

1. Outline of the Project		
Country name: The Philippines		Project name: Water Buffaloes and Beef Cattle Improvement Project
Fields: Agricultural/Rural development- Agricultural Development		Assistance type: Technical cooperation project
Supervising office: Paddy Field Based Farming Area Team I、Group I, Rural Development Department		Monetary amount of cooperation (at time of evaluation): 506 million yen
Period of cooperation	R/D: October 2, 2000, to October 1, 2005	Counterpart organizations: Philippine Carabao Center (PCC), Bureau of Animal Industry (BAI), Nueva Ecija provincial government
	Extension:	Cooperating organizations in Japan: Agricultural Production Bureau, Ministry of Agriculture, Forestry and Fisheries; National Livestock Breeding Center; Livestock Improvement Corporation of Japan
	F/U:	
	E/N: (Grant aid)	Other associated cooperation:
<p>1-1 Background and outline of the Project</p> <p>In the Republic of the Philippines, the agriculture, forestry and fishery industries account for roughly 30% of the nation's GDP, and the number of people employed in these industries make up approximately 50% of the nation's working population. Although production of livestock products accounts for approximately 25% of agricultural production, the instability of said production means that the Philippines have not yet attained self-sufficiency in livestock products. Thus, the Department of Agriculture sees the water buffalo and beef cattle sectors as being a priority field in terms of such aspects as effective use of the nation's grasslands and antipoverty measures.</p> <p>The Department of Agriculture has been implementing artificial insemination (AI) in collaboration with local government units (LGUs) to improve livestock ability and productivity. However, insufficient cooperation among the Bureau of Animal Industry (BAI), which is an arm of the Department of Agriculture, the Philippine Carabao Center (PCC), and the National Dairy Authority (NDA) as well as shortages of AI technicians in local governments have hindered manifestation of results. Moreover, lack of a</p>		

system for high-quality sire and dam selection, the low AI conception rate, and low feeding and management techniques also present problems.

Given these circumstances, the Government of the Philippines submitted a request to the Government of Japan for technical cooperation to improve the AI extension rate, to develop technicians through implementation of education and training, and to improve genetic resources. Such cooperation would be in order to improve living standards in rural areas through improved water-buffalo and beef-cattle productivity. Based on this request, JICA dispatched a preliminary study team and conducted an implementation study that resulted in the commencement of this Project as a five-year program on October 2, 2000.

#### 1-2 Description of cooperation

##### (1) Overall Goal

The productivity of water buffaloes (WB) and beef cattle (BC) in the Philippines is improved.

##### (2) Project Purpose

Relevant techniques for improvement of WB and BC are developed in the Province of Nueva Ecija.

##### (3) Outputs of the project

- 1) Sire and dam selection techniques for WB and BC are improved.
- 2) Feeding and management techniques of the PCC, BIA, and LGUs technicians are improved.
- 3) Artificial insemination techniques of the PCC, BIA, and LGUs technicians are improved.
- 4) Training programs for model farms on feeding and management are improved.

(Note: NESF is a stock farm under the jurisdiction of BAI that is located in Nueva Ecija Province.)

##### (4) Inputs (at time of evaluation)

###### Japanese side

Dispatch of long-term experts (4 fields):	Total of 11 experts
Dispatch of short-term experts:	15 experts
Training of C/Ps in Japan:	23 C/Ps

Provision of machinery and equipment:	7.72 million yen and 52.35 million pesos
Assumption of local costs:	24.61 million pesos
Philippine side	
Allocation of C/Ps:	Total of 25 C/Ps
Assumption of local costs:	7.29 million pesos
Provision of land and facilities	

