

South America

Ex-Post Evaluation of Japanese Technical Cooperation Project

“Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation”

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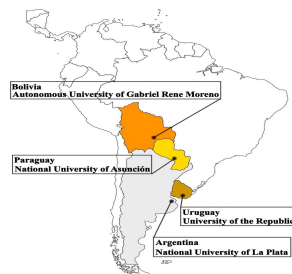
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0. Summary

The project aimed to improve diagnostic ability for livestock diseases in the southern part of South America, and relevance of the project was high with respect to national and regional policies and needs of project target areas as well as Japanese overseas aid policies. Based on the knowledge and experience of the National University of La Plata (hereinafter referred to as "UNLP") of Argentina, acquired via Japanese assistance lasting for approximately 20 years, the project sought to enhance the research and diagnosis capacity of laboratories at major universities in the neighboring countries and to promote provision of information to field veterinary workers. However, because the activities for field veterinary workers were partially continued after the end of the project and the most activities were limited in the information dissemination in the usual framework of universities, effectiveness and impact is fair. The project activities were implemented as planned in terms of period and cost, utilizing human resources of UNLP and function of laboratory, therefore efficiency was high. As of ex-post evaluation, although diagnostic and research activities were continued within the individual university budgets, and human relationships between researchers in the participating institutions were maintained, the framework for regional activities was not sustained after the project and relationship is limited in ones among individual researchers except Bolivia, therefore the sustainability is fair.

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

1. Project Description



(Project Locations)



(PROVETSUR Laboratory at Gabriel Rene Moreno University (Bolivia))

The university named the laboratory “PROVETSUR” after the project commonly used name.

1.1 Background

Livestock is one of the key industries in South American countries. While economic integration was in progress via Southern Common Market (hereinafter referred to as “Mercosur”), livestock production and the distribution of livestock products within the regions flourished, and the impact on the countries’ economies increased. In this situation, concerns had arisen as to economic damage due to limited livestock distribution resulting from severe livestock epidemics such as foot-and-mouth disease.

Although the establishment of a disease control and prevention system for livestock was a common issue in South American countries, there were significant disparities between countries with respect to their capacity to diagnose livestock illnesses and control infectious diseases. Furthermore each country was only focusing on supervising its own borders, and regional disease control systems were not implemented. Consequently, there was an urgent need for improvement of diagnostic techniques and establishment of a framework for regional livestock disease control, particularly infectious diseases which could spread regardless of borders, to avoid the spread of infectious diseases.

Therefore, the regional technical cooperation project titled “Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation” was implemented for human resource development with reeducation of veterinarians for five years from August 2005, targeting four countries: Argentina, Bolivia, Paraguay, and Uruguay.

1.2 Project Outline

By utilizing achievements made through about two-decade-cooperation in livestock sanitation and diagnosis capacity building between Japan and the UNLP in Argentina, the project aimed to strengthen techniques to improve livestock health and diagnosis in neighboring countries, such as Bolivia, Paraguay, and Uruguay. In the project, the UNLP was designated as the core university, and its role was to transfer diagnostic techniques to the Gabriel Rene Moreno Autonomous University (hereinafter referred to as “UAGRM”) in Bolivia, the University of Asuncion (hereinafter referred to as “UA”) in Paraguay, and the University of the Republic (hereinafter referred to as “UDELAR”) in Uruguay via training sessions and the dispatch of third country experts. In addition, each university formed research groups with the UNLP and conducted research studies to improve research ability and share new knowledge gained from research in the region, expecting to apply them for field veterinary workers.

The project was initially conducted with a single project design matrix (hereinafter referred to as “PDM”) for all involved countries. However, some challenges, including unclear roles and purposes due to coexistence of outputs and activities of different countries, and the fact that the project activities had not followed the PDM, were found during mid-term review. Then, the

PDM was revised drastically¹. Following this revision, the project purpose was changed to that of providing opportunities to share technical information for field veterinary workers' learning and the overall goal was changed to that of allowing field veterinary workers in the region to learn through the opportunities established by the project.

Overall Goal	Continuous post-graduate educational training for veterinary diagnosis is promoted in the southern part of South America	
Regional Aspects		
Project Purpose	Information produced through the project activities are utilized in the work of field veterinary workers in the region	
Outputs	1	Regional coordination system is established
	2	Reports related to the project theme are produced
	3	Regional research groups are formulated
	4	Useful information is distributed to field veterinary workers and livestock producers
Argentina		
Project Purpose	(Regional) Reports related to the project theme are produced (National) Capacity of the Faculty of Veterinary Science of UNLP is improved	
Outputs	1	Staff of Faculty of Veterinary Science of UNLP staff is trained in techniques of diagnosis and epidemiology
	2	Staff of Faculty of Veterinary Science of UNLP acquires the capacity to transfer techniques of diagnosis and epidemiology to university faculties in the other three countries
	3	Diagnostic and research environment is improved at the Faculty of Veterinary Science of UNLP
	4	A regional network for diagnosis and epidemiology information, coordinated by Faculty of Veterinary Science of UNLP, is established
Bolivia		
Project Purpose	(Regional) Information related to the project target diseases are produced (National) Diagnostic capacity related to animal diseases of Bolivia is improved	
Outputs	1	Capacity of Staff of Faculty of Veterinary Science of UAGRM is improved
	2	Capacity of veterinarians outside the university is improved
	3	Diagnostic and research environment is improved at the Faculty of Veterinary Science of UAGRM
Paraguay		
Project Purpose	(Regional) Information related to the project target diseases are produced (National) Diagnostic capacity for livestock diseases improved	
Outputs	1	Capacity of Staff of Faculty of Veterinary Science of UA is improved
	2	Capacity of veterinarians in laboratories and field veterinary workers is improved

¹ Major changes in the PDM are as follows;

- Changes of output, activities and indicators with changes of project purpose and overall goal
At the beginning the project had aimed at the establishment of the function of human resources development and the network of information sharing. However, after the changes, the project aimed at utilization of information produced by the project and the overall goal was also amended from “ practice of appropriate diagnosis by field veterinary workers” to “promotion of learning of field veterinary workers on disease diagnosis”
- Development of regional PDM and national PDM
At the beginning the project had only regional PDM, which was not clear of responsibility of each institutes because regional activities and national activities was mixed, and was not used in practice. In response at the mid-term review, the PDM was divided into regional PDM and national PDMs of each country.

	3	Diagnostic and research environment is improved at the Faculty of Veterinary Science of UA
Uruguay		
Project Purpose		(Regional) Information related to the project target diseases are produced (National) Diagnostic capacity for livestock diseases is improved in Uruguay
Outputs	1	Capacity of staff of Faculty of Veterinary Science of UDELAR is improved
	2	Capacity of veterinarians in laboratories is improved
	3	Capacity of field veterinary workers is improved
	4	Diagnosis and research environment is improved at the Faculty of Veterinary Science of UDELAR
Inputs		<p>【From Japanese side】</p> <p>1. Dispatch of experts Long term: 2 people</p> <ul style="list-style-type: none"> • Epidemiological information resource management/project coordination 1 person x 55 person -months • Post-graduate training/regional management 1 person x 20 person -months <p>Short term: 6 people, total 2.67 person/ months</p> <ul style="list-style-type: none"> • Emerging and re-emerging infectious diseases diagnosis 0.5 person - months • Diagnostic technologies for avian diseases 0.55 person - months • Pathology 0.6 person - months • Livestock disease control and prevention (2 persons) 0.6 person – months and 0.4 person - months • Diagnostic technologies for zoonotic infectious diseases 0.67 person - months <p>Third country experts: total 42 persons (travel cost of staff of Faculty of Veterinary Science of UNLP (Argentina), and Veterinarian of SENACSA (Paraguay))</p> <p>2. Trainee received 0 person 3. Third country training program total 60 persons (in Argentina) 4. Equipment 75 million yen 5. Local cost 120.7 million yen</p> <p>【From Argentine side】</p> <p>1. Counterpart allocation 2. Third-country expert (Argentina) Personnel cost among cost of dispatch: 7 million yen (234,000 Argentine Pesos = 78,000 USD)</p> <p>3. Operation cost</p> <ul style="list-style-type: none"> • Argentina: Total 17 million yen (187,300 USD) • Bolivia: Approx. 5 million yen (56,355 USD excluding personnel costs) • Paraguay: 1 million yen (13,160 thousand USD excluding personnel costs) • Uruguay: 15 million yen (162,000 USD excluding personnel costs) <p>4. Allocation of project staff (in all target countries) 5. Project office, laboratories, and vehicles (all target countries) (Estimated with 1 USD =92.7 JPY (the rate reported in terminal evaluation))</p>
Total cost		296.245 million yen (as of the end of the project)
Period of Cooperation		August 2005 to July 2010
Implementing Agency		Faculty of Veterinary Sciences, UNLP (Argentina), Faculty of Veterinary Science, UAGRM (Bolivia), Faculty of Veterinary Sciences, UA (Paraguay), Faculty of Veterinary Sciences, UDELAR (Uruguay)
Cooperation Agency in Japan		Ministry of Education, Culture, Sports, Science and Technology, The University of Tokyo, Ministry of Agriculture, Forestry and Fisheries

Related Projects	Argentina	Technical cooperation (TC) for the research project at the Faculty of Veterinary Science at the National University of La Plata in Argentina (5 years from 1989, TC) Follow-up of TC for the research project at the Faculty of Veterinary Science at the National University of La Plata in Argentina (2 years from 1994, TC) Aftercare for TC for the research project at the Faculty of Veterinary Science at the National University of La Plata in Argentina (2 years from 2001, TC)
	Bolivia	Domestic animal reproduction improvement plan (5 years from 1987, TC) Beef Cattle Improvement Project (5 years from 1996, TC) Project for Improvement of Technical Extension for Small-Scale Livestock Farmers (3 years from 2004, TC)
	Paraguay	Animal Reproduction Improvement Plan (5 years from 1982, TC) Project for Improvement of Livestock Hygiene (3 years from 2002, TC)*
	Uruguay	Veterinary Laboratories Improvement Project (5 years from 1996, TC)
	Third Country Training Program in Argentina	“Diagnosis and Research on Domestic Animal Diseases” course (5 years from 1996, TC) “Diagnosis and Research on Domestic Animal Diseases phase II” course (5 years from 2001, TC)* “Prevention and Zoonosis Control of South American region” course (3 years from 2011, TC)* “Infections from food (food borne infectious diseases): diagnosis, control and environment” course (3 years from 2014, TC)*

* Technical cooperation under the framework of Partnership Program Japan and Argentina (hereinafter referred to as “PPJA”) ²

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement of Overall Goal at the time of the Terminal Evaluation

As for the overall goal: “Continuous post-graduation education for veterinary diagnosis is promoted in the southern part of South America”, it was judged that it would have been possibly achieved by the end of the project because the continuous education was realized as a rippled effect of the project’s information dissemination related to animal disease diagnosis

1.3.2 Achievement of Project Purpose at the time of the Terminal Evaluation

In response to the recommendations presented at the mid-term review, the joint regional and national management mechanism in each country were functionalized such as planning, implementing, and monitoring project activities, and the project purpose was largely achieved at both regional and domestic levels. Activities to disseminate diagnostic techniques for field veterinarians were generally weak, but incentives and motivation for the related parties were significantly increased, and the project purpose was evaluated as almost having been achieved.

