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Ex-Post Evaluation Report for the Three Livestock Projects in Mongolia

KOICA

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2011.12



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The Korea International Cooperation Agency (KOICA) performs various types of evaluation in order to secure accountability and achieve better development results by learning.

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This evaluation study was entrusted to Rural Development Administration by KOICA for the purpose of independent evaluation research. The views expressed in this report do not necessarily reflect KOICA's position.

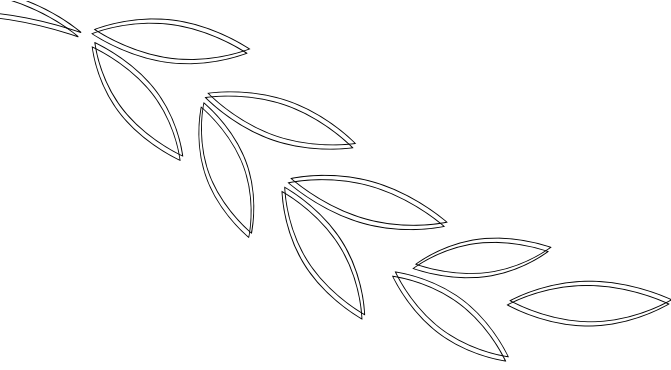
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Acronyms

OECD-DAC	Organization for Economic Cooperation & Development –Development Assistance Committee
KOICA	Korea International Cooperation Agency
NVRQS	National Veterinary Research and Quarantine Service
QIA	(Animal, Plant and Fisheries) Quarantine and Inspection Agency
SCVL	State Central Veterinary Laboratory, Mongolia
MoFALI	Ministry of Food, Agriculture and Light Industry, Mongolia
MIFAFF	Ministry of Food, Agriculture, Forestry and Fishery, Korea
BL3/BSL3	Biosafety Level 3
PMC	Project Management Consultant
SDC	Swiss Agency for Development and Cooperation
RFP	Request for Proposal
FMD	Foot & Mouth Disease
HPAI	High-pathogen Avian Influenza
VADDC	Viral Animal Disease Diagnosis Center
KBSA	Korean Biological Safety Association
OIE	World Organization for Animal Health
ICT	Information & Communication Technology
BHN	Basic Human Needs
IVM	Institute of Veterinary Medicine
HACCP	Hazard Analysis and Critical Control Point



Executive Summary



Executive Summary

- The purpose of this ex-post evaluation is to marshal and analyze the outcomes of the three(3) ODA projects implemented by KOICA for the livestock industry of Mongolia.
- Separately implemented, the three projects were designed to improve hygiene inspection, build a viral animal disease diagnosis center, and build a safety management system for animal products. All three projects fall under the category of program for animal disease control and product safety management.
- The general model of ODA evaluation was applied to define the input, activities, output, outcome, and impact of the projects based on the Project Plan and the Completion Report of the implementing agency. The following is the logical flow from output to impact: disease diagnosis, hygiene, quarantine → improvement in food and livestock product safety → export increase → herders' income increase and public health improvement. Since only 1.5 years have passed since the projects were completed, this study narrowed the scope of evaluation to the livestock sector.
- Later, the evaluation criteria were developed through the Outcome Model; each criteria item was evaluated based on data collected from interviews, literature review, and field survey.
- Despite the high importance of the livestock sector, Mongolia's capability in animal disease control and safety management is weak; hence the need for intensive assistance. Projects evaluated under this study are aligned with the national development strategies and policies of the Mongolian government.

- Inputs for the projects consist of facilities, materials, equipment, training programs, and experts, which were provided in a well-organized manner. Training on BL3 facilities and equipment was also offered to transfer practical know-how on disease diagnosis and material analysis.
- The key indicators to measure the effectiveness of the projects were capabilities in diagnosing contagious animal disease and analyzing hazardous materials. From the interview with a government organization of the recipient country (MoFALI) and a recipient institute (SCVL) as well as related agencies (veterinary & breeding agencies) and other donors (i.e., SDC) and the completion reports of the two projects, it is concluded that the projects were effective. In the past, diagnosis on FMD or AI was done in Russia since there were no BL3 laboratories in Mongolia. Currently, it is done within 1~2 days, supported by the provision of laboratory, equipment and materials, and training.
- The budget and institution for operating facilities and equipment are the most important factors for project sustainability. Part of the budget has come from MoFALI; manpower has also increased, which seems to be a positive factor for the sustainability of project effect.
- It is hard to assess the economic or social impact of the projects at this point. Note, however, that the impacts on the policy formation of MoFALI, in terms of the dissemination of technology to local veterinary laboratories, and animal product safety management in the private sector (the end beneficiary) can be evaluated.
- The following are the recommendations for expanding projects of their kinds in the sector:
 - In ODA projects for the Mongolian livestock sector, capacity building in animal disease diagnosis and product analysis needs to be implemented consistently. As stated above, the enhanced capacity also needs to spread

to local veterinary laboratories.

- To increase the reliability of diagnosis work of the BL3 laboratory, a credible organization should authorize the facility.
 - Lastly, the operation of the BL3 laboratory requires considerable budget and expertise, and it is hard to find an operation expert in Mongolia. Thus, for 2~3 years, experts need to be sent to Mongolia from outside of the country.
- In conclusion, selecting the area – the safety management of animal products, which constitute a very important but vulnerable industry in Mongolia -- is evaluated to be appropriate. Material and personnel cooperation was efficiently organized, and basic capability in safety management was enhanced. Therefore, the project model is applicable to other projects in this sector.



Overview

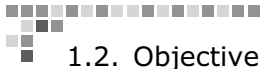


1.1. Background

- KOICA implemented three (3) ODA projects for the livestock industry in Mongolia from 2004 to 2009 (Table 1).
- Although planned and implemented separately, all three projects covered animal disease control and product safety, with the common goal of safety enhancement of livestock products. In implementing these projects, cooperation in both materials and manpower was secured to build capacity in the relevant technologies.
- To improve the effectiveness of future ODA projects, more livestock projects to be done in Mongolia need to realize economy of scale. To this end, ex-post evaluation for the completed projects is required.

Table 1. KOICA's Livestock Projects for Mongolia (2004~2009)

Project Name	Period	Scale
Quarantine Capacity Enhancement Project	2004~2006	USD 400,000
Project for Establishment of Viral Animal Disease Diagnostic Center	2007~2009	USD 1,300,000
Project for the Safety Management of Livestock Products	2007~2009	USD 1,660,000



1.2. Objectives of Evaluation

- As mentioned above, this study is an ex-post evaluation on the three separate ODA projects done for the livestock sector of Mongolia and was implemented at a certain interval after the completion of projects.
- The objectives were to draw out implications or lessons for other similar projects by measuring the effectiveness, influence (impact), and sustainability of completed projects based on the "Development Cooperation Project Evaluation Guidelines (2008)" of KOICA.
- In particular, the Paris Declaration on Aid Effectiveness has set the target portion of program-based assistance as one of the harmonization indicators and recommended raising the portion. Considering the current trend in international society, this report aimed at producing recommendations for program-based development assistance for the Mongolian livestock sector.



1.3. Evaluation Criteria & Scope

- This study adopted 5 evaluation criteria -- Efficiency, Effectiveness, Impact, Sustainability, and Relevance -- as recommended by OECD-DAC. To draw out lessons for other similar projects, it focused on Effectiveness, Impact, and Sustainability.
- This report evaluated the operation of chemical reagents and equipment and the result of training and expert participation of the three projects implemented to enhance the animal disease control and product safety management of Mongolia.



1.4 Overview of the Evaluated Projects

- The titles of the evaluated projects were Quarantine Capacity Enhancement Project, Project for Establishment of Viral Animal Disease Diagnostic Center, and Project for the Safety Management of Livestock Products (Table 1).
- As described above, the three projects were executed by the same implementing agency in the same country, targeting the same recipient. Their project fields, goals, and implementation methods were also similar (Tables 2 ~ 4).
- Therefore, those projects can be regarded as one long-term project, and their contents can be compiled as follows:
 - Project fields: KOICA has worked on 7 sectors: Education, Health, Governance, Agriculture-Forestry-Fishery, Industrial Energy, Cross-cutting Issue and Climate Change¹⁾. The three projects fell under the field of Agriculture-Forestry-Fishery aiming at improving the quality of life in rural areas. Note, however, that some animal diseases such as brucellosis are zoonosis, and the safety of livestock products is closely related to the dietary life of consumers as well as to the producer (herders). Thus, in terms of effect, they are also connected to public health. In the case of the "Project for the Establishment of Viral Animal Disease Diagnostic Center," public health promotion is included in its overall goals.
 - Partner (recipient) country: The population of Mongolia at the time of this evaluation in 2008 was 268,000 people (275,000 according to the 2010 census). The nation consisted of three (3) self-governing cities, 21 Aimags, and 348 Soms. SCVL was located in Ulan Bator City, and a local livestock product inspection agency aided with some materials and equipment was in Darkhan Aimag.
 - Recipient organization: Three projects were implemented by the State Central

1) KOICA Program-Project Fields at <http://www.koica.go.kr> (accessed on August 20, 2011)

Veterinary Laboratory under the Ministry of Food, Agriculture, and Light Industry of Mongolia. Some materials and equipment and training programs were provided to the Darkhan center, albeit in very minimal volumes. Those projects can be integrated since they were implemented for the same organization.