## 2. Outline of the Evaluation Team

Members	Team leader:	Takeaki Sato	Group Director, Group I, Rural Development Department, JICA
	Livestock Industry technology:	Kenji Yamauchi	Director, Beef Cattle Improvement Division, Tokachi Station, National Livestock Breeding Center,
	Project planning:	Keisuke Ito	Staff member, Field-Based Farming Area Team II, Group I, Rural Development Department, JICA
	Evaluation and analysis:	Isao Dojun	Chuo Kaihatsu Corporation
Evaluation period	May 24, 2005, to June 9, 2005	Evaluation type: Final evaluation	

## 3. Outline of Evaluation Results

### 3-1 Confirmation of achievements

Looking at improvement of breeding stock selection techniques, feeding and management techniques, and frozen semen production/artificial insemination techniques for water buffaloes in PCC, the amount of milk produced by model farming households grew by 3.74% from 2003 to 2004, thereby achieving the target. Similarly, looking at improvement of breeding stock selection techniques, feeding and management techniques, and frozen semen production/artificial insemination techniques for beef cattle in NESF, weight at weaning grew 6.12% from 2003 to 2005, thereby achieving the target. Although it is thought that achieving the target for frozen semen produced from approved stud bulls will be difficult within the Project Period, the techniques for stud bull selection, artificial insemination, etc., have already been transferred to the C/Ps, and therefore frozen semen production from selected stud bulls is on track. Thus, the team has judged that numerical targets will be attainable

after the Project is completed.

### 3-2 Outline of evaluation results

#### (1) Relevance

The Project is in conformity with the purpose and targets of the Medium-Term Philippine Development Plan for 2004 to 2010 as well as the GMA's livestock program (modernization of livestock Industry among small-scale livestock farmers). Moreover, the Project's content is in line with needs for genetic improvement of livestock at PCC and BAI's stock farm (NESF). It is also consistent with the productivity improvement requirements of livestock farmers and, further, is in line with the cooperation policy of Japan and JICA. Accordingly, the Project has high relevance.

#### (2) Effectiveness

It is expected that almost all areas of the Project Purpose and Outputs can be achieved by the end of the Project. As for the target for frozen semen produced from approved stud bulls, it is thought that complete achievement will be difficult during the Project Period due to the fact that indicators were established without sufficient consideration of time schedule (i.e., that several years are required for the reproductive cycle). However, the techniques connected with this unachieved portion have already been transferred, and thus it is expected that the indicators will be achieved through the continuation of activities by the counterpart organizations after the Project's termination. (Nonetheless, plans call for reconfirmation of progress in frozen semen production at the end of the Project.)

Techniques for sire and dam selection, feeding and management, and artificial insemination are important components in the effort to improve the ability of water buffaloes and beef cattle, and achievement of their Outputs are contributing significantly to achievement of the Project Purpose.

#### (3) Efficiency

The fact that there were few transfers of Philippine C/Ps—and particularly that there were no transfers of C/Ps assigned to management section, meaning that these C/Ps were with the Project over the entire course of the Project Period—helped ensure efficiency in the Project's smooth implementation. Furthermore, the effective functioning of regularly held meetings and cooperative relationship between the Japanese experts and C/Ps ensured efficiency in Project management.

#### (4) Impact

##### 1) Prospects of achieving the Overall Goal

It is expected that the outcomes of the Project will gradually contribute to attainment of the Overall Goal. However, because the target group of the Project is technicians of PCC, NESF, and Nueva Ecija Province, and because the scope of said technicians is limited, achievement of the Project Purpose alone cannot be expected to quickly or automatically contribute to improved water-buffalo and beef-cattle productivity throughout the entire country. Thus, in addition to the Project Outputs, it is imperative that the Philippine side make more efforts to prepare action plans for extending the Project Outputs throughout the country and for raising the standard of living at the farm-household level and then to implement these plans so that the Overall Goal can be achieved.

