

Country Name	Project for Improvement of Productive Technology in Small and Medium Dairy Farms in Viet Nam
The Socialist Republic of Viet Nam	

I. Project Outline

Background	<p>In Viet Nam, agriculture consisted of about 22% of GDP and accounted for 58% of the total working population. Although rice was the center of agriculture, it had been difficult to improve livelihoods in rural areas only by depending on rice farming due to not only lowering rice price in the domestic and overseas market but also its low productivity derived from limited planting areas. For this reason, diversification of farm management was a key issue for rural development. Considering the increasing domestic needs for milk which was mostly imported from abroad, expansion of domestic milk production became an important issue in achieving the diversification of farm management as well as livelihood improvement of farmers in Vietnam. However, extension system of sustainable dairy techniques for the small and medium scale dairy farms was not well functioned. In addition to that, milk production of the northern provinces with poverty ratio higher than the southern provinces was lower than the southern provinces since dairy farming was introduced recently. Under that circumstance, Station for Training and Extension on Dairy Techniques (STED) was established under National Institute of Animal Husbandry (NIAH) in October 2005 for the purpose of extending dairy technology in the northern provinces of Viet Nam.</p>												
Objectives of the Project	<p>Through improvement of functions of STED, improvement of the training capability of STED's trainers (National Trainer: NT) to dairy technology extension workers and so forth (Local Trainer: LT), and improvement of capability of extension activities of LT towards small and medium scale dairy farms in the Project Target Areas, the project aimed at improving dairy technology extension activities in the Project Target Areas, thereby increasing milk productivity of small and medium scale dairy farms in Northern Viet Nam. The following project objectives were set forth.</p> <ol style="list-style-type: none"> 1. Overall Goal: Milk productivity of small and medium scale dairy farms in Northern Viet Nam is increased. 2. Project Purpose: Dairy technology extension activities are improved in the Project Target Areas. 												
Activities of the project	<ol style="list-style-type: none"> 1. Project site: STED, NIAH, Vinh Tuong District in Vinh Phuc Province, Moc Chau District in Son La Province 2. Main activities: 1) Development and improvement of training courses on dairy technology in STED for LT and dairy farms, 2) Training on dairy technology for NT in STED, 3) Training on dairy technology by NT to LT, 4) Monitoring activities by LT to model farms on dairy technology improvement, 5) Demonstration of suitable techniques for the small and medium sized dairy farms at the 4 demonstration farms 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Vietnamese Side</td> </tr> <tr> <td>1) Experts: 20 persons</td> <td>1) Staff allocated: 15 persons</td> </tr> <tr> <td>2) Trainees received: 21 persons</td> <td>2) Land and facilities: Office spaces, training facilities, laboratory spaces, etc.</td> </tr> <tr> <td>3) Equipment: Vehicles, generator, computers, ultra-sonic diagnosis</td> <td>3) Local cost: VND. 2,360 million</td> </tr> </table> 					Japanese Side	Vietnamese Side	1) Experts: 20 persons	1) Staff allocated: 15 persons	2) Trainees received: 21 persons	2) Land and facilities: Office spaces, training facilities, laboratory spaces, etc.	3) Equipment: Vehicles, generator, computers, ultra-sonic diagnosis	3) Local cost: VND. 2,360 million
Japanese Side	Vietnamese Side												
1) Experts: 20 persons	1) Staff allocated: 15 persons												
2) Trainees received: 21 persons	2) Land and facilities: Office spaces, training facilities, laboratory spaces, etc.												
3) Equipment: Vehicles, generator, computers, ultra-sonic diagnosis	3) Local cost: VND. 2,360 million												
Ex-Ante Evaluation	2005	Project Period	April, 2006 to April, 2011	Project Cost	(Ex-ante) 360 million yen (Actual) 406 million yen								
Implementing Agency	National Institute of Animal Science (NIAS) under Ministry of Agriculture and Rural Development (MARD) *NIAH changes its name to NIAS in 2010												
Cooperation Agency in Japan	Ministry of Agriculture, Forestry & Fisheries												

II. Result of the Evaluation

<Issues to be considered at the ex-post evaluation>

[Achievement of the Project Purpose]

- As for the Indicator 2, questionnaire survey and interviews targeting much smaller numbers of beneficial farms than those at the time of the terminal evaluation were conducted in order to verify continuation of the project effect due to difficulty in collecting hundreds of samples unlike at the time of the terminal evaluation which could utilize various data obtained as a part of project activities for reference.