- Project term and cost: The Quarantine Capacity Enhancement Project was implemented for 2 years with budget of USD 400,000; the Project for the Establishment of Viral Animal Disease Diagnostic Center (USD 1,300,000) and the Project for the Safety Management of Livestock Products (USD 1,660,000) ran for 2 years and 4 months (Figure 1). Although there was an interval of one year and eight months between the first project and second-third projects, the total term for the three projects was four years and four months, and the total project fund was USD 3,360,000. In 2011 when ex-post evaluation was carried out, there was no project done for the livestock area.
- Project Purposes & Overall Goals: The project purposes were the enhancement of quarantine capacity, building of capacity in diagnosis and prevention of animal disease, and hazard analysis of livestock products (mainly hazardous materials). Their overall goals were to increase export revenue from livestock products, promote export and public health, and establish the safety management system. The mid- and short-term outcomes are capacity enhancement in disease diagnosis and safety management, whereas the long-term outcomes are income increase supported by growth in the export of livestock products and public health improvement.
- Input: As mentioned above, both material and personnel inputs were employed for all three projects.
- Researchers from the Korean National Veterinary Research & Quarantine Service(NVRQS) were sent to Mongolia; they also trained the Mongolian trainees invited to Korea. Except travel and accommodation expenses, the

personnel expenses of the researchers and experts were not shouldered. To calculate exactly the manpower input, their labor costs were totaled. For instance, if one researcher is assumed to be inputted for one trainee for 60 months, and the average monthly wage is KRW 2.5 million, KRW 150 million (about USD 130,000) is added to the actual input cost.

Table 2. Outline of the Animal Hygiene and Quarantine Capacity Enhancement Project

Classification	Contents
Recipient country	Mongolia (Ulan Bator)
Recipient organization	State Central Veterinary Laboratory (Ministry of Food, Agriculture, and Light Industry)
Project term	2004~2006 (2 years)
Project fund	USD 400,000
Overall goal	Increase in livestock product exports and safety
Project purpose	Same with the Overall goal
Input	<ul style="list-style-type: none"> • Equipment & materials (24 kinds), Chemical reagents (40) • Dispatching experts (5) • Training in Korea (4 trainees)
Output	<ul style="list-style-type: none"> • Provided equipment and materials • Dispatched experts, Training program
Fields of experts	<ul style="list-style-type: none"> • Veterinary, Microorganism, Material analysis
Training fields	<ul style="list-style-type: none"> • Food microorganism, Material analysis

Table 3. Outline of the Project for the Establishment of
Viral Animal Disease Diagnostic Center

Classification	Contents
Recipient country	Mongolia (Ulan Bator)
Recipient organization	State Central Veterinary Laboratory (Ministry of Food, Agriculture, and Light Industry)
Project term	Aug. 20, 2007 ~ Dec. 31, 2009 (2 years & 4 months)
Project fund	USD 1,300,000
Overall goal	To support the export of livestock products and enhance the public health of Mongolia

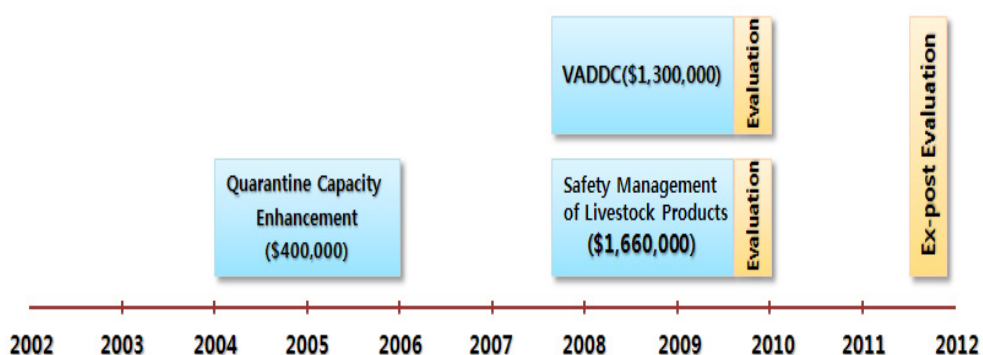
Table 3. continued

Classification	Contents
Project goal	<ul style="list-style-type: none"> To build capacity in animal disease (FMD, AI) diagnosis and control of Mongolia
Input	<ul style="list-style-type: none"> Building a diagnosis center Equipment & materials (31 kinds), Chemical reagents (138) Dispatching experts (15) Training in Korea (11 trainees)
Output	<ul style="list-style-type: none"> BSL3 laboratory Materials & equipment Dispatched experts, Training program
Fields of experts	<ul style="list-style-type: none"> Diagnosis of animal disease, Quarantine, Facility
Training fields	<ul style="list-style-type: none"> Research on infectious animal disease and diagnosis

Table 4. Outline of the Project for the Safety Management of Livestock Products

Classification	Contents
Recipient country	Mongolia (Ulan Bator)
Recipient organization	State Central Veterinary Laboratory (Ministry of Food, Agriculture, and Light Industry)
Project term	Aug. 20, 2007 ~ Dec. 31, 2009 (2 years & 4 months)
Project fund	USD 1,660,000
Overall goal	To improve the safety management system and technology for livestock products
Project goal	<ul style="list-style-type: none"> To build capacity in operating the laboratory for safety management To enhance the hazard analysis and inspection system To promote knowledge and technology transfer for the safety management of livestock products
Input	<ul style="list-style-type: none"> Equipment & materials (52), Chemical reagents (22) Dispatching experts (4) Training in Korea (6 trainees) Water supply facility for laboratory
Output	<ul style="list-style-type: none"> Materials & equipment, reagents Dispatched expert, Training program Improved water supply system for laboratory
Fields of experts	<ul style="list-style-type: none"> Safety management of dairy and meat products
Training fields	<ul style="list-style-type: none"> Safety management of dairy and meat products

Figure 1. Project Term & Fund²⁾

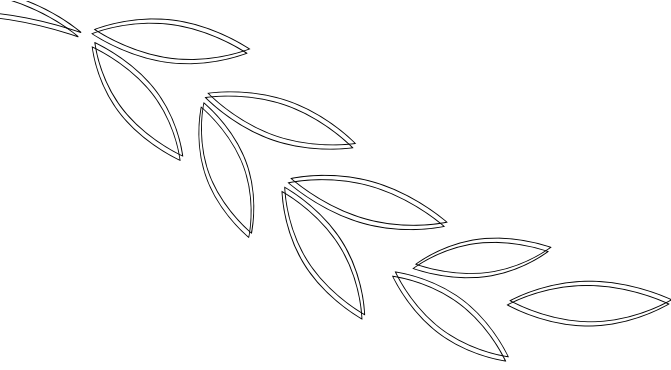


1.5. Evaluation Team

Table 5. Team organization

Name	Position	Organization	Work
Sang-hwa Kim	Senior Researcher	ITCC, RDA	○ Overall management of research ○ Interview
Jae-Sung Kwak	Co-researcher	Graduate School of International Studies, Kyung Hee University	○ Overall evaluation ○ Literature review
Keunpyo Lee	Co-researcher	ITCC, RDA	○ Evaluation design ○ Field survey
Mi-Hwa Oh	Co-researcher	NIAS, RDA	○ Evaluation on hygiene inspection of livestock products ○ Field research
Tae-Young Hur	Co-researcher	NIAS, RDA	○ Evaluation on animal disease diagnosis system ○ Field research

2) The height of blue box represent the size of fund. It is not applied to the yellow one.



Evaluation Process and Method



2.1. Conceptual Framework of Evaluation

- This study applied the five evaluation criteria of "OECD-DAC" as its basic framework. (OECD, 1991; KOICA, 2008)
 - The interpretation of those five criteria is based on the "Development Cooperation Project Evaluation Guidelines" and "Integrated Evaluation Guidelines for International Development Cooperation" of the Integrated Evaluation Subcommittee under the International Development Cooperation Committee (Table 6).
 - The five criteria – relevance, efficiency, effectiveness, impact, and sustainability – provide the general principles and concept. In actual assessment, however, the distinction between effectiveness and impacts is not clear, and their application would differ by aid project.³⁾
 - Since impact refers to direct and indirect influence on the society, economy, and environment of the recipient country, it is believed that it usually takes more than 5 years to see the impact of a development assistance project. Note, however, that this evaluation study was done only 1.5 years after the completion of the projects.
 - Thus, the Evaluation Team narrowed the impact scope from society, economy, and environment to the livestock sector, at the same time dividing Impact and Effectiveness.
- Regarding the outcome model for the evaluated project, concepts such as output, outcome, and impact are based on a general model by the Imas

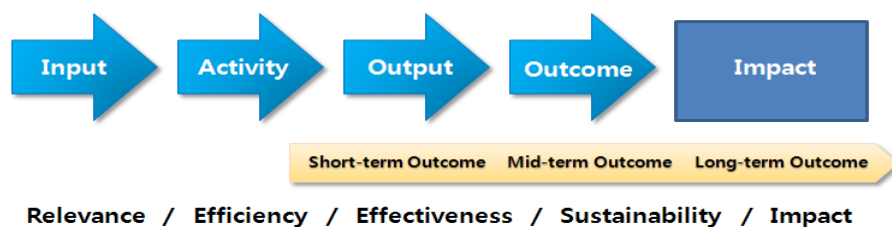
3) In an ex-post evaluation on six projects for public health in Peru in 2010 done by Yonsei University of Korea, there was no distinction between impact and effectiveness. (KOICA, 2010)

and Evaluation Request Proposal of KOICA.4)5)

Table 6. OECD-DAC Principles of Development Assistance Evaluation

Criteria	Development Cooperation Project Evaluation Guidelines	Integrated Evaluation Guidelines for International Development Cooperation
Relevance	The extent to which the project goal is suited to the priorities, needs, and policies of the recipient and donor	The extent to which the development priorities of the partner country are suited to the priorities of the donor country and our (Korean) development cooperation tasks are in alignment with the development tasks of international society
Efficiency	The extent to which the project cost is reasonable, comparing alternative approaches to achieving the same outputs; various inputs are economically used and turned into output and outcome	Output in relation to the assistance scale (input)
Effectiveness	The extent to which an aid activity attains its objectives	The extent to which an international development cooperation project attains its objectives
Impact	The positive and negative changes or overall results produced by a development intervention, be they intended or unintended	The positive or negative and direct or indirect impact on the society, economy, and environment of the partner country by international development cooperation projects that have been completed or are underway
Sustainability	Whether the benefits of an activity are likely to continue from the long-term perspective after the implementation of policy or completion of project	Whether the effects and benefits of the project are likely to continue after project completion

Figure 2. General Outcome Model for the Development Assistance Project⁶⁾



4) The Road to Results: Designing and Conducting Effective Development Evaluations (World Bank, 2009)

5) Request for Proposal(RFP) for Ex-post Evaluation on Three Projects for the Mongolian Livestock Sector (KOICA, 2011)

6) Source from RFP of KOICA, Original source - "The Road to Results."

