inconsistent body performance might be the negative factors. However, it is assumed that expected milking performance can be obtained by replacing cows and practicing appropriate selection.

While NESF is searching for suitable technique, the following basic technology transfers with respect to feed supply and feeding management during dry season.

- a. Improvement of grassland, and improvement of the soil productivity through application of fertilizer and manure.
- b. Improvement of grazing system corresponding to the amount of production, such as rotational grazing with use of electric fence
- c. Production of silage and hay
- d. Combining rice straw and concentrate, treating rice straw with urea
- e. Efficient utilization of grassland by allowing animals to graze by supplying them silage during dry season

While there is no technology transfers at the farmer level at the moment due to the short term of the implementation, it is expected that the effects will be reflected in the growth of calves and the reproductive performance of cows at NESF.

In order to achieve more remarkable outputs, improvement of the exercising facilities to maintain the body conditions of bulls, it is necessary to implement efficient utilization of silage during dry season, effective utilization of grassland by subdividing the grazing area, grazing to ease stresses and maintain stable physiological functions during dry season, promotion of grassland improvement, and utilization of fertilizer.

As for the shortage of feed at PCC and NESF, the inappropriate number of head might be a cause of the problem. In order to solve the problem, the following countermeasures should be taken:

- a. Estimation of the amount of feed which can be secured at the present production and purchasing level
- b. Calculation of the number of heads available for feeding based on the above estimation
- c. Estimation of the amount of feed which can be increased by improving pasture and securing forage during dry season
- d. Estimation of the nutrient composition of feed stuff which can be secured based on the feed analysis
- e. Plan of the number of head available for feeding based on the above estimated amount

By taking the above countermeasures, the appropriate number of head for feeding corresponding to the feeding basis will become clear, and the feeding management system will be established based on the stable feed supply system.

3) Health Management

It was observed that sanitary control of facilities and equipment, and understanding of milk quality has been improved by practicing thorough health management such as sterilization at the entrances of the facilities.

In addition, normal growth of the calves have been achieved by preventing diseases such as diarrhea and pneumonia.

(3) Artificial Insemination

1) Activities on Semen Production

The protocol of deep frozen semen production was modified on sperm concentration, dilution medium and strict management of temperature, thawed sperm motility rose from 19% to 25% in PCC through the Japanese expert's recommendation to change the semen extender, the temperature in semen processing, duration of freezing and level of liquid nitrogen in the freezing chamber. The semen production has started with 23% of thawed sperm motility in NESF. However, it is necessary to analyze a correlation between motility of thawed sperm and conception rate following AI.

A seminar was held for the standard evaluation of sperm motility with 16 participants. On the other hand, replacement of equipment has not been made satisfactory yet at both main and sub sites. Both sites should be well equipped for the smooth implementation of the Project.

2) Activities on Pilot Farms

AI technicians obtained basic skills in certain fields such as rectal palpation and hormonal treatment for estrus synchronization. Recording sheet for estrus observation and breeding were utilized at model farmers. The farmers were trained in estrus observation through participating in the Project activities and seminar, although communication and transportation problems remain between provincial veterinary office and project sites. Improvement of fertility rate through feed and feeding management on female herd at sites might be helpful to enhance conception rate of AI among farmers in extension activities.

3) Activities for Extension

Skills of AI technicians for preserving and handling frozen semen have improved in Nueva Ecija. Estrus detecting method and handling of hormones have been lectured in a seminar on reproductive disorder involving 40 participants.

3. Efficiency

3-1 Achievement of input

3-1-1 Input from Japanese side

(1) Dispatch of Japanese Experts (See ANNEX 2)

Ideal and timely assignment of long-term experts in 5 fields on Chief Advisor, Project Coordinator, Sire and Dam Selection, Artificial Insemination, Feeding Management has facilitated the smooth implementation of Project, complemented by the dispatch of 6 short-term experts in the above and other fields.

(2) Acceptance of counterpart personnel for training in Japan (See ANNEX 3)

A total of 10 Philippine counterpart personnel have finished their trainings in Japan. Counterpart trainings in Japan were effectively organized in relation to the progress of the Project activities.

(3) Provision of equipment (See ANNEX 4)

Equipment for the Project was carefully selected taking Project's capability into consideration. The equipment provided has been working properly and maintained.

(4) Linkage with other cooperation scheme

Japan Overseas Cooperation Volunteers have been working for AI and has contributed to the dissemination of AI and its technological development. Then this fundamental works put the Project on a firm basis and facilitates the current activities in the fields.

3-2. Input from Philippine side

(1) Assignment of the counterpart personnel (See ANNEX 5)

Assignment of counterparts in the Project has been sufficient. It is hoped that appropriate allocations of counterparts for the Project activities will continue, for the sake of further development of the Project.

(2) Budget allocation for the Project operation (See ANNEX 6)

Philippine side has secured the budget for the assignment of administrative staff, local costs for communication and electricity, and other maintenance costs.

3-3 Major Factors which Affected Efficiency of the Project Activities

(1) Carefully selected experts and counterparts have promoted the Project activities

efficiently. Facilities and equipment provided have been utilized effectively.

- (2) The progress of the Project is consistent with the plan, however, some activities were delayed because of late construction of buildings, late of provision of supply of electricity, and late construction of the access bridge in NESF.
- (3) Feeds and Feed analysis, liquid nitrogen and water buffaloes are shared between PCC and NESF.
- (4) Currently, the technical staff at NESF is not sufficient, and most of the times, counterparts are also involved in other fields and areas outside their own. Focused efforts in their respective areas are evidently affected.
- (5) While there existed a harmonious working relationship between Philippine counterparts and Japanese experts, implementation of improved practices, and efficiency of work outputs were slightly affected because of differences in language.

4. Impact

The impact of the Project's activities is difficult to observe, while the Project is on-going. However, the following impacts could be observed from the evaluation.

(1) Technical Impact

- 1) Owing to the implementation of disease control system such as sterilization at the entrances of the facilities at project sites, realization of the importance of the health management is extended to local farms.
- 2) Frozen semen produced in the project sites are currently transported to National Artificial Breeding Center (NABC) for distribution under UNAIP. It is expected that through UNAIP the quality frozen semen will be distributed not only in the target area, but also in the other regions of the country.
- 3) The questionnaire used in the investigations of the actual conditions of the local farmers will be available for the other regions. It is expected that Philippine side will conduct the investigations by themselves in the other regions of the country.
- 4) The Project proposed a new liquid nitrogen distribution system in Nueva Ecija. It is expected that the system will be a model for UNAIP.

