

## 添付資料

1. インハウスコンサルタント作成報告書
2. PSC（終了時評価）ミニッツ
3. 中間評価報告書
4. 中間評価時のミニッツ



# FINAL REPORT

## TERMINAL EVALUATION STUDY

of the

## JOCV-DTRI-NDA-PNVSCA DAIRY DEVELOPMENT ENHANCEMENT PROJECT

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## **1. Outline of the Evaluation Study**

### **1.1 Objectives of the Evaluation**

The objectives of the evaluation study are as follows:

- (1) To verify the level of achievement and performance of the Project based on the Minutes of Meeting (M/M) and Project Design Matrix (PDM);
- (2) To evaluate the Project in terms of the Five Evaluation Criteria;
- (3) To draw useful recommendations and lessons learned from the Project.

### **1.2 Members of the Evaluation Study Team**

The terminal evaluation study was conducted by Engr. Nick Baoy, JICA In-house Consultant under the supervision of Ms. Chiho Tanaka of the JOCV Section of JICA Philippines Office. Assistance in data collection was provided by project counterparts from DTRI and NDA.

### **1.3 Methodology of the Evaluation**

The terminal evaluation was conducted based on the "JICA Guidelines for Project Evaluation," revised version, March 2004. The evaluation activities included review and analysis of project documents and reports, conduct of field survey in target areas, questionnaire survey among project counterparts, and interviews with key informants from project-related agencies. The field survey adopted participatory methods including focus group discussions with dairy cooperative officers and members in the target areas. Overall, the evaluation study was guided by the following criteria:

- (1) Relevance – refers to the validity of the Project Purpose and the Overall Goal in relation to the development policy of the Philippine Government as well as the needs of the beneficiaries;
- (2) 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;
- (3) Efficiency – refers to the productivity of the implementation process, and examines if the Inputs of the Project were efficiently converted into Outputs;
- (4) Impact – refers to direct and indirect, positive and negative impact caused by the Project and the extent to which the Overall Goal has been attained;
- (5) Sustainability – refers to the extent to which the Philippine side can further develop the Project, and the extent by which the benefits generated by the Project can be sustained under the policies, technologies, systems and financial state of the Philippine side.

### **1.4 Schedule of the Evaluation**

The terminal evaluation was conducted from April 9, 2008 to May 22, 2008. (Please refer to the detailed schedule in Annex 1).

## 2. Outline of Evaluated Project

### 2.1 Background of the Project

In 1999, JICA received a project request from the Dairy Training and Research Institute of the University of the Philippines at Los Banos (DTRI-UPLB) for the implementation of the Dairy Development Enhancement Project under the JOCV Program. With the support from senior JOCVs, the project request was subsequently refined and officially endorsed to JICA sometime in 2002. In response to the request, JICA dispatched study missions to formulate the appropriate framework of the project. After a series of consultations with concerned agencies, the Minutes of Meeting on the Dairy Development Enhancement Project of the JOCV, DTRI, NDA and PNVSCA was signed in November 10, 2003.

Based on the agreement, the project cooperation was for a period of five years from October 1, 2003 to September 30, 2008. The project was implemented in three target areas, namely: DTRI, NDA South Luzon and NDA Visayas. Overall project supervision was entrusted to a Project Manager from the DTRI with technical support provided by a senior JOCV.

In October 2006, a JICA evaluation team conducted a mid-term evaluation of the project. The evaluation team concluded that the achievement of the project was more than the original expectation and recommended that the project: a) promote the activities through the PSC meeting; b) reconsider on making good use of unused equipment; and c) improve the roughage production.

Before the project ends in September 2008, terminal evaluation is required to assess the progress, achievement and performance of the Project and recommend actions to be taken after the termination of the Project.

### 2.2 Implementation framework of the Project

#### 2.2.1 Objectives of the Project

##### (1) Overall Goal

Local dairy industry is promoted.

##### (2) Project Purpose

The milk production in target areas is increased.

#### 2.2.2 Outputs of the Project

(1) Improved management technology for dairy cattle is developed.

(2) Knowledge and skills of DTRI researchers and NDA PDOs are enhanced.

(3) Support system for dairy farmers is strengthened.

(Refer to Annex 2 for the PDM).

### 2.3 Summary plan of operations

According to the Plan of Operations, there were three (3) major activities and ten (10) sub-activities to be undertaken by the project from October 1, 2003 to September 30, 2008. These activities are as follows:

Major Activities		Sub-activities	
1.	Development of improved management technology for dairy cattle	1.1	Improve forage quality
		1.2	Improve the utilization of concentrate feed
		1.3	Design feeding system suitable for each target area
		1.4	Promote suitable hygienic management methods for farmers
2.	Enhancement of the knowledge and skills of researchers and PDOs	2.1	Improve the present curricula of training courses
		2.2	Conduct the training course
3.	Strengthening of extension support system for dairy farmers	3.1	Conduct appropriate training courses on improved technologies for farmers
		3.2	Monitor and evaluate ex-trainees
		3.3	Provide extension to farmers in target areas
		3.4	Develop a system for distributing suitable dairy cattle to farmers

Source: Minutes of Meeting; Plan of Operations

## 3. Achievement of the Project

### 3.1 Achievement in terms of project purpose

Project purpose: “The milk production in target areas is increased.”

Verifiable Indicator: “Milk production in processing plants increased.”

#### Findings as of April 2008:

There are two milk processing plants in the project’s target areas, one is found in Calauan, Laguna managed by KKMI and the other one is located in Consolacion, Cebu operated by CEFEDCO. KKMI and CEFEDCO are federations of primary cooperatives engaged in small-scale dairy farming. The raw milk requirements of these plants are supplied by the federation’s member-cooperatives which are being assisted by the project. About 60 percent of the milk processed by the plants are sold to coffee shops, hotels, restaurants and supermarkets while some 40 percent are absorbed by the milk feeding programs sponsored by local governments within the project areas. Data gathered from the two processing plants reveal an increasing trend in aggregate milk production from 2003 to 2005 largely due to the increasing volume of milk collected from the target cooperatives resulting from the farmers’ adoption of improved management practices and equipment provided by the project. In the case of KKMI, the

infusion/distribution of about 600 imported dairy animals under the animal loan program of Quedancor to some of the member cooperatives assisted by the project in also contributed to the significant increase in milk collection in 2005. From 2005 to 2007, however, milk production has been on a decline mainly due to the decreasing volume of milk collected from member cooperatives resulting from the significant decline in number of animals on the milk line and decreasing number of active dairy farmers within the member cooperatives especially in the case of CEFEDCO. The aggregate milk production of target cooperatives under CEFEDCO in 2007 has, in fact, declined below the 2003 level.

Despite the observed decline in last two years, aggregate milk production in the two milk processing plants increased by 76,335 liters from 908,707 liters in 2003 to 985,042 liters in 2007 with dairy cooperatives assisted by the project accounting for 75 percent of total production. Based on the above findings, the Project Purpose was achieved.

Table 1: Volume of raw milk collected by processing plants, in liters, 2003-2007

Year	KKMI	CEFEDCO	Total
2003	390,508	518,199	908,707
2004	478,087	569,015	1,047,102
2005	550,795	611,536	1,162,331
2006	464,010	563,332	1,027,342
2007	456,747	528,295	985,042

Source of basic data: KKMI and CEFEDCO;

Table 2: Volume of raw milk collected by processing plants from target cooperatives in liters, 2003-2007

Year	KKMI		CEFEDCO		Total Project Area	
	Target Coops	% of Total Production	Target Coops	% of Total Production	All Target Coops	% of Total Production
2003	218,066	56	419,402	81	637,468	70
2004	327,908	69	498,398	88	826,306	79
2005	351,036	64	492,669	81	843,705	73
2006	301,640	65	384,723	68	686,363	67
2007	358,247	78	379,597	72	737,844	75

Source of basic data: KKMI and CEFEDCO; see also Annex 3 for milk production per cooperative.

Table 3. Changes in number of animals on the milklane (AOL) and size of dairy herd in KKMI and CEFEDCO, 2005-2007

Year	KKMI		CEFEDCO		Total Project Area	
	AOL	Dairy herd	AOL	Dairy herd	AOL	Dairy herd
2005	279	559	174	740	453	1,299
2006	244	574	146	673	390	1,247
2007	260	687	118	691	378	1,378

Source: NDA



Figure 1: Trend in milk production at KKMI in '000 liters, 2003-2007

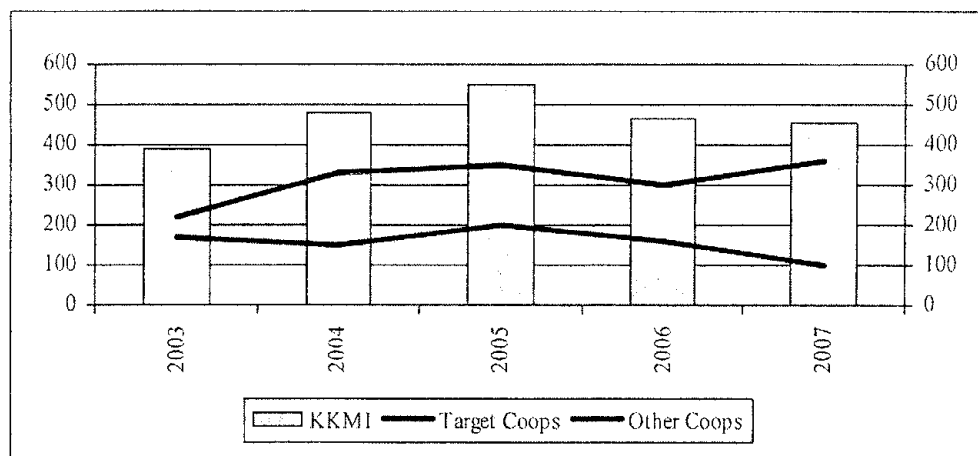
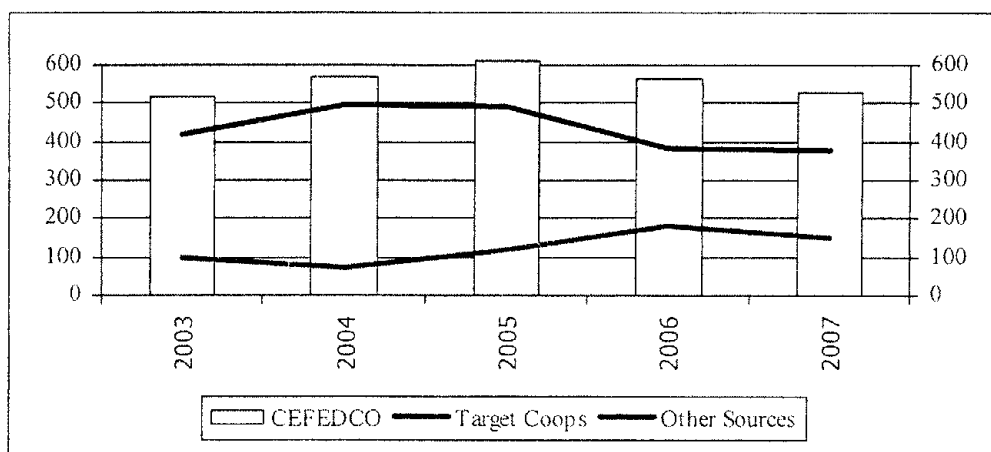


Figure 2: Trend in milk production at CEFEDCO in '000 liters, 2003-2007



### 3.2 Achievement in terms of output

(1) Output 1: “Improved management technology for dairy cattle is developed”

Verifiable indicator: “Number of technologies developed on feeding, nutrition, breeding and hygiene.”

Findings as of April 2008:

Based on the accomplishment reports of the project teams, the following were achieved relative to Output 1:

Table 4: Technologies developed or introduced by the project in target areas

Areas of concern	Technologies
a. Breeding and reproduction	o Introduction of Jeuns Moyen Retard (JMR), a system of reproductive health management that sets the parameters for effective monitoring of

	<p>reproductive performance of a dairy herd.</p> <ul style="list-style-type: none"> <li>○ Establishment of practical and reliable milk recording scheme based on the Test Interval Method suggested by the International Committee for Animal Recording (ICAR).</li> <li>○ Established a model for the Sire Testing Program for dairy aimed at generating breeding values for sires used through the DTRI-NDA Semen Production Project.</li> <li>○ Introduction of permanent identification system for individual cows based on the method suggested by ICAR using 17 alpha-numeric code.</li> <li>○ Introduction of semen straw identification system following the Interbull Guidelines of ICAR.</li> </ul>
b. Milk Hygiene	<ul style="list-style-type: none"> <li>○ Promotion of hygienic management methods for dairy farmers with emphasis on personal hygiene, proper milking procedures, sanitation in the farm and milk collection centers, regular cleaning of dairy equipment, and proper handling and storage of milk on-farm and in the processing areas.</li> <li>○ Development of a therapeutic regimen for mastitis based on causal organism identification, antibiotic sensitivity testing, and some alternative therapies using indigenous plant extracts (output of 8 researches conducted; see list in Annex 4).</li> <li>○ Evaluation of milk quality based on physico-chemical properties (e.g., fat, protein, total solids, etc.), total bacterial count (TBC) and somatic cell count (SCC) which became the basis for the milk payment scheme of the cooperatives under KKMI.</li> </ul>
c. Feeding and nutrition	<ul style="list-style-type: none"> <li>○ Establishment of forage gardens in target areas (Sto. Tomas, Batangas and Sariaya, Quezon) using suitable grass species.</li> <li>○ Introduction of grass cutters and grass choppers to demonstrate the benefits of using these machines in smallholder dairy farms.</li> <li>○ Improved utilization of concentrate feeds and adoption of integrated feeding systems may not be achieved at the end of the project due to the inability of the Malinao Cooperative to operate the hammer mill acquired by the project.</li> </ul>

(2) Output 2: “Knowledge and skills of DTRI researchers and NDA PDOs are enhanced.”

Verifiable indicator: “Number of trainings conducted; number of researchers and PDOs trained”

Findings as of April 2008:

A total of nine (9) trainings/seminars were conducted for DTRI researchers and NDA-PDOs over the project period. Of the 9 trainings/seminars, only two were conducted by NDA and DTRI and the rest were delivered by visiting professors of Obihiro Tikusan University in coordination with DTRI counterparts. Despite the fact that only nine trainings were conducted/delivered during the project, results of questionnaire survey revealed that most of the project counterparts felt that their knowledge and skills on dairy farming were enhanced not only due to the training but also because of their participation in the project activities. Moreover, interviews with project counterparts reveal that they also learned some skills and techniques from the Japanese volunteers assigned to work with them.

Table 5. List of trainings/seminars conducted by the project

Title of training/seminar	Date conducted	Lecturer	Participants
Feed resources for dry season feeding	February 2004	Mr. N. Velasco & Mr. M. Loresca	NDA & farmers
Database management using JMR	July 2004	Dr. J. A. Bautista	DTRI & NDA staff
Basics of animal breeding and importance of pedigree data (a)	August 2006	Dr. S. Miyoshi	NDA, DTRI & PCC staff; JOCVs
Technical introduction to improved reproductive performance in cows	September 2006	Dr. M. Matsui	NDA, DTRI & PCC staff; JOCVs
Some notes on the performance evaluation of dairy animals	September 2006	Dr. M. Oishi	NDA, DTRI & PCC staff; JOCVs
Principles of machine milking (a)	September 2006	Dr. K. Kida	NDA, DTRI & PCC staff; JOCVs
Fundamentals of dairy cattle breeding (a)	August 2007	Dr. S. Miyoshi	NDA, DTRI & PCC staff; JOCVs
Nutrition and feeding management of dairy cattle	August 2007	Dr. Kawai	NDA, DTRI & PCC staff; JOCVs
Mastitis-its danger of invisible money loss (a)	September 2007	Dr. K. Kida	NDA, DTRI & PCC staff; JOCVs

(a) Half-day lecture seminars

Source: Draft Terminal Report of the Project, March 2008

(3) Output 3: “Support system for dairy farmers is strengthened.”

Verifiable indicator: “Number of farmers’ trainings conducted; number of dairy cattle distributed; data on milk production and breeding performance.”

Findings as April 2008:

Support system for dairy farmers was provided by DTRI, NDA and JOCV in the form of farmers’ trainings, farm visits and information dissemination. Some 17 farmers’ trainings were conducted by NDA for dairy cooperatives in Cebu while 8 barn meetings were jointly conducted by NDA and DTRI for target cooperatives in South Luzon. Trainings conducted for dairy farmers covered topics on cooperative development, breeding, feeding and nutrition, hygiene, among others. Barn meetings, on the other hand, were informal meetings conducted right at the farmers’ dairy cattle barn or shed wherein technical problems and issues on dairying are discussed between dairy farmers and project counterparts from DTRI and NDA. Extension support in target areas also included weekly farm visits by NDA extension workers and JOCVs wherein they provide technical advice to dairy farmers and monitor milk production and breeding performance of dairy herd. The deployment of JOCVs in some of the target sites of the project further strengthened the extension support system as interaction with dairy farmers became more frequent. With their ability to speak the local dialect, JOCVs were able to conduct informal trainings among dairy farmers and cooperative dairy technicians which complemented the formal trainings provided by NDA.

With regards to the “number of dairy cattle distributed,” the project had no achievement on this indicator yet considering that the system for distributing suitable dairy cattle to farmers is still being formulated by NDA and DTRI. The project, however, is expected to contribute to the formulation of the system in the future through breeding and reproduction performance data generated by the Breeding and Reproduction Team and the JOCV volunteers assigned at DTRI.

As to the indicator on “data on milk production and breeding performance, a system for recording data on milk production and breeding performance at the farmer’s level was developed by the project with technical inputs from the JOCV. However, farmers still find difficulty in updating their animal records due to the complexity of the system and lack of appreciation on the importance of record-keeping. Animal population and milk production records introduced by NDA at the level of the cooperative and federation, however, are well kept and this study benefited a lot from them.