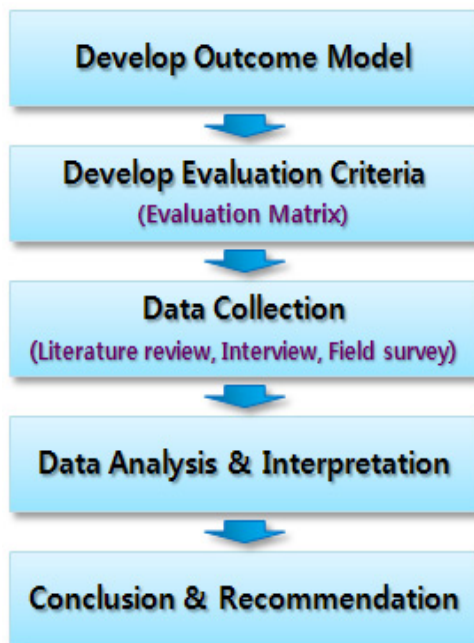
- In this evaluation study, output refers to a short-term outcome set against the concept of input. Outcome pertains to the mid-term results, whereas impact means the long-term outcome.



2.2. Evaluation Process

- The process of this ex-post evaluation consisted of the creation of outcome model, development of evaluation criteria, collection of data and their interpretation and analysis, and conclusion and recommendations (Figure 3).
- Some evaluation models and criteria were revised based on the data collected during the evaluation or opinion suggested during the interim evaluation. This report presents the final evaluation model and criteria.

Figure 3. Evaluation Process





2.3. Evaluation Content and Method by Phase

1. Creation of an Outcome Model

- Integrated Outcome Model: Relevance, Efficiency, Effectiveness, Sustainability
 - Since this evaluation is a comprehensive evaluation of three projects, the development of an integrated outcome model covering the three projects was attempted.
 - Based on the outcome model in Figure 2, the contents of the project plan and completion report of each project were reorganized into inputs, activities, outputs, outcomes, and impacts to create an outcome model for each project (Figures 4~6⁷⁾). Afterward, the models were put together into an integrated outcome model (Figure 7).
 - As shown in Figure 7, the logical flow from output to impact is as follows: disease diagnosis, hygiene, quarantine → improvement in food and livestock product safety → export increase → income increase and better public health.⁸⁾
 - The outcome model based on the Project Plan and Completion Report can

7) The details of developing the outcome model based on the project plan and completion report are as follows:

The project purposes were export increase, promotion of public health, safety enhancement of food and animal products, and capacity building in viral animal disease diagnosis and hygiene/quarantine. Disease diagnosis, hygiene, and quarantine can be viewed as technical factors for safety enhancement, whereas safety enhancement can be understood as a tool to promote export and public health. The outcomes were reorganized depending on their levels (RFP, 2011). If these outcomes are put into an outcome model – "input – activity – output (early period) – outcome (mid-term) – impact (long-term)" – export increase and public health promotion fall under the long-term outcome, and safety enhancement is a mid-term achievement, whereas animal disease diagnosis and hygiene-quarantine belong to early output.

8) From the flow "improvement in food and livestock product safety → export increase → income increase and better public health," it seems that it would take a very long time to realize income increase and better public health. As a result of literature review and field research, most of the Mongolian livestock sector was found to have targeted domestic consumption (refer to "Chapter 3. Livestock Industry of Mongolia"). Export increase was included in the project goal because the recipient country had placed emphasis on it.

be used to evaluate relevance, efficiency, effectiveness, and sustainability. Note, however, that various variables in attaining the overall goals were omitted. Moreover, as mentioned above, the term after project completion was short. Thus, there was a limit in assessing the project's impact on the income increase of herders' households through export increase.

Figure 4. Outcome Model

- Quarantine Capacity Enhancement Project -

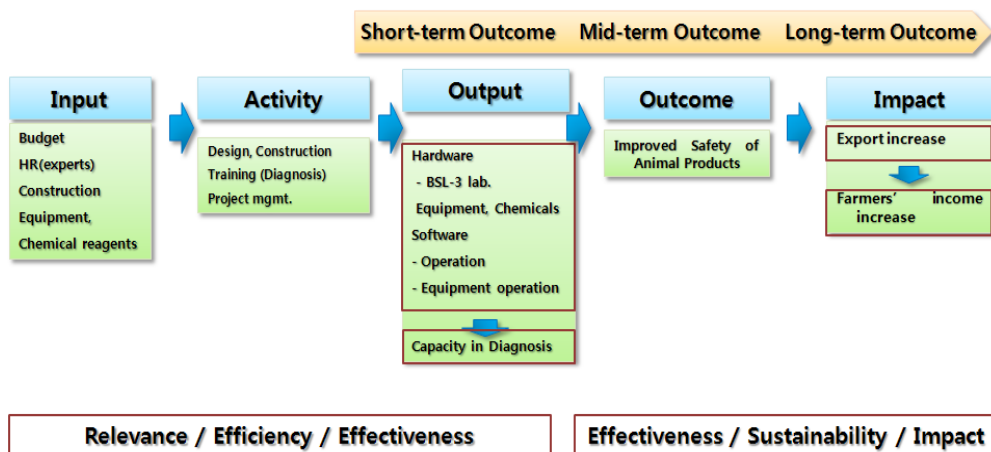


Figure 5. Outcome Model

- Project for the Establishment of Viral Animal Disease Diagnosis Center

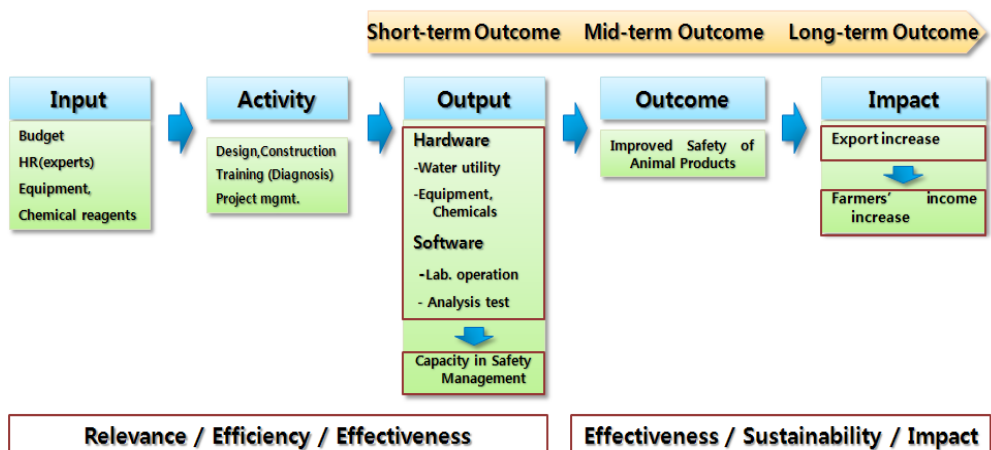


Figure 6. Outcome Model

- Project for the Safety Management of Livestock Products

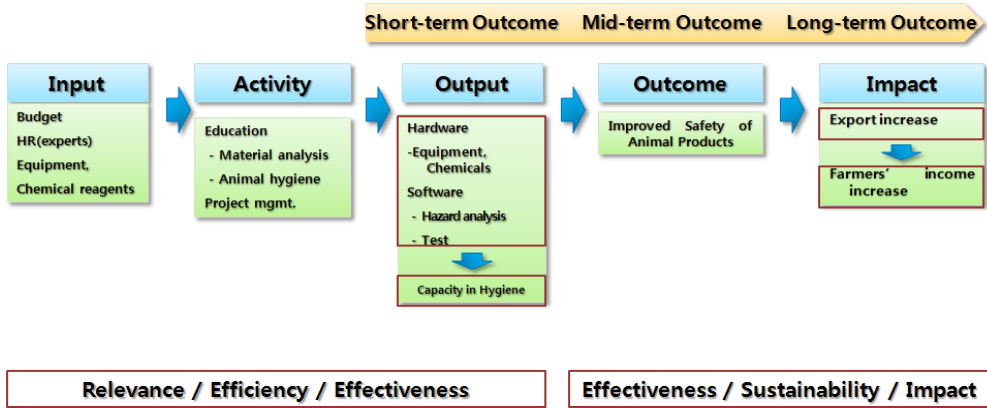
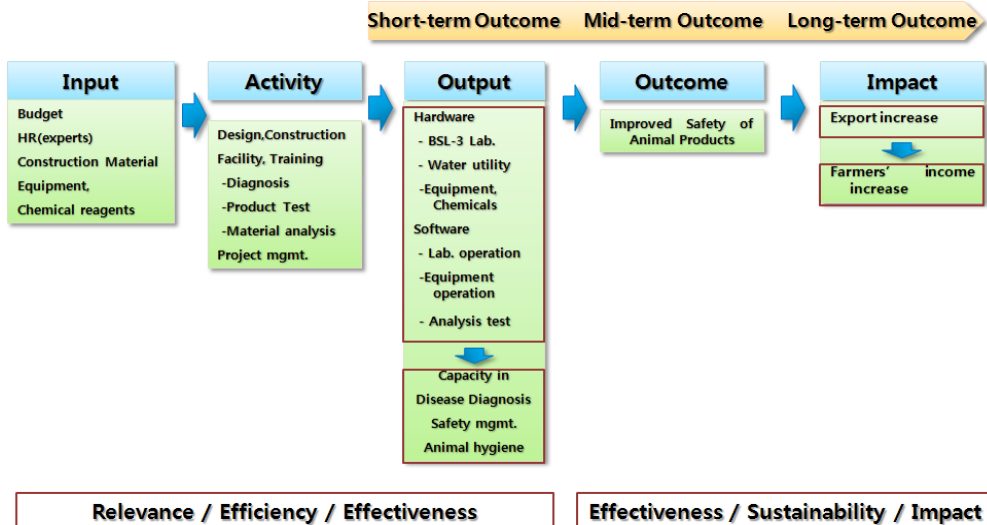