(2) Environmental Impact

With the increasing number of head of animals at NESF, it is expected that the volume of manure will also increase. In this case, necessary countermeasures

should be taken for preventing the deterioration of the environmental conditions.

(3) Social and Economic Impact

- 1) The Project has contributed to the development of village-based dairy buffalo cooperative in Licaong, Munoz, Nueva Ecija (called the Licaong Dairy Producers Cooperative or LDPC) together with PCC. New techniques developed in the Project are also being introduced in the said village, particularly in the area of record-keeping, feeding, milk handling and processing. Although LDPC is in its early stage, it is producing milk and selling processed milk products to the local community. Part of the products is provided to the Milk Feeding Program (for undernourished school children), which is funded by NDA with some support from the LGUs. LDPC is slowly building its image as a dairy buffalo village and now attracts visitors and accommodates on-the-job training of some students in the area. It is also reported that each farm family of LDPC earns from P25,000 to 35,000 additional annual income from milk sales.
- 2) The mere presence of the Project in NESF has encouraged the Provincial Government of Nueva Ecija to release funds for the installation of electricity, construction of the bridge, and improvement of the access road in the area. These have immensely helped NESF not only in operating the equipment and the facilities provided by the Project but also in its routine farm and office activities. In addition, residents in adjacent areas also benefited from the infrastructure facilities

5. Sustainability

The following observation on the Project sustainability can be made from the evaluation.

5-1 Institutional Aspects

- (1) PCC was established by "Philippine Carabao Act of 1992" as an attached agency of DA, for the purposes of conservation, propagation and promotion of the water buffaloes as a source of draft animal power, meat, milk and hide. Thus, PCC will be sustained and strengthened as a permanent organization, with enhanced capability through the Project activities.
- (2) NESF is the only beef cattle frozen semen production station in the main

island of Luzon, and is responsible for training of AI technicians in LGUs under UNAIP, which is promoting artificial insemination all over the country. To make the Project sustainable after the cooperation period, BAI should support NESF to function as beef cattle frozen semen production station.

5-2 Financial Aspects

- (1) In case that necessary budgets are allocated for PCC and NESF by Philippine side to assign necessary staffs and maintain equipment for the project activities, the Project will be sustained and strengthened even after the end of the cooperation period.
- (2) As for the extension of AI to small-scale livestock farmers, the Government of the Philippines should continuously allocate the necessary budget for LGU's, which are in charge of AI technicians and the running costs, such as liquid nitrogen and fuels of motorcycles.

5-3 Technical Aspect

All Philippine counterparts have accepted positively the technologies introduced by Japanese experts. Those transferred technologies are supposed to be utilized and developed in PCC and NESF after the end of the cooperation period. The Committee is confident that the Project activities will be sustained as long as the trained counterparts remain in the posts they currently hold.

VI. CONCLUSION

When the Project started, infrastructure facilities such as electricity and access bridge were not in place, while the access road was in poor condition, at NESF. Implementation of the Project's activities has improved after the provision of these infrastructure facilities in cooperation with the Nueva Ecija Provincial Government. The unique characteristics of water buffalo, which are so different from those of cattle, will require further study.

In spite of this circumstance, the Committee has observed that the Project is now effectively going on and is expected to achieve outputs in each activity. The Project's purpose still has relevance to Philippine government's policy for small-scale farmers and livestock industry.

Therefore, as there are still two years and seven months of Project cooperation period, Philippine counterparts and JICA experts should continue their best efforts to complete the Project's activities within the term of cooperation in consideration of the following recommendations.

VII. RECOMMENDATIONS

The following issues and necessary measures are recommended by the Committee to both Governments in order to further develop and sustain the Project.

- (1) It is stated in the Record of Discussions that the Government of Philippine will implement the Project in cooperation with the Government of Japan. For the success of the Project, it is important that the Philippine side should play a main role and make efforts as an owner of the Project.
- (2) Both sides should fully invest during the remaining term to accomplish the remaining tasks. The following necessary measures should be taken immediately for the achievement of the Project Purpose;
 - 1) To carry accurately the data collection and recording of milk yield, body weight and body measurement in PCC and NESF
 - 2) To improve conception rate of AI in PCC and NESF
 - 3) To produce forage in accordance with the necessary number of cattle in NESF

- (3) BAI, PCC and the provincial government of Nueva Ecija should extend the major outputs of the Project to AI technicians and farmers in Nueva Ecija, considering financial as well as technical assistance. In this sense, it is necessary to continue and enhance the existing close relationship between UNAIP and the Project.
- (4) In order to coordinate the Project's activities more effectively, it is recommended to have a close communication between Philippine counterparts and JICA experts in the Project. Steering and monitoring meetings, which are the useful instruments to identify problems and solutions, should be held regularly.
- (5) Overstocking at NESF and PCC is one of the causes of the shortage of forage and feeds there. This is negatively affecting the performance of the cattle and water buffalo in the two sites. Therefore, the number of head should be adjusted to the optimum herd size.
- (6) A system should be established for the proper utilization and maintenance of equipment provided by JICA.
- (7) For the necessity of monitoring and demonstrating the Project's activities, the Project should choose water buffalo model farmers and beef cattle model farmers. These model farmers are expected to share the acquired techniques positively with other farmers.
- (8) The Project should hold international seminar to extend the outputs of the Projects to other Asian countries by the end of the Project, in cooperation with JICA.
- (9) Philippine side should inform not only the personnel of the organizations concerned but also the general public of this JICA's cooperation.