² In May 2001 the Government of Japan and the Government of Argentina agreed on the document of PPJA whose objective is that both governments cooperate to assist socio economic development in developing countries. In the PPJA document, Third Country Training Program, collaboration seminar, dispatch of experts organized by both countries were agreed, the first regional technical cooperation project implemented under the PPJA was this project targeted by this ex-post evaluation.

1.3.3 Recommendations at the time of the Terminal Evaluation

The terminal evaluation summarized recommendations including maintaining and improving diagnostic techniques and research ability in self-reliant manner, and budget allocation to those activities in the participating institutions. Other recommendations were made to conduct activities designed to strengthen regional collaboration, such as standardization of diagnostic methods among the countries; institutionalization of continuous post-graduate training opportunities based on the needs of field veterinarians; management and strengthening of relationships between governmental and veterinarian organizations created through project activities; and harmonization between the information network created by the project and “Ibero-American Society of Veterinary Epidemiology and Preventive Medicine” (established in December 2009), which was an academic collaboration.

2. Outline of the Evaluation Study

2.1 External Evaluator

Kanako Tanigaki, Fujita Planning Co., Ltd.

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2.2 Duration of the Evaluation Study

Duration of the study: September 2013 to July 2014

Duration of the field Study: November 18 to December 11, 2013

March 11 to March 28, 2014

2.3 Constraints during the Evaluation Study

- It was impossible to confirm rationale to justify relevance of the project to policy and needs at the planning stage, as information related to policies and needs was not included in the ex-ante evaluation report. Therefore, the relevance of the project at the planning stage was estimated through interviews and a literature review conducted during the ex-post evaluation.
- Regarding budget information, all of the universities had administrative departments, and it was difficult for the Faculties of Veterinary Science to submit actual budget information. This interfered with the collection of detailed budget and financial results and prevented the analysis of financial continuation. Therefore, narrative information was collected through interviews and analyzed for evaluation.
- Because the actual outputs of project activities were not included in the project completion and expert reports, as well as the participating institutions did not keep records, the achievements could not be analyzed rigorously. Consequently, achievement was measured

by using information from the terminal evaluation report and responses of stakeholders collected from the field survey of this ex-post evaluation.

3. Results of the Evaluation (Overall Rating: B³)

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance to the Development Plans of the Target Countries

During the formulation of the project, the importance of the livestock industry and the industry's possible large influence or impact to societies and economics were recognized by all of the target countries, and all of these countries identified livestock sanitation as one of top priorities in their national policies. This trend did not change through the project period as shown in Table 1

As a regional policy, the World Organization for Animal Health (hereinafter referred to as "OIE") listed severe animal diseases that could create obstacles in the livestock industry⁵ and emphasized the importance of the response to them, as of the formulation of the project. In addition, the OIE and the Food and Agriculture Organization of the United Nations (hereinafter referred to as "FAO") determined that livestock diseases not only cause substantial damage to livestock production but also damage human health severely, and these organizations continuously prioritize responses to livestock diseases. Each country in the project followed these international policies and included the efforts to improve livestock productivity and animal health situation in their own policy. Therefore, the project's consistency with regional and national policies was high.

³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁴ ③: High, ②: Fair, ①: Low

⁵ If the disease is mentioned in OIE-list, the disease becomes the target of international surveillance and reporting to OIE becomes mandate of each OIE member country. If a disease satisfies four criteria 1) international epidemics situation, 2) presence of disease free country (country that can ignore the risk), 3) harmful on human, livestock or wild animal, and 4) existence of definition and diagnosis method of diseases, it is listed.

Table 1 Policy trend in the target countries

Policy Trend	
At ex-ante evaluation or/and early stage	At completion
Argentina	
The government formulated the livestock sanitation plan and a meat export plan and promoted the export of animal products by improving sanitary conditions, quality of products, and access to international markets as of ex-ante evaluation (a)	The policy was maintained. The bicentennial federal livestock plan (2009–2012), which was formulated prior to the completion of the project, mentioned improvement of livestock sanitation as a high priority policy issue. (b)
Bolivia	
At the initiation of the project, Agricultural Production Transformation Strategy (Estrategia de Transformacion Productiva Agropecuaria: hereinafter referred to as “ETPA”) was formulated under the national development policy, namely Plan Bolivia (2002), to improve the productivity of agriculture products and enhance the competitiveness of the products including those of the daily sector. (a)	A new government was established in 2006, and worked on food safety issues, which were a high priority in the Livestock Promotion and Development Program formulated in 2010 under the National Development Policy 2006–2011. (c)
Paraguay	
Prior to the initiation of the project, the government announced a livestock promotion policy based on enhancing the abilities of livestock producers. (a)	Livestock development was regarded as one of six major pillars of the Expanded Agriculture Strategic Policy 2009–2010, developed by the Ministry of Agriculture and Livestock as a policy for the agriculture sector. (d) In addition, as of 2010, technical research and dissemination was one of the agriculture policy’s priorities. (e)
Uruguay	
In the project formulation survey, the government promoted a policy to prioritize livestock production and sanitation, as an agriculture and livestock export country, implementing livestock sanitation plans and a traceability plan for the identification of livestock groups. (a)	At the end of the project, the agricultural policy of 2010 persisted and increased export amounts through continuing technical renovation of product processing. (f)

(Sources)

(a) Japanese International Cooperation Agency (hereinafter referred to as “JICA”), Report of discussion on the project implementation, 2nd ex-ante evaluation report and 1st ex-ante evaluation report for “Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation”(July 2006)

(b) Website of Argentina Ministry of Agriculture, Livestock and Fisheries
http://64.76.123.202/site/ganaderia/_subsecretaria_de_ganaderia/index.php?edit_accion=noticia&id_info=121116163041

(c) Japan Agricultural Development Consultants Association, Project Funding Survey Report for Agricultural Development Project by Irrigation in the Santivanez Baisin in Plurinational State of Bolivia (March 2009)

(d) Ministry of Agriculture, Forestry and Fisheries, Japan, Research and Analysis on information related to agricultural investment in Paraguay and Uruguay, the project of research and analysis on information such as free trade agreement (2011)

(e) Mitsubishi Research Institute, Aid policy for Paraguay, Study for contribution measures in food, agriculture and farm area for global issues (2009)

(f) Ministry of Agriculture, Forestry and Fisheries, Japan, Report of research and analysis on agricultural information of major countries (2011).

http://www.maff.go.jp/j/kokusai/kokusei/kaigai_nogyo/k_syokuryo/h23/pdf/chapter2.pdf

3.1.2 Relevance to the Development Needs of the Target Countries

(1) Regional needs

In general, an epidemic of livestock diseases, particularly infectious diseases, would damage livestock production and have a strong impact on livestock industries and economies. In addition, there are zoonotic infections among these diseases, which can impact on human health. Thus, improving diagnostic ability regarding these diseases, and promoting early detection and response, were indispensable in minimizing the influence of livestock diseases on the economy and humans.

During formulation of the project, the occurrence and expansion of common livestock diseases in the region was an issue, not only in the affected country but also in the region, and livestock disease control was recognized as a common regional issue. However, there were discrepancies in the diagnostic abilities (e.g., human resources, facilities, and equipment) of the Faculties of Veterinary Science in the core universities. Consequently, the countries could not respond equally against the trans-boundary outbreaks and the spread of diseases were concerned. In addition, it was necessary to address issues that arose because techniques and networks for development and dissemination of epidemiological information resources were insufficient, and epidemiological information from the field did not reflect regional and national disease control responses appropriately.

At the end of the project, it was obvious that a response to trans-boundary disease transmission was necessary. For instance, the OIE Strategic Plan (2011–2015) indicates that animal protection and regional coordination, based on the regional research results, are significant issues. This implies there still are needs for regional research in response to the epidemics and endemics of diseases. Furthermore, the core universities and governmental administrative organizations considered to strengthen regional coordination and responses by recognizing regional disparities in diagnostic ability regarding livestock diseases and obtaining information related to disease control and diagnostic knowledge in other countries.

In the light of the above, the project was consistent with the needs of the target regions regarding response to livestock disease control, from formulation to completion.

(2) Needs of the targeted countries

The livestock industry was one of the major industries in each country, and livestock disease prevention and control were recognized as indispensable factors in improving livestock productivity as of both of the beginning and the end of the project. As shown in Table 2, occurrences of infectious animal diseases were reported continuously throughout the project period, and control and eradication were not achieved. Enhancement of the mechanisms for livestock disease control and prevention was a common issue among the targeted countries.

Table 2 Occurrences of infectious animal diseases (number of cases)

	2005	2006	2007	2008	2009	2010	2011	2012
Argentina	Q fever (1) Hemorrhagic septicemia	Foot-and-mouth disease (2) West Nile (3) Hemorrhagic septicemia		Rabies (1)	H1N1 Influenza (2)	Equine viral arteritis (12)		
Bolivia	Aujeszkys disease (1) Vesicular stomatitis (6)	Aujeszkys disease (1) Classical swine fever (1)	Classical swine cholera (1) Foot-and-mouth disease (5)	Newcastle disease		Newcastle disease	Rabies Newcastle disease	Newcastle disease
Paraguay							Foot-and-mouth disease (1)	Foot-and-mouth disease
Uruguay			Equine infectious anemia (1) Rabies (44)				Caprine arthritis-Encephalomyelitis (5)	Equine influenza(1) Leishmaniasis(1)

(Source) OIE website: http://www.oie.int/wahis_2/public/wahid.php/Countryinformation/countryhome

Note: If the number of cases was not provided on the website, the number was not included in the table.

According to the interviews with stakeholders at the time of the ex-post evaluation, the participating universities in Bolivia and Paraguay had not had adequate diagnostic techniques during the formulation of the project, even though they were core universities for animal disease control. For instances, because there had been no diagnostic laboratories in the Faculty of Veterinary Science of UAGRM in Bolivia and no adequate equipment or devices in the laboratories of UA in Paraguay, they had had to diagnose diseases with dissection. Similarly for UDELAR in Uruguay, the staff also reported that the laboratories had stagnated their activities due to a lack of medical devices, equipment, and human resources before the start of the project.