Figure 7. Integrated Outcome Model for Three Livestock Projects



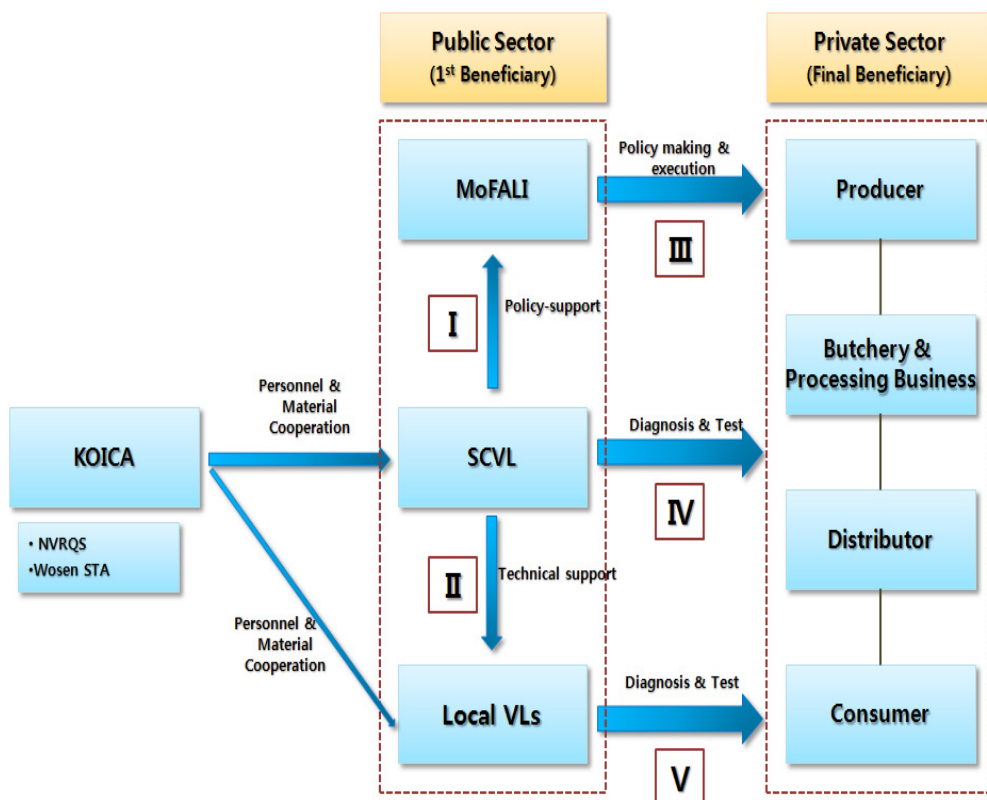
○ Impact Model

- As mentioned in 2.1 "Conceptual Framework of Evaluation," the evaluation scope regarding impact was limited to the livestock sector and consumption of animal products.
- Because it usually took a long time to see the impacts after the completion

of a project, the Model focused on presenting "possibility."⁹⁾

- To visualize the route of the impact, this model designated the project implementing agency and recipient and divided the recipients into the first recipient (public sector) directly connected with the implementing agency and the second one (private sector) that would be indirectly affected. In this model, the recipients are MoFALI, SCVL, and local veterinary centers, whereas the private recipients are producers, butcher, distributor, and consumer. Figure 8 shows the relations between the implementing agency and the first and second recipients (I-V, Figure 8).

Figure 8. Impact Model



9) Concerning the evaluation on impact, KOICA requested presenting the "possibility" of long-term outcomes due to time constraints (RFP, 2011).

Table 7. Impact Route of Livestock

No.	Route	Contents
I	SCVL ↓ MoFALI	<ul style="list-style-type: none"> • SCVL has conducted diagnosis on animal diseases and hygiene inspection of livestock products. In terms of technology, SCVL has played a key role in safety management. • MoFALI is responsible for making policy on the safety management of agricultural products. • The competencies of SCVL -- diagnosis, inspection, and analysis -- have been the foundation of the safety policy.
II	SCVL ↓ local VLs	<ul style="list-style-type: none"> • In case the animal disease breaks out far from Ulan Bator where SCVL is located, conducting all tests and analysis at SCVL would not be efficient due to poor transportation condition for sample delivery. • In other words, to meet the demand for disease diagnosis promptly, the role of local veterinary laboratories is important. • This route can be a means of consolidating the competencies of local veterinary laboratories.
III	MoFALI ↓ private sector	<ul style="list-style-type: none"> • Currently, MoFALI exerts efforts to better its policy including the enactment of the livestock product trade law. • Ultimately, the policy needs to be applied to the private sector. • Self-subsistent nomads have done production, butchery, distribution, and consumption all together. • Note, however, that the recent growth of the urban population has changed the production-butchery-distribution-consumption pattern.
IV	SCVL ↓ private sector	<ul style="list-style-type: none"> • The interaction between SCVL and private sector consists of diagnosis and analysis service and relevant education programs. • The know-how of SCVL, which has the highest-level capacity and facility, needs to be shared with the other inspection centers in traditional markets.
V	Local VLs ↓ Private sector	<ul style="list-style-type: none"> • Similar to Route IV • Since the competencies of local laboratories lag behind SCVL, however, their capacity enhancement should come first.

- As shown in Figure 8, there are five routes to deliver or spread the impacts. Each route is described in Table 7.
- The improved management and capabilities of SCVL can be disseminated to the private sector directly as well as indirectly through local veterinary centers or MoFALI.
- These five routes in Figure 8 are divided into three types of impact:

polycymaking support (Route I), technology dissemination from central to local areas (Route II), and that from the government to the private sector (Routes III~V).

2. Development of Evaluation Criteria

- Based on KOICA's Development Cooperation Project Evaluation Guidelines, the five OECD evaluation criteria were applied to the three projects for the Mongolian livestock industry (Tables 8~12).

Table 8. Relevance Evaluation

Evaluation Criteria	Questions
<ul style="list-style-type: none"> • Relevance to Korea's ODA policy 	<ul style="list-style-type: none"> • Are the goals and activities of the three projects ("projects") relevant to the goals of the Korean ODA policy? • Do the goals and activities of the projects reflect KOICA's assistance strategy for Mongolia?
<ul style="list-style-type: none"> • Relevance to the Mongolian policy for the livestock industry 	<ul style="list-style-type: none"> • Do the goals and activities of the projects meet the needs of the livestock policy or industry of Mongolia? • Are the goals and activities of the projects relevant to the "National Development Strategy" of Mongolia?
<ul style="list-style-type: none"> • Relevance to MDGs 	<ul style="list-style-type: none"> • Are the goals and activities of the project in alignment with MDGs?
<ul style="list-style-type: none"> • Relevance of Recipient Country and Organization 	<ul style="list-style-type: none"> • Does SCVL suit the purpose of the projects? • Does SCVL have the capacity to accommodate the inputs for the projects? • Is Ulan Bator a region of priority in attaining the project goal?
<ul style="list-style-type: none"> • Relevance of inputs to project goals and objectives 	<ul style="list-style-type: none"> • Are material and personnel cooperation tools appropriate in attaining the overall goals and project purposes?

Table 9. Efficiency Evaluation

Evaluation Criteria	Questions
• Achievement to Plan Ratio	<ul style="list-style-type: none"> • Did the projects produce outputs as planned by NVRQS and approved by KOICA? • Were the project budgets properly allocated and spent?
• Retention and Redundancy of Essential Equipment	<ul style="list-style-type: none"> • Were facilities, equipment, and chemical reagents essential for diagnosis and hygiene inspection provided?
• Consultation among PMC KOICA and Recipient Country	<ul style="list-style-type: none"> • Did PMC, KOICA, and Mongolia exchange views with each other?
• Utilization of Equipment and Facilities Provided for the Projects ¹⁰⁾	<ul style="list-style-type: none"> • Were the BL3 provided under the projects utilized for disease and hygiene inspection? • Were the equipment provided under the projects used for disease diagnosis? • In case of hygiene inspection, how was the utilization of equipment by hazardous factor?