[Achievement of Overall Goal]

- The relevant data counting only small and medium scale dairy farms in Northern Viet Nam was not available and the share of large farms in the total number of dairy farms having 50 or more cattle in Northern Viet Nam occupied less than 1% (0.26% in 2005 by the data provided by NIAS at the time of terminal evaluation) and the number of dairy cattle raised by the large scale farms accounted for 23% (in 2005) of the total number of dairy cattle in Northern Viet Nam. Therefore, achievement of Overall Goal was evaluated based on the data which includes that of such large farms.

<Constraints on field survey for the ex-post evaluation>

[The limited size of samples for beneficiary survey to verify project effects/impacts]

- Because of the limited accessibility to the sites where the small and medium dairy farms are located in the target districts of Moc Chau and Vinh Tuong in Northern Viet Nam, the number of samples for beneficiary survey on the small and medium dairy farms was limited to 10 model farms and 10 non model farms for each target district.

[Limited accuracy of data on milk production of small and medium dairy farms in the target areas to verify the Indicator 2 for the Project Purpose]

- According to the Terminal Evaluation Report, it was impossible to make statistically significant conclusions based on the two data sets of milk production in the target areas in 2006 and 2010 because of the limited number of samples as well as the different data collection methodologies between the two data sets. Therefore, the data shown in the table of "Achievement of project purpose and overall goal" should be reference.

- Also, comparison between the data in 2006 and the ones in 2011 and 2014 cannot make statistically significant conclusions due to the same reasons.

1 Relevance

<Consistency with Development Policy of Vietnamese Government at the time of ex-ante evaluation and the project completion>

The project was consistent with the Viet Nam's development policy of livestock and dairy sector development set forth in the policy documents including the Strategy for Socio-Economic Development (2001-2010) and National Plan on Dairy Cattle Breeding (2001-2010).

<Consistency with Development Needs of Viet Nam at the time of ex-ante evaluation and the project completion>

The project met the development needs of Viet Nam to increase milk productivity of small and medium scale dairy farms in Northern Viet Nam through improving dairy technology extension activities in the Project Target Areas and the needs at the time of ex-ante evaluation still existed at the time of project completion.

<Consistency with Japan's ODA Policy for Viet Nam at the time of ex-ante evaluation>

The project was consistent with one of the priority areas of the Japan's Country Assistance Program for Viet Nam (2004) to support agricultural and rural development under one of the pillar of "improvement in livelihood and society".

<Evaluation Results> In the light above, the relevance of this project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of project completion>

The Project Purpose was achieved by the project completion. Through the project activities, 90% of improved technology taught by the Project was applied by the model farmers between March 2009 and March 2010. Also, the average milk production per cow of the model farms in the Project Target Areas increased by 29% from 2006 to 2010.

<Continuation Status of the Project Effects at the time of ex-post evaluation>

After the project completion, both the model farms and non-model farms in the Project Target Areas located in Vinh Tuong District (Vinh Phuc Province) and Moc Chau District (Son La Province) have continued to apply the improved dairy techniques introduced by the Project which consist of recording, farm conditions, feeding method, feed supply and milking method. At the time of ex-post evaluation, all the 5 improved dairy techniques are applied and practiced by the entire interviewed model and non-model farms in Moc Chau. 88% for model farms and 80% for non-model farms have applied the improved dairy techniques in Vinh Tuong. The average milk production per cow in the Project Target Areas increased 40.3% in 2014 compared to 2006 because of the application of the improved dairy techniques introduced by the project.

<Status of Achievement of the Overall Goal at the time of ex-post evaluation>

The Overall Goal has been achieved. Milk production in Northern Viet Nam has been continuously increasing by 318% from the baseline year of 2006 to 2014 and reached to 117,000 tons in 2014. Also, the population of dairy cattle in Northern Viet Nam has been increasing for the same period although it had decreased in 2009 because of the drastic reduction of milk sales caused by the negative impact of melamine contains in milk in China and the economic downturn. The dissemination of the improved dairy techniques introduced by the Project to other provinces in the Northern Viet Nam such as Lang Son, Phu Tho, Dien Bien and Lai Chau through trainings for extension officers and farmers provided by STED might have contributed to such increases.