A notable output of the project which may have further strengthened the support system for dairy farmers in terms of higher returns from milk production was the introduction and subsequent adoption of quality premium payment scheme for milk in KKMI and CEFEDCO. With technical assistance from DTRI and JOCV, the KKMI established the premium payment scheme sometime in 2005 based on the physico-chemical properties of raw milk collected from dairy cooperatives. In August 2007, CEFEDCO adopted its own quality premium payment scheme with technical guidance from project counterparts.

Table 6: Schedule of premium payment of milk for KKMI

Criteria	Base/Standard (%)	Premium/unit (cents)
Fat (a)	3.8	0.2
Solid non-fat (b)	8.5	0.1
Protein (c)	3.2	0.2
Water (d)	10.0	Reject

Notes: (a) Fat: Plus 20 cents per point above standard, e.g., 3.9% fat content will be paid additional 20 cents per liter; (b) Solid non-fat: Plus 10 cents per point above standard, e.g., 8.6% solid non-fat content will be paid additional 10 cents per liter; (c) Protein: Plus 20 cents per point above standard, e.g., 3.3% protein content will be paid additional 20 cents per liter; (d) Raw milk with above 10% water content is rejected.

Source: KKMI; Draft Terminal Report, March 2008

Table 7: Schedule of premium payment of milk for CEFEDCO

Milk quality Limits		Recommended price adjustment (P)
Compositional quality	≥ 3.50g/100g milk fat ≥ 8.25g/100g solid non-fat ≥ 11.25g/100g milk total solids	+ 28.00/kg fat
	< 3.00g/100g milk fat	- 1.00/kg milk
Extra premium	< 50,000 cfu/ml TPC	+ 1.50/kg milk
Premium	<150,000 cfu/ml TPC	+ 1.00/kg milk
	>150,000 cfu/ml TPC	- 2.00/kg milk

Source: Draft Terminal Report, March 2008

Table 8: List of farmers' trainings conducted for target areas in Cebu

Year	Title of training	Coops covered	No of participants
2003	Dairy project orientation	3	92
	Dairy project planning	1	15
	Cross-visit to dairy projects	1	33
	Organizational management	5	117
	Organizing CDT for Timely Insemination and Higher Conception Rate	9	79
	Basic dairy husbandry course	1	33
	Milk quality systems workshop	9	54
	Bookkeeping seminar	1	10
2004	Dairy project orientation	5	84
	Milking and milk hygiene	2	37
	Coop officers refresher course	9	15
2005	Milk quality control seminar	1	23
	Dairy enterprise training	1	15
2006	Basic accounting and bookkeeping	9	20

2007	Basic artificial insemination and pregnancy diagnosis in large ruminants	9	16
	Forage development	9	16
	Basic dairy husbandry course	2	79
Total	17 trainings		738

Source: NDA Visayas Field Office

Note: Some trainings were also conducted by NDA South Luzon but they do not have any official training record.

In addition, the Training and Information Dissemination Team with technical support from the JOCV and project counterparts developed and published two leaflets about mastitis in English, Filipino and Cebuano. These leaflets were subsequently disseminated to dairy farmers in Luzon and Cebu.

### 3.3 Achievement in terms of activity

Most of the activities identified in the project's Plan of Operations were implemented. However, a number of activities related to feeding and nutrition such as improvement of utilization of concentrate feeds and design of feeding system suitable for each target area could not be fully implemented due to the inability of the Malinao Multi-purpose Cooperative to operate the hammer mill acquired by the project. As gathered from the field survey, the Malinao cooperative did not have enough counterpart funds for acquiring the three-phase electric power connection needed to run the hammer mill. In order to utilize the equipment, it was decided that the hammer mill be transferred to Sariaya, Quezon after the Palcon Dairy Cooperative committed to provide land and counterpart budget to put up a feed milling facility. Considering that the project will end in four months, the planned activities related to feeding and nutrition mentioned above cannot be implemented even if the project succeeds in relocating the hammer mill to Sariaya, Quezon. (see Status of Activities of the Project as of April 2008 in Annex 5).

Although not indicated in the PDM, key activities related to breeding and reproduction were conducted by the project with the active participation of JOCVs assigned at the DTRI, namely: i) development of a system for monitoring reproductive performance of dairy herd; ii) establishment of a reliable milk recording scheme; and iii) establishment of a model for a sire testing program through the DTRI-NDA semen production project.

### 3.4 Achievement in terms of input

#### 3.4.1 Inputs by the Japanese side

##### (1) Dispatch of JOCVs

As of April 2008, a total of 40 Japanese volunteers were dispatched to the project including 1 senior JOCV; 13 JOCVs and 26 short-term JOCVs. (see details in Annex 6).

(2) Provision of equipment and supplies

From 2003 to 2007, the Japanese side provided various equipment and supplies with a total amount of Php 13,235,263 or about 32.1 million yen. (see details in Annex 7).

(3) Local operation expenses borne by the Japanese side

Local operation expenses shouldered by the Japanese side included cost of consumable supplies and local travel. Cost of consumable supplies amounted to Php 1,827,236 or 4.43 million yen as of end of JFY 2007. (see details in Annex 8).

### 3.1.2 Inputs by the Philippine side

(1) Assignment of counterpart personnel

In total, 28 counterpart personnel (14 from DTRI and 14 from NDA) participated in the implementation of the activities of the Project. (see details in Annex 9).

(2) Provision of land, building and facilities.

The Philippines side provided necessary land, office space and other facilities for use under the project.

(3) Allocation of budget by the Philippine side

Budget allocated to the Project by DTRI and NDA included the travel cost of project counterparts and cost of some farmers' meetings/consultations which were not funded by the Japanese side.

## 4. Result of the Evaluation

### 4.1 Relevance

(1) Consistency with the National Development Plan of the Philippines

The goal of the Medium Term Philippine Development Plan (MTPDP) for the period 2004-2010 is to alleviate poverty. One of the instruments for alleviating poverty especially in the rural areas espoused by the MTPDP is the "Ginintuang Masaganang Ani" (GMA) program for livestock. This program aims to increase income of small livestock farmers by increasing productivity through genetic improvement, herd build-up, financing, marketing and distribution. Consistent with aforementioned program, the Project was designed to increase milk production in target areas through the improvement of management technology for dairy cattle and strengthening the extension support system for dairy farmers thereby alleviating poverty and increasing farmers' income in target areas.

(2) Consistency with the Official Development Assistance (ODA) policy of Japan

Assistance policy of Japan for the Philippines is under revision. However, one of the priority areas of Japan's ODA policy for the Philippines formulated in 1999 was mitigation of disparities (poverty alleviation and mitigation of regional disparities). "Agriculture and rural development" through improving agricultural productivity, building of basic social and economic infrastructure in rural areas, support to agrarian

reform communities and strengthening of farmers' organizations is one of the priority strategies for "mitigation of disparities" mentioned above.

(3) Conformity with the goals of the local dairy industry and local government units  
The objective of the project to increase milk production in target areas is consistent with the medium-term goals of the local dairy industry as outlined in the "The Dairy Road Map, 2005-2010". The "Dairy Roadmap" aims to increase local annual milk production from 12 million liters in 2005 to 44 million liters in 2010. Any increase in milk production in the project's target areas, therefore, will contribute to the achievement of the goals of the local dairy industry. Likewise, the project objective is deemed consistent with the development plans of local government (LGUs) units in the target areas as the LGUs seek to promote livestock including dairy as additional source of income for small farmers. Moreover, the project is supportive of the milk feeding programs of some LGUs in the target areas as dairy farmers produce the milk requirements of the said programs.

#### 4.2 Effectiveness

As discussed in Section 3, most of the Outputs will be achieved the project at completion except for planned outputs on feeding and nutrition technology for dairy cattle which could not be achieved mainly due to the failure of the recipient cooperative to put the planned feedmill into operation. Despite the partial achievement of Outputs, the Project Purpose (i.e., milk production in target areas is increased) will be achieved by the end of the Project based on milk production records gathered from the survey.

#### 4.3 Efficiency

Most of the Inputs have been provided adequately in terms of quantity, quality and timing. Inputs to the project from the Japanese side were generally well utilized in the project activities and contributed to the achievement of Outputs except for a few equipment like the hammer mill installed at the Malinao Multi-purpose Cooperative which remain inoperable and grass chopper supplied to Palcon Dairy Cooperative which was found to be inappropriate for the kind of grasses found in the area.

The quantity, quality and timing of JOCVs deployed in the project were deemed appropriate although there were few occasions when arrival of JOCV replacements was delayed. Communication between JOCVs and the counterparts did not pose a problem as the volunteers could speak English and the local dialect. The absence of senior JOCV from October 2004 to March 2005 and from May 2007 up to the end of the project has somehow affected coordination of project activities with JICA but the Project Manager who has long years of working with JOCVs in previous JICA projects was able to manage the situation.

Moreover, the deployment of 26 short-term volunteers under the Short-term Volunteer Program contributed to the project's efficiency. Apart from fulfilling its objective of



providing field exposure to Japanese student volunteers, the short-term volunteer program facilitated sharing of knowledge and skills among student volunteers, project counterparts and farmers in the field of breeding, nutrition and milk hygiene.

The quantity and quality of NDA and DTRI counterpart personnel were deemed adequate. Despite the resignation of some NDA and DTRI counterpart staff, their replacements were equally competent and no difficulties were encountered during the transition period. While the GOP provided budget in support of the project activities, the budget allocation for travel of counterpart personnel was very limited thereby limiting their participation in the implementation of some project activities in the field.

#### 4.4 Impact

##### (1) Prospect of achievement of the Overall Goal

The Overall Goal of the project is “local dairy industry is promoted.” The achievement of the project in terms of increasing the milk production in target areas will somehow contribute to the attainment of the Overall Goal. However, more deliberate efforts are needed to achieve the Overall Goal even within the dairy zones presently covered by the project in terms of herd build-up including upgrading of existing stocks, strengthening of extension support for dairy farmers, building the capability of dairy cooperatives, among others.

##### (2) Other impacts

Aside from promoting the local dairy industry through the increase in milk production, the project brought about other positive effects to the dairy industry, farmer beneficiaries and project counterparts in terms of the following:

- Increase in dairy farmers’ income not only from increased milk output but from the incentives provided for quality milk under the premium payment scheme adopted by the cooperative federation with the support from the project;
- Upgrading of technical capabilities of DTRI and NDA through acquisition of equipment necessary for milk quality testing, feed analysis and providing support for training and extension;
- Production of about 12,000 doses of semen valued at about Php 4.35 million in 2005 and 2006 under the NDA-DTRI Semen Production Project which was utilized by NDA for its AI activities in Luzon;
- Contribution to the proposed National Dairy Cattle Breeding Plan which was drafted based on the achievements of the project in establishing herd reproduction records, milk testing and recording, and semen production.

## 4.5 Sustainability

### (1) Institutional aspect

The NDA is the government agency mandated to promote the local dairy industry. As such, it is likely to continue its development programs in strategic dairy zones in line with the goal of increasing farm productivity and alleviating poverty in the rural areas. Given its limited manpower, NDA is likely to tap the resources of DTRI for training and research.

### (2) Financial aspect

NDA and DTRI received regular budget from the Government in support of the implementation of the Project activities during the project period. Since the project activities are part of the regular functions of NDA and DTRI, budget for these activities are likely to be provided by the Government in the future.

### (3) Technical aspect

Most of the project counterparts have permanent employment status and are likely to remain working with NDA and DTRI. The skills of these project counterparts will continue to be useful in future projects aimed at promoting the local dairy industry. Moreover, almost all of the equipment are properly utilized and maintained by NDA and DTRI thereby contributing to the technical sustainability of the project.

## 5. Conclusion

### 5.1 Factors promoting effects of the project

(1) The equipment acquired by the project contributed to increase in milk production. For instance, the milking machines increased milking efficiency while the milk chiller provided bigger milk storage capacity and enabled dairy farmers to milk their cows twice daily.

(2) The laboratory equipment supplied by the project greatly contributed to the adoption of “premium payment scheme” as it facilitated monitoring of the quality of milk collected from the primary cooperatives.

(3) Despite the few trainings provided for project counterparts, the project benefited greatly from the technical competence of DTRI and NDA staff who have been involved in local dairy development projects for several years.

(4) Dispatch of JOCVs through the regular and the short-term volunteer programs facilitated the sharing of knowledge and skills on improved dairy technology with farmers and project counterparts.

(5) The deployment of JOCVs strengthened extension support in project areas as the volunteers performed extension functions in close coordination with the PDOs of NDA.

## 5.2 Factors inhibiting effects of the project

- (1) Some small farmers are unable to sustain dairy operations due to depletion of feed resources (grasslands converted to other land uses) and high operating costs.
- (2) Dairy herd build-up remain slow largely on account of limited capital of farmers and high cost of stocks.
- (3) The delay in setting up of the feed mill affected the activities of the feeding and nutrition team.
- (4) The absence of senior JOCV in two occasions (October 2004 to March 2005 and May 2007 to September 2008) affected coordination of project activities with JICA. As of May 2008, only one (1) Project Steering Committee (PSC) meeting was held while a total of 10 Joint Coordination Committee (JCC) meetings were conducted (see Annex 11 for list of PSC and JCC meetings held).
- (5) The limited GOP budget affected the participation of project counterparts in some field activities.
- (6) The PDM did not clearly define Objectively Verifiable Indicators (OVIs) and failed to capture changes in activities and inputs (e.g. sire testing program and short-term volunteer program) in the course of project implementation.

## 5.3 Conclusion

The Project contributed not only in increasing the volume of milk production in processing plants but also in promoting the production of quality milk by dairy farmers.

Although some activities such as those relating to feeding and nutrition may not be implemented during the project period, it is expected that outputs from these activities will be achieved after project completion considering the availability of necessary skills, facilities and equipment to perform the said activities.

Based on the above findings, the Project may be concluded on September 30, 2008 as planned.

## 6. Recommendations and lessons learned

### 6.1 Recommendations

- (1) Actions to be taken during the remaining Project period
  - NDA, DTRI and JOCV-JICA should formulate an action plan to ensure that gains

- derived from the project are sustained;
- Project management should prepare a detailed feasibility study to confirm the technical, financial and organizational viability of the plan to set up the feed mill in Sariaya, Quezon;
- Project management should document salient project experiences, e.g., premium quality payment scheme, mastitis control, etc. which are deemed relevant in planning and implementation of projects aimed at promoting the dairy industry;
- JICA should support the conduct of a seminar to disseminate achievements and lessons from the project to the relevant stakeholders of the dairy industry.

## (2) Actions to be taken after the Project period

- NDA and DTRI should continue its collaboration to sustain the activities initiated by the project;
- JICA should continue to dispatch JOCVs not only those with expertise on dairy technology but also on cooperative development and marketing;
- NDA should review the milk production and breeding performance recording system at the farmer level to make it more useful to the farmer;
- NDA should find ways to strengthen struggling dairy cooperatives assisted by the project;
- NDA should explore ways to make the cost of animal stocks affordable to the small farmer;
- NDA and DTRI should ensure that technical assistance is provided to Palcon Dairy Cooperative in running the feed mill enterprise.

## 6.2 Lessons learned

- Proper assessment of the capacity of recipient to operate donated equipment is very important to ensure its optimum utilization.
- Existing skills of project counterparts contribute significantly to the efficiency of the Project.
- Local dairy development projects should focus not only on increasing the volume but also on increasing the quality of milk production.
- PDM should be revised to reflect changes in activities and inputs in the course of project implementation.