Table 10. Effectiveness Evaluation

Evaluation Criteria	Questions
• Capacity Enhancement of SCVL	<ul style="list-style-type: none"> • Were the overall competencies of SCVL such as diagnosis or inspection improved as a result of project implementation? • Were the competencies of SCVL in disease diagnosis and hygiene inspection improved as a result of training and expert dispatch?
• Change in SCVL's organization and human resource	<ul style="list-style-type: none"> • Were there changes in SCVL in relation to improved competencies in disease diagnosis and hygiene inspection?
• Satisfaction of Stakeholders	<ul style="list-style-type: none"> • Were stakeholders satisfied with the results of the project?

10) The Evaluation Team has put "Utilization of Equipment Provided Under the Project" under the efficiency evaluation criteria rather than effectiveness. Since the purposes of the projects were not just physical delivery of those equipment, and SCVL did not have know-how or capacity in operating them, it is reasonable to view "equipment + operation capability" as input. Therefore, the Team regarded the simple use of equipment as a matter of efficiency, at the same time defining effectiveness as a higher concept that can be attained by using the equipment in improving capacity in animal disease diagnosis and hygiene inspection.

Table 11. Sustainability Evaluation

Evaluation Index	Questions
<ul style="list-style-type: none"> • Policy-institution-Budget Support (external factor)¹¹⁾ 	<ul style="list-style-type: none"> • Were there policies and institutions to use the equipment and facilities provided to SCVL in a sustainable manner? • Has the government of Mongolia provided a budget to operate the equipment and facilities?
<ul style="list-style-type: none"> • Operational Capacity of Recipient Organization (internal factors) 	<ul style="list-style-type: none"> • Does SCVL have organizational, budgetary, and technical know-how to operate the equipment and facilities?
<ul style="list-style-type: none"> • Relevance between Project Effects and Situation of the Livestock Industry in Mongolia ¹²⁾ 	<ul style="list-style-type: none"> • Are the effects of the projects -- competencies in disease diagnosis and hygiene inspection -- relevant to future demands regarding the livestock sector of Mongolia?

Table 12. Impact Evaluation

Evaluation Criteria	Questions
<ul style="list-style-type: none"> • Impact on the formation and improvement of Policy and Institution of Mongolia 	<ul style="list-style-type: none"> • What impacts do the projects have on the policies and institutions of the Mongolian livestock sector? Otherwise, what would be the possible impacts?
<ul style="list-style-type: none"> • Technology Dissemination from Central to Local Area 	<ul style="list-style-type: none"> • Have the diagnosis and inspection technologies as the outputs of the projects spread to local veterinary laboratories? Otherwise, is there a possibility of such spreading?
<ul style="list-style-type: none"> • Technology Dissemination from the Government to the Private Sector 	<ul style="list-style-type: none"> • Have the diagnosis and inspection technologies of SCVL as the outputs of the projects been applied to the private sector? Otherwise, is there a possibility of application? • Have the policies and institutions influenced the private sector? Otherwise, what could be the possible impact?

11) The policy and institution for the safety management of animal products are regarded as sustainability criteria since the stability of diagnosis and inspection works of SCVL are secured. Capacity in diagnosis and inspection falls under impact criteria because it is a basic factor supporting the policymaking of the Mongolian government.

12) These criteria need to be differentiated from "Relevance to the Mongolian policy for the livestock industry." The relevance criteria focus on whether the project goal reflects the demand of the industry, whereas the sustainability criteria are more related to the fact that the project outcome would help in addressing the issues and meeting future demands of the industry. In other words, if the effect of the project focuses on the current issues, the project will more likely be sustainable.

3. Data Collection

1) Literature Review

- To obtain information on the strategy, plan, activity, and evaluation of the projects, the Pilot Study Report, Implementation Agreement, Monitoring Report, Completion Report, and Evaluation Report published or owned by KOICA were collected.
- To analyze the trend of the livestock industry in Mongolia, the relevant statistical data were gathered.
- To deepen understanding of the livestock industry and the projects, the donor's list and plan or result report of the projects for the Mongolian livestock sector were collected (Table 13).

Table 13. List of Similar Projects of Other Donors

Area	Project Title	Donor
Veterinary	Support for the privatization of veterinary services	GTZ
Veterinary	Training of Veterinary Specialists on Reliable and Instantaneous Diagnosis of Infectious Animal Diseases	JICA
Diagnosis	Project for the Improvement of Technology for the Diagnosis of Infectious Animal Diseases	JICA
Livestock Management	Enhancing the Extension System for Comprehensive Crop-Livestock Management	JICA
Livestock Production	Study on Extensive Livestock Production Systems	ADB
Animal Feeds	Livestock Feed Improvement	ADB
Comprehensive Project	Livestock Project 2009~2012	SDC

2) Interview

- A biosafety facility expert and the BL3 laboratory constructor, director of the KOICA Mongolia Office, project operator(implementing agency), and MIFAFF officials were interviewed for the following purposes (Table 14):
 - Expert in biosafety management facility: sharing of experience in the certification process for the BL3 facility; to collect expert opinion on the meaning of overseas facility certification
 - Laboratory constructor: opinion and information on the laboratory building at SCVL
 - Director of the KOICA Mongolia Office: information on field experience and opinion from the local coordinator
 - Project operator: information on planning and implementation and field experience
 - MIFAFF officials: consulting and information on Korean safety management policy for livestock products to develop policy suggestions for Mongolia

Table 14. Interviewers

Date	Interviewer	Organization	Interviewee
Jul. 26	Jae-won Choi	KoBSA	Biosafety management expert
Jul. 28	Myung-sik Lee, Jae-hoon Jung	WOSEM	BL3 laboratory constructor
Aug. 10	Hyung-ho Cho	KOICA	Director of the KOICA Mongolia Office
Aug. 10	Yi-seok Ju	QIA	Project operator
Aug. 25	Dae-jin Kang	MIFAFF	MIFAFF official in charge at the time of planning the projects

3) Field survey

- Organizations in fields ranging from "feeding → butchery;processing → inspection → export (sales) → consumption" were selected for the field survey.

- KOICA Mongolia Office, recipient (SCVL), and safety management agencies for the livestock sector were also visited to survey the current policy and practice of livestock safety management and project results (Table 15).

Table 15. Field Survey

Date	Visited organizations	Activities
July 4	KOICA Mongolia Office	<ul style="list-style-type: none"> • Receive the overview of Mongolia, livestock industry, and activities of the Office. • Arrange the visit schedule.
	MoFALI	<ul style="list-style-type: none"> • Receive briefing on the policy on the Mongolian livestock industry. • Hear KOICA's view on the industry.
	SCVL	<ul style="list-style-type: none"> • Identify the current animal disease inspection and hygiene management. • Have a briefing on KOICA's project result.
July 5	SCVL	<ul style="list-style-type: none"> • Check the utilization of the BL3 laboratory and equipment. • In-depth interview with trainees
	JUST AGRO LLC	<ul style="list-style-type: none"> • Visit the butchery and processing facility and hear the current safety management.
July 6	Darkhan Veterinary Center	<ul style="list-style-type: none"> • Identify the inspection work on animal disease and hygiene of the Center.
	Traditional market	<ul style="list-style-type: none"> • Identify the sales and inspection of animal products in the traditional market.
July 7	Global Civic Sharing	<ul style="list-style-type: none"> • Interview with artificial insemination company and local people
	SDC	<ul style="list-style-type: none"> • Identify other ODA agencies.
July 8	MoFALI	<ul style="list-style-type: none"> • Present the field survey result and hear opinions.



■ 2.4. Evaluation Schedule

- This ex-post evaluation was carried out for four (4) months from July 1 to October 31, 2011 (Table 16).

- The data collection, creation of outcome model, and evaluation criteria started in May 2011 when the proposal for this evaluation was prepared.

Table 16. Evaluation Schedule

Classification	July					August					September				October			
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	1	2	3	4
Basic data collection	■																	
Field survey		■																
Building outcome model	■	■	■															
Preparation of evaluation criteria			■	■	■	■												
Literature review						■	■	■	■	■	■	■	■	■				
Interview					■			■	■									
Data analysis & Interpretation								■	■	■	■	■	■	■	■	■	■	■
Preparation of Result Report															■	■	■	■



Livestock Industry of Mongolia



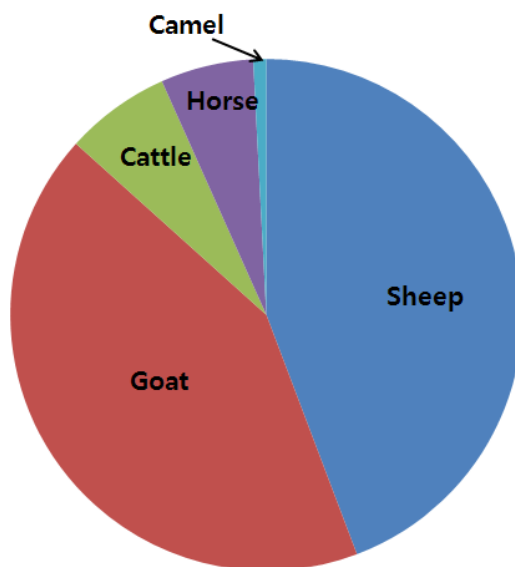
3.1. Structure of the Livestock Industry

1. Changes in the Livestock Industry and Number and Composition of Livestock

- The livestock industry accounts for 16% of the national GDP and 80% of the agricultural GDP in Mongolia.
 - Mongolia has been a pastoral country, and meats form a major part of the diet of Mongolian people. The stable supply of meats is an important policy in Mongolia.
 - Despite the significance of the livestock sector, its portion in GDP is low, and the herders are relatively poor.
 - Since most of the livestock are grazed in pastures, control over animal disease and safety management of animal products are weak.
- As of 2010, the total heads of livestock were pegged at 32.7 million; sheep and goat constitute the highest portion (Figure 9).