Therefore, the project was highly consistent with the development needs of each country, because the need for animal disease prevention and control and staff training were recognized as of both of the planning and the end of the project.

3.1.3 Relevance to Japan's ODA Policy

The Japanese government's policy toward southern part of South America remained "to promote and integrate the inter-regional cooperation" through formulation to completion of the project. Assistance policies for each country include the following: activation of economy, social development, and south-south cooperation for Argentina; human resource development and increased productivity of the livestock industry for Bolivia; assistance with redressing disparities via income generation among poor citizens in rural areas for Paraguay; and sustainable growth and social development for Uruguay. The project was relevant to the Japanese assistance policy, because it led to social development and economic revitalization via improvement of livestock productivity through human resource development in field veterinarians and enhancement of livestock disease control capability.

This project was highly relevant to the regional and four member countries' development plans and needs as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact⁶ (Rating: ②)

3.2.1 Effectiveness

3.2.1.1 Project Output

(1) Regional Outputs

1) Output 1: Regional coordination system is established.

An indicator for this output was that the project coordination committee made a decision regarding the planning, implementation, and monitoring of the project activities. This output was achieved, as the joint coordination committee was established and held an annual meeting. In addition, as of ex-post evaluation, the stakeholders of participating organizations in each country mentioned that the project was very effective for building human connection networks via the activities. These networks were considered to be a base for the regional coordination system.

2) Output 2: Reports related to the project theme are produced

An indicator for Output 2 was that reports regarding relevant topics were written in each country based on its plan. Table 3 shows the indicators for each country. Research groups were formed by the UNLP and three other universities (Output 3); the groups wrote research reports, summarized the results, submitted them to scientific journals, and published more than the expected number of peer-reviewed reports. Therefore, achievement of Output 2 was confirmed.

Table 3 Achievement of Output 2 in each country

Country	Indicators	Results	Achievement
Argentina	Technical reports regarding relevant topic to the project was issued, based on each country's action plan ⁷ .	A total of 17 peer-reviewed academic reports and 3 survey reports	Achieved
Bolivia	At least one report related to the selected animal diseases was issued at the end of the project.	A total of 7 peer-reviewed academic reports and technical report related to bovine leucosis	Achieved
Paraguay		A total of 3 peer-reviewed academic reports and 2 technical survey reports	Achieved
Uruguay		A total of 3 peer-reviewed academic reports, 2 research reports and 2 technical survey reports	Achieved

(Source) Terminal evaluation survey report on "Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation" (2010)

⁶ Sub-rating for effectiveness is to be put with consideration of Impact

⁷ The regional study groups were formulated with the staff of Argentina and other three countries. Purposes were implementing report writing plan for Argentina and writing disease literature and/or a report for the other countries.

3) Output 3: Regional research groups are formulated

Indicators for Output 3 were that 12 regional study groups had been formed in three years after the initiation of the project, and that 20 peer-reviewed academic articles had been published by the regional study group upon completion of the project. According to the terminal evaluation report, 26 research groups were formed and all the groups issued peer-reviewed articles, which means a total of 26 peer-reviewed articles were issued. Based on these results, Output 3 was achieved.

4) Output 4: Useful information is distributed to field veterinary workers and livestock producers

The project had aimed to share information for field veterinarians and producers by disseminating the results of the activities, which were obtained via Outputs 2 and 3. Indicators for Output 4 were that the modified information was available on the project website since the beginning of 2009, and that the processed information was disseminated in the seminars conducted by the project experts and/or in printed materials. These indicators were considered to have been achieved, as the project shared the information obtained through the project activities with the veterinarians and producers via the project website. The project also issued a newsletter and distributed it at seminars and meetings to introduce the project activities, which also contributed to the achievement of the outputs.

*Outputs of each country

(2) Argentina

1) Output 1: Staff of Faculty of Veterinary Science of UNLP is trained in techniques of diagnosis and epidemiology

An indicator of Output 1 was that a total of 30 staff, already in training, were trained in techniques of diagnostics and epidemiology. The project mainly trained young UNLP staff and conducted technical training sessions related to molecular biology at 30 faculties and epidemiology training courses at 70 faculties. Thus, the indicator was achieved. In order to conduct training sessions, the UNLP conducted needs assessments, creating a training schedule and curriculum and improving the infrastructure and equipment by undertaking tasks such as building a molecular biology laboratory. These activities contributed to the improvement of the effectiveness of training sessions via improving educational circumstances and content of the training. In addition, Japan's 20-year cooperation with the UNLP to improve livestock sanitation and diagnostic techniques was highlighted with respect to its contribution to establishing a basis for diagnostic techniques and epidemiological methods in Faculty of Veterinary Science. Interactions between these benefits further improved the level of the UNLP's technical expertise as a research institution.

2) Output 2: Staff of Faculty of Veterinary Science of UNLP acquires the capacity to transfer techniques of diagnosis and epidemiology to university faculties in the other three countries

There were two indicators for Output 2. These were that 20 staff in the target universities in the three countries had been trained for 5 years, and that 30 experts from the UNLP were dispatched to the three target countries and conducted training at the faculties there. Through the project activities, a total of 42 UNLP staff (18 individuals) was sent to the other three countries 25 times as third-country/regional experts. The UNLP also received 60 trainees from the other three countries and transferred diagnostic techniques and to them as well as encouraged them to promote co-research of animal diseases in the region. Thus, both indicators were considered as having been achieved. UNLP faculties could strengthen the participants' ability as regional leaders in animal disease control by being proactive to transfer techniques to other faculties or institutions and participating in the collaborative research activities, based on the experience of third country training program and third country experts.

3) Output 3: Diagnostic and research environment is improved at the Faculty of Veterinary Science of UNLP

An indicator of Output 3 was that the virology, pathology of poultry, and microbiology laboratories were sufficiently equipped to satisfy bio-safety requirements based on international or regional standards. Output 3 was considered to have been achieved, as the virology, pathology of poultry and microbiology laboratories satisfied the criteria for bio-safety conditions recommended by national standards by the time of the terminal evaluation of the project. The laboratory equipment has been used since it was procured via the project.

4) Output 4: A regional network for diagnosis and epidemiology information, coordinated by Faculty of Veterinary Science of UNLP, is established.

In this output, two indicators were established, which were that a network was formed among three universities, and that information was updated through the network, and access was increased by 10% annually. The project newly established a website for a regional network of diagnostic and epidemiological information, posted articles published by project members, and announced information, using the personal network to compose a mailing list. The number of times the website was accessed increased from 10,371 in the first year (1 year from May 2006) to 17,806 in the final year (1 year from May 2009). Access was increased by more than 10% annually during the project, and the number of people using the information also increased. Thus, Output 3 was achieved.

(3) Bolivia

1) Output 1: Capacity of Staff of Faculty of Veterinary Science of UAGRM is improved

At the beginning of the project, the UAGRM did not have laboratories in the Faculty of Veterinary Science. Once the project had been initiated, the laboratory was established and 12 young laboratory technologists were hired. In response to an indicator for Output 1, that six new faculties participating in the project were trained in diagnostic techniques by completion of the project, 11 staff members participated in the training session at the UNLP. There was another indicator for this output, that ten faculties participating in the project were trained in laboratory techniques. In response, one staff member attended a training session at Servicio Nacional de Calidad y Salud Animal (National Service of Animal Quality and Health; hereinafter referred as to “SENACSA”) in Paraguay in addition to 11 staff members mentioned above. It means that total 12 staff members were trained in techniques in examination and diagnosis. Thus, the output 1 was achieved. In addition, as a result of the training sessions, participants from the UAGRM increased their ability to control rabies through means such as isolation of rabies-positive dogs, administering vaccinations, and a census survey in collaboration with Servicio Nacional de Sanidad Agropecuaria e Inocuidad Alimentaria (National Agricultural Health and Food Safety Service; hereinafter referred to as “SENASAG”) and provincial health office.

2) Output 2: Capacity of veterinarians outside the university is improved

An indicator of this output was that at least 24 veterinarians working in laboratories at Lab. de Investigación y Diagnóstico Veterinario (hereinafter referred to as “LIDIVET”), Laboratorio de Investigación y Diagnóstico Veterinario Cochabamba (Cochabamba Research and Veterinary Diagnosis Center; hereinafter referred to as “LIDIVECO”), and Instituto Nacional de Laboratorios de salud (National Health Laboratory; hereinafter referred to as “INLASA”) and all veterinarians working at SENASAG and in provincial health offices⁸ were educated according to the agreement. One LIDIVET staff member participated in a third-country training program at the UNLP and acquired Polymerase chain reaction method (hereinafter referred to as “PCR”) and Enzyme linked Immuno Sorbent Assay (hereinafter referred to as “ELISA”) techniques. Subsequent to returning to their countries, the staff members who attended the training session shared their knowledge with colleagues at LIDIVET, and the PCR and ELISA techniques were disseminated to LIDIVET veterinarians.

There were also activities to increase field veterinarians’ knowledge, such as accepting LIDIVET staff members and veterinarians to epidemiology of poultry diseases seminars, rabies workshops, and livestock study meetings, which were held for veterinarians who belonged to the university. The indicator aimed to increase the knowledge of veterinarians in laboratories at

⁸ There was no information about the definition of “provincial” in project documents, but the project activities was conducted only in Santa Cruz Province.

veterinarian diagnosis centers in several states, but the activities were only provided in Santa Cruz, where the university was located. Therefore, Output 2 was partially achieved.

3) Output 3: Diagnostic and research environment is improved at the Faculty of Veterinary Science of UAGRM

An indicator of Output 3 was that the laboratory fulfilled recommended bio-safety conditions according to international or regional standards. The laboratory was established in accordance with the initiation of the project, renovation of a bacteriology laboratory producing an antigen for the diagnosis of brucellosis, and installation of a class II⁹ safety cabinet. In addition, a kennel for rabies authorized by SENASAG was built next to the laboratory and used for isolation of rabid dogs continuously captured until the end of the project.

(4) Paraguay

1) Output 1: Capacity of Staff of Faculty of Veterinary Science of UA is improved

An indicator of Output 1 was that a total of 30 young staff, were trained in techniques of diagnostics. A total of 22 staff (12 individuals) participated in the Third Country Training Program held at the UNLP and improved their capacity. In comparison to the target, fewer staff members were trained, as fewer people were hired relative to the original plan. Among 22 staff trained at UNLP six of them were employed as researchers for the project relevant areas. It implies that the capacity of researcher –level staff was improved. In addition, the third country experts of UNLP (total 13 experts) provided the On-the-Job training (hereinafter referred to as “OJT” for young staff to maintain techniques. According to the interviews in ex-post evaluation, staff members working in the laboratory could receive the necessary training, and their technological expertise improved.