## **ANNEXES**

## Annex 1. Schedule of Evaluation

Date	Activity	Location
April 8, 2007	Kick-off meeting with DRR Watanabe and JOCV section	JICA
April 9-10, 2007	Review of project documents; preparation of Evaluation Grid; design of survey instruments; set-up meetings with DTRI and NDA	Home office
April 11	Meeting with JOCV section to discuss evaluation plan and survey schedule; finalize evaluation grid and prepare survey instruments	JICA Makati; Home office
April 12	Prepare survey instruments (interview/FGD guide questions and survey questionnaire)	Home office
April 14	Interview with NDA officials	NDA Quezon City
April 15-18 (Field work)	Conduct of field survey - Interview with DTRI officials - FGD with project team members - Interview/FGD with dairy cooperatives/farmers - Direct observation of project activities and donated equipment - Collection of project data	DTRI, UP Los Banos Project areas in Laguna and Quezon
April 21	Follow-up interviews with DTRI staff; Retrieval of survey questionnaires; collection of other relevant data/documents	DTRI, UP Los Banos
April 22-24 (Field work)	Interview/FGD with dairy cooperatives/farmers	Project areas in Batangas, Laguna and Quezon
April 25	Consolidate and analyze data gathered from the initial survey	JICA Makati
April 27-May 1 (Field work)	Conduct of field survey - Interview with NDA Visayas staff - Interview/FGD with dairy cooperatives and farmers - Direct observation of project activities and donated equipment - Collection of project data	Cebu
May 2	Consolidate and analyze data collected	Home office
May 5	Meeting with JOCV section staff; confirm/validate data collected	JICA Makati
May 6-13	Prepare Draft Report	Home office
May 14	Submit Draft Report; Oral presentation of study findings	JICA Makati
May 15-21	Prepare Final Report based on JICA comments on the draft report	JICA Makati
May 22	Submit Final Report to JICA	JICA Makati
May 23	Present Final Report thru JICA-Net	JICA Makati

## Annex 2. Project Design Matrix (PDM)

**Project Title:** Dairy Development Enhancement Project

**Project Duration:** October 1, 2003-September 30, 2008

**Project Area:** 4 provinces in Region 4 and Cebu province in Region 7

**Target Group:** Dairy farmers in target areas

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumption
<p><b>Overall Goal</b></p> <p>Local dairy industry is promoted</p>	<p>Number of animal, farmer and milk production are increased.</p>	<p>Survey of dairy farmers</p>	
<p><b>Project Purpose</b></p> <p>The milk production in target areas is increased</p>	<p>The milk production in processing plants increases at x% from the one of 2003</p>	<p>Project monitoring reports</p>	<ul style="list-style-type: none"> <li>- Stable price of milk.</li> <li>- Sufficient demand/clients market exist.</li> <li>- No drastic change in government policy on dairy industry.</li> </ul>
<p><b>Outputs</b></p> <p>(1) Improved management technology for dairy cattle is developed.</p> <p>(2) Knowledge and skills of DTRI researchers and NDA PDOs are enhanced.</p> <p>(3) Support system for dairy farmers is strengthened</p>	<p>1. Number of technologies developed on feeding, nutrition, breeding and hygiene</p> <p>2. Number of trainings conducted; number of researchers and PDOs trained</p> <p>3. Number of farmers trainings conducted; number of dairy cattle distributed; data on milk production and breeding performance</p>	<p>Manual on improved management technology for dairy cattle</p> <p>Training course manual; training reports; DTRI/NDA annual reports</p> <p>Training and extension plans; project monitoring reports; DTRI/NDA annual reports</p>	<ul style="list-style-type: none"> <li>- No adverse climate condition</li> <li>- Budget for project operation is adequate</li> <li>- Stable management of cooperatives</li> <li>- Trained counterparts remain at DTRI and NDA</li> </ul>

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumption
<p><b>Activities</b></p> <p>(1) Development of improved management technology for dairy cattle</p> <p>1-1) Improve forage quality</p> <p>1-2) Improve the utilization of concentrate feeds</p> <p>1-3) Design feeding system suitable for each target area</p> <p>1-4) Promote suitable hygienic management methods for farmers</p> <p>(2) Enhancement of the knowledge and skills of researchers and PDOs</p> <p>2-1) Improve the present curricula of training course</p> <p>2-2) Conduct the training course</p> <p>(3) Strengthening of extension support system for dairy farmers</p> <p>3-1) Conduct appropriate training courses on improved technologies for farmers</p> <p>3-2) Monitor and evaluate ex-trainees</p> <p>3-3) Provide extension support to farmers in target areas</p> <p>3-4) Develop a system for distributing suitable dairy cattle to farmers.</p>	<p style="text-align: center;"><b>Inputs</b></p> <p><b>(Japanese side)</b></p> <p>1. Senior volunteer (1)</p> <p>2. Junior volunteer (5)</p> <p>3. Facilities and equipment</p> <p>4. Operating budget for senior volunteer</p> <p>5. Counterpart training</p> <p>6. Dispatch of mission (as need arises)</p>	<p><b>(Philippine side)</b></p> <p>1. Counterpart personnel</p> <p>1-1 Project manager (1)</p> <p>1-2 NDA field office manager (2)</p> <p>1-3 DTRI research staff (9)</p> <p>1-4 NDA field office manager (6)</p> <p>1-5 Cooperative member (25)</p> <p>2. Counterpart budget</p> <p>2-1 DTRI, Php 14M</p> <p>2-2 NDA-South Luzon, Php 9.9M</p> <p>2-3 NDA Visayas, Php 10.1M</p>	<p>- Timely dispatch of JOCV</p> <p>- Timely provision of equipment</p> <p>- GOP budget</p> <p><b><u>Pre-condition</u></b></p> <p>- Steady cooperation of NDA and DTRI</p> <p>- No objection from dairy farmers and cooperatives.</p>



### Annex 3. Milk Production of Dairy Cooperatives in Target Areas

Changes in milk production of dairy cooperatives in target areas, in liters  
2003-2007

Area/Coop	2003	2004	2005	2006	2007
<b>South Luzon</b>					
Palcon	109,331	160,103	193,728	215,175	256,361
Salba	76,247	151,014	138,445	65,108	68,791
Malinao	32,488	16,791	18,863	21,357	33,095
St. Francis	No data	No data	No data	No data	No data
<b>Cebu</b>					
Garing	167,984	167,739	130,977	83,775	54,705
San Vicente	92,147	65,765	79,516	51,269	49,478
Tayud	49,082	54,912	66,437	64,823	50,966
Basak	32,427	50,157	57,437	11,157	17,906
Cobcawa	32,971	52,092	48,285	49,215	40,184
Lusaran	480	50,775	48,110	48,467	91,009
Sirao	21,760	25,480	16,858	14,385	24,133
Guba	22,551	31,478	21,630	18,969	17,113
Tagbao	-	-	23,419	42,663	34,103

Source: KKMI and NDA Visayas

#### **Annex 4. List of Researches Conducted on Mastitis**

Note: The Program commissioned a total of five major and three minor researches on mastitis in collaboration with the College of Veterinary Medicine of UPLB. The general objective of researches was to generate as much information as possible on the etiology, control and prevention of local mastitis cases including alternative therapies if available or possible.

1. Isolation and identification of bacteria from identified mastitis cases diagnosed through California Mastitis Test (CMT) in backyard dairy cattle from Laguna and Batangas
2. Isolation, identification and antibiotic sensitivity testing of bacteria recovered from mastitic cases at the DTRI farm
3. Antibiotic sensitivity profile of bacteria recovered from mastitis cases in backyard dairy cows from Laguna and Batangas
4. Enumeration and identification of fungi from milk samples collected from dairy cattle in Batangas Dairy Cooperative
5. Enumeration of total aerobic bacteria, Staphylococci and Staphylococcus aureus from milk samples of normal and sub-clinical mastitis cases in Batangas Dairy Cooperative
6. In vitro activity of leaves' decoction of guava (*Psidium guajava*) against Staphylococcus aureus and Enterobacter cloacae Recovered from sub-clinical mastitis cases in dairy cows
7. In vitro effect of leaves' decoction of cashew (*Anacardium occidentale* Linn.) against Staphylococcus aureus and Enterobacter cloacae Recovered from sub-clinical mastitis cases in dairy cows
8. In vitro activity of *Euphorbia millii* leaves' decoction against locally isolated mastitis pathogens

Source: Draft Project Terminal Report, March 31, 2008

### Annex 5. Status of Project Activities as of April 2008

Activity/ Sub-activity	Year implemented				Status of implementation as of April 2008	Remarks
	04	05	06	07 08		
1.1	X	X	X	X	Continuing	
1.1.1	X	X	X	X	Continuing	
1.1.2	X	X	X		Completed	
1.1.3	X	X	X		Completed	
1.2	X	X	X	X	Continuing	
1.2.1	X	X	X	X	Continuing	
1.2.2	X	X	X		Suspended	To be resumed after set up of feedmill in Palcon
1.2.3					Suspended	
1.3	X	X	X	X	Continuing	
1.3.1	X	X	X	X	Continuing	
1.3.2	X	X	X	X	Continuing	
1.4	X	X	X	X	Continuing	
1.4.1	X	X			Completed	
1.4.2			X	X	Continuing	Under study based on availability of funds
2.1	X	X	X	X	Continuing	
2.1.1	X	X	X	X	Continuing	
2.1.2			X	X	Continuing	
2.1.3			X	X	Continuing	
2.2	X	X	X	X	Continuing	Informal trainings are more frequent
2.2.1	X	X	X	X	Continuing	
2.2.2	X	X	X	X	Continuing	
2.2.3	X	X	X	X	Continuing	

3.1	Conduct appropriate training course on improved technologies for farmers	X	X	X	X	X	X	X	Continuing	Informal farmers' trainings are more frequent
3.2	Monitor and evaluate ex-trainees	X	X	X	X	X	X	X	Continuing	
3.2.1	Conduct follow-up training for ex-trainees	X	X	X	X	X	X	X	Continuing	
3.2.2	Issue information to ex-trainees	X	X	X	X	X	X	X	Continuing	
3.3	Provide extension support to farmers in target areas	X	X	X	X	X	X	X	Continuing	Regular function of NDA
3.3.1	Formulate extension support plans considering the effective allocation of technical staff (PDOs) in target areas	X	X	X	X	X	X	X	Continuing	Regular function of NDA field offices
3.3.2	Conduct regular field extension visits	X	X	X	X	X	X	X	Continuing	Regular function of NDA field offices
3.4	Develop a system for distributing suitable dairy cattle based on survey results	X	X	X	X	X	X	X	Continuing	
3.4.1	Formulate a system for distributing suitable dairy cattle based on survey results	X	X	X	X	X	X	X	Continuing	Awaiting the implementation of the National Dairy Cattle Breeding Plan
3.4.2	Assist in the selection of suitable dairy cattle distribution to the farmers	X	X	X	X	X	X	X	Continuing	Pricing scheme currently being discussed between NDA and Dairy Confederation of the Philippines
3.4.3	Monitor breeding and milk production performance of dairy cattle by type of breed, feeding and nutrition	X	X	X	X	X	X	X	Continuing	Requires institutionalization of a Dairy Breed Registry at the national level

**Annex 6. List of JOCV Dispatched to the Project**

No.	Name	Field/Activity	Host agency	Workplace	Category	Start of term	End of term
1	Masanori Hikiba	Animal husbandry- Project management	DTRI	Los Banos, Laguna	Senior JOCV	09-06-2001	09-06-2004
2	Yuuki Kouno	Animal husbandry- breeding/reproduction	DTRI	Sto. Tomas, Batangas	Short term JOCV	08-15-2007	09-20-2007
3	Yuriko Sato	Animal husbandry- breeding/reproduction	DTRI	Los Banos, Laguna	JOCV	04-10-2003	04-09-2005
4	Kumi Urabe	Animal husbandry- breeding/reproduction	DTRI	Los Banos, Laguna	JOCV		
5	Hideo Ooka	Veterinarian-milk quality	DTRI	Los Banos, Laguna	Short term JOCV	03-07-2006	03-20-2706
6	Yoshinori Shichi	Veterinarian-milk quality	DTRI	Los Banos, Laguna	Short term JOCV	03-07-2006	03-20-2706
7	Yumi Sakuragi	Animal husbandry- breeding	DTRI	Los Banos, Laguna	Short term JOCV	03-07-2006	03-20-2706
8	Kaoru Tahara	Animal husbandry- breeding	DTRI	Los Banos, Laguna	Short term JOCV	08-15-2007	09-20-2007
9	Toshiro Obayashi	Animal husbandry- forage quality	NDA-South Luzon	San Pablo City, Laguna	JOCV		
10	Maria Ashida	Animal husbandry- concentrate feeds	NDA	San Pablo City, Laguna	Short term JOCV	08-15-2006	09-21-2006
11	Hiyuki Oishi	Animal husbandry- breeding	NDA	Sto. Tomas, Batangas	Short term JOCV	08-15-2006	09-21-2006
12	Takashi Niyama	Animal husbandry- breeding	NDA	Sto. Tomas, Batangas	Short term JOCV	08-15-2006	09-21-2006
13	Yukuri Noki	Animal husbandry- roughage	NDA	Sto. Tomas, Batangas	Short term JOCV	08-15-2006	09-20-2006

No.	Name	Field/Activity	Host agency	Workplace	Category	Start of term	End of term
14	Rio Umamoto	Animal husbandry-concentrate feeds	NDA	San Pablo City, Laguna	Short term JOCV	08-15-2006	09-20-2006
15	Kohei Kuroda	Veterinarian-milk hygiene	NDA	San Pablo City, Laguna	Short term JOCV	08-15-2006	09-20-2006
16	Ryujiro Kakizaki	Animal husbandry-milk quality	NDA	Los Banos, Laguna	Short term JOCV	08-15-2006	09-21-2006
17	Yuko Iijima	Veterinarian-roughage	NDA	Los Banos, Laguna	Short term JOCV	08-15-2006	09-21-2006
18	Yumi Yoyota	Veterinarian-milk quality	NDA	Los Banos, Laguna	Short term JOCV	08-15-2006	09-21-2006
19	Naoshito Takase	Veterinarian-milk hygiene	NDA	Los Banos, Laguna	Short term JOCV	08-15-2006	09-20-2006
20	Nobukato Nikami	Animal husbandry-forage quality	NDA-Visayas	Los Banos, Laguna	JOCV		
21	Mai Yoshida	Animal husbandry-forage quality	NDA-Visayas	Cebu	JOCV		
22	Shinya Mito	Animal husbandry-breeding	NDA-Visayas	Cebu	JOCV		
23	Asami Ichimoto	Animal husbandry-forage quality	NDA-South Luzon	Cebu	JOCV		
24		Veterinarian-milk hygiene	NDA-South Luzon	Batangas	JOCV		
25	Aki Shoji	Veterinarian-milk hygiene	DTRI	Calamba	JOCV		
26	Fumiki Ui	Veterinarian-reproduction	NDA-South Luzon	Calamba	Short term JOCV	03-072006	03-27-2006
27	Ayumi Yoshitake	Animal husbandry-forage quality	NDA-South Luzon	San Pablo City, Laguna	JOCV		

No.	Name	Field/Activity	Host agency	Workplace	Category	Start of term	End of term
28	Takashi Ishigame	Animal husbandry-concentrate feeds	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
29	Nobuki Takahashi	Animal husbandry-concentrate feeds	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
30	Yusuke Umashita	Animal husbandry-reproduction	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
31	Iomoyoshi Asano	Animal husbandry-reproduction	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
32	Naomi Ota	Animal husbandry-milk quality	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
33	Akane Sato	Animal husbandry-milk quality	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
34	Takuro Kajima	Animal husbandry-breeding	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
35	Sayaka Horie	Animal husbandry-breeding	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
36	Tadashi Hongai	Animal husbandry-roughage	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
37	Yu Yamamoto	Animal husbandry-roughage	DTRI	Laguna & Batangas	Short term JOCV	08-23-2005	09-12-2005
38	Naoshiga Kusakabe	Animal husbandry-forage quality	NDA-South Luzon	Sto. Tomas, Batangas	JOCV		
39	Chie Tamaru	Animal husbandry-forage quality	NDA-South Luzon	Sto. Tomas	JOCV		
40	Mai Shimizo	Animal husbandry-forage quality	NDA-South Luzon	Sto. Tomas	JOCV		

Annex 7. List of equipment provided by Japanese side

No.	Item	Qty.	Unit cost (P)	Total Cost (P)	Date acquired	End-user	Remarks
1	Artificial insemination gun	10	3,600	36,000	Feb 2006	NDA-VFO	
2	Alcohol lamp	5	140	700	Feb 2005	DTRI, NDA-SFLO	
3	Air conditioner (Panasonic)	2	18,000	36,000	April 2005	DTRI	
4	A. V. Funnel 12" L	10	1,100	11,000	May 2005	DTRI	
5	A. V. Liner 25" L, 2" W	25	1,550	38,750	May 2005	DTRI	
6	Analytical balance (Denver)	1	58,000	58,000	April 2005	DTRI	
7	Artificial vagina size 16"	5	11,500	57,500	May 2005	DTRI	
8	Autoclave (SL Autosterilizer)	1	165,630	165,630	Mar 2006	DTRI	
9	Autoclave sterilizer	1	182,000	182,000	Feb 2007	DTRI	
10	Bucket milker (mobile milker)	2	190,000	380,000	April 2005	NDA-VFO	
11	Cattle Farrier hoof trimming kit	3	5,495	16,485	Feb 2008	DTRI, NDA-FOs	
12	Centrifuge (Nova Gerber 3670)	1	114,800	114,800	Mar 2007	DTRI	
13	Cooler box (Coleman 9.4 li)	2	1,650	3,300	April 2005	DTRI	
14	Combo binder	1	21,000	21,000	Jan 2006	DTRI, NDA-FOs	
15	Drench gun	3	3,290	9,870	Feb 2008	DTRI, NDA-FOs	
16	Digital camera, Canon Ixus 700	1	33,000	33,000	Jan 2006	DTRI	
17	Memory card, 512 MB	2	2,650	5,300	Jan 2006	DTRI	
18	Digital camera, Casio 270	1	16,600	16,600	Mar 2007	DTRI	
19	Digital scale, 4220g cap	1	104,000	104,000	Feb 2005	DTRI	
20	Dispenser (VWR, bottle top)	1	46,200	46,200	Feb 2007	NDA-VFO	
21	Dispenser bottle top	1	55,085	55,085	Feb 2006	DTRI	
22	Dispenser pipettor	1	15,000	15,000	Feb 2006	DTRI	
23	Distillation apparatus (Kjeldahl)	1	180,500	180,500	April 2005	DTRI	
24	Distilling apparatus (JP Selecta)	2	123,200	246,400	May 2005	DTRI, NDA-CO	
25	Ear tag applicator	5	2,500	12,500	May 2005	DTRI	
26	Eartag applicator	5	1,875	9,375	Feb 2008	NDA-VFO/SFLO	
27	Ear tattoo	5	7,150	35,750	May 2005	DTRI	
28	Eppendorf 2-200 ul tips, 10 racks					DTRI, NDA-SLFO	



No.	Item	Qty.	Unit cost (P)	Total Cost (P)	Date acquired	End-user	Remarks
29	Fairies electrical control panel	1	112,000	112,000	Mar 2006	Malinao Coop	For transfer
30	Feed grinder	1	387,000	387,000	May 2005	DTRI	
31	Filing cabinet	2	5,800	11,600	April 2005	DTRI	
32	Freezer	3	15,600	46,800	Jan 2006	DTRI	
33	Freeze branding iron set	3	13,740	41,220	Feb 2008	DTRI, NDA-FOs	
34	Forage chopper	3	55,000	165,000	May 2005	DTRI, NDA-FOs	Not fully used
35	Fumehood	1	145,000	145,000	Feb 2006	DTRI	
36	Generator	1	65,800	65,800	Mar 2006	DTRI	
37	Grass cutter	5	14,000	70,000	Nov 2004	St. Francis/Salba	
38	Hammermill	1	422,000	422,000	April 2005	Malinao Coop	For transfer
39	Helmet	5	300	1,500	Nov 2004	St Francis/Salba	
40	Incubator	1	102,500	102,500	April 2005	DTRI	
41	Inoculating needle	5	600	3,000	Feb 2005	DTRI, NDA-SFLO	
42	Kjeldahl digestion	1	98,500	98,500	April 2005	DTRI	
43	Laminar flow	1	340,290	340,290	Mar 2006	DTRI	
44	Laminar flow (SCV-4AX ESCO)	1	144,000	144,000	Feb 2007	NDA-VFO	
45	Laptop PC	1	96,000	96,000	Feb 2006	DTRI	
46	Liquid nitrogen tank (MVE)	3	34,925	104,775	Feb 2006	DTRI	
47	Liquid nitrogen field tank (MVE)	6	40,000	240,000	Mar 2007	NDA-SLFO/VFO	
48	Liquid nitrogen mother tank	2	58,000	116,000	Mar 2007	NDA-VFO	
49	Liquid nitrogen tank (Chengdu)	6	18,000	108,000	Feb 2008	NDA-VFO	
50	Liquid nit mother tank (Chengdu)	2	38,770	77,540	Feb 2008	NDA-VFO	
51	Locker	1	6,600	6,600	April 2005	DTRI	
52	Magnetic stirrer	1	37,000	37,000	Feb 2006	DTRI	
53	Micropipette	5	18,000	90,000	Feb 2005	DTRI, NDA-SLFO	
54	Microscope (Nikon E-200)	3	82,000	246,000	Feb 2005	DTRI, KKKMI	
55	Microscope (Nikon trinocular)	1	125,000	125,000	Jan 2006	DTRI	
56	Milk analyzer	4	242,500	970,000	Mar 2006	DTRI, Palcon/St Fr	
57	Milk analyzer	2	241,000	482,000	July 2007	DTRI, NDA-VFO	
58	Milk analyzer	1	280,128	280,128	Feb 2008	NDA-VFO	
59	Milk cooling tank, 225 li	1	291,000	291,000	Feb 2006	St Francis	