13) Literature review was performed to deepen understanding of the livestock industry of Mongolia. For this ex-post evaluation, the structure of the livestock industry, current outbreaks of animal diseases, and safety management of livestock products were summarized. Information from the field survey was also included.

Figure 9. Proportion of Livestock in Mongolia (2010)



- For the stable supply of meats, increasing the number of livestock would be desirable. Note, however, that such would yield a negative impact on the environment. In particular, the goats (13.88 million heads as of 2010) eat even roots, which can lead to the depletion of pastures.
- For the last 6 years, the total number of livestock had constantly grown from 2004 to 2009, dropping sharply in 2010 (Figure 10, Table 17).
 - It was caused by a physical factor (intense cold) rather than disease.
 - Because the number of livestock is determined by various factors such as feeds (available pasture and hay) and climate as well as disease, the enhancement of diagnosis competency does not necessarily lead to an increase in livestock. For instance, if it rains a lot in a certain year, the number of livestock also increases due to the increase in pasture (interview).
 - Therefore, the diseases that the Mongolian livestock sector focuses on are not a determining factor in livestock number but are more related to the hygiene aspect of meat products.

Figure 10. Change in livestock number of Mongolia (2004~2010)

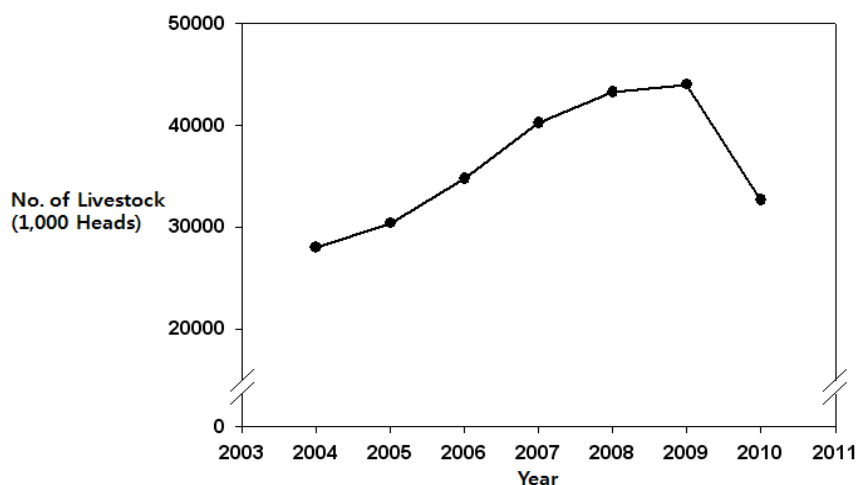


Table 17. Livestock number of Mongolia (2007 ~ 2010, thousand heads)

Livestock	2007	2008	2009	2010
Sheep	16,990	18,362	19,274	14,480
Goat	18,347	19,969	19,651	13,883
Cattle	2,425	2,503	2,599	2,176
Horse	2,239	2,186	2,221	1,920
Camel	260	2,66	277	269
Total	40,263	43,288	44,023	32,700

* Source: National Statistical Office of Mongolia

2. Export & Import of Livestock Products

- The export of livestock goods increased 1.4 times from USD 21.87 million in 1999 to USD 31.64 million in 2008 (Table 18, Figure 11).
- From 2004 to 2008 when the projects were implemented, the export and number of livestock were linearly related ($r^2=0.94$, Figure 12). This implies that the increase in livestock is needed to promote the growth in export as a long-term outcome in the Outcome Model (Figure 7).

Table 18. Import of Livestock Products in Mongolia (1997 ~ 2008, USD 10000)

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Export	2,187	2,310	2,637	2,886	2,251	1,836	1,961	2,566	2,673	3,164
Import	111	209	499	526	604	589	598	866	1,019	1,751

* Live animals, Products whose origin is animals

** Source: National Statistical Office of Mongolia

Figure 11. Export of Mongolian Livestock Products (1999-2008)

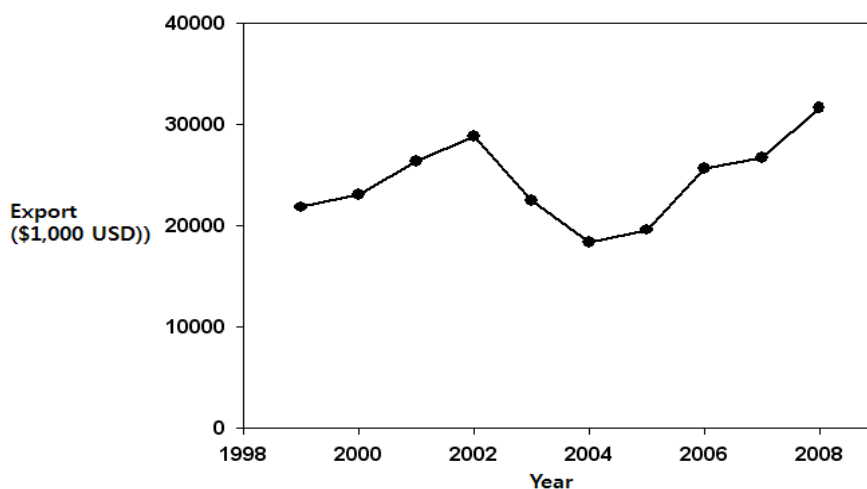
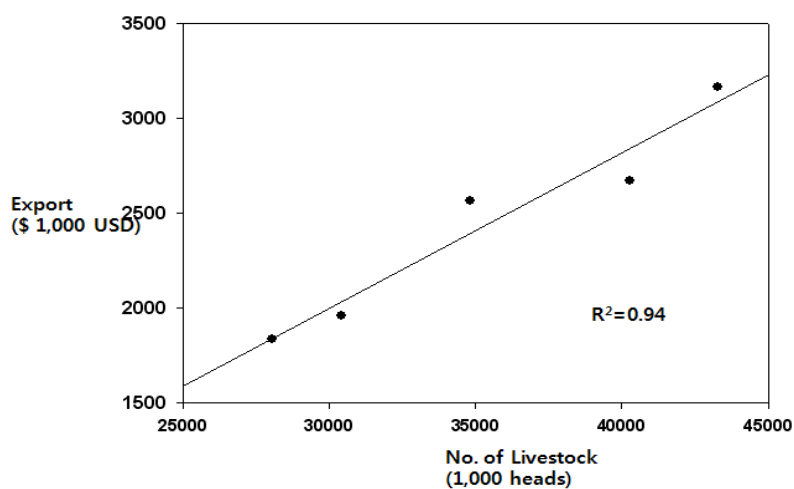
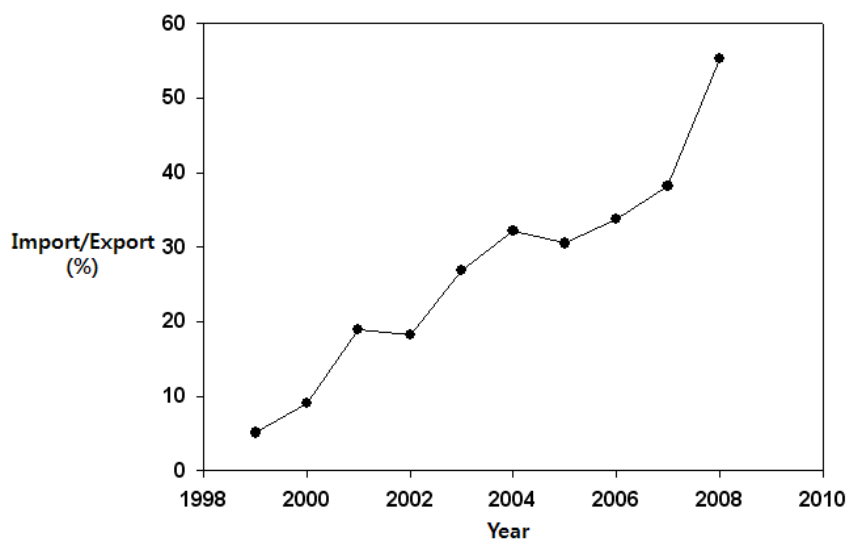


Figure 12. Relation between the Number of Livestock and Export in Mongolia



- Meanwhile, the import of livestock goods had been constantly rising by 15.8 times from USD 11.1 million in 1999 to USD 17.51 million in 2008.
- This implies that the consumption of livestock products had outpaced production.
- Furthermore, the import to export ratio increased 11 times from 5.1% in 1999 to 55% in 2008 (Figure 13).

Figure 13. Import to Export Ratio by Year (1999-2008)



3.2. Outbreaks and Control of Animal Diseases

1. Outbreaks of Animal Diseases

- The outbreaks of livestock diseases peaked in 2001 when Warble fly, Mange, and Hemorrhagic Septicemia broke out. Afterward, the outbreaks decreased until 2008 when bird flu became a pandemic. Since 2009, however, the outbreaks have been declining (Table 19). Nowadays, Rabies, Strangles, and

Enterotoxaemia are the major animal diseases occurring in Mongolia.

- The livestock industry of Mongolia has been greatly affected by FMD. Numerous cases were identified in 2002 and 2004. By year, eight (8) cases in 2001, forty-two (42) in 2002, forty-four (44) in 2004, five (5) in 2005, and one (1) in 2006 were reported. Since 2006, no outbreaks had been recorded until 2010 when one case broke out. According to the official record of OIE, however, nine (9) cases were reported in 2010. At the end of August 2010, a total of 25,914 heads of livestock were destroyed due to the reported FMD. By local area, 17,230 heads in Sukhbaatar, 7,390 in Dornod, 191 in Khentii, 1,030 in Tuv, and 73 in Govisumber were culled. A total of 6,562,671 heads had FMD vaccination.
- At least 26 cases of HPAI broke out among wild birds at Lake Ganga of Dariganga Som, Sukhbaatar Imag, in May 2010.