2) Output 2: Capacity of veterinarians in laboratories and field veterinary workers is improved

An indicator of Output 2 was that a total of 30 staff of laboratory of SENACSA and field veterinary workers were trained in techniques of diagnostics. Seven veterinarians from SENACSA received on-the-job training in the molecular diagnosis of salmonella diseases in swine and chickens, and four staff members attended a training session involving the latest diagnostic techniques. Although the output was not achieved, the indicators were established without any rationale because the training plan did not take into consideration the capacity building of field veterinary workers and technicians of diagnosis laboratories, according to the people who participated in the formulation of the project. According to the expert, the selection

⁹ The class II safety cabinet: It is equipment to protect researchers in laboratories of hospital, research institute or university from exposure to infection or hazards, by preventing leak of pathogens in experiment samples to researchers. The class was different by equipment structure. The class II consists of draft chambers, exhaust sterilizer, sterilized inhalator/ air curtain.

priority was on the staff of the UA because the selection of participants from relevant organization was depended on the decision of each university, not on the project,

On the other hand, the seminars were conducted for staff of UA and students about disease control, poultry disease, research design, salmonellosis, and introduction to veterinary epidemiology. In the seminar for the two topics in the latter, staffs of SENACSA, a responsible national organization for animal disease control, were invited and the project contributed to improve the capacity of veterinarian staff of SENACSA.

In the light of above, indicator was not achieved, but some contribution of the project to improvement of capacity was recognized.

3) Output 3: Diagnosis and research environment is improved at the Faculty of Veterinary Science of UA

An indicator of output 3 was that the laboratory fulfilled recommended bio-safety conditions according to international or regional standards by the end of the project. The project provided the necessary equipment and machinery to practice diagnostic techniques transferred via the project and fulfilled the laboratories' needs. The class II safety cabinet was equipped in the laboratory and the design of the laboratory interior was altered in accordance with the standard. As of the ex-post evaluation, all of the machinery and equipment is in the laboratories, used effectively, and maintained appropriately. Thus, it is judged that output 3 was achieved.

(5) Uruguay

1) Output 1: Capacity of staff of Faculty of Veterinary Science of UDELAR is improved.

An indicator of output 1 was that a total of 20 young staff of Faculty of Veterinary Science of UDELAR was trained in techniques of diagnostics. A total of 18 young staff (fifteen individuals) was trained at Third Country Training Program and their capacity was improved. Although there were fewer participants than stated in the indicator for the output, all of the young researchers who belonged to the laboratories at the time had the opportunity to attend training sessions. Subsequent to the training sessions, they shared their learned techniques with other staff of the laboratory, and the output 1 was achieved.

2) Output 2: Capacity of veterinarians in the laboratory is improved.

An indicator of output 2 was that a total of 20 veterinarians in laboratories of División de Laboratorio Veterinarios (Division of Veterinary Laboratory: hereinafter referred to as "DILAVE") under Ministry of Agriculture, Livestock and Fisheries and veterinarians in private laboratories were trained in techniques of diagnosis and knowledge of animal diseases. One researcher from DILAVE joined the training session at the UNLP. In addition, according to the terminal evaluation report, a series of training sessions in laboratory techniques, in which both

concept and practice targeted laboratory veterinarians of laboratory of UDELAR, students or staff of DILAVE were conducted at the Faculty of Veterinary Science of UDELAR. Fifty staff attended the concept course and 20 attended the practical course (the targets for both were 20 people). Moreover, the seminar about Avian Influenza and diagnosis techniques were provided for a total of 130 participants including Ministry of Agriculture, Faculty of Veterinary Science, Agricultural Research Institute, and private laboratories. In the light of the above, the output 2 was achieved.

3) Output 3: Capacity of field veterinary workers is improved

An indicator of output 3 was that total 70 field veterinary workers were trained by the end of the project. In practice, the training sessions targeted at field veterinarians were not conducted. At the terminal evaluation, 80% of the field veterinarians who were expected to attend the training participated in the training session held at the university and experimental laboratory. However, the number of expected participants, and the number of actual participants were not recorded in any project documents, it is difficult to make judgment on the situation quantitatively, but it was implied that the capacity of veterinarians was improved through the training.

4) Output 4: Diagnosis and research environment is improved at the Faculty of Veterinary Science of UDELAR

An indicator of output 3 was that the laboratory fulfilled recommended bio-safety conditions according to international or regional standards by the end of the project. Because the displacement of Faculty of Veterinary Science of UDELAR had been planned with the improvement of laboratory according to international standards, the renovation of the laboratory was not conducted within the project. On the other hand, the equipment and devices were procured while the relevant techniques were transferred by the project. Thus, the diagnosis and research environment was improved after the project, and the output 4 was partially achieved.

3.2.1.2 Achievement of Project Purpose

Because the project set up different project purposes in regional PDM and in national PDM of each country, each achievement was examined in this ex-post evaluation. But because the regional purpose in national PDM is equal to output 2 in regional PDM, the analysis and judgment was reported in the paragraph of output 2 in regional PDM (page 9).

- (1) Regional Indicator: Information produced by the project was utilized in the work of field veterinary workers in the region

There were two indicators used to measure the project purpose, which were that 1) the number of times the project website was accessed was increased annually, and 2) the number of inquiries made via the mailing list increased annually. Regarding indicator 1), the number of times the website accessed was increased by more than 10% annually as shown in Table 4. Regarding indicator 2), the number of inquiries through mailing list was increased by more than 20% as shown in Table 5. Thus, the project purpose was achieved.

Table 4 Indicator 1: The number of times the project website was accessed

	FY 2006	FY 2007	FY 2008	FY 2009
Number of times accessed	10,371	11,795	14,580	17,806
Change rate (2006 as 100%)	—	114%	124%	122%

(Source) Terminal Evaluation Report on “Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation” (2010)

Table 5 Indicator 2: Number of queries received via the mailing list

	FY 2006	FY 2007	FY 2008	FY 2009
Number of queries	47	62	89	108
Change rate (2006 as 100%)	—	132%	144%	121%

(Source) Terminal evaluation report on “Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation” (2010)

Project purpose for each country

(2) Argentina

Project purpose: Capacity of the Faculty of Veterinary Science of UNLP is improved

An indicator for this target was that the numbers of diagnoses and examinations and the amount of internal and external advice provided to third parties increased by 10% annually. Subsequent to the initiation of the project, the number of services provided to third parties increased by more than 10% annually, and remarkably, by 34.8% between 2006 and 2007. This result indicated that the number of field veterinarians who used the services provided by the UNLP increased, and the UNLP began to play the role of adviser in the region. Against this background, as shown above, acquiring new knowledge, increasing professional expertise, and fostering regional leadership was achieved via project activities.

Table 6 Rate of increase of services for third parties

2005–2006	2006–2007	2007–2008	2008–2009
18.6%	34.8%	11.5%	15.5%

(Source) Terminal evaluation report on “Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America through Regional Technical Cooperation” (2010)

(3) Bolivia

Project purpose: Diagnostic capacity related to animal diseases of Bolivia is improved

Indicators for the project purpose were that the number of diseases diagnosed increased between the initiation and completion of the project, and that the number of diagnostic techniques increased by the completion of the project.

The UAGRM promoted to strengthen the capacity development of the laboratory through the establishment of a laboratory in the university as well as human resources development in the project activities with newly hired 12 young staff members. As a result, the staff members were able to diagnose five major diseases (rabies, Newcastle disease, bovine brucellosis, equine infectious anemia, and bovine leukemia) using the following seven methods: the hemagglutination inhibition test, ELISA, enzyme immunoassay (hereinafter referred to as “EIA”), rapid platelet aggregation (hereinafter referred to as “RPA”), the agar gel precipitation test (hereinafter referred to as “AGPT”), and molecular diagnosis. As these techniques were utilized for rabies control in collaboration with SENASAG and provincial health offices, they were helpful techniques. In addition, collaboration with relevant organizations could improve capacity of disease diagnosis and control in Bolivia through sharing knowledge and skills in the project activities.

The UAGRM acquired the necessary techniques to produce bovine brucellosis antigen via the project in addition to the rabies diagnosis. This technique was also utilized for the collaborative project for bovine brucellosis control with SENASAG, thus it met the demands. Utilizing these techniques the UARGM could provide diagnosis services for field veterinary workers, and the laboratory could earn a profit by selling antigens and fill them to the laboratory operations as well as useful for diagnosis on the diseases occurred in the field. .

In the light of the above, the project purpose was achieved, judging that the UAGRAM acquired the capacity related to useful techniques.

(4) Paraguay:

Project Purpose: Diagnostic capacity for livestock diseases is improved

The indicators of this project purpose were that 1) the number of diseases diagnosed increased between the initiation and completion of the project, and 2) the number of diagnostic techniques increased by the completion of the project.

The UA selected the poultry diseases as a priority and acquired diagnostic techniques with respect to diseases affecting chickens. Subsequent to the completion of the project, it became possible to newly diagnose five major diseases; avian and swine salmonellosis, Gumboro disease, mycoplasma disease (two types), and avian infectious bronchitis virus using the following six diagnostic techniques: ELISA, PCR, the AGPT, morbid anatomy, immunohistostaining, and bacterial isolation and identification. The laboratory acquired diagnostic techniques for salmonellosis and was able to conduct research into food safety during the latter half of the project duration.

Regarding the effectiveness of diagnostic ability for livestock diseases across the country, some SENACSA staff members acquired PCR and ELISA by participating in the project training session that was conducted at the UA, and on-the-job training was undertaken to transfer information regarding molecular diagnosis of swine and avian salmonellosis. These training sessions contributed to the effective use of equipment and devices provided by PPAJ for diagnosis and research. Based on these findings, SENACSA was able to improve diagnostic ability via the project.

In the light of the above, the project purpose was achieved, judging that the UA, the core research organization in Paraguay and governmental institutes acquired the animal disease diagnosis techniques.

(5) Uruguay:

Project Purpose: Diagnostic capacity for livestock diseases is improved in Uruguay

The indicators of this project purpose were that 1) the number of diseases diagnosed in UDELAR increased between the initiation and completion of the project, and 2) the number of diagnostic techniques in Paraguay increased by the completion of the project.

The UDELAR improved laboratory and diagnostic technologies for livestock diseases and acquired diagnostic techniques for ten diseases; infectious bovine rhinotracheitis, bovine viral diarrhea-mucosal disease, bovine genital campylobacteriosis, trichomonosis, neosporosis, *Chlamydomphila pecorum*, bovine mycoplasmosis, ornithobacterium rhinotracheale infection, avian pneumovirus infection, and Gumboro disease using the following three laboratory techniques: ELISA, PCR, and indirect immunofluorescence. UDELAR made efforts to expand these techniques via activities such as demonstrating laboratory techniques during classes, as an educational institute.