<Other Positive and Negative Impacts>

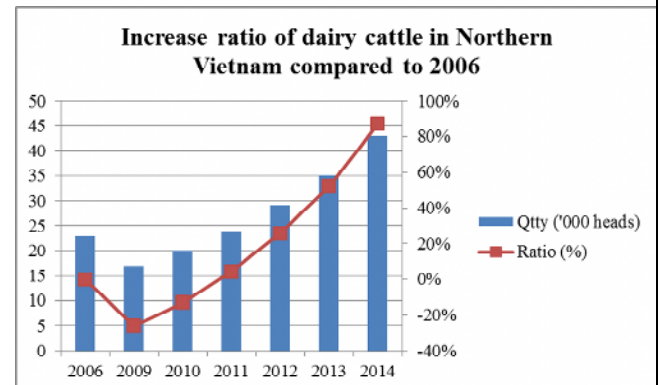
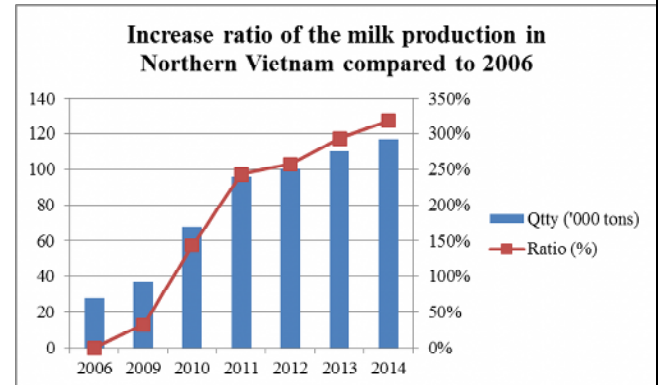
The project has brought about several positive changes in the Project Target Areas and Northern Viet Nam. The first one is the possible increase in dairy farms' income. In Moc Chau, for example, it was observed that income of existing dairy farms has been increasing as the population of dairy cattle at the time of the ex-post evaluation increased by 168% compared to 2010 while increasing ratio of the number of dairy farm was just 4.4%. This may imply that existing dairy farms have recognized dairy farming as profitable and increased their profit through production increase. Secondly, STED contributed to producing "Ba Vi Milk", which becomes one of the popular milk brands in Northern Viet Nam, through cooperating with International Dairy Production Company in organizing trainings to disseminate the improved dairy techniques and in establishing a demonstration farm for farmer training. Thirdly, many farms could reduce the cost of (chemical) fertilizer used for their own agricultural activities by using fertilizer produced by compost as well as could reduce their gas and electricity cost by utilizing biogas system made from the compost. Negative impact on natural and social environment and any other positive and negative impact by the project were not observed.

<Evaluation Results>

The project achieved the Project Purpose and the Overall Goal. Also the project brought about the positive impacts on increasing income of dairy farms through increasing their dairy production by the application of the Project introduced dairy techniques as well as on creation of regional milk brand in Northern Viet Nam. Therefore, effectiveness/impact of the project is high.

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Dairy technology extension activities are improved in the Project Target Areas.	(Indicator 1) 75% of improved dairy technology will be applied in model farms in the Project Target Areas.	<u>Achievement: Achieved.</u> (Project Completion) - The results of "Dairy Technology Evaluation Activity" between March 2009 and March 2010 which monitored the 20 model farms in the Project Target Areas indicate that 90% of improved technology taught by the Project was applied by model farms. (Ex-post Evaluation)