Table 19. Livestock Diseases by Year (2000~2010)

Disease Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
<i>Anthrax</i>	24	62	51	21	57	67	26	29	52	31	15	435
<i>Babesia</i>	3	2	10									15
<i>Blackleg</i>	208	64	34	24	25	37	23	9	14	12	5	455
<i>Bradsot</i>	5	1			2			1				9
<i>Brucellosis</i>						3	8	30	6			47
<i>Botulism</i>							1					1
<i>Bovine virus diarrhea (BVD)</i>	20	1	1									22
<i>Contagious agalactia</i>	389	253	186	301	332	229	75	192	114	74	46	2,191
<i>Colibacillosis</i>	68	21	17	18	12	21	21	70	22	15	1	286
<i>Canine distemper</i>	23				1		38	4	12		4	82
<i>Echinococcus</i>			115	28					16			159
<i>Enzootic bovine leucosis</i>	3				1							4
<i>Equine infectious anemia</i>	3	2	2	29	20	31		113	82	3	1	286
<i>Epizootic Lymphangitis</i>	7											7

Table 19. continued

Disease Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
<i>Enterotoxaemia</i>	405	268	189	141	165	180	90	108	133	241	174	2,094
<i>Foot and mouth disease</i>		8	42		44	5	1				1	101
<i>Glanders</i>			1		1					1		3
<i>Hemorrhagic septicemia</i>	1,441	466	290	283	184	182	115	270	235	224	140	3,830
<i>Influenza</i>	5	40	3				1	142	6,058	2		6,251
<i>Listeriosis</i>	1	51	110	282	75	51	19	29	17	28	16	679
<i>Mange</i>		2,959	1,241	1,074	779	565	208	219	294			7,339
<i>Rabies</i>	108	254	126	26	27	27	66	38	63	68	165	968
<i>Ringworm</i>		230	183	188	305	102	59	31	33	40	59	1,230
<i>Salmonellosis</i>		72	34	57	31	61	54	54	33	69	8	473
<i>Strangles</i>		431	553	216	503	492	207	220	373	258	163	3,416
<i>Warble fly</i>		6,207	3,694	1,173	406	67	14	196	211			11,968
Total	2,713	11,392	6,882	3,861	2,970	2,120	1,026	1,755	7,768	1,066	798	42,351

* Source: SCVL report (2010)

2. Livestock Disease Control (Prevention)

- Since FMD has greatly affected the industry, Mongolia has been vaccinating its animals (Table 20).
- Vaccination was carried out extensively in 2002 and 2004 when numerous cases were reported. This year (2010), 43 Soms of 4 Aimags are vaccinating their livestock.
- For accurate and prompt diagnosis, SCVL has updated its information on new disease and control technology and applied such to the field. The Laboratory recorded two cases of application of the new diagnosis method on horse diseases, four in 2009, and two in 2010.

Table 20. FMD-vaccinated Animals (2000-2010)

Year	<i>Aimag</i>	<i>Som</i>	Camel	Cattle	Sheep	Goat	Pig	Baby Animals	Total
2000	1	11	32.4	75.87	430.75	375.25	0.024	0	914.294
2001	11	102	95.22	1377.07	5812.36	2801.05	16.16	170.32	10272.18
2002	13	104	158.94	1446.2	7458.98	5022.44	23.7	155.47	14265.73
2003	10	85	143.45	814.91	4225.97	3896.92	4.14	1024.74	10110.13
2004	9	75	54.1	339.98	2627.36	1436.04	0.08	0	4457.56
2005	10	61	99.87	295.29	1839.06	2133.01	0	0	4367.23
2006	6	64	108.37	433.91	1472.79	943.06	24.64	0	2982.77
2007	6	65	140.49	426.09	1577.09	1211.29	8.19	0	3363.15
2008	8	72	104.6	454.5	2,152.60	2,310.00	0	0	5021.7
2009	4	49	93.29	299.33	584.78	583.33	0	0	1560.73
2010	4	43	67.826	302.137	622.819	603.342	0		1596.124
Total	82	731	1098.556	6265.287	28804.56	21315.73	76.934	1350.53	58911.6

* Source: SCVL report (2010)



■ 3.3. Livestock Safety Management

1. Safety Accident from Animal Products

- Through field survey, web search, and correspondence with the relevant organizations, it was found that there were no statistical data available on food poisoning by food type.
- During the interview with livestock farms and meat supplier, it was found that no cases of food poisoning borne by meat and milk were reported. Nonetheless, some interviewees said that they were sometimes concerned with the hygiene of meats when they bought them in the market. In other

words, they considered their products to be safe but doubted the safety of products from other suppliers or producers.

- In a visited livestock product market, the meats were sold at room temperature since there were no refrigerators.
- It is understood that there might have been food poisoning accidents from time to time. In many cases, however, the symptoms were not serious, so people would not have recognized that they were food-poisoned.

2. Management Organization & Manpower

- In Mongolia, there are no organizations dedicated to overall food safety and hygiene management or equivalent to the Food & Drug Administration of Korea.
 - SCVL is conducting the hazard analysis of animal products. The analysis service covers not only product safety but also safety-related residue and microorganism. Somehow, the management scope seems to be unclear.
- Note, however, that SCVL has operated a unit dedicated to food hygiene and residue testing.
 - SCVL and a local veterinary laboratory in Darkhan have increased their manpower for the testing. (More details are described in the Evaluation Result.)

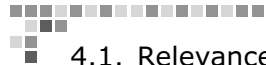


Results of Ex-post Evaluation



4

Results of Ex-post Evaluation



4.1. Relevance

1. Relevance to the Korean ODA Policy

- Are the goals and activities for the three projects relevant to the goals of the Korean ODA policy?
 - The Korean "International Development Cooperation Act"¹⁴⁾ stipulates that the fundamental spirit of ODA is "to reduce poverty, improve human rights of women and children, realize gender equality, achieve sustainable development, and promote humanitarianism for developing countries and to build closer economic cooperation with the partner countries to bring peace and prosperity to the international community." Its goals are "to alleviate poverty and improve the quality of life, to enhance the overall institutions and conditions for the development of developing countries, to facilitate cooperation with the countries, and to contribute to addressing global issues related to development cooperation."
 - The purposes of the projects are capacity building in disease diagnosis, hygiene testing, and safety management, which are relevant to the poverty reduction of livestock farms and improvement of hygiene for the Mongolian people.
 - The projects facilitated the development of the livestock industry by improving the relevant institutions and systems through capacity building in animal

14) The "International Development Cooperation Act" provides the basic rules to improve the relevance and efficiency of policy and to facilitate the effective implementation of policy goals for ultimately contributing to world peace and mutual prosperity of mankind. The Act consists of 20 Articles, and its fundamental spirit and goals are stated in Article 3.

disease control and testing implemented during the projects. Therefore, the relevance is fair.

- The relevance is high since the partnership and cooperation in research on safety management and operation of facility have been promoted through the projects.
- Do the goals and activities of the projects reflect KOICA's assistance strategy for Mongolia?
 - The following is the outline of KOICA's assistance strategy for Mongolia:¹⁵⁾
 - Since 2006, Korea has selected Mongolia as a key partner and expanded its assistance to the country.
 - For its development assistance to Mongolia, KOICA plans to focus on mid-term projects for democracy, market economy, ICT, agriculture & livestock, resource-energy development, and BHN(Basic Human Needs) under the strategic goal of "Alleviation of Poverty and Assistance for the Social and Economic Development of Mongolia."
 - As mentioned above, because Mongolia is a key partner country of KOICA, and the three livestock projects fall under "Assistance for Agriculture and Livestock Sector Development," one of the Five Mid-term Programs, they reflect KOICA's assistance strategy for Mongolia.

2. Relevance to the Mongolian Policy for the Livestock Industry

- Do the goal and activities of the projects meet the needs of the livestock sector and policy of Mongolia?
 - The livestock sector accounts for 80% of the agricultural GDP of Mongolia, and meat is a staple of Mongolian people. The stable supply of animal products is a key policy of the country.
 - The projects started as part of the "National Animal Health Program" of Mongolia to detect promptly and accurately animal disease at an earlier

15) Source: "Mongolia CAS (Country Assistance Strategy): 2008~2010"

stage, which is key to disease control.

- The livestock industry has been greatly affected by FMD and HPAI. Moreover, it has taken a long time to transport samples to Russia for diagnosis. The efficient and timely control of malignant contagious diseases absolutely requires the establishment of a livestock disease diagnosis center. To date, the Mongolian government has designated public health and safety management of exported livestock products as its key areas of interest.
 - Comprehensively, projects for animal disease control and product safety can be added to the national project list of Mongolia and are directly related to the National Animal Health Program.
- Are the goals and activities of the projects relevant to the "National Development Strategy" of Mongolia?
- The projects are relevant to the agriculture and food industry development policy of the National Development Strategy consisting of two steps: strategic goal 1 of Phase 1 -- "Substantial decrease in the outbreaks and proliferation of contagious animal diseases and productivity increase" -- and strategic goal 2 of Phase 2 -- "Set proper sanitary and hygienic standards in food production and services and at all levels of food consumption, supply the population with safe and sufficient amount of food" (Table 21).

Table 21. Agriculture and Food Industry Development Policy in the National Development Strategy of Mongolia

Phase 1 (2007~2015)

Strategic Objective: Realize substantial decrease in the outbreaks and spread of contagious animal diseases and productivity increase.