DILAVE was the supervisory agency in Uruguay that controlled infectious diseases that had been designated as such by law, but private laboratory institutes provided diagnostic services for field veterinarians. In addition, the UDELAR did not conduct training sessions for staff in private laboratory institutes. Thus, the benefits for the field veterinary workers and private laboratory institutes from the project via the UDELAR were partially limited. However, because many staff of the DILAVE concurrently hold the post of UDELAR, the techniques and knowledge acquired through the project was utilized in the DILAVE. It indicates that the project contributed to the improvement of animal disease diagnosis capacity in Uruguay.

In summary, the activities for field veterinary workers and private laboratory institutions were partially limited in comparison to the plan, but the capacity of the laboratory of the UDELAR, as a key organization for animal disease control, improved. Therefore, the project contributed to the improvement of diagnostic capacity in Uruguay.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

Regional Overall Goal: Continuous education on animal disease diagnosis for veterinary workers is promoted.

The project was intended to achieve its overall goal via the following activities and processes.

- i Activating diagnostic activities and research to improve the capacity of the core universities and publish the acquired knowledge in technical journals (Outputs 2 and 3)
- ii Constructing a framework for socialization and the transmission of information (websites and mailing lists) and sharing new knowledge with veterinary professionals and researchers in laboratories (Outputs 1 and 4)
- iii Developing a framework for the exchange and transmission of information created through the project for field veterinary workers, to enable them to acquire new knowledge and useful experience in the diagnosis of and response to animal diseases on the ground (project purpose: information created by the project has been used by the field veterinarians.)

By continuing these activities subsequent to the completion of the project, achievement of the overall goal was expected.

Given this overall goal, the project has helped to improve the participating universities' capacity for testing and diagnosis and the acquisition of new methods of investigation, as noted earlier. However, with respect to supporting field veterinary workers, activities and expected results aimed at the overall goal were limited, as the indicators of the outputs have not achieved, since the project period. In addition, specific actions to institutionalize mechanism for post-graduate education have not been discussed. Furthermore, framework and tools developed by the project (such as web-site, mailing list: output 1 and output 4), was not sustained.

This was due to difficulty in tracking compliance as the overall goal, and verifiable indicators were not well defined at the outset of the project¹⁰. In addition, interviews conducted during the ex-post evaluation revealed the following three factors affecting the performance of the overall goal.

- i. The participating universities, including the UNLP, and the governmental organizations considered the objective of the project to be improvement in the capacity and functionality

¹⁰ One of the reasons of not taking action for achievement of overall goal nor practicing impact evaluation was that the setting of indicators or their expression was not very clear. The meaning of "continuous education" in overall goal and "updated scientific knowledge" mentioned in its indicators was not clearly defined. In addition, because the method of data collection and of measuring indicators were not clarified, it was difficult to conform the achievements. Although the expert took consideration to collect information and confirm achievement with the method of epidemiology by himself, he left the activities after the end of the project without any discussion about monitoring methods for the progress of overall goal. Thus, after the end of the project, no one has recognized overall goal and collect information to examine its achievement.

of university laboratories and not necessarily the transfer of new knowledge and techniques to field veterinary workers. This indicates that the consensus was not based on the project design (PDM and Plan of Operation) to a sufficient extent.

- ii. Some stakeholders considered that further efforts for continuous education were not necessary subsequent to the completion of the project, because each university contained a unit responsible for that purpose.
- iii. Universities as partners were responsible for selecting participants for training in third country training program in the project. However, due to the perception referred to in above point 1, more of the limited budget and resources were allocated to human resources development in the university laboratories rather than field veterinary workers.

As a result, participants undertaking training via the project were primarily researchers in university laboratories, and the units responsible for continuing education, administrative officers for controlling animal diseases, and veterinary authorities or private laboratories were insufficiently involved. Upon completion of the project, in all of the countries other than Bolivia, the collective regional research projects and promotion of continuous education for field veterinary workers, such as networking and collaboration, were discontinued.

Conversely, while the project was ongoing, the Bolivian involved actors discussed the sustainability of activities upon completion of the project. This proactivity was partly due to the experience of having achieved success in reducing the incidence of rabies by applying diagnostic techniques acquired via the project and cooperation with the administrative authorities. The quantitatively measured success helped the agents involved to understand the importance of the project more clearly rather than executing agencies from three other countries, and this motivated them to continue performing the activities initiated by the project¹¹.

Universities continued to perform project activities on their own initiative subsequent to the completion of the project, attempting to spread knowledge and specialized experience in their respective countries using the procedures described in Table 7. Therefore, the specialized knowledge and experience, which became continuing education resources, were shared with stakeholders in each country.

¹¹ In other three countries, stakeholders perceived that capacity of laboratory was improved with acquisition of diagnosis techniques, but had not have sufficient understandings that the project aimed at contribution to animal disease control on the ground. It implies that they didn't realize the needs of activities to promote field veterinary activities, were satisfied with the outcomes done by the project and take further actions into consideration.

Table 7 Transmission of information by participating organizations

Argentina	Issuing a mail magazine biannually, announcing research results, literature, and news Continuous education for veterinarians, Content of courses was opened only for students and staff of UNLP (The website was revised periodically ^a)
Bolivia	Transferring information, such as course details, contact lists, research results, and literature, via the laboratory website Sharing information via a blog Introducing an outline of the laboratory activities and research content via regional professional magazines and veterinarian meetings Conducting seminars for field veterinarians and students (The website was revised periodically ^b)
Paraguay	Posting events and news Conducting annual seminars for veterinarians Conducting annual seminars for faculties and students Introducing research results (The website was revised periodically ^c)
Uruguay	Posting events and news Research results were published in the professional magazines (The website was revised periodically ^d) Conducting seminars for veterinarians (several times per year)

(Source) Information collected during the field survey and university websites

a: UNLP http://www.fcv.unlp.edu.ar/index.php?option=com_content&view=article&id=1574

b: UAGRM http://www.fcv.uagrm.edu.bo/sistemabibliotecario/Consulta_de_Trabajos_Dirigidos_list.php

c: UA <http://www.vet.una.py/vet/>

d: UDLER <http://www.fvet.edu.uy/drupal-6.16/>

Therefore, although field veterinary workers were not sufficiently involved in continuing education, a part of countries continues these initiatives, and universities are at least partially involved in transferring information. As a result, the overall goal was partially achieved.

3.2.2.2 Other Impacts

The following positive impacts of the project were confirmed.

- i The veterinary science faculties in all participating universities simultaneously received Mercosur certificates for quality assurance in higher education (all participating countries).
- ii The contribution of the JICA to the Argentine agricultural and livestock sector, including this project, was highly appreciated. Thereafter, in April 2011, the JICA received an award for the promotion and encouragement of science and technology studies from the Argentine National Academy of Agriculture and Veterinary Sciences.
- iii The UNLP assists in veterinary education as the regional leader by providing conferences and workshops organized by the OIE to educate veterinarians, applying the knowledge and experience gained through the Japanese assistance offered in the project (Argentina).
- iv The university laboratories provided diagnostic services, prepared and sold reagents using techniques acquired via the project, and charged for these services. This scheme has

- allowed them to raise funds to meet research costs. Therefore, the project made an indirect contribution to improved financial sustainability (Bolivia and Paraguay).
- v The UAGRM executed the rabies control project in collaboration with SENASAG and provincial health offices, including isolating rabid dogs, administering vaccinations, and conducting a census, by applying the diagnostic techniques and epidemiological knowledge acquired via the project. As a result, the incidence of rabies was drastically reduced from 450 cases in dogs and 6 cases in humans in 2006 when the project began, to 29 cases in dogs and no cases in humans in 2009 (Bolivia).
 - vi UAGRM has subsequently received requests to perform rabies studies in other provinces as well as request from NPOs to have lecture on rabies control, extending the impact of the project to other regions of the country (Bolivia).
 - vii The researchers managed to obtain a scholarship by virtue of research conducted as part of the project and are currently conducting research at UNLP (Paraguay).
 - viii Students and young part-time workers trained via the project have been employed on a permanent basis by universities or administrative agencies, including the Ministry of Agriculture and Fisheries and DILAVE, and are currently working to implement the techniques learned during the training (Uruguay).
 - ix Equipment and examination techniques provided via the project allow researchers to conduct further studies using the equipment, assisting in the expansion of research (common to all participating countries).
 - x The use of the equipment procured through the project allows the provision of more practical lectures to students. It also allows the universities to accept the undergraduate students' graduation research (common to all participating countries).
 - xi The project has contributed to the regional standardization of diagnostic techniques and procedures for common diseases in the region (regional cooperation).
 - xii A regional coordination system¹² has not been sustained, but the ad-hoc mechanism underlying exchange between laboratories and research institutes is maintained via email and other means, and timely communication facilitated the clarification of doubts or queries. Table 8 shows interuniversity linkages that continue to date (regional cooperation).

¹² Regional coordination system: it is the system to discuss and monitor the project operation plan, progress or direction, etc. among participating countries. The system organized project operation committee and joint coordination committee (hereinafter referred to as "JCC"), which were held periodically.

Table 8 Collaboration between the relevant institutions in the project

Laboratories with relations		Collaborations
UNLP Virology Laboratory	UAGRM PROVETSUR laboratories	Transfer of the technique used to produce brucellosis antigen Continuous collaborative rabies study
UNLP IGEVET	UAGRM PROVETSUR laboratories	Transfer of the techniques of molecular genetics used in animal disease diagnosis
UNLP Virology Laboratory	UDELAR Microbiology Laboratory	Cooperative study (campylobacter research)
UNLP	UA	Diagnosis of salmonella in chickens and pigs

(Source) Interviews in field survey in ex-post evaluation

No negative impacts were observed.

The provision of assistance to researchers from universities included in the project framework was promoted, not only to strengthen the diagnostic capacity of laboratories and research functions but also to foster personal relationships between researchers in the four participating countries. In this respect, the project was extremely useful, and participants perceived a positive impact on each of the countries. Universities continue to conduct research using the available resources, the results of which are published via the project website; therefore, the benefits of the project are expected to gradually reach veterinary professionals.

Box. Example of consultations from participating universities to UNLP:

*UAGRM

- Prior to the completion of the project, staff members in Bolivia formulated an action plan, in order to continue undertaking the project activities, and held a discussion with the UNLP regarding ways in which to continue the activities. They applied Fondo Argentino de Cooperacion (Argentina fund for horizontal cooperation: hereinafter referred to as "FO-AR")¹³, continued cooperative rabies studies, and acquired a means of producing brucellosis antigen with the UNLP.
- Based on the results of the studies rabies seminars were held for field veterinarians, and UNLP faculty members were invited to present lectures.