ANNEX 1 Achievements of Activities According to PO

1. Sire and Dam Selection

Plan of Operations		Target	Current Status of Progress and Achievements	Rate of Achievements*	Reasons of delay	Plan for Remaining Period
Item	Activities					
1-1 To survey and analyze actual situation		Actual situation of selection will be grasped and further selection method will be studied				
	1-1-1.To analyze existing data and survey actual situation of project sites	Actual situation of selection at project sites will be grasped				
	1)PCC		The verification of the existing data/record and the arrangement and analysis of the milking records of the water buffalo were done.	4		
	2)NESF		The individual identification of the Brahman cow and the survey of the facilities related to beef cattle were done.	4		
	1-1-2.To survey and analyze actual situation of farmers	Actual selection and culling at farmer in N.E province will be grasped	The result of the survey on the actual situation of the 393 farmers in the pilot area was settled in the item of the farmers management, feeding, selection, productions and AI	4		None, but we should use the result of survey as basis in continuing the activity of the project.
	1)Pilot area					
1-1-3.To be advised by mission and review PO	Appropriate PO will be made	The decision of PDM, PO, APO were done. Implementation plan and schedule of test plan were made and for approval during JCC.	4		APO will be approved by JCC every year and if it is necessary, the review of PDM will be done.	
1-2 To establish selection methods of sire and dam		Proposed selection methods will be tested				
	1-2-1.To make a detail plan of test	Test will be commenced by certain methods				
	1)PCC		A short-term expert made the guidelines on data collection in water buffaloes and made a detailed plan of the test.	4		On the basis of a detailed plan of the test, the test and review of selection technique will be done before implementation.

Note: Achievements were rated in the following manner.

4: The activity has been completed

3: The activity is about to be completed

2: There are problems to be solved in order to complete the activity

1: The activity has not started

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	2)NESF		The detailed plan of test about Brahman was done at NESF.	4		On the basis of the detailed plan of the test, the test and review of selection technique will be done before implementation.
	1-2-2.To select animals for test	Good animals will be chosen/selected for test				
	1)PCC		The use of the same format in all data entry in the computer was done. Animal body measurement was done and data was already in computer.	4		From now on, the selection of the test cow will be done as indicated in the plan.
	2)NESF		Pregnant animals were confirmed and the first artificial insemination started.			
	2)NESF		The preparation of the list of cows was done. The measurement of the body was undertaken and encoded to the computer.	4		From now on, the selection of the test cow will be done as indicated in the plan.
			The selection based on the growth record was done and artificial insemination was finished.			
	1-2-3.To implement test for establishment of selection methods	Data will be collected as baseline of selection				
	1)PCC		The first test was started. Measurement, selection, AI of cow and so on were done.	3		Data collection and recording for water buffalo continues. Pregnancy, lactation, parturition and growth are considered in selecting the test animal after AI.
	2)NESF					
			The first test was started. Measurement, selection, AI of cow and so on were done.	3		The maintenance of the test facilities will do to restore the data which will be necessary for sire selection.
						Data collection and recording for beef cattle continues. A change of data recording from Excel to Acces was being considered. We went through the diagnosis of pregnancy, the investigation of calving, growth and so on.
	1-2-4.To put data together and conclude selection methods	Appropriate selection methods in the Philippines will be proposed				
	1)PCC			1		
	2)NESF					

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2. Feeding Management

Plan of Operations		Target	Current status of Progress and Achievement	Rate of Achievements	Reason of delay	Plan for Remaining Period
Items	Activities					
2 Improvement of feeding and management techniques		Feeding and management techniques and related training methods of the technicians of PCC, BAI and LGUs will be improved.				
2-1 To survey and analyze actual situation		Present state which concerns the feeding and management is grasped, and future measures are examined				
	2-1-1 To analyze existing data and survey the actual situation of project sites.	Present state of feeding and management in the project site is grasped.				
	1) PCC		The present status of the existing records on the feeding and management of water buffaloes was confirmed, and the problems encountered were examined.	4		
	2) NESF		Though the confirmation was not possible, existing feeding management record was confirmed and the actual condition and problems on the feeding management of Brahman were examined.	4		
	2-1-2 To survey and analyze the actual situation of farmers	The actual condition of the feeding management of the farmers in the pilot area is grasped.	On the field study of 393 farmers-respondents in the pilot area, Result of the feeding management was summarized, and the field situation was grasped.			
	1) Pilot area			4		
	2-1-3 To be advised by mission and review PO		PDM, PO, and APO in this term were determined, and they were approved in the joint committee.			
				4		

2-2 To establish a systematic technique for feeding management		Feeding manual which adapted to the field is made.				
2-2-1 To implement feeding test		The data which become a base of the feeding is accumulated.				
1) PCC			<p>① We carried out the early weaning of the calf by following the nursing manual, and the result was similar to the expected value obtained in the old techniques of calf rearing.</p> <p>② The management of the milking parlor was guided.</p> <p>③ The yield survey per m² of the forage area (Napier grass) was guided.</p>	3		<p>The nursing manual is corrected and the feeding trial is continued.</p> <p>The milking operation is improved and the health maintenance manual is prepared.</p> <p>The yield point investigation is continued.</p>
2) NESF			<p>① The cows are given rice straw during the dry season. The relationship between the growth and the amount of nutrients supplied were confirmed.</p> <p>② The grassland was improved.</p> <p>③ The yield survey of the grass was improved.</p> <p>④ Planting of hybrid corn was carried out, the expected yield of 30-40 tons was not obtained.</p> <p>⑤ Ensiling of grasses collected from the pasture area gave promising results with small losses. The grass silage produced is of high quality and it is comparatively good.</p>	3		<p>As a method that will be used during the dry period, this method of feeding will be confirmed in the next season.</p> <p>The grazing area is improved.</p> <p>The harvesting and investigation of the grass is continued.</p> <p>The cultivation of corn is tested again.</p> <p>The manufacture of the grass silage is expanded/increased.</p>
2-2-2 To install feeding analysis equipment		Analysis of feed composition is established.		4	The delayed completion of the R & D building of PCC causes the delay in the installation of lab equipment and feed analysis.	