No.	Item	Qty.	Unit cost (P)	Total Cost (P)	Date acquired	End-user	Remarks
60	Milk cooling tank, 1060 li	1	535,000	535,000	July 2007	Palcon	
61	Milk cooling tank, 1054 li	1	891,540	891,540	Feb 2008	NDA-VFO	For testing
62	Milking machine	3	191,560	574,680	June 2007	DTRI, Palcon/St Fr	
63	Muffle furnace	1	360,000	360,000	April 2005	DTRI	
64	Non-return teat dipper	150	762	114,300	Feb 2008	DTRI, NDA-FOs	
65	Office chair	6	2,500	15,000	April 2005	DTRI	
66	Oven	1	105,000	105,000	May 2005	DTRI	
67	PA system	1	41,500	41,500	Mar 2007	DTRI	
68	Paper trimmer	1	57,000	57,000	Jan 2006	DTRI	
69	PC	2	56,000	112,000	Feb 2005	NDA-SLFO/VFO	
70	pH meter (Denver, benchtop)	1	66,500	66,500	April 2005	DTRI	
71	pH meter (Sartorius)	1	25,000	25,000	Mar 2006	NDA-VFO	
72	Pipettor	1	10,000	10,000	Feb 2007	CVM-UPLB	
73	Pipette stand	2	5,200	10,400	Mar 2007	DTRI	
74	Reflectometer	3	67,835	203,505	Mar 2006	DTRI, NDA-VFO	
75	Refrigerator	1	9,400	9,400	April 2005	DTRI	
76	Refrigerator	1	26,500	26,500	Mar 2007	DTRI	
77	Risograph	1	540,000	540,000	April 2005	DTRI	
78	Speculum	3	37,500	112,500	June 2005	DTRI	
79	Straw printer	1	140,000	140,000	May 2005	DTRI	
80	Suckle calf nursing bottle	150	248	37,200	Feb 2005	DTRI, NDA-FOs	
81	Test tube mixer	1	13,000	13,000	Mar 2006	DTRI	
82	TV conference	2	5,000	10,000	Feb 2005	NDA-SLFO/VFO	
83	Utility cabinet	2	6,800	13,600	April 2005	DTRI	
84	Vehicle, Ford Everest	1	1,253,000	1,253,000	Mar 2005	DTRI	
85	Vinyl sheet	2	1,600	3,200	May 2005	DTRI	
86	Water bath	1	9,000	9,000	Feb 2006	NDA-VFO	
87	Weighing scale, portable	2	79,000	158,000	May 2005	DTRI	
88	Weighing scale for cattle, NASCO	2	225,000	450,000	Mar 2005	NDA-SLFO/VFO	
89	Weighing scale, Nutex	2	4,500	9,000	Feb 2005	NDA-VFO	
90	Weighing scale, platform, 50 kg	2	3,820	7,640	Feb 2008	NDA-SFLO	
91	Whiteboard with stand and roller	1	6,800	6,800	April 2005	DTRI	

### Annex 8. List of Consumable Supplies provided by the Japanese Side

No.	Item	Qty	Total Cost (P)	Date Acquired
1	Acetone	10	2,000	3/3/2006
2	Alcohol	5	3,500	2/1/2005
3	Alpha amylase	1	2,750	3/3/2006
4	Antibiotic disc	40	8,400	2/6/2006
5	Antibiotic disc	40	23,680	3/28/2007
6	Butyrometer	8	16,800	3/26/2007
7	Butyrometer	6	10,800	3/26/2007
8	Breast infecta ointment	10	13,000	6/27/2005
9	BBL crystal ID R gram negative	10	91,700	3/3/2006
10	BBL crystal ID R gram negative	10	91,700	3/3/2006
11	Blood agar base	2	6,500	2/1/2006
12	Carbon tetrachloride	1	7,500	2/1/2006
13	Cefemazin DC	10	82,500	6/27/2005
14	Cefemazin QR	10	34,200	6/27/2005
15	CMT reagent	5	5,270	5/30/2005
16	CMT powder	267	52,065	3/28/2007
17	Coagulase Test Reagent	2	16,740	5/15/2007
18	Conceral 100ug/ml	12	81,600	6/27/2005
19	Cork board	4	1,820	2/9/2008
20	Cotton	10	400	4/20/2005
21	CTAB Powder	1	15,495	2/1/2006
22	Culture tube	1	35,000	5/30/2005
23	Delvotest ampules	1	11,500	7/9/2007
24	Delvotest incubator	1	18,000	7/9/2007
25	Dipping solution	6	159,000	6/27/2005
26	Disinfectant	1	16,200	6/27/2005
27	Ear tag	2000	160,000	5/30/2005
28	Ear tag	2000	199,800	2/6/2008
29	Ethanol	1	1,250	2/1/2006
30	Filter paper	2	4,400	2/1/2006
31	Glacial acetic acid	1	1,250	2/1/2006
32	Gram chromosome kit fiber	2	12,800	6/27/2005
33	Gram stain set	1	9,300	2/1/2006
34	High poli S	10	20,000	6/27/2005
35	Inoculating needle	5	3,000	2/1/2005
36	Mc Conkey agar	2	4,550	2/1/2006
37	Micro pippette	5	90,000	2/1/2005
38	Mueller hinton agar	2	5,870	2/1/2006
39	New salmay	10	22,000	6/27/2005
40	Oxidase negative	1	31,800	2/1/2006
41	Oxidase positive	1	34,300	2/1/2006
42	Oxytetracycline	10	16,000	6/27/2005
43	Paper towel	3	300	4/20/2005
44	Petriefilm aerobic count plate	3	12,517	2/21/2007
45	Petriefilm E. coli	3	14,085	2/21/2007

46	Petrifilm yeast and mold count	3	17,640	2/21/2007
47	Petrifilm staph express count plate	5	22,997	2/21/2007
48	Petrifilm staph express disk	5	7,944	2/21/2007
49	Petrifilm STX spreader	3	2,451	2/21/2007
50	Rubber gloves	5	6,575	6/27/2005
51	Rubber gloves	1	1,150	4/20/2005
52	Rubber gloves	5	6,575	6/27/2005
53	Rubbing alcohol	10	500	4/20/2005
54	Rubbit plasma	2	10,040	6/27/2005
55	Saboraud dextrose agar	1	3,000	3/28/2007
56	Sample bag	1	7,800	6/27/2005
57	Semen straw	10	88,000	5/30/2005
58	Slide glass	4	2,000	2/1/2005
59	Snap seal	1	9,600	5/30/2005
60	Straw powder	3	22,500	5/30/2005
61	Sulfuric acid	1	1,250	2/1/2006
62	Syringe	1	750	4/20/2005
63	Tag pen	100	50,000	5/30/2005
64	Test dipper	40	48,000	5/30/2005
65	Test panel	60	44,880	3/19/2007
66	Tips, blue	5	3,550	2/27/2007
67	Tips, yellow	5	3,550	2/27/2007
68	Thermometer	3	3,000	6/27/2005
69	Triple sugar iron agar	2	5,120	2/1/2005
70	Tryptic soy agar	1	3,000	3/28/2007
71	Tryptic soy broth	1	3,000	3/28/2007
72	Xylene	1	1,200	2/1/2006
	Total Cost		1,827,235.82	

### Annex 9. List of Project Counterparts

	<b>Counterpart</b>	<b>Agency</b>	<b>Position/designation</b>	<b>Team assignment</b>
1	J.A. Bautista	DTRI	Project manager	Breeding & reproduction; training and information dissemination
2	N. B. Velasco	DTRI	University researcher; Team leader	Feeding & nutrition; training & information dissemination
3	V. L. Barraquio	DTRI	University researcher; Team leader (resigned)	Milk hygiene & quality control
4	O. C. Emata	DTRI	University researcher; Team leader	Milk hygiene & quality control; training & info dissemination
5	M. S. Galang	DTRI	University researcher; Team leader	Training & information dissemination
6	I. G. Sarmago	DTRI	Univ research associate; Team member	Breeding & reproduction; training & info dissemination; milk hygiene
7	A. Y. Robles	DTRI	University research associate; Team member	Feeding & nutrition
8	M. M. Loresco	DTRI	Univ research associate; Team member	Feeding & nutrition
9	T. A. Atega	DTRI	University researcher; Team member	Feeding & nutrition
10	A. A. Rayos	DTRI	Univ research associate; Team member	Breeding & reproduction
11	D. B. Marcial	DTRI	Univ research associate Team member	Breeding & reproduction
12	A. J. Zuniega	DTRI	Univ research associate Team member	Milk hygiene; Breeding & reproduction
13	A. B. Lanaca	DTRI	Univ research associate Team member	Milk hygiene
14	E. A. Gonzaga	DTRI	Univ research associate; Team member	Breeding and reproduction
15	J. M. Lopez	NDA	Regional Manager – South Luzon Field Office; Team member	Breeding & reproduction; training & info dissemination
16	G. J. Cenas	NDA	Regional Manager-Visayas Field Office; Team member	Training & info dissemination
17	C. Almarez	NDA	PDO-Batangas	Breeding & reproduction
18	O. Cuevas	NDA	PDO-Quezon Province	Breeding & reproduction
19	M. Dilloy	NDA	PDO-Laguna Province	Breeding & reproduction

20	G. Lagamayo	NDA	PDO-South Luzon	Breeding & reproduction
21	S. Mejino	NDA	PDO-South Luzon	Training & info dissemination
22	B. Malabayabas	NDA	PDO-South Luzon	Feeding & nutrition; training & info dissemination
23	E. B. Dela Cruz	NDA	PDO-South Luzon	Milk hygiene
24	M. D. Beldia	NDA	PDO-IV-Visayas	Milk hygiene
25	J. B. Vestil	NDA	Traning Officer-Visayas	Training & information dissemination
26	F. S. Dy	NDA	Information officer-Visayas	Training & information dissemination
27	A. Lague	NDA	PDO-IV-Visayas	Field operations
28	S. A. Saldua	NDA	Veterinarian-Visayas	Field operations

### Annex 10. Results of Questionnaire Survey among Project Counterparts

Evaluation Criteria	Item No.	Question	Response		
			Yes	No	
Relevance	1	Is the project's objective of increasing milk production in target areas consistent with the government's development plan for the dairy industry?	14	0	
	2	Are the technologies being promoted by the project relevant to the needs of dairy farmers in target areas?	14	0	
Effectiveness	3	Do you think the project was able to enhance the knowledge and skills of project counterparts from NDA and DTRI?	14	0	
	3.1	If yes, what specific skills were enhanced? <ul style="list-style-type: none"> <li>- Milk quality control</li> <li>- Mastitis</li> <li>- Breeding evaluation</li> <li>- Knowledge about Japanese culture</li> <li>- Feeding system practiced by farmers</li> <li>- Milk composition analysis</li> <li>- Semen processing</li> <li>- Data recording</li> <li>- Operating the milking machine</li> <li>- Pregnancy diagnosis by ectal palpation</li> <li>- Use of KYU</li> </ul>	1 5 1 1 1 1 2 1 1 1 1		
	4	Do you think the project was able to develop an improved management technology for dairy cattle in target areas?	14	0	
	5	Do you think the project was able to strengthen the training and extension support system for dairy farmers in target areas?	13	1	
	Efficiency	6	Was the conduct of training for project counterparts appropriate in terms of quantity, quality and timing?	11	3
		6.1	If No, why? <ul style="list-style-type: none"> <li>- Few trainings were conducted</li> </ul>		3
7		Was the equipment supplied by the project appropriate in terms of quantity, quality and timing of delivery?	12	2	
7.1		If No, which equipment is inappropriate? <ul style="list-style-type: none"> <li>- Hammer mill not utilized</li> </ul>		2	
8		Were the counterpart inputs from GOP adequate in terms of quantity, quality and timing of delivery?	8	6	
8.1		If No, which GOP input was inadequate? <ul style="list-style-type: none"> <li>- Travel expense/budget (DTRI)</li> </ul>		6	
9		Were the Inputs (JOCV, counterpart personnel, equipment, etc.) to the project fully utilized?	12	2	
9.1		If No, which specific Input was not fully utilized? <ul style="list-style-type: none"> <li>- JOCV</li> </ul>		2	
Impact	10	Do you think the project is able to contribute to the Overall Goal of promoting the local dairy industry?	14	0	
Sustainability	11	Do you think your agency will be able to continue the Activities after project completion in September 2008?	14	0	

### Annex 11. List of PSC and JCC Meetings Conducted as of May 2008

Date	Meeting/Venue	Agenda
August 15, 2003	1 <sup>st</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Formulation of Action Plan based on Master Plan</li> <li>○ Composition of technical teams</li> <li>○ Estimation of budget requirements of the program</li> </ul>
January 21, 2004	2 <sup>nd</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Review of 2003 project activities and their status</li> <li>○ Request for JOCV and equipment for JFY 2004</li> </ul>
July 13, 2004	3 <sup>rd</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Status report on 2<sup>nd</sup> quarter activities</li> <li>○ Status report on equipment procurement</li> </ul>
February 1, 2005	4 <sup>th</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Updates on project activities</li> <li>○ Updates on deployment of senior JOCV</li> <li>○ Distribution of initial batch of project equipment</li> </ul>
May 16, 2005	5 <sup>th</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Updates on activities of the project</li> <li>○ Updates on deployment of senior JOCV</li> <li>○ Transfer of available equipment</li> </ul>
January 17, 2006	6 <sup>th</sup> JCC Meeting JICA, Makati City	<ul style="list-style-type: none"> <li>○ Workshop to review 2005 project activities and accomplishments</li> <li>○ Planning for 2006 activities</li> </ul>
August 10, 2006	7 <sup>th</sup> JCC Meeting NDA, Quezon City	<ul style="list-style-type: none"> <li>○ Equipment request for 2006</li> <li>○ Short-term volunteer program</li> <li>○ Preparation for mid-term evaluation</li> </ul>
December 4, 2006	8 <sup>th</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Mid-term evaluation results</li> <li>○ 3<sup>rd</sup> batch of short-term volunteers</li> <li>○ Equipment procurement for 2006</li> <li>○ JOCV activities</li> </ul>
April 23, 2007	9 <sup>th</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Status of equipment procurement for 2006</li> <li>○ Progress report of technical teams</li> <li>○ Discussion about Phase 2</li> </ul>
January 29, 2008	10 <sup>th</sup> JCC Meeting DTRI, UP Los Banos	<ul style="list-style-type: none"> <li>○ Progress report on team activities</li> <li>○ Preparatory activities for final project evaluation</li> <li>○ Discussion about Phase 2</li> </ul>
October 19, 2006	1 <sup>st</sup> PSC Meeting Chancellor's Office, UP Los Banos	<ul style="list-style-type: none"> <li>○ Presentation of Mid-term Evaluation Results</li> </ul>

Source: Minutes of Meetings compiled by Ms. Ione Sarmago, counterpart from DTRI

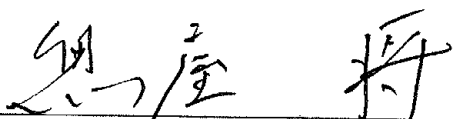


**THE MINUTES OF THE MEETING  
ON THE  
JOINT EVALUATION  
FOR  
THE JOCV-DTRI-NDA-PNVSCA  
DAIRY DEVELOPMENT ENHANCEMENT PROJECT  
IN THE  
REPUBLIC OF THE PHILIPPINES**

The Japanese Evaluation Team organized by the Japan Overseas Cooperation Volunteers, Japan International Cooperation Agency (JOCV/JICA) visited the Republic of the Philippines from July 13, 2008 for the purpose of evaluating jointly with the Philippine Evaluation Team.

After the series of discussion between the team and field survey, both teams agreed to submit a summary of the evaluation and recommendations as stated in the attached Join Evaluation Report to their respective governments.