*UA

- When they had problems on equipment such as PCR and ELISA, they had consulted with UNLP.

* UDELAR

- They had consultation about how to import experiment animals.

(Source) Interviews in field survey in ex-post evaluation

¹³ There are two projects under FO-AR; Project for characterization and conservation of Criollo Cattle Yacume Ño (Original title: Proyecto de caracterización y conservación del Criollo Bovino Yacume ño)(3years from 2011), Improving meat production by ultrasound and molecular techniques (Original title: Mejora de Producción Cárnica por Técnicas de Ecografía y Molecular) (3years from 2014)

In summary, it was confirmed that the project had an impact on strengthening the laboratories in the core universities, and we determined that the project purpose was largely met at the end of the project. With respect to continuous education, which was the overall goal of the project, it was not possible to reach the level initially proposed, and there is low expectation that it will be fulfilled within the prescribed period of five years following the completion of the project. However, we must recognize that the indicators adopted were difficult to quantify, and it is possible that the overall goal will be partially achieved, as it continues to promote continuous education activities by transmitting information via veterinary professionals in colleges, who also stated that the project has had several positive effects beyond planned indicators. Therefore, the project partially achieved its objectives, and its effectiveness could be considered fair.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

Inputs	Plan	Actual Performance
(1) Experts	<ul style="list-style-type: none"> • Long term: 1 person for 5 years Epidemiological information resource management/ project management • Short term: some persons <ul style="list-style-type: none"> - PCM methods and diagnostic technical area where third country expert is not available: some persons x one month x five year • Third country expert 2 persons <ul style="list-style-type: none"> - Diagnosis techniques (Argentina, Uruguay): 2 persons x 3 months x five years 	<ul style="list-style-type: none"> • Long term: 2 people <ul style="list-style-type: none"> - Epidemiological information resource management/project coordination 1 person x 55 person -months - Post-graduate training /regional management 1 person x 20 person - months • Short term: 6 people <ul style="list-style-type: none"> - Emerging and re-emerging infectious diseases diagnosis 0.5 person - months - Diagnostic technologies for avian diseases 0.5 person - months - Pathology 0.6 person - months - Livestock disease control and prevention (2 persons) 0.6 person – months and 0.4 person - months - Diagnostic technologies for zoonotic infectious diseases 0.67 person - months • Third country experts total 42 persons (Argentina 40 persons, Paraguay 2 persons) <p>For Bolivia</p> <ul style="list-style-type: none"> - Rabies control - Viral genetic diagnosis for rabies - Supervision on installation and commissioning of diagnosis equipment for rabies - Elisa for rabies diagnosis - Real-time PCR for rabies diagnosis - Epidemiology - Production of antigen for brucellosis diagnosis

		<p>For Paraguay</p> <ul style="list-style-type: none"> - ELISA for gamboro disease - Epidemiological mapping of gamboro disease - Viral separation of gamboro disease - Poultry anatomy - ELISA for Avian respiratory diseases - Immunomagenetic separation diagnosis method for swine salmonellosis - PCR diagnosis for Avian Salmonellosis - Epidemiology <p>For Uruguay</p> <ul style="list-style-type: none"> - PCR diagnosis for viral diseases - Supervision on installation and commissioning of examination equipment for microorganism - Poultry disease - ELISA for Avian respiratory diseases - PCR diagnosis for bovine abortion - ELISA for bovine abortion - ELISA for ovine abortion - ELISA - PCR diagnosis - Immunofluorescence diagnosis - Epidemiology
(2) Trainees received	Some trainees x 4 countries x 1 month x 5 years	None
(3) Third-country training programs	None	<p>60 people (Argentina)</p> <p>2005: 12 persons x 2 months (3 countries)</p> <p>2006: 10 persons x 3 months (3 countries)</p> <p>2007: 9 persons x 1 months (3 countries) 3 persons x 1 months (1 country) 2 persons x 1.5 month (1 country)</p> <p>2008: 1 person x 1 months (1 country) 1 person x 1 month (1 country) 2 person x 0.5 month (1 country) 3 person x 0.5 month (2 country) 3 person x 1 month (2 country)</p> <p>2009 : 1 person x 1.5 month (1 country) 5 persons x 1.5 month (2 country) 4 persons x 0.5 month (1 country) 4 persons x 1 month (2 country)</p>
(4) Equipment	40 million yen	75 million yen
Total project cost	Total: 300 million yen	Total: 296 million yen
Total local cost burden by recipient countries	<ol style="list-style-type: none"> 1. Counterpart allocation 2. Provision of land, buildings, and facilities 3. Training costs and others 	<ol style="list-style-type: none"> 1. Counterpart allocation 2. Third-country expert (Argentina) Human resources cost: 7 million yen (234,000 Argentine Pesos = 78,000 USD) 3. Operation cost <ul style="list-style-type: none"> • Argentina: Total 17 million yen (187,300 USD) • Bolivia: Approx. 5 million yen (56,355 USD excluding human resources costs) • Paraguay: 2 million yen (20,320 USD excluding human resources costs)

		<ul style="list-style-type: none"> • Uruguay: 15 million yen (162,000 USD excluding human resources costs) 4. Allocation of project staff (in all target countries) 5. Project office, laboratories, and vehicles (all target countries) <u>Total: 46 million yen</u>
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3.3.1.1 Elements of Inputs

Regarding the dispatch of Japanese experts, the project initially planned to send a long-term expert to implement "planning resources for information on epidemiology/project management." However, two years later after the start of the project, a decision was made to dispatch another expert, because the scope of the project was recognized as being too large for a single expert to manage. Therefore, the expert was dispatched to implement "continuous education/regional coordination" between June 2008 and February 2010. The overloading of a single expert was judged to be acceptable, because he was responsible for a number of issues, including regional coordination efforts across four countries, establishing a management system for epidemiological information, and epidemiology training. However, as noted in the previous section regarding the impact of the project, the activities involving continuous education were not performed adequately. This was based on a judgment indicating that the activities performed by the expert with respect to continuous education were not always necessary, but in order to improve veterinary professionals' diagnostic ability for animal diseases, the expert was required to take the lead in "continuous education/regional coordination" to identify the current state of continuing education in each university and design a plan and the content and curriculum of continuing education courses in collaboration with the appropriate units.

With respect to short-term experts, only six were sent (cumulative number) over a period of five years, because third-country experts, mainly from Argentina, worked instead of Japanese experts. Using local resources saved travel and personnel expenses.

Regarding the reception of the trainees, third-country training was implemented in place of training in Japan, which was originally scheduled. In the original plan assuming two-month training for a few participants over five years, it would have benefited only 20–30 person-months in total. However, in practice, with the adoption of the third-country mode of training the project benefitted 91 person-months in total. Furthermore, in designing the course content in response to the topics selected by the participants in each country, it was possible to adapt the courses to accommodate a greater number of participants as well as meet the technical level of each country.

Therefore, the use of local resources saved project costs and increased the efficiency and effectiveness of the human resources development.

3.3.1.2 Project Cost

The project was completed within the planned budget, which was 300 million yen, and was executed for approximately 296 million yen, with a delivery rate of 98.7%. Sending a Japanese expert involved additional long-term costs. However, it was possible to reduce the costs of some items, including the recruitment of local resources for training in third countries and sending experts from third countries, exclusion of the "construction of a regional human development system for the diagnosis of animal diseases" component due to the modification of the PDM during the mid-term evaluation, and reducing the extent of training for professional veterinary employees and laboratory staff.

In addition, local implementation agencies covered the cost of some elements of the project including 1) appointment of counterparts; 2) provision of facilities and grounds; and 3) training expenses. Each country met part of the cost of implementing the project, while Argentina accepted costs of approximately \$500,000, including \$78,000 as part of the cost of sending third-country experts. According to experts and the JICA Argentina office, there is a regulation in Argentina that the university does not pay a salary in the case that a teacher works in the outside of the university. Instead, he/she is required to pay miscellaneous expenses associated with registration even during the work in the outside. But, in the case of this project, the university bore these expenses, as the project could not do so.

Therefore, the project costs were largely met as planned.

3.3.1.3 Period of Cooperation

The cooperation project lasted for 60 months, as planned.

Both the project cost and project period were mostly as planned. Therefore, efficiency of the project is high.

3.4 Sustainability (Rating: ②)

3.4.1 Related Policy towards the Project

Livestock is a key industrial sector in all southern South American countries, and it is unlikely that a drastic change in the industrial structure will occur in the near future. As shown in Table 9, these countries had adopted policies to expand their markets by improving livestock productivity and increasing exports of meat at the time the ex-post evaluation was performed. Animal health and food safety measures are necessary to increase production and improve livestock quality, and these areas will continue to be recognized as important in the agricultural policies of the participating countries. The 2012 OIE strategy promotes animal protection and regional cooperation, drawing on the knowledge and experience gained via regional research. In this regard, the project initiatives contributed to the achievement of these strategic objectives.

Table 9 Policy situation of target countries as of ex-post evaluation

Country	Relevant policy as of ex-post evaluation
Argentina	The "Agri-Food and Agribusiness Strategic Plan 2 (2011-2020)" targets 70% increase in meat production. It also aims to increase revenue by increasing cattle herd and the consequent export. (a)
Bolivia	The National Development Plan 2011-2015 promotes food self-sufficiency through integrated and sustainable rural development and improving productivity and food safety.(b)
Paraguay	Livestock Development Programme (PRONAFPOE 2012-2013) was prepared after completion of the project. It includes actions aimed at development of small and medium scale producers. (c)
Uruguay	Improving productivity and production efficiency remains the central policy even after completion of the Project. (d)

(Source)

(a) Ministry of Ministry of Agriculture, Forestry and Fisheries, Japan, Report of research and analysis on agricultural information of major countries (2011).

http://www.maff.go.jp/j/kokusai/kokusei/kaigai_nogyo/k_syokuryo/h23/pdf/chapter2.pdf

(b) Website of Ministry of Rural Development and Land

<http://vdra.agroboivia.gob.bo/index.php?variable=52&indice=1>

(c) Website of Ministry of Agriculture and Livestock

http://www.mag.gov.py/sigest_actas/Informe%20Final%20MAG-SIGEST_Paraguay.pdf

(d) Responses to questionnaire as of ex-post evaluation

3.4.2 Institutional Aspects of the Implementing Agency

(Human resources and laboratory activities)

The role of counterparts of this project was undertaken by laboratories in the veterinary science faculties at the leading universities in the participating countries. Universities are less susceptible to political change, and as such, most of the persons in charge remained largely unchanged. Therefore, many of the people who participated in this project continued to work in the colleges concerned at the time the ex-post evaluation was performed. In Argentina, the main counterparts were a total of 17 staff who was dispatched to neighboring countries as third-country experts, and 15 of them (88.2%) is still working in UNLP for research and education activities as of the ex-post evaluation. In addition, in Bolivia and Paraguay, they expanded the number of their staff when the project began, and most of them continued to work in the laboratories even after the completion of the project, and used the technology obtained through the project.