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	2-2-3 To analyze feed	The analysis of feed used in the field is proven.				
	1) PCC		Samples of Concentrate, grass, corn silage, spent grain and rice straw collected from the PCC - GP were analyzed,	4	Laboratory activities were delayed due to the delayed installation of lab equipment.	
	2) NESF		Concentrate and grass of NESF were analyzed.	4	The completion of the building delayed the feed analysis.	
	2-2-4 To conduct feeding and management test and collect data 1) PCC	Method of feeding of water buffalo is examined.		3		
	2-2-5 To conduct feeding and management test and collect data 1) NESF	Method of feeding of beef cattle is examined.	Pregnancy and nutritional administration of cattle by first plan mating are carried out.	3		
2-3 To establish health management techniques	Health maintenance manual which adapted to the field is made.					
	2-3-1 To collect data on reproduction, health and weaning performance 1) PCC	The health maintenance method based on nursing is examined.		3		
	2-3-2 To collect data on reproduction, health and weaning performance. 1) NESF	The health maintenance method based on nursing is examined.	By implementing the mating plan, nutritional administration of pregnant animals is carried out.	3		

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3. Artificial Insemination

Plan of Operation		Target	Current Status of Progress and Achievements	Rate of Achievements	Reasons of delay	Plan for Remaining Period
Item	Activities					
3-1 To survey and analyze actual situation	3-1-1.To analyze existing data and survey actual conditions of project sites 1)PCC	Actual situation of artificial insemination will be grasped and further measure will be studied Actual condition of AI at project sites will be grasped	Reviewed existing forms related to reproduction and had hearing on AI.	3	Records of reproduction of individual animals were not enough for accurate analysis.	Analyze and survey if necessary
	2)NESF		Reviewed existing forms related to reproduction and had hearing on AI. AI hut, preparation room for AI, and breeding chute were planned based on the survey.	4		None.
	3-1-2.To visit AI technicians and survey skill 1)Pilot area	Actual situation of AI in pilot area will be grasped	①Survey on 393 farmers in pilot area was conducted with other experts and counterparts and the result was utilized for seminar and field advise. ②Survey on seven AI technicians was conducted. ③Made a map of active AI technicians and liquid nitrogen tanks in pilot area and suggested effective liquid nitrogen distribution system in the area.	3	①Reproduction records on individual animals were too poor to analyze ②Only half of active AI technicians replied.	None. The result of survey should be utilized for implementation of the project.
	3-1-3.To be advised by mission and review PO	Appropriate PO will be made	PDM, PO and APO were confirmed. Implementation plan and test schedule were made in accordance with PDM, PO and APO. Joint Coordinating Committee approved PDM, PO, APO, implementation plan and test schedule.	4		APO will be made and approved by JCC every year. PDM may be revised if necessary.

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	3-1-4. To have workshop with AI technicians 1) Pilot area	Problems of AI in pilot area will be clarified	26 persons attended the workshop from province of Nueva Ecija. Most of AI technicians face the problem of organization and budget. Technical matters are relatively small concerns for AI technicians. Conducted benchmark examination for 17 technical persons and the result was utilized for seminar and advise. It is acknowledged that only two of eight AI technicians know how to calculate the conception rate.	4		None.
3-2. To produce high quality frozen semen	3-2-1. To review process of frozen semen production 1) PCC	High quality frozen semen will be produced Process of frozen semen will be improved	The ingredient of extender, level of liquid nitrogen in freezing machine and freezing duration were revised.	4		Revise if necessary.
	3-2-2. To renew and install equipment 1) PCC	Production system of frozen semen will be established	Refer to equipment list.	3	Old equipment should be replaced. AI equipment hasn't been given priority so far.	Request equipment.
	2) NESF		Refer to equipment list.	2	AI equipment hasn't been given priority so far. Necessary equipment is not sufficient.	Request equipment.
	3-2-3. To produce frozen semen 1) PCC	High quality frozen semen will be able to be distributed	Mr. Hiroshi Saito was dispatched as a short term expert for frozen semen production and ①Thawed motility increased from 19% to 25%. ②Seminar on standardization of motility of sperm held and 16 technicians attended. One of participants came from private farm. ③Ms. Emma Venturina was trained in Japan for frozen semen production. ④Frozen semen laboratory and semen collection area were constructed by GOP budget.	4		①Review feeding and management of bull ②Management and recording of frozen semen ③Culling of bull

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	<p>3-2-4. To produce frozen semen</p> <p>1) NESF</p>	<p>High quality frozen semen will be able to be distributed</p>	<p>①NESF came to produce frozen semen. ②Mr. Hiroshi Saito was dispatched as a short term expert for frozen semen production and thawed motility became 23%. ③Conception rate of three bulls' frozen semen produced at NESF were 67%, 52%, 37%. ④Microsoft Excel and Access are used for management of frozen semen. ⑤Frozen semen laboratory and bull pen and semen collection area were constructed by GOP budget.</p>	<p>3</p>	<p>Necessary equipment is not sufficient.</p>	<p>①Accustomed to the new equipment. ②Review feeding and management of bull ③Management and recording of frozen semen</p>
<p>3-3. To transfer effective techniques of artificial insemination for technicians of PCC,BAI and LGUs</p>	<p>3-3-1. To visit AI technicians and advise skill 1) Pilot area</p>	<p>Technique of AI technicians will be improved Technique of individual AI technicians will be improved</p>	<p>①Minute was made between province of Nueva Ecija and project. ②Dr. Fuminori Nagai was dispatched as a short term expert for reproductive disorder and advised AI technicians on rectal palpation, usage of hormone and so on. ③Reviewed the record of reproduction in model farms and made heat observation sheet for farmer and reproduction record. ④12 animals were inseminated by OVSYNCH, program insemination with hormones, in model farms. ⑤Visited two model farms twice a day for two months to advise on heat detection in order to accustom farmers to regular observation of animals. ⑥Advised on design of breeding chute in model farm. ⑦Dr. Nancy Abes and Mr. Clodualdo Mariano were trained in Japan for reproductive disorder and reproductive disorder in beef cattle respectively.</p>	<p>2</p>	<p>①Activity is limited because it was difficult to coordinate with provincial veterinary office due to the distance and communication system. ②Conception rate, which is indicator of output in PDM, are 41% → 44% in water buffaloes and 49% → 49% in beef cattle in the year 2000 and 2001 respectively. These data source is DA-Regional Field Unit III.</p>	<p>If it is difficult to visit individual AI technicians, demonstration in seminar may be useful.</p>