Los Banos, July 21 2008



Mr. MASARU UOYA

Leader

Japanese Evaluation Team

Japan Overseas Cooperation Volunteers

Japan International Cooperation Agency

Japan



Dr. LUIS REY I. VELASCO

Chancellor

University of the Philippines at Los Banos

Republic of the Philippines

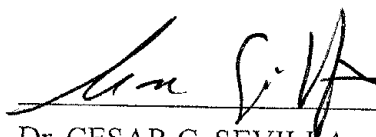


Mr. NORIO MATSUDA

Resident Representative

JICA Philippines office

Japan International Cooperation Agency



Dr. CESAR C. SEVILLA

Director

Animal and Dairy Sciences Cluster,

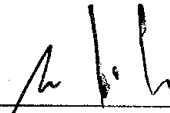
CA- UPLB

Republic of the Philippines



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Dr. JOSE ARCEO N. BAUTISTA  
Project Manager  
Dairy Training and Research Institute  
Animal and Dairy Sciences Cluster, UPLB  
Republic of the Philippines



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Ms. NAOMI K. TORRETA.  
OIC-Administrator  
National Dairy Authority  
Republic of the Philippines



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Mr. JOSELITO C. DE VERA  
Executive Director  
Philippine National Volunteer Service  
Coordinating Agency  
Republic of the Philippines

**JOINT EVALUATION REPORT  
ON  
THE JOCV-DTRI-NDA-PNVSCA  
DAIRY DEVELOPMENT ENHANCEMENT PROJECT  
IN THE  
REPUBLIC OF THE PHILIPPINES**

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## 1. Introduction

### A. Objectives of the Joint Evaluation

The objectives of the evaluation study are as follows:

- (1) To verify the level of achievement and performance of the Project based on the Minutes of Meeting (M/M) and Project Design Matrix (PDM);
- (2) To evaluate the Project in terms of the Five Evaluation Criteria;
- (3) To draw useful recommendations and lessons learned from the Project.

### B. Period of the Joint Evaluation Exercise

During April and May, 2008, Japan International Cooperation Agency (JICA) In-house Consultant conducted evaluation in the form of interviews, field observation, and review of the project documents and had discussions with the authorities.

Dairy Training and Research Institute (DTRI) and National Dairy Authority (NDA) rendered the terminal report on March 31, 2008.

The Japanese Evaluation Team visited Philippines from July 13 to 22, 2008 and the concerned Philippines authorities held a series of discussions from July 14 to 21, 2008.

(Please refer to the detailed schedule in Annex 1).

### C. Members of the Japanese Evaluation Team

The Japanese Evaluation Team comprised the following members:

#### JICA Headquarter

- (1) Mr. Masaru UOYA                      Leader of the Team  
Director of Regional Division I, Secretariat of JOCV
- (2) Dr. Hiroshi SAITO                    Technical Advisor  
Senior Advisor of JICA on Livestock Development

- (3) Ms. Machia OSHIKIRI Program Officer  
Regional Division I, Secretariat of JOCV

**JICA Philippines Office**

- (1) Mr. Hajime WATANABE, Deputy Resident Representative of JICA Philippines Office
- (2) Ms. Chiho TANAKA, Volunteer Coordinator
- (3) Mr. Nick BAOY, JICA In-house Consultant

**D. Members of the Philippines Evaluation Team**

The Philippine Evaluation Team comprised the following members:

**DTRI: Dairy Training and Research Institute**

- (1) Dr. Cesar C. SEVILLA, Director of Animal and Dairy Sciences Cluster, CA- UPLB
- (2) Dr. Jose Arceo N. BAUTISTA, Project Manager
- (3) Ms. Ione G. SARMAGO, Research associate

**NDA: National Dairy Authority**

- (1) Ms. Naomi K. TORRETA, OIC-Administrator
- (2) Dr. Jaime M LOPEZ, Regional Manager, South Luzon Field Office
- (3) Ms. Grace J. CENAS, Regional Manager, Visayas Field Office

**PNVSCA: Philippines National Volunteer Service Coordinating Agency**

- (1) Mr. Joselito C. DE VERA, Executive Director
- (2) Ms. Corazon MACARAIG, Chief Volunteer Service Officer

**E. Methods of Evaluation Criteria**

The terminal evaluation was conducted based on the “JICA Guidelines for Project Evaluation,” revised version, March 2004. The evaluation activities included review and analysis of project documents and reports, conduct of field survey in target areas, questionnaire survey among project counterparts, and interviews with key informants from project-related agencies. The field survey adopted participatory methods including focus group discussions with dairy cooperative officers and members in the target areas. Overall, the evaluation study was guided by the following criteria:

- (1) Relevance – refers to the validity of the Project Purpose and the Overall Goal in relation to the development policy of the Philippine Government as well as the needs of the beneficiaries;
- (2) 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



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a result of the Project;

- (3) Efficiency – refers to the productivity of the implementation process, and examines if the Inputs of the Project were efficiently converted into Outputs;
- (4) Impact – refers to direct and indirect, positive and negative impact caused by the Project and the extent to which the Overall Goal has been attained;
- (5) Sustainability – refers to the extent to which the Philippine side can further develop the Project, and the extent by which the benefits generated by the Project can be sustained under the policies, technologies, systems and financial state of the Philippine side.

## 2. Project Description

### A. Background of The Project

In 1999, JICA received a project request from the Dairy Training and Research Institute of the University of the Philippines at Los Banos (DTRI-UPLB) for the implementation of the Dairy Development Enhancement Project under the Japan Overseas Cooperation Volunteers (JOCV) Program. With the support from senior JOCVs, the project request was subsequently refined and officially endorsed to JICA sometime in 2002. In response to the request, JICA dispatched study missions to formulate the appropriate framework of the project. After a series of consultations with concerned agencies, the Minutes of Meeting on the Dairy Development Enhancement Project of the JOCV, DTRI, NDA and PNVSCA was signed in November 10, 2003.

Based on the agreement, the project cooperation was for a period of five years from October 1, 2003 to September 30, 2008. The project was implemented in three target areas, namely: DTRI, NDA South Luzon and NDA Visayas. Overall project supervision was entrusted to a Project Manager from the DTRI with technical support provided by a senior JOCV.

In October 2006, a JICA evaluation team conducted a mid-term evaluation of the project. The evaluation team concluded that the achievement of the project was more than the original expectation and recommended that the project: a) promote the activities through the Project Steering Committee (PSC meeting); b) reconsider on making good use of unused equipment; and c) improve the roughage production.

Before the project ends in September 2008, terminal evaluation is required to

assess the progress, achievement and performance of the Project and recommend actions to be taken after the termination of the Project.

**B. Period of Cooperation**

October 1, 2003 to September 30, 2008 (5 years)

**C. Project Site**

- (1) Dairy Training and Research Institute(DTRI), University of the Philippines at Los Banos
- (2) National Dairy Authority(NDA) South Luzon  
Katipunan ng mga Kooperatibang Maggagatas Integrated Coop (KKMI) & 4 coops
- (3) National Dairy Authority(NDA) Visayas (Cebu)  
Cebu Federation of Dairy Cooperatives (CEFEDCO) & 9 coops

**D. Purpose of The Project**

- (1)Overall Goal  
Local dairy industry is promoted.
- (2)Project Purpose  
The milk production in target areas is increased.

**E. Objective and Areas of Cooperation**

- (1) Improved management technology for dairy cattle is developed.
- (2) Knowledge and skills of DTRI researchers and NDA Project Development Officer (PDOs) are enhanced.
- (3) Support system for dairy farmers is strengthened.

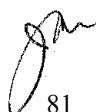

**3. Achievement of The Project**

**A. Inputs from the Government of Japan(GOJ)**

(1) Dispatch of JOCVs

As of July 2008, a total of 43 Japanese volunteers were dispatched to the project including 2 senior JOCVs; 14 JOCVs and 27 short-term JOCVs. (see details in Annex 2)

(2) Provision of equipment and supplies



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From 2003 to 2007, the Japanese side provided various equipment and supplies with a total amount of Php 13,235,263 or about 32.1 million yen. (see details in Annex 3).

(3) Local operation expenses borne by the Japanese side

Local operation expenses shouldered by the Japanese side included cost of consumable supplies and local travel. Cost of consumable supplies amounted to Php 1,827,236 or 4.43 million yen as of end of JFY 2007.

**B. Inputs from the Government of the Philippines(GOP)**

(1) Assignment of counterpart personnel

In total, 28 counterpart personnel (14 from DTRI and 14 from NDA) participated in the implementation of the activities of the Project.

(2) Provision of land, building and facilities.

The Philippines side provided necessary land, office space and other facilities for use under the project.

(3) Allocation of budget by the Philippine side

Budget allocated to the Project by DTRI and NDA included the travel cost of project counterparts and cost of some farmers' meetings/consultations which were not funded by the Japanese side.

**C. Activities and Outputs**

(1) Breeding and reproduction

- Introduction of Jeuns Moyen Retard (JMR), a system of reproductive health management that sets the parameters for effective monitoring of reproductive performance of a dairy herd.
- Implementation of practical and reliable milk recording scheme based on the Test Interval Method suggested by the International Committee for Animal Recording (ICAR).
- Implementation of a model for the Sire Testing Program for dairy aimed at generating breeding values for sires used through the DTRI-NDA Semen Production Project.
- Introduction of permanent identification system for individual cows based on the method suggested by ICAR using 17 alpha-numeric code.
- Introduction of semen straw identification system following the Interbull

*[Handwritten signatures and initials]*



## Guidelines of ICAR.

### (2) Milk Hygiene

- Promotion of hygienic management methods for dairy farmers with emphasis on personal hygiene, proper milking procedures, sanitation in the farm and milk collection centers, regular cleaning of dairy equipment, and proper handling and storage of milk on-farm and in the processing areas.
- Development of a therapeutic regimen for mastitis based on causal organism identification, antibiotic sensitivity testing, and some alternative therapies using indigenous plant extracts (output of 8 researches conducted; see list in Annex 4).
- Evaluation of milk quality based on physico-chemical properties (e.g., fat, protein, total solids, etc.), total bacterial count (TBC) and somatic cell count (SCC) which became the basis for the milk payment scheme of the cooperatives under KKMI.

### (3) Feeding and nutrition

- Establishment of forage gardens in target areas (Sto. Tomas, Batangas, Sariaya and Quezon) using suitable grass species.
- Introduction of grass cutters and grass choppers to demonstrate the benefits of using these machines in smallholder dairy farms.
- Improved utilization of concentrate feeds and adoption of integrated feeding systems may not be achieved at the end of the project due to the inability of the Malinao Cooperative to operate the hammer mill acquired by the project.

### (4) Training courses

A total of 9 trainings/seminars were conducted for DTRI researchers and NDA-PDOs over the project period. Of the 9 trainings/seminars, only two were conducted by the project and the rest were delivered by JOCV in coordination with DTRI counterparts. Despite the fact that only nine trainings were conducted/delivered during the project, results of questionnaire survey revealed that most of the project counterparts felt that their knowledge and skills on dairy farming were enhanced not only due to the training but also because of their participation in the project activities. Moreover, interviews with project counterparts reveal that they also learned some skills and techniques from the Japanese volunteers assigned to work with them. (see Annex 5)

### (5) Strengthening of support system for dairy farmers

A notable output of the project which may have further strengthened the support system for dairy farmers in terms of higher returns from milk production was the introduction and subsequent adoption of quality premium payment scheme for milk in KKMI and CEFEDCO. With technical assistance from DTRI and JOCV, the KKMI established the premium payment scheme sometime in 2005 based on the physicochemical properties of raw milk collected from dairy cooperatives. In August 2007, CEFEDCO adopted its own quality premium payment scheme with technical guidance from project counterparts.

(see Annex 6)

In addition, the Training and Information Dissemination Team with technical support from the JOCV and project counterparts developed and published two leaflets about mastitis in English, Filipino and Cebuano. These leaflets were subsequently disseminated to dairy farmers in Luzon and Cebu.

#### **4. Result of the Joint Evaluation**

##### **A. Relevance**

###### **(1) Consistency with the National Development Plan of the Philippines**

The goal of the Medium Term Philippine Development Plan (MTPDP) for the period 2004-2010 is to alleviate poverty. One of the instruments for alleviating poverty especially in the rural areas espoused by the MTPDP is the "Ginintuang Masaganang Ani" (GMA) program for livestock. This program aims to increase income of small livestock farmers by increasing productivity through genetic improvement, herd build-up, financing, marketing and distribution. Consistent with aforementioned program, the Project was designed to increase milk production in target areas through the improvement of management technology for dairy cattle and strengthening the extension support system for dairy farmers thereby alleviating poverty and increasing farmers' income in target areas.

###### **(2) Consistency with the Official Development Assistance (ODA) policy of Japan**

Assistance policy of Japan for the Philippines is under revision. However, one of the priority areas of Japan's ODA policy for the Philippines formulated in 1999 was mitigation of disparities (poverty alleviation and mitigation of regional disparities). "Agriculture and rural development" through improving agricultural productivity, building of basic social and economic infrastructure in rural areas, support to agrarian reform communities and strengthening of farmers'

organizations is one of the priority strategies for “mitigation of disparities” mentioned above.

(3) Conformity with the goals of the local dairy industry and local government units

The objective of the project to increase milk production in target areas is consistent with the medium-term goals of the local dairy industry as outlined in the “The Dairy Road Map, 2005-2010”. The “Dairy Roadmap” aims to increase local annual milk production from 12 million liters in 2005 to 44 million liters in 2010. Any increase in milk production in the project’s target areas, therefore, will contribute to the achievement of the goals of the local dairy industry. Likewise, the project objective is deemed consistent with the development plans of local government (LGUs) units in the target areas as the LGUs seek to promote livestock including dairy as additional source of income for small farmers. Moreover, the project is supportive of the milk feeding programs of some LGUs in the target areas as dairy farmers produce the milk requirements of the said programs.

**B. Efficiency**

Most of the Outputs will achieve the project at completion except for planned outputs on feeding and nutrition technology for dairy cattle which could not be achieved mainly due to the failure of the recipient cooperative to put the planned hammer mill into operation. Despite the partial achievement of Outputs, the Project Purpose (i.e., milk production in target areas is increased) will be achieved by the end of the Project based on milk production records gathered from the survey. (see Annex 7).

Moreover, the deployment of 27 short-term volunteers under the Short-term Volunteer Program contributed to the project’s efficiency. Apart from fulfilling its objective of providing field exposure to Japanese student volunteers, the Short-term Volunteer Program facilitated sharing of knowledge and skills among student volunteers, project counterparts and farmers in the field of breeding, nutrition and milk hygiene.

**C. Effectiveness**

**(1)Deployment of JOCVs**

The quantity, quality and timing of JOCVs deployed in the project were deemed appropriate although there were few occasions when arrival of JOCV replacements was delayed. Communication between JOCVs and the counterparts

did not pose a problem as the volunteers could speak English and the local dialect. The absence of senior JOCV from October 2004 to March 2005 and from May 2007 up to the end of the project has somehow affected coordination of project activities with JICA but the Philippine Project Manager who has long years of working with JOCVs in previous JICA projects was able to manage the situation.

**(2) Equipment**

Most of the Inputs have been provided adequately in terms of quantity, quality and timing. Inputs to the project from the Japanese side were generally well utilized in the project activities and contributed to the achievement of Outputs except for a few equipment like the hammer mill installed at the Malinao Multi-purpose Cooperative which remain inoperable and grass chopper supplied to dairy cooperative which was found to be inappropriate for the kind of grasses found in the area.

**(3) Assignment of Philippine counterpart personnel**

The quantity and quality of DTRI and NDA counterpart personnel were deemed adequate. Despite the resignation of some DTRI and NDA counterpart staff, their replacements were equally competent and no difficulties were encountered during the transition period. While the GOP provided budget in support of the project activities, the budget allocation for travel of counterpart personnel was very limited thereby limiting their participation in the implementation of some project activities in the field.

**D. Impact**

**(1) Prospect of achievement of the Overall Goal**

The Overall Goal of the project is “local dairy industry is promoted.” The achievement of the project in terms of increasing the milk production in target areas will somehow contribute to the attainment of the Overall Goal. However, more deliberate efforts are needed to achieve the Overall Goal even within the dairy zones presently covered by the project in terms of herd build-up including upgrading of existing stocks, strengthening of extension support for dairy farmers, building the capability of dairy cooperatives, among others.

**(2) Other impacts**

Aside from promoting the local dairy industry through the increase in milk production, the project brought about other positive effects to the dairy industry, farmer beneficiaries and project counterparts in terms of the following:

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- Increase in dairy farmers' income not only from increased milk output but from the incentives provided for quality milk under the premium payment scheme adopted by the cooperative federation with the support from the project;
- Upgrading of technical capabilities of DTRI and NDA through acquisition of equipment necessary for milk quality testing, feed analysis and providing support for training and extension;
- Production of about 12,000 doses of semen valued at about Php 4.35 million in 2005 and 2006 under the DTRI-NDA Semen Production Project which was utilized by NDA for its AI activities in Luzon;
- Contribution to the proposed National Dairy Cattle Breeding Plan which was drafted based on the achievements of the project in establishing herd reproduction records, milk testing and recording, and semen production.

## **E. Sustainability**

### **(1) Institutional Sustainability**

The NDA is the government agency mandated to promote the local dairy industry. As such, it is likely to continue its development programs in strategic dairy zones in line with the goal of increasing farm productivity and alleviating poverty in the rural areas.

In order to support following NDA's training and research activity, DTRI is expected to play an important role in supporting manpower aspect.

### **(2) Financial Sustainability**

DTRI and NDA received regular budget from the Government in support of the implementation of the Project activities during the project period. Since the project activities are part of the regular functions of DTRI and NDA, budget for these activities are likely to be provided by the Government in the future.

### **(3) Technical Sustainability**

Most of the project counterparts have permanent employment status and are likely to remain working with DTRI and NDA. The skills of these project counterparts will continue to be useful in future projects aimed at promoting the local dairy industry. Moreover, most of the equipment are properly utilized and maintained by DTRI and NDA thereby contributing to the technical sustainability of the project.

## 5. Conclusion

### (1) Factors promoting effects of the project

- The equipment acquired by the project contributed to increase in milk production. For instance, the milking machines increased milking efficiency while the milk chiller provided bigger milk storage capacity and enabled dairy farmers to milk their cows twice daily.
- The laboratory equipment supplied by the project greatly contributed to the adoption of “premium payment scheme” as it facilitated monitoring of the quality of milk collected from the primary cooperatives.
- Despite the few trainings provided for project counterparts, the project benefited greatly from the technical competence of DTRI and NDA staff who have been involved in local dairy development projects for several years.
- Dispatch of JOCVs through the regular and the short-term volunteer programs facilitated the sharing of knowledge and skills on improved dairy technology with farmers and project counterparts.
- The deployment of JOCVs strengthened extension support in project areas as the volunteers performed extension functions in close coordination with the PDOs of NDA.