Generally speaking, all the laboratories in the university are usually aligned in the equal position in the organizational hierarchy within university and are less susceptible to drastic changes to organizational structure. One of the reasons why universities were selected as local implementing agencies for the project was that the long tenure of university lecturers helps to raise the possibility of strengthening the transferred technology. Indeed, as of the ex-post

evaluation, major changes in the organization of the participating universities was not observed, according to interviews¹⁴.

Therefore, human resources and organizational structure were recognized as being formed by the participating universities in each country, preserving both mechanisms.

Table 10 Retention of staff members participating in project training sessions

Country	Universities		Laboratories		
	Total number of participants (persons) (Number of individuals (persons))	Retention (persons)	Affiliation	Number of participants	Retention
Bolivia	19 (12)	All	LIDIVET	1	Retired
Paraguay	21 (13)	All	SENACSA	1	Retired
Uruguay	18 (15)	6 9 retired	DILAVE	0	—

(Resource): Responses to interview in field survey (November–December 2013)

Notice: As for Argentina a total of 70 staff participated introductory course of epidemiology and a total of 30 staff participated course of diagnostic technique. But it was difficult to follow up the number, as of ex-post evaluation.

(Regional cooperation)

The regional cooperation framework built as part of the project to promote technological innovation via the sharing and transmission of information, and collective research was not sustained following the completion of the project. For example, activities involving sending information via the website and mailing list formed in the project were intended for transfer to the American Association of Veterinary Epidemiology and Preventive Medicine upon completion of the project. For this reason, the project provided a server for the association¹⁵, but because the required technology was not transferred, the information transfer function did not remain within the association. In addition, most collaborative research projects finished with the completion of the main project.

With respect to the continuity of activities following completion of the project, the situation varies between the countries involved. Japanese experts and some stakeholders were of the opinion that activities were conducted without a strong awareness of sustainability or the overall goal, which probably led to the conclusion of many of the regional initiatives. However, the UAGRM searched for an initiative to continue activities and developed a plan to ensure continuity of collective research with UNLP following the completion of the project, in consultation with the university authorities and UNLP. For example, UAGRM and UNLP have

¹⁴ For example, the number of academic staff of Faculty of Veterinary Science of UNLP, a core university of this project, has been stable: 448 staff at the end of the project (2010) and 450 staff as of ex-post evaluation (2012 data from statistics of UNLP 2013/2014). According to stakeholders, although the Director of Faculty of Veterinary Medicine was replaced just before the end of the project, organizational structure and the staff numbers has been maintained. Therefore, the judgment was given as mentioned above.

¹⁵ The server procured in the project was used for Ibero-American Society of Veterinary Epidemiology and Preventive Medicine after the end of the project and also utilized for the website of the Buenos Aires Veterinary Service Training Center (OIE Collaborative Training Center)

worked in the collaborative research project under the FO-AR, where the counterparts of this project have participated¹⁶.

Networking among researchers from the participating countries was maintained via conferences and international and regional forums. Japanese experts are also included in this network. Some researchers continue mutual exchange, hold discussions, and consult regarding procedures such as epidemiology research and testing via e-mail.

Therefore, many of the participants from the universities in the four countries involved in the project continued to work in their laboratories, using skills and techniques acquired via the project. Thus, there was institutional sustainability in this respect. In terms of regional cooperation, each country continues to work according to their own methods, partly by maintaining personal relationships between the researchers involved in the project. However, there is no institution or framework for promoting and guiding the efforts of countries to improve policies for the control of animal diseases in the region concerned, and in this sense, some barriers still exist from an institutional perspective.

Because some national activities and ad-hoc relationships between the researchers in the four participating countries has been continued, it is possible to develop regional collaboration if such ad-hoc relationship can be developed to a formal organizational relationship.

3.4.3 Technical Aspects of the Participating Universities

During the ex-post evaluation, the operation of the procured equipment and the sustainability of the transferred technology were investigated in each country. The equipment was used and maintained appropriately in all of the countries, and technology had taken root. As noted above, many of the researchers trained via the project remained in the laboratories of the participating universities, thus there was a suitable environment in which to conduct research using the equipment and diagnostic technology transferred by the project. The UAGRM continues to deliver trainings in testing techniques, rabies diagnosis, and carry out vaccination activities. In addition to offering seminars on techniques for the diagnosis of rabies for field veterinary workers, UAGRM is conducting research in collaboration with UNLP, using the FO-AR resources to acquire new skills. In addition, because the university faculty members in Bolivia, Paraguay, and Uruguay have a role to train field veterinary workers, they extend new techniques in the diagnosis and control of animal diseases, with the cooperation of the units responsible for continuous education of each university.

¹⁶ Refer to p.25 the footnote No.13, in the document collecting the research achievements of “Project for characterization and conservation of Criollo Cattle Yacume Ño” (Proyecto de caracterización y conservación del Criollo Bovino Yacumeño) published in 2013, it is reported that the project was started from JICA’s cooperation. In addition, it was confirmed in this document that counterpart researchers of the PROVETSUR project has worked in this research project.

The transferred technology is reportedly transferred to others. In addition to transferring techniques to newly hired researchers from the same laboratory, some trained staff members who have been transferred to new organizations shared the knowledge acquired via the project with their colleagues.

According to Japanese experts, the technology involved in the project was not new Japanese technology; it was developed internationally, and the disseminated equipment and reagents were available locally. This helped to strengthen the technology and achieve sustainability in the techniques introduced.

Therefore, the sustainability of technology transferred via the project is high.

3.4.4 Financial Aspects of the Implementing Agencies

The UNLP, as the project's flagship university, offered third-country trainings and sent staff members to three other countries to transfer technology. Despite the completion of the project, the faculty continues to provide training to external stakeholders within the university's available budget. In addition, it continues to send instructors upon request, for which the applicant bears the cost. Regarding relationships with other countries, Argentina continues to conduct collaborative research with Bolivia, exchanges information with Uruguayan and Paraguayan researchers through established personal relationships, and sends trainers to seminars. The laboratories have been engaged in research until now, with their budgets distributed accordingly.

In Bolivia, the government's budget has increased because of the nationalization of natural gas, which also increased the budgets allocated to universities. However, these funds are limited and used for hard components, such as the construction, and maintenance of infrastructure and equipment, and has not been able to use for current expenses including research and personnel expenses. In this situation, the university uses resources from Argentine assistance or income generated by the provision of technical services to field veterinary workers and research laboratories following the completion of the project.

With respect to Paraguay, following the completion of the project, the laboratory was mainly maintained and managed according to the university budget. However, the university has to find other additional budgets to cover the cost of the research. At present, the university continues to perform activities using resources generated via the provision of graduate training, renting research equipment to private companies, and generating income through testing and research commissioned by private companies.

In Uruguay, as well as Paraguay, the university budget is only sufficient to cover the cost of salaries and the operation and maintenance of facilities and equipment. The research budget is maintained through requesting subsidies from national and/or international agencies for each

researcher. The research grants collected are lumped to the secretariat of the University, which managed for all laboratories.

Furthermore, on a regional level, a budget was not sought, because regional coordination was not recognized as a necessary activity.

Therefore, with regard to the financial situation, three of the four core universities assisted by the project operate and maintain the equipment and materials appropriately and continue to conduct research, using the budget usually allocated to laboratories and revenue generated by the provision of services through the application of skills acquired via the project. The UNLP, as the project's flagship university, provides continuing education and training for stakeholders from neighboring countries, using the budget allocated in the existing framework. Thus, the four participating countries ensure that the funds necessary for development activities are available. In contrast, regarding regional initiatives, there is no financial background, because the activities were not sustained. In conclusion, although there is no budget for regional initiatives because they were not recognized as necessity in securing funds, each country has ensured financial sustainability in order to maintain the initiatives nationwide.

In summary, the policies and institutions in the participating countries in the region have not changed significantly since the formulation of the project, and improving animal health and productivity remains a priority. In this regard, the importance of the project was confirmed in the ex-post evaluation. In addition, trained staff members from the core universities remain in their respective laboratories and continue to conduct research using the transferred technology. The cost of research is supported in part by the budgets allocated to each laboratory and the resources generated by the provision of technical services. Therefore, the organizational, institutional, technical, and financial sustainability was recognized at university level. Furthermore, with regard to activities involving regional cooperation, they are limited to connecting individual researchers, with the exception of Bolivia, and organized activities have not been sustained. There are challenges in this respect. Although activities were sustained at national level, some problems have been observed with respect to organizational and institutional sustainability at regional level; therefore, the sustainability of the project's effects was considered fair.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

The project aimed to improve diagnostic ability for livestock diseases in the southern part of South America, and relevance of the project was high with respect to national and regional policies and needs of project target areas as well as Japanese overseas aid policies. Based on the knowledge and experience of the UNLP, acquired via Japanese assistance lasting for

approximately 20 years, the project sought to enhance the research and diagnosis capacity of laboratories at major universities in the neighboring countries and to promote provision of information to field veterinary workers. However, because the activities for field veterinary workers were partially continued after the end of the project and the most activities were limited in the information dissemination in the usual framework of universities, effectiveness and impact is fair. The project activities were implemented as planned in terms of period and cost, utilizing human resources of UNLP and function of laboratory, therefore efficiency was high. As of ex-post evaluation, although diagnostic and research activities were continued within the individual university budgets, and human relationships between researchers in the participating institutions were maintained, the framework for regional activities was not sustained after the project and relationship is limited in ones among individual researchers except Bolivia, therefore the sustainability is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agencies

(1) Establishment of a regional information platform for the diagnosis and prevention of animal diseases

It would be advisable to build an information sharing and dissemination mechanism (hereinafter referred to as “information platform”) which is core function of the regional project coordination systems¹⁷ for the Faculty of Veterinary Science of UNLP and/or the Directorate of International Cooperation at the UNLP. Promotion of information sharing related to animal health through the information platform by reorganizing web site, fulfilling posting information, publish of research results can contribute to development of animal disease control in the region.

The Director of the Faculty of Veterinary Science of UNLP showed a proposal to “create a space for the exchange of information by creating a link to this website project in Mercosur,” and the Director of International Cooperation proposed that “the creation of a committee to socialize information among universities would be suggested to Director of the Faculty of Veterinary Science.” The crystallization of these ideas is recommended. In addition, there is an association of universities in the Montevideo group; it is led by UDELAR and includes a group that meets at once every two years to discuss animal diseases. Determining the possibility of using existing schemes, such as this, is also recommended in order to create a platform for the diagnosis and prevention of animal diseases, share updated information, and exchange ideas and views regarding new initiatives and these and other achievements of the partner universities.