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<p>3-3-2. To have seminar 1) Pilot area</p>	<p>Updated knowledge will be understood by AI technicians</p>	<p>①Seminar on farmer survey was held and 26 persons attended. ②Seminar on reproductive disorder and reproductive management record with computer was held and 40 persons attended. Some participants came from National Dairy Authority. ③AI in Japan was introduced at the center directors meeting of PCC. ④AI in Hokkaido was briefly introduced by Dr. Uratomi at the seminar of Mr. Yoshizawa. (*)</p>	<p>4</p>	<p>Left (*) : Dr. Uratomi works for a Livestock Clinic of Hokkaido Agricultural Mutual Aide Association and friend of Dr. Kinoshita.</p>	<p>Implement according to PO.</p>
<p>3-3-3. To collect data on AI 1) PCC</p>	<p>Measure of improvement of AI will be studied</p>	<p>①Existing data was studied with File Maker Pro by Dr. Fuminori Nagai. ②Heat observation table and mating related forms were made. ③126 water buffaloes were artificially inseminated from June to August. ④Data of AI(③) was input.</p>	<p>2</p>	<p>Mating started one month earlier than the original schedule and preparation by experts was not enough. Individual reproduction record form was made but not yet used. It is not easy to change the existing forms.</p>	<p>Implement in accordance with PO. Record of reproduction should be improved.</p>
<p>2) NESF</p>		<p>①AI Hut, preparation room for AI, and breeding chute were constructed. ②Heat observation table and mating related forms were made. ③85 beef cattle were mated include 57 AI in April and May. ④Data was input and analyzed. Conception rate were 79% in natural mating and 51% in AI.</p>	<p>4</p>		<p>Implement in accordance with PO.</p>

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<p>3- 4.To promote preserving and handling techniques of frozen semen</p>	<p>3-4-1.To visit AI technicians and advise skill 1)Pilot area</p>	<p>Technique of AI technicians will be improved Technique of individual AI technicians will be improved</p>	<p>①Minute was made between province of Nueva Ecija and project. ②AI technicians were advised on frozen semen thawing and others by Dr. Nagai. ③Project staff attended seminar on liquid nitrogen handling by private gas company.</p>	<p>2</p>	<p>Activity is limited because it was difficult to coordinate with provincial veterinary office due to the distance and communication system.</p>	<p>Refer to 3-3-1.1)</p>
<p>3-5.To improve training courses for technicians of PCC,BAI and LGUs</p>	<p>3-5-1.To review and improve training 1) PCC</p>	<p>Technique of newly trained technician will be improved Contents of AI training will be improved</p>	<p>①The expert suggested that introduction to breeding and introduction to livestock should be strengthened in the AI training at the AI trainers meeting under UNAIIP. ②"AI situation in the developing countries and Philippines" was lectured by Mr.Hiroshi Saito.</p>	<p>2</p>	<p>The expert could not grasp the whole contents of AI training.</p>	<p>The expert should grasp the whole contents of AI training.</p>
	<p>3-5-2.To install equipment 1) PCC</p>	<p>AI training will be improved qualitatively</p>	<p>Refer to equipment list.</p>	<p>4</p>		<p>None</p>
	<p>3-5-3.To revise manual 1)Pilot area</p>	<p>AI training will be improved qualitatively</p>	<p>Revision of manual is scheduled in 2004 and no concrete activities are done so far.</p>	<p>No activity was scheduled in 2001, 2002</p>		<p>The data and information from farmer survey, AI in project site and model farm are reflected in manual.</p>

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Activities not mentioned in PO	Coordination of launching the project		<p>①There was a plan to divide NESF by BAI and DA-RFUIII. After the series of discussion with people concerned including Under Secretary of DA, it was finally decided that NESF stays.</p> <p>②There was a request to assign short term experts in animal health. It was agreed that livestock improvement-related experts are priority in this project.</p> <p>③Some of related personnel regarded this project as UNAIP. After the series of discussion and explanation it became clear the relation between the project and the UNAIP.</p>	-	The relation between the project and the UNAIP was hotly discussed in JCC meeting and other occasions. It took long time and much effort to discuss it and affected the activities which should be done at the initial stage of the project.	None
	Supply to UNAIP		<p>①The expert suggested that introduction to breeding and introduction to livestock should be strengthened in the AI training at the AI trainers meeting under UNAIP. This is related 3-5-1.</p> <p>②Advised UNAIP program coordinator on the price of liquid nitrogen which is produced by JICA donated liquid nitrogen plant considering maintenance, spare parts and replacement of plant itself.</p> <p>③Made a proposal for training, "Training of diffusion of artificial insemination" and submitted it to JICA philippines office.</p> <p>④Attended UNAIP meeting with project manager and advised advisory committee on</p>	-		It is desired to advise UNAIP on its capability.
	Participation in meeting		<p>①Attended JOCV-Philippine Animal Science Association (JOVC-PASA) National Consultative Meeting and Workshop in 2001 and 2002. Collected information about livestock industry from AI technicians and JOCV volunteers from different areas in the Philippines.</p> <p>②Attended The Philippine Society of Animal Science (PSAS) Meeting in 2001 and collected information about livestock and related technology in the Philippines.</p>	-		None.
	Assistance for JOCV		Facilitated volunteers to tour to the project sites and advised them on their activities.	-		None.

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ANNEX 2 Dispatch of Japanese Experts

Long-term Experts

Area of Speciality	Name	Period of Dispatch
Chief Advisor/Sire and Dam Selection	Yutaka MATSUMOTO	Nov. 27, 2000 to Nov. 26, 2002
Project Coordinator	Hideyuki ADACHI	Oct. 2, 2000 to Oct. 1, 2003
Feeding Management	Osamu TANAKA	Feb. 1, 2001 to Jan. 31, 2003
Artificial Insemination	Hidetoshi KINOSHITA	Oct. 2, 2000 to Jan. 1, 2003
Chief Advisor/Sire and Dam Selection	Tomoaki KURIMOTO	Nov. 1, 2002 to Oct. 31, 2004
Artificial Insemination	Hiroshi SAITO	Dec. 17, 2002 to Dec. 16, 2004