### (2) Factors inhibiting effects of the project

- Some small farmers are unable to sustain dairy operations due to depletion of feed resources (grasslands converted to other land uses) and high operating costs.
- Dairy herd build-up remain slow largely on account of limited capital of farmers and high cost of stocks.
- The delay in setting up of the hummer mill affected the activities of the feeding and nutrition team.
- The absence of senior JOCV in two occasions (October 2004 to March 2005 and May 2007 to September 2008) affected coordination of project activities with JICA.
- The limited GOP budget affected the participation of project counterparts in some field activities.
- The PDM did not clearly define Objectively Verifiable Indicators (OVIs) and failed to capture changes in activities and inputs (e.g. sire testing program and short-term volunteer program) in the course of project implementation.

### (3) Summary of evaluation

The Project contributed not only in increasing the volume of milk production in processing plants but also in promoting the production of quality milk by dairy farmers.

Although some activities such as those relating to feeding and nutrition may not be implemented enough during the project period, it is expected that outputs from these activities will be achieved after project completion considering the availability of necessary skills, facilities and equipment to perform the said activities.

Based on the above findings, the Project may be concluded on September 30, 2008 as planned.

## 6. Recommendation

### (1) Actions to be taken during the remaining Project period

- DTRI, NDA and JOCV should formulate an action plan to ensure that gains derived from the project are sustained.
- DTRI and NDA should prepare a detailed feasibility study to confirm the technical, financial and organizational viability of the plan to set up the feed mill and its commercial operation in Sariaya, Quezon, until the day when the project ends.
- DTRI and NDA should document salient project experiences, e.g., premium quality payment scheme, mastitis control, etc. which are deemed relevant in planning and implementation of projects aimed at promoting the dairy industry.
- JICA should support DTRI, NDA and JOCV to conduct of a seminar to disseminate achievements and lessons from the project to the relevant stakeholders of the dairy industry.

### (2) Actions to be taken after the Project period

- DTRI and NDA should continue its collaboration to sustain the activities initiated by the project.
- DTRI should continue to be the key institute to mediate between scientific and practical technologies especially for small holder dairy enterprises.
- NDA should review the milk production and reproduction recording system at

the farmer level to make it more useful to the farmer.

- DTRI and NDA should find ways to establish the most suitable breed of dairy cattle through production and reproduction recording system.
- NDA should explore ways to make the cost of animal stocks affordable to the small farmer.
- DTRI and NDA should ensure that technical assistance is provided to Palcon Dairy Cooperative in running the feed mill enterprise.

(3) Lessons learned

- Local dairy development projects should focus not only on increasing the volume but also on increasing the quality of milk production.
- PDM should be revised to reflect changes in activities and inputs in the course of project implementation.
- Equipment should be properly selected and located through the well planned survey.

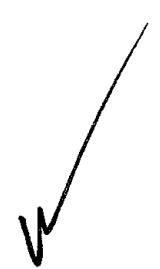
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Annex 1

Evaluation team schedule July 13 – July 23, 2008

Date	Place	Activity
13-7	Sun	Evaluation team arrive to Philippines
14-7	Mon JICA Office & Quezon City	(1) Visit to PNVSCA 10:00am , NDA-Central & NDA-South Luzon Office 11:00am (2) Meeting with JICA Staff for the evaluation report 2:00-4:30 (3) Courtesy call meeting with RR Matsuda, 18:15-18:45
15-7	Tue Laguna(Los Banos)	(1) Move to Los Banos in morning (2) Visit to DTRI (3) Meeting with DTRI staff (4) Visit to KKMI & Malinao Coop.
16-7	Wed Laguna, Quezon, Batangas	(1) Visit to Salba and Palcon Coop
17-7	Thu Laguna	(1) Visit to San Francisco (2) Move to MNL → Cebu by night flight
18-7	Fri Cebu	(1) Visit to NDA-Visayas 8:30 (2) Visit to CEFEDCO (3) Meeting with the persons concerned (4) Courtesy call to Consul Sakunaga of Cebu, 15:00pm
19-7	Sat Cebu	(1) AM Visit to Lusan Dairy Coop & Cobcawa Dairy Coop (2) PM Visit to Tayud Dairy Coop. (3) Move to Manila by night flight
20-7	Sun	( Off ) Preparation for MM
21-7	Mon JICA Office	(1) PSC meeting with Project member for Minutes of The Meeting at DTRI, from 11:00am (2) Dinner Reception (3) Go back to Manila
22-7	Tue JICA Office	(1) Report to RR Matsuda (2) Meeting with JOCV sec. staff
23-7	Wed	Am: Meeting with JOCV sec. staff Pm: Evaluation team return to Japan



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Annex2 Volunteer List

	Name	Specification	Host Agency	Working Place	Activity	Category	Dispatch from	Dispatch to
1	Masanori Hikiba	Animal Husbandry	DTRI	Los Banos	Project Management (Assist)	Senior JOCV	20070906 20050428	20040905 20070427
2	Yuuki Kouno	Animal Husbandry	DTRI	San Francisco	Reproduction	Short term JOCV	20070815	20070920
3	Yuriko Sato	Animal Husbandry	DTRI	Los Banos	Breeding and Reproduction	JOVCV	20030410	20050409
4	Kumi Urabe	Animal Husbandry	DTRI	Los Banos	Breeding and Reproduction	JOVCV	20060627	20080626
5	Hideo Ooka	Veterinarian	DTRI	Los Banos	Milik Quality	Short term JOCV	20060307	20060327
6	Yoshinori Shichi	Animal Husbandry	DTRI	Los Banos	Milik Quality	Short term JOCV	20060307	20060327
7	Yumi Sakuragi	Animal Husbandry	DTRI	Los Banos	Breeding	Short term JOCV	20060307	20060327
8	Kaoru Tahara	Animal Husbandry	DTRI	Los Banos	Breeding	Short term JOCV	20070815	20070920
9	Toshiro Obayashi	Animal Husbandry	NDA-South Luzon	San Pablo	Forage Quality	JOVCV	20070327	20090326
10	Maria Ashida	Animal Husbandry	NDA	San Pablo	Concentrate Feeds	Short term JOCV	20060815	20060921
11	Miyuki Oishi	Animal Husbandry	NDA	San Francisco	Breeding	Short term JOCV	20060815	20060921
12	Takeshi Miyama	Animal Husbandry	NDA	San Francisco	Reproduction	Short term JOCV	20060815	20060921
13	Yukari Moki	Animal Husbandry	NDA	San Francisco	Roughage	Short term JOCV	20070815	20070920
14	Rie Umemoto	Animal Husbandry	NDA	San Pablo	Concentrate Feeds	Short term JOCV	20070815	20070920
15	Kohei Kuroda	Veterinarian	NDA	San Pablo	Milk Hygiene	Short term JOCV	20070815	20070920
16	Ryujiro Kakizaki	Animal Husbandry	NDA	Los Banos	Milik Quality	Short term JOCV	20060815	20060921
17	Yuko Iijima	Veterinarian	NDA	Los Banos	Roughage	Short term JOCV	20060815	20060921
18	Yumi Yoyota	Veterinarian	NDA	Los Banos	Milik Quality	Short term JOCV	20060815	20060921
19	Naohito Takase	Veterinarian	NDA	Los Banos	Milk Hygiene	Short term JOCV	20070815	20070920
20	Aki Shoji	Program officer	DTRI	Los Banos	Project Management (Assist)	Short term JOCV	20080701	20081014
21	Aoi Matuda	Veterinarian	NDA	Quezon city	Milk Hygiene	JOVCV	20080624	20100623
22	Nobukatu Nikami	Animal Husbandry	NDA-Visayas	Cebu	Forage Quality	JOVCV	20030717	20050716
23	Mai Yoshida	Animal Husbandry	NDA-Visayas	Cebu	Forage Quality	JOVCV	20060627	20080626
24	Shinya Mito	Animal Husbandry	NDA-Visayas	Cebu	Breeding and Reproduction	JOVCV	20070109	20090108
25	Asamilchimoto	Animal Husbandry	NDA-South Luzon	Batangas	Forage Quality	JOVCV	20021205	20041204
26	Hisashi Nakagawa	Veterinarian	NDA-South Luzon	Caramba	Milk Hygiene	JOVCV	20030717	20050716
27	Aki Shoji	Veterinarian	DTRI	Caramba	Milk Hygiene	JOVCV	20060328	20080327
28	Fumiki Ui	Veterinarian	NDA-South Luzon	Caramba	Reproduction	Short term JOCV	20060307	20060327
29	Ayumi Yoshitake	Animal Husbandry	NDA-South Luzon	San Pablo	Forage Quality	JOVCV	20021205	20041204
30	Takashi Ishigame	Animal Husbandry	DTRI	Laguna and Batangas	Concentrate Feeds	Short term JOCV	20050823	20050912
31	Nobuaki Takahashi	Animal Husbandry	DTRI	Laguna and Batangas	Concentrate Feeds	Short term JOCV	20050823	20050912
32	Yusuke Umeshita	Animal Husbandry	DTRI	Laguna and Batangas	Reproduction	Short term JOCV	20050823	20050912
33	Tomoyoshi Asano	Animal Husbandry	DTRI	Laguna and Batangas	Reproduction	Short term JOCV	20050823	20050912
34	Naomi Ota	Animal Husbandry	DTRI	Laguna and Batangas	Milik Quality	Short term JOCV	20050823	20050912
35	Akane Sato	Animal Husbandry	DTRI	Laguna and Batangas	Milik Quality	Short term JOCV	20050823	20050912
36	Takuro Kajima	Animal Husbandry	DTRI	Laguna and Batangas	Breeding	Short term JOCV	20050823	20050912
37	Sayaka Horie	Animal Husbandry	DTRI	Laguna and Batangas	Breeding	Short term JOCV	20050823	20050912
38	Tadashi Hongoi	Animal Husbandry	DTRI	Laguna and Batangas	Roughage	Short term JOCV	20050823	20050912
39	Yu Yamamoto	Animal Husbandry	DTRI	Laguna and Batangas	Roughage	Short term JOCV	20050823	20050912
40	Naoshige Kusakabe	Animal Husbandry	NDA-South Luzon	San Francisco	Forage Quality	JOVCV	20051129	20071128
41	Chie Tamaru	Animal Husbandry	NDA-South Luzon	San Francisco	Forage Quality	JOVCV	20080108	20100107
42	Mai Shimizu	Animal Husbandry	NDA-South Luzon	San Francisco	Forage Quality	JOVCV	20050711	20070710

Senior JOCV	2
JOVCV	14
Short term JOCV	27
合計	43

Annex 3. List of equipment provided by Japanese side

No.	Item	Qty.	Unit cost (P)	Total Cost (P)	Date acquired	End-user
1	Artificial insemination gun	10	3,600	36,000	Feb 2006	NDA-VFO
2	Alcohol lamp	5	140	700	Feb 2005	DTRI, NDA-SFLO
3	Air conditioner (Panasonic)	2	18,000	36,000	April 2005	DTRI
4	A. V. Funnel 12" L	10	1,100	11,000	May 2005	DTRI
5	A. V. Liner 25" L, 2" W	25	1,550	38,750	May 2005	DTRI
6	Analytical balance (Denver)	1	58,000	58,000	April 2005	DTRI
7	Artificial vagina size 16"	5	11,500	57,500	May 2005	DTRI
8	Autoclave (SL Autosterilizer)	1	165,630	165,630	Mar 2006	DTRI
9	Autoclave sterilizer	1	182,000	182,000	Feb 2007	DTRI
10	Bucket milker (mobile milker)	2	190,000	380,000	April 2005	NDA-VFO
11	Cattle Farrier hoof trimming kit	3	5,495	16,485	Feb 2008	DTRI, NDA-FOs
12	Centrifuge (Nova Gerber 3670)	1	114,800	114,800	Mar 2007	DTRI
13	Cooler box (Coleman 9.4 li)	2	1,650	3,300	April 2005	DTRI
14	Combo binder	1	21,000	21,000	Jan 2006	DTRI, NDA-FOs
15	Drench gun	3	3,290	9,870	Feb 2008	DTRI, NDA-FOs
16	Digital camera, Canon Ixus 700	1	33,000	33,000	Jan 2006	DTRI
17	Memory card, 512 MB	2	2,650	5,300	Jan 2006	DTRI
18	Digital camera, Casio 270	1	16,600	16,600	Mar 2007	DTRI
19	Digital scale, 4220g cap	1	104,000	104,000	Feb 2005	DTRI
20	Dispenser (VWR, bottle top)	1	46,200	46,200	Feb 2007	NDA-VFO
21	Dispenser bottle top	1	55,085	55,085	Feb 2006	DTRI
22	Dispenser pipettor	1	15,000	15,000	Feb 2006	DTRI
23	Distillation apparatus (Kjeldahl)	1	180,500	180,500	April 2005	DTRI
24	Distilling apparatus (JP Selecta)	2	123,200	246,400	May 2005	DTRI, NDA-CO
25	Ear tag applicator	5	2,500	12,500	May 2005	DTRI
26	Eartag applicator	5	1,875	9,375	Feb 2008	NDA-VFO/SFLO
27	Ear tattoo	5	7,150	35,750	May 2005	DTRI
28	Eppendorf 2-200 ul tips, 10 racks					DTRI, NDA-SLFO

No.	Item	Qty.	Unit cost (P)	Total Cost (P)	Date acquired	End-user
29	Fairies electrical control panel	1	112,000	112,000	Mar 2006	Malinao Coop
30	Feed grinder	1	387,000	387,000	May 2005	DTRI
31	Filing cabinet	2	5,800	11,600	April 2005	DTRI
32	Freezer	3	15,600	46,800	Jan 2006	DTRI
33	Freeze branding iron set	3	13,740	41,220	Feb 2008	DTRI, NDA-FOS
34	Forage chopper	3	55,000	165,000	May 2005	DTRI, NDA-FOS
35	Fumehood	1	145,000	145,000	Feb 2006	DTRI
36	Generator	1	65,800	65,800	Mar 2006	DTRI
37	Grass cutter	5	14,000	70,000	Nov 2004	St. Francis/Salba
38	Hammermill	1	422,000	422,000	April 2005	Malinao Coop
39	Helmet	5	300	1,500	Nov 2004	St Francis/Salba
40	Incubator	1	102,500	102,500	April 2005	DTRI
41	Inoculating needle	5	600	3,000	Feb 2005	DTRI, NDA-SFLO
42	Kjeldahl digestion	1	98,500	98,500	April 2005	DTRI
43	Laminar flow	1	340,290	340,290	Mar 2006	DTRI
44	Laminar flow (SCV-4AX ESCO)	1	144,000	144,000	Feb 2007	NDA-VFO
45	Laptop PC	1	96,000	96,000	Feb 2006	DTRI
46	Liquid nitrogen tank (MVE)	3	34,925	104,775	Feb 2006	DTRI
47	Liquid nitrogen field tank (MVE)	6	40,000	240,000	Mar 2007	NDA-SLFO/VFO
48	Liquid nitrogen mother tank	2	58,000	116,000	Mar 2007	NDA-VFO
49	Liquid nitrogen tank (Chengdu)	6	18,000	108,000	Feb 2008	NDA-VFO
50	Liquid nit mother tank (Chengdu)	2	38,770	77,540	Feb 2008	NDA-VFO
51	Locker	1	6,600	6,600	April 2005	DTRI
52	Magnetic stirrer	1	37,000	37,000	Feb 2006	DTRI
53	Micropipette	5	18,000	90,000	Feb 2005	DTRI, NDA-SLFO
54	Microscope (Nikon E-200)	3	82,000	246,000	Feb 2005	DTRI, KKMI
55	Microscope (Nikon trinocular)	1	125,000	125,000	Jan 2006	DTRI
56	Milk analyzer	4	242,500	970,000	Mar 2006	DTRI, Palcon/St Fr
57	Milk analyzer	2	241,000	482,000	July 2007	DTRI, NDA-VFO
58	Milk analyzer	1	280,128	280,128	Feb 2008	NDA-VFO
59	Milk cooling tank, 225 li	1	291,000	291,000	Feb 2006	St Francis

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No.	Item	Qty.	Unit cost (P)	Total Cost (P)	Date acquired	End-user
60	Milk cooling tank, 1060 li	1	535,000	535,000	July 2007	Palcon
61	Milk cooling tank, 1054 li	1	891,540	891,540	Feb 2008	NDA-VFO
62	Milking machine	3	191,560	574,680	June 2007	DTRI, Palcon/St Fr
63	Muffle furnace	1	360,000	360,000	April 2005	DTRI
64	Non-return teat dipper	150	762	114,300	Feb 2008	DTRI, NDA-FOS
65	Office chair	6	2,500	15,000	April 2005	DTRI
66	Oven	1	105,000	105,000	May 2005	DTRI
67	PA system	1	41,500	41,500	Mar 2007	DTRI
68	Paper trimmer	1	57,000	57,000	Jan 2006	DTRI
69	PC	2	56,000	112,000	Feb 2005	NDA-SLFO/VFO
70	pH meter (Denver, benchtop)	1	66,500	66,500	April 2005	DTRI
71	pH meter (Sartorius)	1	25,000	25,000	Mar 2006	NDA-VFO
72	Pipettor	1	10,000	10,000	Feb 2007	CVM-UPLB
73	Pipette stand	2	5,200	10,400	Mar 2007	DTRI
74	Reflectometer	3	67,835	203,505	Mar 2006	DTRI, NDA-VFO
75	Refrigerator	1	9,400	9,400	April 2005	DTRI
76	Refrigerator	1	26,500	26,500	Mar 2007	DTRI
77	Risograph	1	540,000	540,000	April 2005	DTRI
78	Speculum	3	37,500	112,500	June 2005	DTRI
79	Straw printer	1	140,000	140,000	May 2005	DTRI
80	Suckle calf nursing bottle	150	248	37,200	Feb 2005	DTRI, NDA-FOS
81	Test tube mixer	1	13,000	13,000	Mar 2006	DTRI
82	TV conference	2	5,000	10,000	Feb 2005	NDA-SLFO/VFO
83	Utility cabinet	2	6,800	13,600	April 2005	DTRI
84	Vehicle, Ford Everest	1	1,253,000	1,253,000	Mar 2005	DTRI
85	Vinyl sheet	2	1,600	3,200	May 2005	DTRI
86	Water bath	1	9,000	9,000	Feb 2006	NDA-VFO
87	Weighing scale, portable	2	79,000	158,000	May 2005	DTRI
88	Weighing scale for cattle, NASCO	2	225,000	450,000	Mar 2005	NDA-SLFO/VFO
89	Weighing scale, Nutex	2	4,500	9,000	Feb 2005	NDA-VFO
90	Weighing scale, platform, 50 kg	2	3,820	7,640	Feb 2008	NDA-SFLO
91	Whiteboard with stand and roller	1	6,800	6,800	April 2005	DTRI

A/-



#### **Annex 4. List of Researches Conducted on Mastitis**

Note: The Program commissioned a total of five major and three minor researches on mastitis in collaboration with the College of Veterinary Medicine of UPLB. The general objective of researches was to generate as much information as possible on the etiology, control and prevention of local mastitis cases including alternative therapies if available or possible.