		<p>- The results of the interviews with the 20 model farms in the Project Target Areas indicate that average 94 % of improved technology taught by the Project is applied by model farms.</p> <table border="1" data-bbox="667 145 1528 309"> <thead> <tr> <th>Target Area (District)</th> <th>Target during the project period</th> <th>2010 (from Mar 2009 to Mar 2010)</th> <th>2015 (at the time of ex-post evaluation)</th> </tr> </thead> <tbody> <tr> <td>Moc Chau</td> <td>-</td> <td>-</td> <td>100%</td> </tr> <tr> <td>Vinh Tuong</td> <td>-</td> <td>-</td> <td>88%</td> </tr> <tr> <td>Average</td> <td>75%*</td> <td>90%</td> <td>94%</td> </tr> </tbody> </table> <p>* Data from 2011 to 2014 was not available.</p>	Target Area (District)	Target during the project period	2010 (from Mar 2009 to Mar 2010)	2015 (at the time of ex-post evaluation)	Moc Chau	-	-	100%	Vinh Tuong	-	-	88%	Average	75%*	90%	94%																																
Target Area (District)	Target during the project period	2010 (from Mar 2009 to Mar 2010)	2015 (at the time of ex-post evaluation)																																															
Moc Chau	-	-	100%																																															
Vinh Tuong	-	-	88%																																															
Average	75%*	90%	94%																																															
	<p>(Indicator 2) Average milk production per cow of model farms in the Project Target Areas will increase 15%.</p>	<p><u>Achievement: Achieved.</u> (Project Completion)</p> <p>- The results of the Dairy Farm Technical Monitoring Sheet which compared the dataset collected in March 2010 with the baseline data collected in 2006 indicate that the average milk production per cow of model farms in the Project Target Areas increased 29.2% in 2010 compared to 2006.</p> <p>(Ex-post Evaluation)</p> <p>- The results of the interviews with the 10 model farms and 10 non-model small scale farms in the Project Target Areas indicate that average milk production per cow in the Project Target Areas may have increased 40.3% in 2014 compared to 2006 but the finding is not statistically significant.</p> <p>(Reference: Changes in milk production)</p> <table border="1" data-bbox="667 757 1528 981"> <thead> <tr> <th>Target Area</th> <th>2006 (Baseline)</th> <th>2010</th> <th>2011</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Moc Chau</td> <td>4,941</td> <td>+39.8% (6,907)*</td> <td>+23.8% (6,116)*</td> <td>+47.6% (7,292)*</td> </tr> <tr> <td>Vinh Tuong</td> <td>4,118</td> <td>+16.9% (4,813)*</td> <td>+14.1% (4,698)*</td> <td>+33.0% (5,476)*</td> </tr> <tr> <td>Average</td> <td>-</td> <td>+29.2%</td> <td>+18.9%</td> <td>+40.3%</td> </tr> </tbody> </table> <p>Note 1: Sufficient data from 2012 to 2013 was not available. Note 2: * The figures are the volume of milk production (kg) per cow for 305 days. Note 3: Data set for each year has different size of samples and different data collection methodology.</p>	Target Area	2006 (Baseline)	2010	2011	2014	Moc Chau	4,941	+39.8% (6,907)*	+23.8% (6,116)*	+47.6% (7,292)*	Vinh Tuong	4,118	+16.9% (4,813)*	+14.1% (4,698)*	+33.0% (5,476)*	Average	-	+29.2%	+18.9%	+40.3%																												
Target Area	2006 (Baseline)	2010	2011	2014																																														
Moc Chau	4,941	+39.8% (6,907)*	+23.8% (6,116)*	+47.6% (7,292)*																																														
Vinh Tuong	4,118	+16.9% (4,813)*	+14.1% (4,698)*	+33.0% (5,476)*																																														
Average	-	+29.2%	+18.9%	+40.3%																																														
<p>(Overall goal) Milk productivity of small and medium scale dairy farms in Northern Viet Nam is increased.</p>	<p>(Indicator 1) Milk production of small and medium scale dairy farms in Northern Viet Nam will increase 80%.</p> <p>(Indicator 2) Population of dairy cattle reared in small and medium scale dairy farms in Northern Viet Nam will increase 70%.</p>	<p><u>Achievement: Achieved.</u> (Ex-post Evaluation)</p> <p>- Milk production of dairy farms in Northern Vietnam has increased by 318% in 2014 compared to 2006.</p> <table border="1" data-bbox="667 1236 1528 1400"> <thead> <tr> <th></th> <th>2006 (Baseline)</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Qty ('000 tons)</td> <td>28</td> <td>37</td> <td>68</td> <td>96</td> <td>100</td> <td>110</td> <td>117</td> </tr> <tr> <td>Ratio (%)</td> <td>-</td> <td>+32</td> <td>+143</td> <td>+243</td> <td>+257</td> <td>+293</td> <td>+318</td> </tr> </tbody> </table> <p><u>Achievement: Achieved.</u> (Ex-post Evaluation)</p> <p>- Population of dairy cattle reared in dairy farms in Northern Viet Nam has increased by 87% in 2014 compared to 2006.</p> <table border="1" data-bbox="667 1527 1528 1684"> <thead> <tr> <th></th> <th>2006 (Baseline)</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Qty ('000 heads)</td> <td>23</td> <td>17</td> <td>20</td> <td>24</td> <td>29</td> <td>35</td> <td>43</td> </tr> <tr> <td>Ratio (%)</td> <td>-</td> <td>-26</td> <td>-13</td> <td>4</td> <td>+26</td> <td>+52</td> <td>+87</td> </tr> </tbody> </table>		2006 (Baseline)	2009	2010	2011	2012	2013	2014	Qty ('000 tons)	28	37	68	96	100	110	117	Ratio (%)	-	+32	+143	+243	+257	+293	+318		2006 (Baseline)	2009	2010	2011	2012	2013	2014	Qty ('000 heads)	23	17	20	24	29	35	43	Ratio (%)	-	-26	-13	4	+26	+52	+87
	2006 (Baseline)	2009	2010	2011	2012	2013	2014																																											
Qty ('000 tons)	28	37	68	96	100	110	117																																											
Ratio (%)	-	+32	+143	+243	+257	+293	+318																																											
	2006 (Baseline)	2009	2010	2011	2012	2013	2014																																											
Qty ('000 heads)	23	17	20	24	29	35	43																																											
Ratio (%)	-	-26	-13	4	+26	+52	+87																																											