Short-term Experts

Area of Speciality	Name	Period of Dispatch
Calf Management	Shuichi MATSUDA	Nov. 20, 2001 to Dec. 19, 2001
Sire & Dam Selection	Takatoshi NAKANISHI	Nov. 20, 2001 to Dec. 19, 2001
Frozen Semen Production	Hiroshi SAITO	Feb. 6, 2002 to Mar. 8, 2002
Reproductive Disorder	Huminori NAGAI	Feb. 22, 2002 to Mar. 22, 2002
Feed Analysis	Toshiaki HAYAKAWA	Aug. 20, 2002 to Sep. 28, 2002
Data Processing Method	Tsutomu YOSHIZAWA	Oct. 8, 2002 to Nov. 15, 2002
Test for Milk Quality	Masahiro MASUDA	Jan. 24, 2003 to Mar. 25, 2003

ANNEX 3 Training of Counterpart Personnel in Japan

Technical Field	Name of Counterpart	Duration	Place and Training
Project Management	Dr. Rubina O. Cresencio	Sep/17~29/2000	National Livestock Breeding Center and etc, Observing main Governmental institutes on animal improvement.
Feeding Management for Water buffalo	Dr. Daniel L. Aquino	Jan/30~Mar/20/2001	NLBC HQ, NLBC Niikappu Station and etc, Feeding management on milking cow. Feed analysis, Improvement on milking cow.
Sire & Dam Selection for Beef cattle	Dr. Edwin Eusebio	Jan/30~Mar/20/2001	NLBC HQ, NLBC Tottori Station and etc, Theory and practice on direct and in-direct test for beef cattle improvement.
Sire & Dam Selection for Water buffalo	Dr. Claro N Mingala	Jul/3~Aug/14/2001	NLBC HQ, NLBC Niikappu Station and etc, Theory on breeding on milking cow, Practice on selection technique
Calf Management for Water buffalo	Dr. Apolinario L Salazar	Jul/3/~Aug/14/2001	National Livestock Research Institute, NLBC HQ, NLBC Iwate Station Theory on milking ability test, Theory on breeding of milking cow, Feeding management before and after delivery
Frozen Semen Production	Ms. Emma V Venturina	Oct/1~Nov/9/2001	NLBC Ouu Station, Livestock Improvement Association Practice on semen collection, processing frozen semen, quality control and storage.
Reproductive Disorders for Water buffalo	Dr. Nancy S Abes	Oct/1~Nov/9/2001	NLBC Ouu Station, Livestock Improvement Association Factor analysis, countermeasure and treatment on reproductive disorder.
Feed Analysis	Dr. Perla Dela Cruz Florendo	Jun/17~Jul/16/2002	N L B C H Q Feed analysis (General component), feed for milking cow and feeding management.
Test for Milk Quality	Ms. Mina Padilla Abella	Jul/2~Aug/13/2002	NLBC Iwate Station, Snow Brand Bekkai Practice on milk analysis, Milk analysis by ultra infrared ray.
Reproductive Disorder for Beef Cattle	Mr. Mariano Clodualdo Flores	Aug/5~Sep/22 /2002	NLBC HQ, NLBC Tottori Station and etc, Reproductive disorder theory, Diagnosis, Treatment

No	Date of Acquisition	Item	Maker / Model	Price	Budget	Location	In Use	Remarks
1	22 Mar,01	PC Laptop unit	iMac G3	105,895	H12 Equipment	Office	Yes	
2	23 Mar,01	PC Desktop	HP Vectra VL400DT	107,780	H12 Equipment	Digdig	Yes	
3	23 Mar,01	PC Desktop	HP Vectra VL400DT	107,780	H12 Equipment	NESF	Yes	
4	23 Mar,01	PC Laptop	HP Omnibook 6000	190,000	H12 Equipment	Office	Yes	
5	23 Mar,01	Printer	HP Deskjet 930C	9,500	H12 Equipment	Digdig	Yes	
6	23 Mar,01	Printer	HP Deskjet 930C	9,500	H12 Equipment	NESF	Yes	
7	23 Mar,01	Printer	HP Deskjet 930C	9,500	H12 Equipment	Office	Yes	
8	23 Mar,01	Printer	HP Laserjet 4050	51,650	H12 Equipment	Office	Yes	
9	23 Mar,01	PickUp	Toyota HiLux 4WD	1,189,790	H12 Equipment	NESF	Yes	
10	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
11	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
12	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
13	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
14	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
15	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
16	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
17	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	Digdig	Yes	
18	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	NESF	Yes	
19	28 Mar,01	Liquid Nitrogen Tank	MVE XC33/22	62,829	H12 Equipment	NESF	Yes	
20	19 Apr,01	PickUp	Toyota HiLux 4WD	1,188,000	H12 Equipment	Digdig	Yes	
21	19 Apr,01	PickUp	Toyota HiLux 4WD	1,188,000	H12 Equipment	Office	Yes	
22	24 Apr,01	Artificial Vagina	Nasco C06180N 10unit	68,900	H12 Equipment	Digdig	Yes	
23	25 Apr,01	Amplifier	Yamaha	24,990	H12 Equipment	Digdig	Yes	
24	25 Apr,01	Speaker	Celestion Ipiar	18,990	H12 Equipment	Digdig	Yes	
25	25 Apr,01	Microphone	Sennheiser wireless	33,990	H12 Equipment	Digdig	Yes	
26	5 May,01	Weighing scale portable	Workhorse 2 t	396,439	H12 Equipment	Digdig	Yes	
27	5 May,01	Weighing scale portable	Workhorse 2 t	396,439	H12 Equipment	NESF	Yes	
28	18 May,01	Distiling apparatus	GP3 52857-889	75,591	H12 Equipment	Digdig	Yes	
29	1 Jun,01	Weighing scale staition	Ruddweight2000FL	56,018	H12 Equipment	NESF	Yes	
30	1 Jun,01	Weighing scale staition	Ruddweight2000FL	56,018	H12 Equipment	Genepool	Yes	
31	22 Jun,01	Organ washer	FHK FA4	900,000	H12 Equipment	Digdig	Yes	
32	22 Jun,01	LCD Projector	Plus U2-1130XGA	352,000	H12 Equipment	Office	Yes	
33	22 Jun,01	OHP	Plus CX-500	80,000	H12 Equipment	Office	Yes	
34	22 Jun,01	TV	SONY Wega29	53,760	H12 Equipment	Office	Yes	
35	22 Jun,01	Video Deck	SONY Hifi GF85	8,399	H12 Equipment	Office	Yes	