1. Isolation and identification of bacteria from identified mastitis cases diagnosed through California Mastitis Test (CMT) in backyard dairy cattle from Laguna and Batangas
2. Isolation, identification and antibiotic sensitivity testing of bacteria recovered from mastitic cases at the DTRI farm
3. Antibiotic sensitivity profile of bacteria recovered from mastitis cases in backyard dairy cows from Laguna and Batangas
4. Enumeration and identification of fungi from milk samples collected from dairy cattle in Batangas Dairy Cooperative
5. Enumeration of total aerobic bacteria, Staphylococci and Staphylococcus aureus from milk samples of normal and sub-clinical mastitis cases in Batangas Dairy Cooperative
6. In vitro activity of leaves' decoction of guava (*Psidium guajava*) against *Staphylococcus aureus* and *Enterobacter cloacae* Recovered from sub-clinical mastitis cases in dairy cows
7. In vitro effect of leaves' decoction of cashew (*Anacardium occidentale* Linn.) against *Staphylococcus aureus* and *Enterobacter cloacae* Recovered from sub-clinical mastitis cases in dairy cows
8. In vitro activity of *Euphorbia millii* leaves' decoction against locally isolated mastitis pathogens

Source: Draft Project Terminal Report, March 31, 2008

Annex 5. List of trainings/seminars conducted by the project

Title of training/seminar	Date conducted	Lecturer	Participants
Feed resources for dry season feeding	February 2004	Mr. N. Velasco & Mr. M. Loresca	NDA & farmers
Database management using JMR	July 2004	Dr. J. A. Bautista	DTRI & NDA staff
Basics of animal breeding and importance of pedigree data (a)	August 2006	Dr. S. Miyoshi	NDA, DTRI & PCC staff; JOCVs
Technical introduction to improved reproductive performance in cows	September 2006	Dr. M. Matsui	NDA, DTRI & PCC staff; JOCVs
Some notes on the performance evaluation of dairy animals	September 2006	Dr. M. Oishi	NDA, DTRI & PCC staff; JOCVs
Principles of machine milking (a)	September 2006	Dr. K. Kida	NDA, DTRI & PCC staff; JOCVs
Fundamentals of dairy cattle breeding (a)	August 2007	Dr. S. Miyoshi	NDA, DTRI & PCC staff; JOCVs
Nutrition and feeding management of dairy cattle	August 2007	Dr. Kawai	NDA, DTRI & PCC staff; JOCVs
Mastitis-its danger of invisible money loss (a)	September 2007	Dr. K. Kida	NDA, DTRI & PCC staff; JOCVs

(a) Half-day lecture seminars

Source: Draft Terminal Report of the Project, March 2008

Annex 6: Premium payment of milk

Schedule of premium payment of milk for KKMI

Criteria	Base/Standard (%)	Premium/unit (cents)
Fat (a)	3.8	0.2
Solid non-fat (b)	8.5	0.1
Protein (c)	3.2	0.2
Water (d)	10.0	Reject

Notes: (a) Fat: Plus 20 cents per point above standard, e.g., 3.9% fat content will be paid additional 20 cents per liter; (b) Solid non-fat: Plus 10 cents per point above standard, e.g., 8.6% solid non-fat content will be paid additional 10 cents per liter; (c) Protein: Plus 20 cents per point above standard, e.g., 3.3% protein content will be paid additional 20 cents per liter; (d) Raw milk with above 10% water content is rejected.

Source: KKMI; Draft Terminal Report, March 2008

Schedule of premium payment of milk for CEFEDCO

Milk quality Limits		Recommended price adjustment (P)
Compositional quality	≥ 3.50g/100g milk fat	+ 28.00/kg fat
	≥ 8.25g/100g solid non-fat	
	≥ 11.25g/100g milk total solids	
	< 3.00g/100g milk fat	- 1.00/kg milk
Extra premium	< 50,000 cfu/ml TPC	+ 1.50/kg milk
Premium	<150,000 cfu/ml TPC	+ 1.00/kg milk
	>150,000 cfu/ml TPC	- 2.00/kg milk

Source: Draft Terminal Report, March 2008

List of farmers' trainings conducted for target areas in Cebu

Year	Title of training	Coops covered	No of participants
2003	Dairy project orientation	3	92
	Dairy project planning	1	15
	Cross-visit to dairy projects	1	33
	Organizational management	5	117
	Organizing CDT for Timely Insemination and Higher Conception Rate	9	79
	Basic dairy husbandry course	1	33
	Milk quality systems workshop	9	54
	Bookkeeping seminar	1	10
2004	Dairy project orientation	5	84
	Milking and milk hygiene	2	37
	Coop officers refresher course	9	15
2005	Milk quality control seminar	1	23
	Dairy enterprise training	1	15
2006	Basic accounting and bookkeeping	9	20
2007	Basic artificial insemination and pregnancy diagnosis in large ruminants	9	16
	Forage development	9	16
	Basic dairy husbandry course	2	79
Total	17 trainings		738

Source: NDA Visayas Field Office

Note: Some trainings were also conducted by NDA South Luzon but they do not have any official training record.

*W*

*Ch.*

*Jan*

*MB*

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## Annex 7. Milk Production of Dairy Cooperatives in Target Areas

Changes in milk production of dairy cooperatives in target areas, in liters  
2003-2007

Area/Coop	2003	2004	2005	2006	2007
<b>South Luzon</b>					
Palcon	109,331	160,103	193,728	215,175	256,361
Salba	76,247	151,014	138,445	65,108	68,791
Malinao	32,488	16,791	18,863	21,357	33,095
St. Francis	No data	No data	No data	No data	No data
<b>Cebu</b>					
Garing	167,984	167,739	130,977	83,775	54,705
San Vicente	92,147	65,765	79,516	51,269	49,478
Tayud	49,082	54,912	66,437	64,823	50,966
Basak	32,427	50,157	57,437	11,157	17,906
Cobcawa	32,971	52,092	48,285	49,215	40,184
Lusaran	480	50,775	48,110	48,467	91,009
Sirao	21,760	25,480	16,858	14,385	24,133
Guba	22,551	31,478	21,630	18,969	17,113
Tagbao	-	-	23,419	42,663	34,103

Source: KKMI and NDA Visayas



## フィリピン酪農開発強化計画 中間評価報告書

## 1. 調査団概要

## (1) 背景と目的

1989年から約10年間にわたって行われた協力隊チーム派遣「家畜人工授精強化プロジェクト（フェーズⅠ、フェーズⅡ）」の成果を受け継ぎ、さらなる酪農分野での支援が有効と判断されたため、2003年10月より5年の計画で「酪農開発強化プロジェクト」が開始された。

本プロジェクトでは、輸入に依存する国内の酪農事情を改善するため、質の高い飼育・生産技術を持った酪農家を支援し育成することにより生産量を増加させたいとする酪農振興政策をとるフィリピン政府の方針と合致させ、自給率が1%に満たない牛乳の国内生産量増加を目標とし、フィリピン唯一の酪農研究施設であるフィリピン大学酪農研修研究所、農業省酪農局南ルソン地域事務所、ビサヤス地域事務所において、人工授精・育種等のデータ収集・データベース構築、衛生管理、飼育管理を中心とした活動を行っている。

日本側の人的投入要素として、シニア隊員1名、一般隊員5名の計6名（家畜飼育5名、獣医師1名）を常時派遣する予定だったが、日本側の要員の確保ができず、1代目隊員帰国後、2代目の派遣までに期間があいてしまったが、平成18年7月までによりやく全要員の派遣が完了し、現在2代目シニア隊員を含め計6名の隊員が活動中である。

本年4月でプロジェクト期間の半分が経過し、プロジェクトの進捗状況、現況を把握するとともに、現状を踏まえたプロジェクトの今後の方向性を検討・確認し、関係者間で共有することを目的として本調査団を派遣した。

## (2) 調査団の構成と日程

## 1) 調査団構成

総括 南 哲郎

青年海外協力隊事務局技術顧問

派遣計画 江口 円

青年海外協力隊事務局海外グループアジア第一チーム

## 2) 調査団日程

日にち	時間	移動先	予定	宿泊先
10/18 水	13:05		マニラ着	マニラ
	16:30	JICA 事務所	所長挨拶、ミーティング	

10/19 木	10:00 13:00 17:00 18:00	DTRI	ミーティング JOCVとプロジェクト関係者打ち合わせ DTRI内視察 レセプション	ロスバニヨス
10/20 金	9:00	農場各地 ラグナ州 ケソン州	農場視察(機材確認を兼ねる)	ロスバニヨス
10/21 土	9:00	農場各地 バタンガス州	農場視察(機材確認を兼ねる)	マニラ
10/22 日			資料整理	マニラ
10/23 月	9:00  15:00 16:00	JICA事務所  VFO 農業省	調整員と打ち合わせ マニラ→セブ ミーティング 表敬訪問	セブ
10/24 火	8:00	ビサヤス	農場視察	セブ
10/25 水	8:00	ビサヤス	農場視察 セブ→マニラ	マニラ
10/26 木	10:00 午後	JICA	ミーティング 資料整理 次長、調整員と打ち合わせ	マニラ
10/27 金	11:00		マニラ発→成田着	

### (3) 主な面会者

JICA フィリピン所長	松浦 正三
同 次長	吉田 勝美
同 調整員	バルセ 由美
同	若林 勇飛
同	阿部 昌宏
DTRI プロジェクトマネージャー	Dr. Jose Arceo N. Bautista
同 アシスタント	Ms. I. G. Sarmago
同 プロジェクト飼養チーム	Mr. Noe. B. Velasco
同 プロジェクト育種・繁殖チーム	Mr. C. Almarez
NDA プロジェクト育種・繁殖チーム	Mr. C. Almarez
同	Mr. O. Cuevas
同	Mr. G. Lagamayo

NDA プロジェクト品質管理チーム	Mr. E. B. de la Cruz
NDA プロジェクト研修チーム	Ms. S. Mejino
シニア隊員	引場 正範
青年海外協力隊員 (17-1/家畜飼育)	清水 麻衣
同 (17-2/家畜飼育)	日下部 尚繁
同 (17-3/獣医師)	小路 亜紀
同 (18-1/家畜飼育)	浦辺 久美
同 (18-1/家畜飼育)	吉田 真依
KKMI 組合長	Mr. Baltazar Motiei
PALCON 組合長	Mr. Teddy Panaligan
同 記録係	Ms. Juan Cariaga
同 PDO (NDA)	Mr. Rolando C. Cueavs
SALBA 組合長	Mr. Narciso Bautista
MALIANO Feed Mill マネージャー	Mr. Edwin Cosico
同 組合員	Mr. Mirlo Dilloy
St. Francis 酪農組合長	Mr. Nixon Manilay
BAC Inc.社長	Mr. Miguel C. Katigbak
BADACO 組合長	Mr. Edwin Sanchez
NDA-VFO Field Operations Manager	Mr. Antonio Ab Ayen
VFO- PDO	Mr. Joselito Loyola
DA ビサヤス支庁 Assistant Director	Mr. Eduardo Z. Alama
JOCV-PASA 元会長	Mr. Rudito Mumar
Visayas AI Coordination Center	Ms. Rachel B. Calina
同	Ms. Doris B. Cauno
Garing 酪農組合長	Mr. Jubenal Allerado
San Vicente 酪農組合員	Ms. Verginia Samote
CEFEDCO 組合長	Ms. Senia Onde
同 ラボ担当者	Mr. Jonathan Oclarit
Tayud 酪農組合長	Mr. Alfred Astellero
Cobcawa 酪農組合員	Ms. Nono G. Bordadora

## 2. 調査団提言

### (1) 調査結果概要

ほとんどの供与機材は有効利用されていたが、一部に未利用例が認められた。

活動状況は極めて活発で、本プロジェクトの目的とする牛乳生産量はこれまでのところ約20%の高い成長率を示すとともに、牛乳分析器の導入により良質ミルクの生産も可能となり、一部の農家では所得向上に寄与していることが判明した。以下に調査結果を要約する。(面談者、出席者名は略)

#### (2) 訪問先

- ・ DTRI (ロス・バニョス)
- ・ SFLO (バタンガス)
- ・ KKMI (カラワン、ラグナ)
- ・ PALCON (ケソン)
- ・ SALBA (ラグナ)
- ・ MFM (ラグナ)
- ・ BADACO (バタンガス)
- ・ BAC (バタンガス)
- ・ VFO (セブ)
- ・ CMPP (セブ)
- ・ 酪農組合 4 箇所 (セブ)
- ・ 周辺農家 10 箇所 (南ルソン、セブ)

#### (3) 機材

これまでに供与された資材は 61 種の機器と試薬等で P10,434,887 (¥2,480,000) である。調達は関係者との協議の上、かつ必須機材と更新機材がほとんどであり、その利用状況は良好と判断された。また特に牛乳分析器のように事前の情報収集により廉価かつ高額機器とほぼ同様の性能を有する機器を調達するなどの工夫がみられた。しかし、未利用のハンマーミルについては早急な再検討が必要である。

#### (4) 運営状況

本プロジェクトの実際の運営はプロジェクトマネージャーの指導の元で 4 チームに分かれて実施されている。全体の運営は定期的なプログラム・ステアリング・コミッティ (PSC) とジョイント・コーディネイティング・コミッティ (JCC) において協議される。JCC については年 4 回開催され、その結果は活動に有効にフィードバックされていた。しかし、PSC については、これまで大きな問題も起きなかったことから、プロジェクト開始時に開催されたのみとなっている。今後、残り 2 年間の活動を順調に進めるためにも、近いうちに開催し、関係機関の合意に基づく一層の協力推進が望まれる。

## (5) プロジェクトチーム

各プロジェクトサイトに入る前に DTRI において関係者全員が出席し、各チームにおける成果と課題について意見交換を行った。結果として、4 チームに分かれてはいるものの、お互いに密接に連携を取りながら活動を進めていることが印象的で、これがいくつかの成果につながっていることがうかがえた。

### 1) 飼養・栄養チーム

(成果)

#### イ. 南ルソン (SLFO)

- ① Malinao Feed Mill(MFM)の飼料原料の分析
- ② グラス・カッターの導入による省力化
- ③ 改良草地の有効利用
- ④ 酪農家の収入向上と新規酪農家の出現

#### ロ. ビサヤス (VFO)

- ① 乳質に問題のある農家への飼養改善指導
- ② 搾乳機器導入の農家の出現

(課題)

#### イ. 南ルソン (SLFO)

- ① 改良牧草の普及
- ② グラス・カッターのメンテナンス
- ③ 乾季における粗飼料生産
- ④ MFM に設置された未利用のハンマーミル

#### ロ. ビサヤス (VFO)

- ① 粗飼料および濃厚飼料の質の改善
- ② 飼料の混合調整法の改善

### 2) 育種・繁殖チーム

(成果)

#### イ. 南ルソン (SLFO)

- ① 牛乳品質のデータベース化
- ② 個体識別情報システムの導入
- ③ AI および種雄牛選抜システムのための精液生産

#### ロ. ビサヤス (VFO)

- ① プロジェクト対象地域への精液および LN2 の供給
- ② アップグレードプログラムに基づいた AI による交雑牛の作出

(課題)

イ. 南ルソン (SLFO)

- ① 新規種雄牛の導入
- ② 個体識別情報システムの普及
- ③ ルソン島の FMD 撲滅

ロ. ビサヤス (VFO)

- ① LN2 の供給地域の拡大

3) 品質・衛生管理チーム

(成果)

イ. 南ルソン (SLFO)

- ① 牛乳品質改善への寄与
- ② 酪農家への環境改善と衛生知識の指導
- ③ 物理化学的性状、バクテリア、体細胞数テストの導入
- ④ フィリピン大獣医学部の協力による初の乳房炎調査と原因菌の同定

ロ. ビサヤス (VFO)

- ① 集乳所、牛乳製造工場および VFO 実験室での牛乳品質試験の実施
- ② 集乳・品質管理委員会の月例会議実施の開始

(課題)

イ. 南ルソン (SLFO)

- ① クリーンミルク生産のための重要要因の農家への普及
- ② 乳房炎および蹄病の防除

ロ. ビサヤス (VFO)

- ① 物理化学的性状、細胞分析法等の乳質検査手法の導入

4) 研修・情報普及チーム

(成果)

イ. 南ルソン (SLFO)

- ① 酪農経営の現状分析、課題等に関する対面式調査
- ② 研修：飼料資源、データベース化、繁殖率改善等に関する研修会、セミナー
- ③ 広報：ニュースレターの発行

ロ. ビサヤス (VFO)

- ① 新規農家のための酪農家訪問実施



② PDO、JOCV、CDTによる月例会議開催

③ 簿記セミナー開催

(課題)

イ. 南ルソン (SLFO)