##### 2) Other impacts

- a. PCC is distributing frozen semen through its 13 PCC centers located throughout the Philippines. If production of high-quality frozen semen through the Project becomes possible and distribution of frozen semen from approved water buffaloes begins, these actions will likely contribute to improved water-buffalo's milk performance throughout the Philippines.
- b. NESF has distributed 32 beef bulls to farmers in Regions 1 to 4 through the bull loan program. These beef cattle represent part of the cattle that were produced through improved sire and dam selection techniques and have high genetic potential. Thus, they will likely contribute to livestock improvement in not only Nueva Ecija Province but also neighboring regions.
- c. In cooperation with the provincial government of Nueva Ecija, 77 heifers having high genetic potential were distributed to farmers' organizations, and plans call for the distribution of 40 such cattle each year in the future. This kind of collaboration between local governments and farmers' organizations is expected to contribute to productivity improvement at the field level.
- d. The data collection and recording system for sire and dam selection is being applied in other PCC centers.

#### (5) Sustainability

##### 1) Institutional sustainability

PCC serves to support higher levels of income and improved general well-being of farming families through water buffaloes, and NESF functions as a station for distribution of frozen semen of beef cattle to Luzon, production of beef cattle, and implementation of training for artificial insemination technicians. The benefits produced by both organizations have become recognized not only in Nueva Ecija Province but neighboring provinces as well. Thus, so long as the government's policy does not change, the intuitional sustainability of PCC and NESF will be maintained.

2) Financial sustainability

The Philippine government is providing nearly all necessary budgetary funding to the Project during the Project Period. It will be necessary for the Philippine government to continue allocating sufficient funding in order to ensure the sustainability of Project Outputs. Moreover, both PCC and NESF are conducting income-generating activities. PCC is allowed to utilize its income to subsidize its operations, and this is seen as contributing to the Project's sustainability. On the other hand, NESF has not been granted the authority to use its own revenue; this system is currently being reviewed. If it is considered that the Philippine government is facing extremely severe financial circumstances, the self-generation and use of income is thought to be an enormously important source of funds for sustainability.

3) Technical sustainability

The Philippine C/Ps have satisfactorily acquired improved knowledge and skills in the fields of sire and dam selection, feeding and management, and artificial insemination through the Project. Few C/Ps have been transferred during the Project Period, and no C/Ps have retired. If the C/Ps continue working at their current workplaces and transfer techniques to other employees, the Project's technical sustainability will be maintained. However, despite the fact the feeding and management section covers a wide range and requires even more human resources, the number of NESF personnel in feeding and management is extraordinarily insufficient. There are concerns that this situation will hinder continuation of activities based on the transferred techniques, further technical improvement, and extension of techniques to other centers.

- (1) The fact that few C/Ps were transferred, the high coordinating ability of Philippine project managers, and the holding of regular meetings between Japanese experts and C/Ps built a good cooperative relationship among the Japanese experts, Philippine C/Ps, PCC, and NESF.
- (2) Technology transfer to provincial AI inseminators and efforts to extend techniques to farmers through collaboration with Nueva Ecija Province are contributing to the manifestation of Project effects.
- (3) The fact that the Project is matched to the primary duties of the counterpart organizations (PCC and NESF-BAI) facilitated Project management.

#### 3-4 Problem areas and factors leading to problems

- (1) Despite the fact that the Project targeted large ruminants whose reproductive cycle requires several years, insufficient consideration was given to this time cycle. Consequently, attaining targets pertaining to production of frozen semen from approved stud bulls will be difficult during the Project Period. Nonetheless, even if achieving numerical targets will be problematic, work to enhance techniques for improving water buffaloes and beef cattle, which was the original intention of the Project (sire and dam selection, artificial insemination, etc.) proceeded according to plan, and therefore no special effort was made to revise the numerical targets.
- (2) The indicator for the conception rate was not defined clearly, and therefore cases in which the indicators were interpreted differently emerged. This made monitoring and evaluation of target achievement difficult. Although this problem was recognized by the experts, because activities toward improving the conception rate in PCC and NESF proceeded in a steady manner, no special action was taken to clarify the PDM indicator.