36	25 Jun,01	Wagon	Toyota Prado	2,475,020	H12 Equipment	Office	Yes
37	30 Oct,01	Bus	Mitsubishi FE635	1,850,000	H12 Equipment	PCC	Yes
38	1 Mar,02	It Truck	Mitsubishi L-300 Cab FB	550,000	H14 Equipment	Office	Yes
39	13 Mar,02	Skid Steer Loader	Bobcat 751,Bucket,Pallet fork	1,000,000	H14 Equipment	NESF	Yes
40	18 Mar,02	PC,Printer,Software,UPS	IBM Net VistaA40,Epson1160	104,350	H14 Equipment	Genepool	Yes
41	18 Mar,02	PC,Printer,Software,UPS	IBM Net VistaA40,Epson1160	104,350	H14 Equipment	Genepool	Yes
42	18 Mar,02	PC,Printer,Software,UPS	IBM Net VistaA40,Epson1160	104,350	H14 Equipment	NESF	Yes
43	18 Mar,02	PC,Printer,Software,UPS	IBM Net VistaA40,Epson1160	104,350	H14 Equipment	NESF	Yes
44	18 Mar,02	PC,Printer,Software,UPS	IBM Net VistaA40,Epson1160	104,350	H14 Equipment	PVO	Yes
45	20 Mar,02	Hot plate stirrer	Ecotherm HS10-2	17,800	H13 Equipment	NESF	Yes
46	22 Mar,02	Generator 34KVA	Perkins 34KVA 3Phase	455,000	Local Appliance	NESF	Yes
47	5 Apr,02	Generator 50KVA	Perkins 50KVA 50KVA	515,000	H13 Equipment	Digdig	Yes
48	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
49	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
50	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
51	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
52	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
53	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
54	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
55	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
56	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
57	10 Apr,02	LN2 Field Tank	MVE SC 3/3	32,000	H13 Equipment	Office	Yes
58	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Office	Yes
59	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Office	Yes
60	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Office	Yes
61	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Digdig	Yes
62	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Digdig	Yes
63	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Digdig	Yes
64	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Digdig	Yes
65	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Digdig	Yes
66	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	Digdig	Yes
67	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
68	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
69	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
70	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
71	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
72	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
73	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
74	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
75	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes

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76	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
77	10 Apr,02	Liquid Nitrogen Tank	MVE XC33/22	54,000	H13 Equipment	NESF	Yes
78	10 Apr,02	LN2 Strage tank	MVE-MDX 119L(450L)	1,060,000	H14 Equipment	L300	Yes
79	23 Apr,02	Artificial Vagina Inner Liner 5pcs	C06154N	4,065	H13 Equipment	NESF	Yes
80	23 Apr,02	A V Rough surface liner 15pcs	C06179N	7,337	H13 Equipment	NESF	Yes
81	23 Apr,02	A V Collection Funnel 15pcs	C08157N	8,371	H13 Equipment	NESF	Yes
82	23 Apr,02	Pro-Grip Applicator 4pcs	C17245N	4,492	H13 Equipment	NESF/PCC	Yes
83	23 Apr,02	Semen Straw Cutter 20pcs	C03340N	6,260	H13 Equipment	PVO	Yes
84	23 Apr,02	Water distiling barnstead	D7382-33	199,000	H14 Equipment	PCC	Yes
85	8 May,02	Hemacytometer	IMV USA090Neubauer	11,000	H13 Equipment	Digdig	Yes
86	8 May,02	Hemacytometer	IMV USA090Neubauer	11,000	H13 Equipment	NESF	Yes
87	8 May,02	Analytical Balance	IMV USA057	37,800	H13 Equipment	PCC	Yes
88	8 May,02	Analytical Balance	OHAUS CS-5000	46,800	H13 Equipment	NESF	Yes
89	8 May,02	Microscope stage slide warmer	IMV USA056	43,200	H13 Equipment	PCC	Yes
90	8 May,02	Microscope stage slide warmer	IMV USA056	43,200	H13 Equipment	Digdig	Yes
91	8 May,02	Microscope stage slide warmer	IMV USA056	43,200	H13 Equipment	NESF	Yes
92	8 May,02	Automatic straw printing machine	MIA	598,000	H13 Equipment	Digdig	Yes
93	8 May,02	Boreal Digital/Analog Microscope	B30003-00	153,450	H13 Equipment	Digdig	Yes
94	8 May,02	Boreal Digital/Analog Microscope	B30003-00	153,450	H13 Equipment	NESF	Yes
95	8 May,02	Bobcock Centrifuge	IEC HN-SII	259,798	H13 Equipment	PCC	Yes
96	9 May,02	Tekmar Analitical Mill Grinder	Tekmar3388E26	60,546	H14 Equipment	PCC	Yes
97	9 May,02	Cyclone Sample Mill Grinder	UDY CORP3383N80	194,663	H14 Equipment	PCC	Yes
98	9 May,02	Benchtop Muffle Furnace	Neytech Vulcan5329A04,A-130	52,867	H14 Equipment	PCC	Yes
99	9 May,02	Laboratory Oven	Labline 7188A10	41,552	H14 Equipment	PCC	Yes
100	9 May,02	Laboratory Oven	Labline 7188A10	41,552	H14 Equipment	PCC	Yes
101	14 May,02	Waterbath	Memmert WB-77	17,800	H13 Equipment	PCC	Yes
102	15 May,02	Cooling Chamber	Hotpack Incubator	216,220	H13 Equipment	PCC	Yes
103	22 May,02	Kjeldahl system	Velp Scientifica	745,255	H13 Equipment	PCC	Yes
104	22 May,02	Kjeldahl system	Velp Scientifica	745,255	H13 Equipment	PCC	Yes
105	22 May,02	Fat Extractor	Velp Scientifica	653,317	H13 Equipment	PCC	Yes
106	22 May,02	Fiber Extractor	Velp Scientifica	447,381	H13 Equipment	PCC	Yes
107	29 May,02	MilcoScan Operating PC	Foss S54B P/N392800 Compaq MV740	3,711,192	H14 Equipment	PCC	Yes Yes
108	31 May,02	Manua Spreader	H & S 175	675,000	H14 Equipment	NESF	Yes
109	6 Jun,02	Drying Oven	Scientific 276	110,055	H14 Equipment	PCC	Yes
110	19 Jun,02	Autoclave steam sterilizer	Cat S50395	78,838	H13 Equipment	NESF	Yes
111	19 Jun,02	Drying oven	ED53,Binder	45,360	H13 Equipment	PCC	Yes
112	25 Jun,02	Draft Chamber	ESCO EQU-0A-4EDFC	281,873	H14 Equipment	PCC	Yes
113	25 Jun,02	Freezer Upright	JenconsPLS FS345G	99,675	H14 Equipment	PCC	Yes
114	17 July,02	Artificcial Vagina Sterilizer	FHK 74-16301	133,070	H14 Equipment	NESF	Yes