① 酪農家向けパンフレット、ポスター等の作成、配布

② 今後予定されている各種教材作成費の確保

ロ. ビサヤス (VFO)

① 基本的家畜飼育法に関するリフレッシュ研修

② 家畜の栄養に関する研修

(6) その他

(ア) 帯広畜産大学短期派遣について

現在までに3度(2005年3月、同年8月、2006年8月)の派遣を行ったが、そのうち2005年の2回は派遣期間が3週間と非常に短く、現地の状況把握に終始しボランティア活動開始直後に帰国する状態であった。また、派遣に至るプロセスや派遣時期・頻度が確定していなかったため、受入側にも多大な負担をかける結果となった。

今後は、今年度同様、年1度夏期に6週間程度の派遣を実施する。

(イ) プロジェクト関連隊員間の人間関係について

約1年半ぶりにプロジェクト関連隊員全員が配置された。全員の配置からまだ間もないが、現在のところ、各自の業務を行いつつシニア隊員を中心に他隊員との情報および意見交換が円滑に行われている。

(7) 結論

今回の調査で印象に残ったのは、日本側のJOCV投入が不足したにも関わらず、全体として当初の計画以上の成果が創出されていることであった。これは特にDTRI研究員やPDOの多大の努力の賜物といえる。改めてフィリピン側の関係者に敬意を表したい。また、残り2年間における計画もおおむね達成可能と思われることから、この時期における本プロジェクトの進捗状況は妥当と判断される。

(8) 提案

- 1) 本プロジェクトのPSCメンバーとの情報共有および関係強化
- 2) 未利用機材の有効利用のための再検討
- 3) 粗飼料生産技術改善の強化



1 **MINUTES OF THE MEETING**  
 2 **Project Steering Committee Meeting**  
 3 **JOCV-JICA, DTRI, NDA, PNVSCA**  
 4 **Dairy Development Enhancement Program**  
 5 **October 19, 2006, Office of the Chancellor, U.P. Los Banos**  
 6 **College, Laguna**

7  
 8 **Present:**

9 Chancellor Luis Rey I. Velasco - Presiding Officer  
 10 Mr. Katsumi Yoshida - JICA Phils.  
 11 Mr. Yuhi Wakabayashi - JICA Phils.  
 12 Dr. Tetsuro Minami - JICA Mission  
 13 Ms. Madoka Eguchi - JICA Mission  
 14 Dir. Joselito de Vera - PNVSCA  
 15 Dr. Enrico Supangco - UPLB  
 16 Dr. Candida B. Adalla - UPLB  
 17 Ms. Naomi K. Torreta - NDA  
 18 Mr. Masanori Hikiba - DTRI, ADSC, UPLB  
 19 Dr. Jose Arceo N. Bautista - DTRI, ADSC, UPLB  
 20 Dr. Antonio A. Rayos - DTRI, ADSC, UPLB  
 21 Ms. Ela V. Sarmago - PNVSCA  
 22 Ms. Ione G. Sarmago - DTRI, ADSC, UPLB

23  
 24 The meeting started at 10:15 a.m. Chancellor Velasco welcomed the Project  
 25 Steering Committee members and introduced the guests Dr. Enrico Supangco and Dr.  
 26 Candida B. Adalla, Vice Chancellor for Research and Extension and Dean College of  
 27 Agriculture respectively. On the other hand, Dr. J.A.N. Bautista informed the group  
 28 that there are 2 members of the JICA mission for the mid-term evaluation of the  
 29 project. Mr. Masanori Hikiba introduced the mission, Dr. Tetsuro Minami from the  
 30 Ministry of Agriculture in Japan working as technical adviser of JOCV Projects and  
 31 Ms. Madoka Eguchi from JICA headquarters in Tokyo. After the brief introduction  
 32 of the members and guests, Dr. J.A.N. Bautista started to present the project's  
 33 mid-term report. He started by giving the group the background on how the program  
 34 started. He said that this program was the second of a series of proposal submitted  
 35 to JICA that he started to write since he arrived in 1998 from his study in Japan. The  
 36 first proposal was not given attention because it was more of equipment grant asked  
 37 from JICA and it was turned down. The second proposal had something to do with  
 38 dairy development and it was given attention as early as 2000 when JICA

39 headquarters in Tokyo ordered the senior JOCV of the National Artificial Breeding  
40 Center to contact him and refine the proposal. It took almost two years work on the  
41 refinement of the proposal and finally in 2003 after several missions from JICA and  
42 discussion groups with the local counterparts, the program was officially approved by  
43 JICA in November, 2003. After this brief introduction of the program, Dr. J.A.N.  
44 Bautista presented the mid-term report. He said that for the program  
45 accomplishment, the mid term report covers the period 2003 to 2006. The project  
46 report covered four areas where have accomplishments were seen with regards to the  
47 implementation of the program such as: equipment procurement/ transfer, volunteer  
48 deployment, enhancement of volunteer recruitment and some accomplishments on  
49 research and action research. Team reports and accomplishments of the project areas  
50 were reported, as well as problems and constraints of the project.

51

## 52 Discussions

53 Dr. Minami through Mr. Hikiba asked on the lack of counterpart budget as  
54 one of the problems and constraints of the project as reported because they are  
55 concerned for the future of the project. Dr. J.A.N. Bautista said that as indicated in  
56 the problems and constraints for lack of counterpart budget, he said that most of the  
57 counterparts especially at DTRI had been granted travel to the project areas on official  
58 time but can not reimburse their travel expenses, therefore, field activities were  
59 limited. On the other hand, Mr. Hikiba asked Ms. N.K. Torreta on the NDA side. Ms.  
60 N.K. Torreta said that on the part of NDA there is not much problem in terms of per  
61 diems and transportation of the field staff because there is a certain allocation for  
62 travel, however the problems as reported is on the unforeseen changes to the structure  
63 and operation of some government agencies. She further said that this problem refers  
64 to NDA where the South Luzon Field Office which has been relocated to the main  
65 office but somehow this problem can be solved in a way that NDA can identify a  
66 particular site that can serve as a common venue for the holding of a regular forum  
67 where the implementers can meet regularly. On the other hand, Chancellor Velasco  
68 suggested that a separate proposal should be submitted to the Department of  
69 Agriculture for financial assistance for travel expenditures. He asked Dr. J.A.N.  
70 Bautista if the project has been discussed with Mr. P.O. Ocampo of Livestock  
71 Development Council (LDC). Dr. J.A.N. Bautista said that it was not formally  
72 discussed. Dr. Minami further said that although the project will be finished in 2008,  
73 he can not assure that it will be extended for another five years as Phase II, maybe it  
74 will depend on the mid term evaluation. Dr. J.A. Bautista explained that if there will  
75 be an extension of the program, it should be for the welfare and benefit of the whole  
76 dairy industry, and must include other project areas such as north Luzon and

77 Mindanao. The project cannot rely on having a bigger budget at present and will have  
78 to look at the role of the other agencies, particularly the National Dairy Authority in  
79 managing the next phase if ever. Dr. J.A.N. Bautista concurred with what  
80 Chancellor Velasco said, that there are limited funds for these activities. Besides, if  
81 the scope of the program will be widened, NDA is in a better position to manage it  
82 because of its existing network all over the country with the active support of the  
83 university and PNVSCA. Chancellor Velasco further said that there is a need to  
84 expand the program in as much as one of the major concerns of the Department of  
85 Education is to decrease the malnutrition rate among young school children  
86 throughout the Philippines. The Department of Education is planning to put up a  
87 bigger budget for the milk feeding program in the countryside, thus need to establish a  
88 stronger linkages with the Dep Ed especially in the regional level where the expansion  
89 of the JICA-assisted project is being considered.

90

91 On the other hand, Mr. J. de Vera raised the issue on the problem of the  
92 hammer mill at the Malinao Dairy Cooperative which was given by the project, but  
93 due to the lack of counterpart funds by the cooperative, the switching from single  
94 phase power to 3-phase line for the hammer mill has not taken place. He asked if the  
95 problem on the lack of funding from the cooperators is a prevalent situation among  
96 the other cooperatives and Dr. J.A.N. Bautista answered that its not. Ms. N.K.  
97 Torreta added that the problem in Malinao Dairy Cooperative is not only with the  
98 funding but also with the management because the leader is currently sick. She further  
99 said that she had an initial discussion with Dr. J.A.N. Bautista to possibly transfer the  
100 hammer mill to other areas that are more qualified to accept such kind of assistance,  
101 for as long as the cooperative will give value and investment on the assistance. The 3  
102 phase line connection requires a lot of money and at this time she said the cooperative  
103 might have not seen yet the economics of setting up the hammer mill. Likewise, on  
104 the economic point of view, Mr. de Vera asked that if technical assistance is given,  
105 some interventions from concerned agencies is needed. He said that based on the  
106 report, there is not much clientele for the cooperative to produce increased volume  
107 of feeds, therefore the problem is really more on economic side. He further said that  
108 for the cooperative, it is not worth investing in a 3-phase power line. Ms. N.K. Torreta  
109 informed the group that the old facilities of Malinao feedmill are being used for the  
110 manufacture not only of dairy cattle feed but also for swine and poultry, not only for  
111 their constituents but also for some other parts of Laguna, Batangas and Quezon.  
112 She therefore said that the problem is more on the management side, more of  
113 someone who will take the lead in setting up the project. Mr. de Vera commented that  
114 he is looking for the remaining years of the program and also have to look at the

115 possibility of that particular investment because it is an important input to increasing  
116 milk production, but if the cooperative will not profit from it, the result may be poor  
117 standard of feeds that are given to clients. He also suggested to maximize the use of  
118 that particular intervention. Likewise, Dr. J.A.N. Bautista said that the problem lies  
119 not in the cooperative but its more of the management decision they have made. He  
120 said that they were the ones who identified the need for the hammer mill and they had  
121 outside technical help, even employing a consultant for formulating their feeds for  
122 poultry and swine. The offer of the project was that as long as they will provide the  
123 feed for the dairy cooperatives in Laguna, Batangas and Quezon, the program will not  
124 mind the use of the equipment for other purposes. Mr. M. Hikiba on the other hand  
125 said that on JICA side, there were some problems with the procurement system and he  
126 already consulted Mr. Yoshida and Mr. Wakabayashi regarding this problem and they  
127 still have to solve it. Mr. Hikiba further said that with the report of the Ms. N.K.  
128 Torreta maybe the mission will understand the situation when they will visit the area.

129

130           Likewise, Dr. Minami asked through Mr. Hikiba on the issues in advocating  
131 the adoption of milk quality standards based on microbial qualities as indicated in no.  
132 5 of the problems and constraints of the project. He was asking if there is no conflict  
133 with the private sector regarding this matter. Dr. J.A.N. Bautista said that there is no  
134 conflict and further said that the delivery of quality of milk has a particular niche in  
135 the likes of the Starbucks coffee shop chains. He called it a sophisticated market  
136 because the requirements for certain milk qualities have to be met. He further  
137 explained to the group that if the milk comes from an animal that is infected with  
138 mastitis, it won't pass their standards, therefore the project is working hard on  
139 implementing the standard for milk quality based not only on physico-chemical  
140 properties but on the microbial aspect as well. Dr. J.A.N. Bauuista cited the Batangas  
141 Agribusiness Corp. (BAC) as an example, which is the biggest supplier of dairy  
142 products to Starbucks Coffee. He said that there was a time that BAC had a problem  
143 with the quality of their milk because some animals that were introduced to the herd  
144 of Batangas Dairy Cooperative (BADACO) were infected with mastitis and most of  
145 the milk from BAC comes from BADACO. For 2 to 3 weeks BAC was not able to  
146 sell milk to Starbucks Coffee Shop simply because the foaming quality of the milk  
147 that the coffee shop requires, was not met. As a result, the project introduced the  
148 technology of testing the milk of BAC and the problem was solved. It was a very  
149 simple test that did not require a technical analysis for Starbucks. It was only based  
150 on a certain quality of frothing. Frothing will not be possible if the milk comes from  
151 mastitis-infected cows. He further said that he reviewed the legislation on milk  
152 quality standards worldwide and found out that the US allows a slightly higher level

153 over the international standards in which the normal allowance for clean milk is less  
154 than 200,000 for the Somatic Cell Count (SCC). USFDA and USDA allows 600,000  
155 to 700,000 SCC. He said that he advised BAC to try if the quality of milk over  
156 200,000 to 500,000 SCC will pass the standard of Starbucks, and the feedback was it  
157 did not pass, therefore BAC now sells milk to Starbucks with SCC of only 200,000  
158 or below. Likewise, Ms. N.K.Torreta said that she is confused on the statement “DTRI  
159 is looked upon by the industry as the epitome of technological innovation but it has  
160 failed to lead in this field. There are more individual farmers and cooperatives that  
161 are willing to adopt to the new standards of quality than DTRI, perhaps for the  
162 practical reasons that the price of farmers’ milk is dictated by a growingly  
163 sophisticated market while DTRI milk is not.” Dr. J.A.N. Bautista said that we have  
164 strict requirements on the farmers in terms of quality of milk but not the DTRI milk.  
165 Ms. N.K. Torreta added that we should follow the milk standards and DTRI as a  
166 research institute should also follow those standards. On behalf of DTRI, Dr. A.A.  
167 Rayos reported that DTRI instituted a lot of changes and constraints. He further said  
168 that the milking machine is already 20 years old, production of milk is clean because  
169 it is closely monitored by the farm manager, ensuring that no mastitis milk and  
170 antibiotic milk be processed. He also said that the milking machine is inefficient  
171 spending P100,000 a year for maintenance. Mr. J. de Vera asked if the program is  
172 trying to influence the setting up of milk quality standards, but Ms. N.K. Torreta  
173 added that it’s the Bureau of Food and Drug Administration (BFAD) that sets the  
174 standards. Dr. J.A.N. Bautista suggested that current standards should be improved to  
175 international standards because we can not afford to have milk on sale for human  
176 consumption that is loaded with bacteria and other microorganisms because of the  
177 failure to produce clean milk. Ms. N.K. Torreta added that NDA is setting up a  
178 standard higher than BFAD for DTRI and dairy farmers called the Original Pilipino  
179 Milk (OPM)

180

181 Consensus of the Project Steering Committee for Phase II

182

183 Chanceller Velasco asked the group whether to recommend Phase II of the  
184 program, need to expand the area of coverage and the leadership should be the  
185 National Dairy Authority. He further said that the university is only piloting the  
186 program. Mr. M. Hikiba suggested that the consensus of the Project Steering  
187 Committee is very important for the extension of program as Phase II. Dr. J.A.N.  
188 Bautista said that normally for the approval of the extension, the Project Steering  
189 Committee should decide and should meet again before the project terminates so that  
190 the committee should have enough time to prepare the proposal. Chanceller Velasco

191 suggested that in the next meeting the committee should decide on the extension of  
192 the program and will make sure that there is a commitment especially from the  
193 Department of Agriculture and will also ensure that the Japanese government will  
194 provide for the success of the project. Ms. N.K. Torreta said that with or without  
195 assistance, the activities of the project has to be continued, however, the assistance of  
196 JOCV and JICA can further boost the success of future endeavors. On the other  
197 hand, Mr. K. Yoshida would like to know if NDA will still support the program and  
198 how it will affect the change in structure. Ms. N.K. Torreta said that with the on  
199 going rationalization of the Dept. of Agriculture, there is a target for change in the  
200 structure, but there is a uniqueness in each of the agencies. Some agencies are  
201 mandated or created and those agencies that have legislative mandates usually can not  
202 be touched as easily as the others. The Dept. of Agriculture set aside first the  
203 corporation like the National Dairy Authority and they are now taking into account  
204 the different agencies which are national in nature and those agencies attached to  
205 other councils and bureaus but not necessarily corporations, so in effect, NDA  
206 submitted a rationalization plan budget to the Department of Budget and Management  
207 and essentially in the program, the organizational structure has been trimmed down  
208 but the activities are more focused. There will still be extension people, but NDA will  
209 provide assistance to those who will help themselves. If there is support from the  
210 Local Government Unit and other agencies, then that is where the presence of NDA  
211 will be. Ms. N.K. Torreta informed the group that in the case of Laguna, Quezon and  
212 Batangas and so far in most areas that NDA works with, these are basically supported  
213 by the Local Government Unit, therefore NDA does not see much problem in the  
214 impending changes. Mr. K. Yoshida further asked if in case of extension of similar  
215 program to other areas, NDA will play an important role in place of DTRI and Ms.  
216 N.K. Torreta said yes. Chancelor Velasco suggested that maybe it will be under a  
217 different name but the participation of DTRI will still be the same. He asked the  
218 group to prepare for Phase II for NDA to take the leadership but it has to be  
219 understood that the final decision has to be executed. Mr. Y. Wakabayashi said that  
220 Mr. M. Hikiba's term is up to April 2007 and if not extended he would like to know if  
221 the project need a successor because the project is until 2008, and it is still a long way  
222 to go from April 2007. Dr. J.A.N. Bautista said that as far as the project  
223 management is concerned, the successor of Mr. M. Hikiba is needed and he further  
224 explained that the project suffered when there was a gap from Mr. M. Hikiba's first  
225 term to the deployment of his successor. For sometime, there was no Senior JOCV to  
226 attend to the needs not only of the JOCV's program of activities, but also for the  
227 administration of the project. Initial discussion has been made with Mr.  
228 Wakabayashi that the position of a Senior JOCV has been abolished, and in place of



229 that will be a Field Coordinator. Mr. J. de Vera added that it is stated in PNVSCA  
230 policy that maximum deployment of a volunteer is only 6 years. He checked the  
231 record of Mr. M. Hikiba and found out that he is deployment is approaching 6 years.

232

233 After Dr. J.A.N. mid term report presentation and discussions, the meeting  
234 was adjourned at 12:30 p.m.

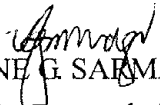
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237 Minutes taken by:

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240   
IONE G. SAR MAGO  
241 Univ. Research Assoc.

242

243 Noted:

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245   
Dr. JOSE ARCEO N. BAUTISTA  
246 Project Manager