Source : Terminal Evaluation Report, Project Terminal Report, Questionnaires to and/or interviews with MARD, NIAS, STED, Vinh Tuong District, Moc Chau Dairy cattle Breeding Join-Stock Company, model farms and non-model farms in the Project Target Areas, General Statistics Office

3 Efficiency

Although the project period was as planned (ratio against the plan: 100%), the project cost exceeded the plan (ratio against the plan: 113%) due to the increase in the number of experts dispatched in additional areas including forage crops, clinical veterinary medicine and milking hygiene and trainees received in Japan for the necessity of further capacity development. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspects>

There was no change in the policies for promotion of dairy farming. The Livestock Development Strategy to 2020 targets the increase in milk production of the whole Viet Nam to 700,000 tons in 2015 (224% increase from 216,300 tons in 2006) and the number of dairy cattle to 350,000 heads in 2015 (209% increase from 113,200 heads in 2006). However, no other specific policy to promote dairy farming apart from the Livestock Development Strategy 2020 has supported the extension activities of the improved dairy farming techniques introduced by the project.

<Institutional Aspects>

[Organizational Arrangement for the National Livestock Extension Program]

There has been no change in organizational arrangement. The Department of Science, Technology and Environment (DOSTE) of MARD is in charge of the Livestock Research Program, including dairy cattle. MARD also supports STED to upgrade their facilities for training through NIAS. The National Agricultural Extension Center (NAEC) of MARD coordinates the Livestock Production Extension Program including dairy technology. STED in the Ba Vi Center and the Provincial Department of Agriculture and Rural Development (DARD) delivers training programs for NAEC, some provinces and milk producing companies. MARD has 2 staff members in DOSTE managing the Science and Technology Program on dairy cattle research and NAEC deploys 5 staffs for the dairy cattle extension program. In addition, STED deploys 11 National Trainers (NTs) as staff for dairy extension. Despite that the 5 NTs out of 11 NTs trained by the project left STED, 6 new NTs were recruited. Although NIAS does not appoint any staff in charge of dairy extension, the sufficient number of staff will be appointed by NIAS depending on the work volume each year. No problem on the facilities provided by the project for STED was observed at the time of ex-post evaluation.