#### 3-5 Conclusion

Techniques for improvement of water buffaloes and beef cattle have been successfully developed through the Project. Although there still remain a few items that have not been achieved yet, it is expected that these items will be achievable without Japanese assistance, as transfer of necessary technologies to C/Ps and provision of facilities, machinery, and equipment have been completed for the most part.

Accordingly, it is concluded that the Project will be completed on October 1, 2005, as planned.

3-6 Recommendations (specific measures, proposals, and advice pertaining to the

Project)

### 3-6-1 Recommendations for activities during the remaining Project Period

The target group of the Project is technicians of PCC, NESF, and Nueva Ecija Province. On the other hand, the Overall Goal is improved productivity of water buffaloes and beef cattle at the national level with focus on improved productivity at the field level. Accordingly, an action plan to sustain and develop the Project Outputs and to ensure improved productivity at both the national and the farm-household levels should be prepared during the Project Period.

### 3-6-2 Recommendations for activities after the Project Period

- (1) The Government of the Philippines should secure resources (human resources, budgetary funding) needed to sustain the Project Outputs and to improve water-buffalo and beef-cattle productivity at the national level.
- (2) While, in general, the Project sought to improve techniques within PCC headquarters and NESF, it will be necessary to extend the Project Outputs to technicians and farmers throughout the Philippines in order to improve water-buffalo and beef-cattle production at the national level. Accordingly, PCC and BAI, in collaboration with LGUs and other relevant institutions, should disseminate the technologies acquired through the Project to centers/stations, technicians, and farmers.
- (3) Given the fact that the Philippine government is facing extremely severe financial circumstances, PCC and BAI should supplement their operating expenses through reinforcement of own-revenue so that they may continue Project activities and extend techniques to relevant institutions even after Project termination.
- (4) Despite the fact the feeding and management section covers a wide range and requires even more human resources, the number of NESF personnel in feeding and management is extraordinarily insufficient. Thus, there are concerns that this situation will hinder continuation of activities based on transferred feeding and management techniques, further improvement of techniques, and transfer to other centers. Therefore, BAI should assign additional personnel in charge of forage production and feed resources to NESF.

### 3-7 Lessons learned (items drawn from the Project that will prove useful as references when identifying and formulating, implementing, and managing similar projects)

- (1) This Project was simultaneously an undertaking that centered on improvement of techniques in research institutions and a project that incorporated collaboration



with local government units and training on water-buffalo breeding for model farmers. This kind of close collaboration with local government units and farmers is making it easier to ascertain farmers' needs and, while limited, is showing signs of spreading techniques to neighboring farmers. Thus, it is expected that techniques will become further disseminated in the future. In countries like the Philippines, in which the work of extending agricultural technologies is being transferred from the central government to local government units amid efforts to advance decentralization, the roles that local government units play in ascertaining onsite needs and extending technologies are significant. Therefore, collaboration with local governments is important, even for projects that are focused on technical improvement in research institutions. Furthermore, in cases in which improvement of productivity at the field level is mentioned in the overall goal, maximum effort must be made to ensure close collaboration with local farmers, and preparations for extension of project outputs after the termination of the project must be made during the project period.

- (2) Despite the fact that the Project targeted large ruminants, it was designed without sufficient consideration for the time required for reproduction. This created a situation in which some targets could not be attained during the Project Period. Consequently, projects that include improvement of large ruminants must establish their activities plans based on full and prior consideration of reproductive time cycles.
- (3) The indicator for "artificial insemination conception rate" became the subject of differing interpretations among concerned personnel, as some people thought that it referred to the average conception rate within a center while others thought it meant the average conception rate within the entire region. This led to a number of difficulties in monitoring and evaluating Project achievements. Consequently, when setting PDM indicators, care should be taken to clarify definitions so that no differences in indicator interpretation emerge among personnel at later stages of the project.