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115	17 July,02	Semen Straw Sterilizer	FHK-FA340	231,770	H14 Equipment	ENSF	Yes	
116	17 July,02	Gas Sterilizer	FHK-FL172	492,800	H14 Equipment	Digdig	Yes	
117	2 Aug,02	3pcs Slide for Motility evaluation	FHK-FA225	18,024	H14 Equipment	Digdig	Yes	
118	2 Aug,02	2pcs Slide for Motility evaluation	FHK-FA225	12,016	H14 Equipment	NESF	Yes	
119	2 Aug,02	pcs Slide for Motility evaluation	FHK-FA225	6,008	H14 Equipment	Office	Yes	
120	2 Aug,02	20 pcs Vagina speculum		6,000	H14 Equipment	Office	Yes	
121	10 Oct,02	Freezing chamber	FHK-FA1652	535,000	H13 Equipment	NESF	Yes	

ANNEX 5 Allocation of Counterpart Personnel

Assignment of the Project	Name of the Counterpart	Office	Training Period in Japan	JICA Expert in charge	Working Duration in the Project
Project Director	Usec Cesar M. Drilon, Jr (Under Secretary, DA)	DA			Oct 2000~
Deputy Co-Project Director BAI	Dr. Jose Q. Molina (Director, BAI, DA)	BAI			Sep 2000~
Deputy Co-Project Director PCC	Dr. Libertado C. Cruz (Executive Director, PCC, DA)	PCC			Oct 2000~
Project Manager	Dr. Rubina O. Cresencio (Information Officer V, PCC, DA)	PCC	Sep/17~29/2000		Oct 2000~
Project Sub-Manager	Dr. Baltazar P. Mateo (Center Chief, NESF, BAI)	BAI		Mr. Matsumoto	Oct 2000~
Artificial Insemination	Dr. Felomino V. Mamuad (Deputy Executive Director, PCC, DA)	PCC		Dr. Kinoshita	Oct 2000~
Artificial Insemination Frozen semen processing Associate	Ms. Emma V. Venturiano (Science Reserch Specialist II, PCC, DA)	PCC	Oct/1~Nov/9/ 2001	Dr. Kinoshita	Jul 2002~
Artificial Insemination Frozen semen processing	Ms. Rosalinda P. Mateo (Agriculturist II, NESF, BAI, DA)	NESF		Dr. Kinoshita	Jul 2002~
Artificial Insemination Frozen semen processing Associate	Ms. Ursula Serafica (Farmwarker II, NESF, BAI, DA)	NESF		Dr. Kinoshita	Jul 2002~
Feeding and Management	Dr. Daniel Aquino (Supervisor Science Research Spetialist, PCC, DA)	PCC	Jan/30~Mar/20/ 2001	Mr. Tanaka	Apr 2002~
Feeding and Management Associate	Dr. Apolinario L. Salazar Jr (Science Reserch Specialist I, PCC, DA)	PCC	Jul/3/~Aug/14/ 2001	Mr. Tanaka	Apr 2001~
Feeding and Management	Mr. Mariano Clodualdo F (Agriculturist II, NESF, BAI, DA)	NESF	Aug/5~Sep/22 /2002	Mr. Tanaka	Jul 2002~
Feeding and Management Model farmers Associate	Dr. Nomer Garcia (Senior Science Reserch Specialist, PCC, DA)	PCC		Matsumoto Mr. Tanaka Dr. Kinoshita	Jul 2002~
Sire and Dam Selection	Dr. Peregrino Duran (Supervisor Science Research Spetialist, PCC, DA)	PCC		Mr. Matsumoto	Apr 2002~
Sire and Dam Selection Associate	Dr. Claro N. Mingala (Farm Superrintendent II, PCC, DA)	PCC	Jul/3~Aug/14/ 2001	Mr. Matsumoto	Apr 2001~
Sire and Dam Selection	Dr. Edwin Eusebio (Agriculturist I, NESF, BAI, DA)	NESF	Jan/30~Mar/20/ 2001	Mr. Matsumoto	Oct 2000~

ANNEX 6 Allocation of Budget by Philippine side

Budget Allocation of PCC and NESF

(P'000)

Year	2000			2001			2002			2003 (Request base)		
	GAA	MAKAMASA	GAA	GAA	MAKAMASA	Total	GAA	GMA	Total	GAA	GMA	Total
PCC	44,743		44,743	124,225		124,225	178,434		178,434	144,334		144,334
NESF	800	1,800	2,600	700	2,500	3,200	500		500	700		700

Budget Allocation of PCC and NESF for WBBCIP

(P'000)

Year	2000			2001			2002				2003 (Request base)		
							GMA	FAPF	MAKAMASA	Total	GMA	FAPF	Total
PCC							11,477	1,002		12,479			
NESF							11,023	326	2,300	13,649	700	10,600	
Total										26,128			11,300

*Note: In 2000 and 2001, budget was not allocated for WBBCIP, however, expenditures necessary for WBBCIP were covered by PCC's ordinary budget for that period.

2000: 6 units of air conditioners, some office desks, and 1 set of furniture for reception room

2001: car insurance, maintenance costs for the project office, costs for seminar, meetings, and some office supplies

GAA=General Appropriation Act

MAKAMASA

GMA=Ginintuang Masaganang Ani

FAPS=Foreign Assisted Project Found