¹⁷ Refer to p.24, the footnote No. 12

(2) Promotion of continuous education and learning

It would also be advisable to provide opportunities of continuous education and learning, in cooperation with the units responsible for ongoing continuous education in Faculty of Veterinary Science of universities as well as with the support and advice of the Ministry of Agriculture and other supervisory authorities involved in animal health. In the information platform as mentioned above, providing information about animal health and training opportunities for general veterinary workers in the region and in each country is one of practical measures.

(3) Promoting the standardization of diagnosis, treatment, and control of animal diseases

Diagnostic technology transferred via the project was limited to specific animal diseases. With respect to common diseases, it would be possible to strengthen the region's general response capacity through the standardization and implementation of procedures for diagnosis and control, using the proposed information platform and involving various administrative agencies from the participating countries.

4.2.2 Recommendations to the JICA

(1) Creation of opportunities for socialization in each country to improve levels of technical expertise in diagnosis

Including the training sessions that followed the JICA's Third Country Training Program "Infections from food (food borne infectious diseases): diagnosis, control and environment" provided in the year subsequent to the completion of the Third Country Training program ("Prevention and Control of Zoonoses in the Region of South America") is recommended, with the provision of space in which to publicize the subsequent implementation of the project's achievements. Space in which to share the current situation and measures taken with nonparticipating countries would achieve superior continuity and deployment of results.

(2) Assistance with enhancing diagnostic capacity and the response to animal diseases in each country

With regard to the construction of the information platform and promotion of continuing education and learning referred to in section 4.2.1, it is recommend that JICA office hold regular discussions with counterparts to report on their progress and situation, and make participating institutions realize and maintain activities according to their own initiatives.

4.3 Lessons Learned

(1) Efficient and effective implementation of regional projects, making full use of local resources

1) Implementation of efficient and effective projects with maximum use of local resources

In this project, it was possible to improve the capacity of regional countries with respect to maximizing local resources, namely the participating institution (local executing agency), which was previously strengthened via Japanese cooperation. In leveraging local resources by placing the participating institution of the third country at the center of the project, time was saved and the cost of sending Japanese experts and receiving trainees in Japan was minimized, resulting in more efficient cooperation. In addition, by entrusting the leadership to the participating institution, the project was able to enhance their awareness and capacity as regional leaders. It was possible to further enhance capacity via a mutual learning process established between the countries receiving assistance from the same region, allowing them to meet the technical levels of their own countries more objectively by incorporating the models developed in other countries. Therefore, the development of human and institutional resources previously strengthened via Japanese cooperation not only helps to raise the technical levels of both the assistant and the assisted but also improves efficiency in terms of time and activity cost.

2) Effectiveness of a clear definition of the project purpose that respond to common regional challenges

In a regional project, strengthening regional collaboration and raising technical capacity can be realized through defining clear project purpose that respond to common regional challenges and practicing the collective actions, while each country addresses domestic needs. To provide a concrete example, in this project, procedures and diagnosis of priority diseases common to the four participating countries were standardized, and common practice manuals were prepared and provided for field veterinary workers. Technical expertise and collaboration in this region can be improved by mutual efforts of all participating countries for one clear goal.

(2) Selection of the participants and project design

1) Selecting the appropriate participants and strengthening techniques by assisting with both hard and soft components

In a project in which the local partner was characterized by infrequent staff changes, as in this project (universities), the combination of technology transfer, supply of equipment, and improved operating environments led to increased effectiveness and use of the equipment supplied with the transferred technology; as a result, the techniques could be rooted in the organization. For a project whose participant institution is characterized by frequent changes in personnel, the project requires implementation with the means to root the techniques acquired by the project, such as "documentation of the manual for testing procedures, storing it in the appropriate place, which is accessible to anyone in the laboratory" and "periodical implementation of demonstration and training within the laboratory." In addition, the project

should be designed by the stage at which all of the institution's staff members acquire the transferred technology, which is updated and renewed periodically.

2) Define the expected outcomes, which lead to the maintenance and strength of the motivation of the participating institutions

In this project, by defining the issues linked to the achievements of the institution's staff, such as "publishing research reports and academic theses," as one of outputs, the staff members' motivation to complete the work was maintained and strengthened. The experience of acknowledging and witnessing the results of work contributes to the depth of understanding of the importance and necessity of the activities, increases motivation, and ensures the appropriation (ownership) of the participating institution.

(3) Lessons concerning implementation and project management

1) Timely implementation through promoting communication among key actors in the project

It is advisable to ensure that experts and key actors in the project clarify the content of the PDM, including the overall goal, project purpose, outputs, activities, and relevant indicators, to reach a consensus and share the concept of activity prior to the start of the project. Furthermore, these elements should be reviewed in due course. In this project, some challenges were reported, such as "lack of knowledge regarding regional PDM in recipient countries" and "stakeholders' lack of sufficient knowledge regarding activities and outputs." To remedy this situation, regular discussions between stakeholders are recommended, particularly in regional projects; the discussions should involve the relationship between regional and national PDMs, and how to route the expected outputs to fulfill the project's purpose and overall goal, and other relevant topics. In this project, aimed at the development of field veterinary workers, it was necessary to create opportunities to share information, not only in the laboratories but also within the units responsible for training the field veterinary workers, administrative agencies, and other organizations related to the project purposes in order to improve understanding of the project activities and goals. As a regional project involving a large number of people, it is extremely important to maintain smooth and regular communication and achieve the correct understanding and consensus among stakeholders.

2) Implementation to establish the mechanism and retain activities in organization for sustainability and impact

Among the project activities, the regional activities such as collaborative research and regional cooperation were terminated after the end of the project. This was due to lack of consideration on sustainability and impacts. As a lesson learned from the project, in the implementation stage of the project, activities should be conducted with consideration for the

establishment of mechanism and for the retention of the activities in counterpart organizations, considering sustainability of the project effect and achievements of overall goal after the project. For example, in this project where the system of regional coordination was established in the Faculty of Veterinary Science of UNLP, it was necessary to develop function to periodically gather research results, information about new activities or knowledge from the member universities and to share the information and knowledge with stakeholders. In addition, in the case that regional research groups were formed to conduct collaborative studies during the project period, it is desirable to discuss how to continue their activities before the end of the Project. For that purpose, it is important to involve not only the counterparts of the project, but also other key actors that play a role in ensuring the achievement of the goal and ensure sustainability. To give an example, while one of the counterparts of this project was the laboratories of the universities, it could be possible to include continuous education in the project activities if the commitment of the department of the universities for continuous education or government organizations for education for field veterinary workers. For that, it is essential to identify and strategically selecting key stakeholders necessary for the achievements of the project purpose and overall goal as well as to involve them to the project management.

3) Project implementation design and goal setting with well-identified activities

In this project, each country had selected their own problems and aimed to address them by acquiring diagnostic techniques tool. For example, Bolivia had clear priority on “control of rabies” and made efforts with not only the UAGRM, but also relevant bodies such as SENACSA, LIDEVET and SENSEA, applying diagnostic techniques as a tool. Meanwhile, Paraguay selected poultry diseases and enabled the UA to learn diagnostic techniques and to make diagnosis. However, since it was not defined clearly how and where to apply the acquired technology for the ground, it was difficult to achieve the tangible results as Bolivia, and may have affected the correct understanding of the importance of the project activities among counterparts as well as the continuity of the activities after the end of the project. These experiences suggest that it is indispensable to design a roadmap that clearly states how to apply the transferred techniques to solve problems, beyond the technical acquisition.

BOX: Issues during the planning of the regional technical cooperation project

I. Purpose

JICA developed a handbook on designing and implementing regional cooperation for cross-border issues in 2008 (in Japanese language). On the occasion of the ex-post evaluation of the Project for Animal Disease Control in Thailand and Neighboring Countries (Phase 1) and

the Project for Animal Disease Control among Cambodia, Lao P.D.R., Malaysia, Myanmar, Thailand, and Vietnam (Phase 2) as well as on the Project of the Capacity Development for Improvement of Livestock Hygiene in the Southern Part of South America, the external evaluators summarized the lessons learned for the implementation of regional cooperation, including cross-project analysis, according to the points of the views of JICA's handbook.

II. Lessons Learned

1) [Output and outcomes specific to the regional technical cooperation project]

In regional technical cooperation, outputs and outcomes are diverse. In order to increase the relevance of the implementation of regional projects, it is necessary to clarify the difficulties preventing the achievement of outputs and outcomes and those of the environment and situation where the project is brought in.

2) [Attention to the initial condition of project implementation]

In planning regional technical cooperation, it is essential to examine the role of implementing agencies, the presence of existing regional frameworks, and the interrelationship between the projects and existing regional frameworks.

3) [Preventing the fragmentation of project activities and designing to strengthen synergism between countries]

In the regional technical cooperation project, it is possible that the project can consist of small bilateral projects in each country. In order to avoid such a situation, the project purpose, output, activities, target group, implementer, and management methods must be unified for all involved countries. For example, in case the project purpose expects the regional framework to change, it is important to clarify the final outcomes for the regional framework in the PDM and the intermediate outcomes that will be created on the way to the final outcomes.

4) [Utilization of regional resources]

The utilization of regional resources is adequate because of (1) the increase of capacity to address development needs in the region in terms of regional activities, (2) the cost reduction in terms of project implementation, and (3) the development of responsibility and creation of more experiences in international cooperation as regional leaders. On the other hand, there are some disadvantages such as (1) the increase of the complexity of project design, (2) remote communication, and (3) the higher number of stakeholders, which leads to an increased coordination burden.

5) [Utilization of advanced countries participating in regional project]

The participation of advanced countries of animal disease control in regional technical cooperation has advantages in utilization and expansion of regional resources such as

dispatch of regional experts and acceptance of trainees from neighboring countries. However, stakeholders of non-advanced countries do not always recognize such advantages, tend to focus on their own domestic needs, and cannot utilize regional resources very much. The resources of advanced countries should be utilized to raise awareness of the regional collaboration of non-advanced countries and create consistency between the organization implementing regional activities and the ones doing in-country system strengthening.

6) [Alleviation of the burden of project coordination]

In the regional technical cooperation project, remote communication is mainly used. This increases the burden of project coordination, which leads to the dispatch of the personnel in charge of regional coordination or the addition of coordinators. It is necessary to alleviate the heterogeneity of project activities among member countries by developing a standardized document about project management and its tools and sharing it with stakeholders in order to reduce the work burden.

(END)