[Extension System for Dairy Farming]

Despite of differences in extension system of dairy farming by district, the extension systems within the Project Target Areas have been functioning well. In Moc Chau, 47 Local Trainers (LTs) are deployed in total as dairy farm extensionists. In addition, dairy farming is managed by Moc Chau Dairy Cattle Breeding Joint Stock Company¹. The company employs a team of full-time LTs providing training and supervision for farmers. In Vinh Tuong, there are currently 21 LTs belonging to the Vinh Tuong District Agricultural Section for provision of dairy extension services to farmers and trainings to paravets, veterinarian at commune level. In other areas in Northern Viet Nam, they have similar extension system in Vinh Tuong.

<Technical Aspects>

The NTs trained by the project and NTs employed after the project completion have participated in training courses delivered by NAEC in order to sustain and brush up their skills. The NTs trained by the project have continued to use the teaching materials and manuals. After the project completion from 2012 to 2015, 37 training courses with 1,550 participants of LTs and farmers have been delivered by NTs. At district level, in Moc Chau, the Moc Chau Company organized 2-4 training courses for new LTs and 4-6 brush-up training courses for the current LTs. Also, about once a year, NT is invited to provide the training for LTs. In terms of monitoring of the pilot farmers activities, LTs in Moc Chau have supervised the farmers in their responsible areas by using the Dairy Technology Monitoring Sheet developed by the project while LTs in Vinh Tuong have not used the Sheet but a similar monitoring sheet provided by Vinamilk. The Model farms have sustained necessary skills and knowledge about the improved dairy techniques in Moc Chau and Vinh Tuong. In terms of technical transfer at district level, farmer-to farmer information dissemination have been carried out in Moc Chau while the new dairy farmers often learn from more experienced farmers in Vinh Tuong.

<Financial Aspects>

STED receives budget from NAEC for dairy related researches and extension activities in addition to receiving service fees from companies and other provinces for provision of training, while NTs' basic salary comes from NIAS's budget. Budgets for dairy technology training and extension activities by LTs belonging to district governments are allocated by the province or district people's committee. Financial data on STED, NAEC, NIAS, and provincial and district governments except Vinh Tuong District were not available, but there is no financial issue reported as sufficient number of NTs and LTs engage in dairy technology extension and training activities. In terms of financial data obtained from Moc Chau and Vinh Tuong between 2011 and 2015, it is observed that the total budget for dairy technique extension and training activities provided by Moc Chau Dairy cattle Breeding Joint-Stock Company has been within the range from VND 1,012 to 1,706 million, while the budget secured by Vinh Tuong District has been within the range from around VND 369 to 713 million, of which about 90% of source comes from the provincial government.

<Evaluation Results>

While institutional, technical and financial aspects are ensured, there is no policy to support the sustainability of the project, therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

This project has achieved the Project Purpose and the Overall Goal. Milk productivity of small and medium scale dairy farms in Northern Viet Nam was increased. As for sustainability, no other specific policy to promote dairy farming apart from the Livestock Development Strategy 2020 has supported the extension activities of the improved dairy farming techniques introduced by the project.. As for efficiency, the project cost exceeded the plan due to increased input for the necessity of further capacity development.

In the light of above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

Decision 167/2001/QD-TTG on dairy farming promotion was ended in 2010 and currently, there is no specific policy to support the development of dairy farming in Viet Nam. It is recommended that MARD will conduct review of the Decision 167 implementation and develop new policy to support dairy farming, taking into account impacts of TPP agreement on agriculture sector in general and dairy sector in particular.

Lessons Learned for JICA:

Despite of no specific policy to support extension of the improved dairy farming technologies introduced by the project, the number of cattle and the volume of milk production have continuously increased in Northern Viet Nam. It was because of profitability of milk production for small and medium dairy farms and functional extension system composed of NTs and LTs trained by the project. Therefore, in order to ensure effectiveness of the project as well as sustainability of project effects, at the project planning stage, it is essential to assess needs of farmers including profitability of farming technologies as well as organizational capacity and functionality of the existing extension system to disseminate farming technologies to be introduced by the project. In addition, it is important to introduce farming technologies to meet the farmers' needs and to enhance organizational capacity for functional extension system.

¹ It is a semi private company with 50% of stock shares owned by the state.



A dairy farm in Moc Chau (30 heads)



Training course for LT organized in Hung Yen