- Start the application of modern technology (i.e., biotechnology to protect animals from contagious and parasitic diseases).
- Strengthen the outstanding qualities of Mongolian domestic animals by protecting them from genetic diseases and reinforcing their biological capabilities including those for withstanding climate changes.
- Improve the quality of animals and breeding and develop intensive animal husbandry by regions.
- Exempt -- to the fullest extent possible -- from taxes individuals and economic entities involved in intensive animal husbandry.

Table 21. continued

Phase 1 (2007~2015)
<ul style="list-style-type: none"> • Expand the capacity and sustenance of pastures through their rational use and the ownership, improvement, protection, and restoration of overgrazed land, at the same time decreasing the vulnerability of animal husbandry. <p>Strategic objective 2. Increase agricultural production by improving land farming, developing irrigated cultivation, and introducing biotechnology.</p> <ul style="list-style-type: none"> • Establish private ownership for land used in intensive farming. • Exempt -- to the fullest extent possible -- from taxes individuals and entities involved in intensive farming. • Create a rational irrigation system and offer leasing services for irrigation machinery and equipment. • Utilize widely the early ripening types of seeds and increase varieties of cultivating plants. • Encourage business entities that import or produce domestically small-scale, modern machinery and equipment facilitating household business activities. • Create areas growing fruits and fruit trees and expand the plantation of fruits and berries. <p>Strategic objective 3. Introduce in a systematic manner advanced technology in food processing and improve the competitiveness of products.</p> <ul style="list-style-type: none"> • Increase the manufacture of ecologically clean food products and selected food products that can replace imports. • Develop food processing based on modern hardware and technology and supply the population with nutritious, high-quality, and safe foodstuff in balanced quantities and start exporting to the international market. • Create wholesale centers and stock markets in appropriate regions and establish a rational network for food marketing. <p>Strategic objective 4. Increase water supplies for land farming, pasture land, and herders and take steps to soften water. Build water reservoirs to supply cities as well as the mining industry. The national program dubbed “Water ♪” will be implemented.</p> <ul style="list-style-type: none"> • Build large irrigation systems and water reservoirs by rationally adjusting the flow of some rivers and collecting water from floods, rain, and snowfalls. • Irrigate some unutilized pasture land by digging wells, collecting rainfall, and increasing the flow of springs and water sources. • Improve the supply and quality of drinking water for herders.
Phase 2 (2015~2021)
<p>Strategic objective 1: Introduce biotechnology, improve livestock breeds, and raise the level of grain yield.</p> <ul style="list-style-type: none"> • Use biotechnology and promote livestock health by developing animal vaccines, sanitizers, and disinfectants for mass production. • Increase crop capacity by ensuring the wide-scale introduction of modern irrigation technologies.

Table 21. continued

Phase 2 (2015~2021)
<p>Strategic objective 2. Set proper sanitary and hygienic standards in food production and services and at all levels of food consumption; supply the population with safe and sufficient amount of foodstuff.</p> <ul style="list-style-type: none">• Based on the needs of the population, promote the robust development of small and medium-sized food production enterprises that use high technologies; meet the domestic demand for ecologically clean foodstuff and increase exports.• Improve the system of monitoring food quality and food safety standards and upgrade laboratory analysis to the level of developed countries.

Source: Millennium Development Goals-based Comprehensive National Development Strategy of Mongolia

3. Relevance to MDGs

- Are the goals and activities of the projects in alignment with MDGs?
 - Safe food is a basic human need, and it may also decrease the economic loss caused by unsafe animal products. In that sense, it is relevant to MDGs since it can decrease losses due to food-borne diseases.
 - The project for the safety management of the livestock sector is relevant since it satisfies the basic conditions for export increase and public health promotion.
 - Prompt and efficient control of contagious animal diseases should come first for the development of the livestock sector, a major industry of Mongolia. Since grazing is a major economic activity of Mongolian nomads, control over the risk factor -- animal disease -- is very important. Therefore, the projects are relevant to the first goal of MDG, i.e., to eradicate extreme poverty and hunger.
 - Grazing is the most typical form of stock raising in Mongolia. Most of the herders come from the poorest class. Since better capacity in disease diagnosis benefits such class, the projects are relevant to MDGs.
 - Better safety management of livestock products is believed to contribute to the enhancement of public hygiene and health. BL3 Lab. was used for the

research studies of the Ministry of Public Health as well as animal research. Thus, the laboratory will likely be used as well for human diseases.

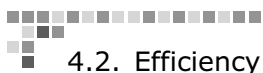
4. Relevance of the Recipient Country and Organization

- Does SCVL suit the purpose of the project?
 - Under the Ministry of Education, there is IVM similar to SCVL. SCVL diagnoses animal disease with the government budget when there are outbreaks and provides inspection service on disease and product during normal times for a fee. On the other hand, IVM focuses on technological R&D.
 - Throughout the nation, Mongolia's capacity in disease control and hygiene inspection is weak. Thus, rather than IVM, SCVL whose disease diagnosis and inspection services are in high demand is a more suitable partner for the projects.
- Does SCVL have the capacity to accommodate the inputs for the projects?
 - When the projects started, SCVL was the organization carrying out actual diagnosis and inspection except administrative works.
 - Since SCVL had also been receiving assistance from JICA, EU, and GTZ (Germany), it already had experience in international cooperation; it had also been provided with some equipment and materials.
- Is Ulan Bator a region of priority in attaining the project goal?
 - SCVL, the partner organization, is located in Ulan Bator, the capital of Mongolia.
 - As of 2010, 1.24 million or 45% of the Mongolian population live in the city where the biggest product trade and consumption occur. (Mongolian total population is 2.75 million.)¹⁶⁾
 - Compared to other cities, Ulan Bator is expected to have much higher demand for safety inspection. Therefore, the city is the most suitable area in achieving the mid-term objective, i.e., the safety enhancement of livestock products.

16) Source: 2010 Mongolia Census

5. Relevance of Inputs to Project Goals and Objectives

- Are material and personnel cooperation tools appropriate in attaining the overall goals and project purposes?
 - Relevance is evaluated to be high because of the fact that budgetary (material) and technology transfers were put together like most of the KOICA projects, considering the economic and technological challenges of Mongolia.
 - The provided equipment (31 kinds) and chemical reagents (138 kinds) were essential for disease diagnosis and relevant to the operation of the BL₃ laboratory and project purposes.
 - The QIA experts in hazardous chemical analysis and microorganism were properly selected and sent to Mongolia for training. The training program was also appropriately organized with focus on HACCP, a key safety management system.
 - Based on the interview with KOICA staff, PMC, and recipient, consultation among stakeholders was sufficient to manage any and all possible risks. Consultation among the relevant stakeholders was considered to be appropriate.



4.2. Efficiency

1. Achievement Ratio

- Do the projects produce outputs as planned by NVRQS and approved by KOICA?
 - During the field survey, the initial plan -- BL₃ establishment, equipment provision, and technology transfer -- was found to have been fulfilled successfully.
 - The result of the interview and survey indicates that the training programs along with material (equipment) support were very efficient.
 - In the case of BL₃ laboratory construction, the construction space was expanded from 36m² to 60m², and the period was prolonged from 6

months to 7 months according to the decision of the implementing agency to secure enough space within the laboratory.

- Were the project budgets properly allocated and spent?
 - The budgets for the projects are as follows: Quarantine Capacity Enhancement Project (USD 400,000), Establishment of Viral Animal Disease Diagnostic Center (USD 1,300,000), and Project for the Safety Management of Livestock Products (USD 1,660,000). Two projects -- the Establishment of Viral Animal Disease Diagnostic Center and Safety Management of Livestock Products -- which had available data for assessment, were evaluated.
 - Viral Animal Disease Diagnostic Center:
 - USD 616,000 for construction, USD 351,000 for equipment & experimental materials, USD 165,000 for invitation training, USD 123,000 for expert dispatch, and USD 45,000 for others were allocated and properly spent.
 - Cooperation in material assistance¹⁷⁾: USD 967,000 (74.4%)
 - Personnel cooperation: USD 333,000 (25.6%)

Table 22. Budget for the Viral Animal Disease Diagnostic Center

Item	Budget (USD 10,000)	Contents
BL3 laboratory construction	61.6	Laboratory (36m2), Heating, Ventilating & Air-conditioning Facility, Wastewater Tank, etc.
Chemical agents and equipment	35.1	Assistance in equipment for animal disease diagnosis and research
Invitation training	16.5	Center operation, FMD research, AI research, Virus and microorganism research, Pathological research, Cell culture & Bacterial bank management, Molecular biology, Virus neutralization, and Serology
Expert dispatch	12.3	BSL and virus diagnosis, FMD, AI, Molecular diagnosis, Equipment, Cell culture, Bacterial bank management, Pathology diagnosis design & construction experts
Others	4.5	Field research, Project evaluation
Total	130	

17) BL3 laboratory, chemical reagent, and equipment fall under the category of "cooperation in material assistance," whereas training, expert dispatch, etc., were classified as "personnel cooperation."

- USD 642,000 for equipment, USD 559,000 for expert dispatch, USD 259,000 for water utility, USD 65,000 for invitation training, USD 64,000 for project administration, and USD 75,000 for others were allocated and properly spent (Table 23).
- Cooperation in material assistance¹⁸⁾: USD 901,000 (54.3%)
- Personnel cooperation: USD 759,000 (45.7%)

Table 23. Budget for the Safety Management of Livestock Products

Item	Budget (USD 10,000)	Contents
Chemical agents and equipment	64.2	Chemical reagents and equipment for checking the quality of livestock products
Expert dispatch	55.9	Technology transfer on the hygiene and safety management of animal products
Water utility	25.9	Water utility for providing and storing water
Training in Korea	6.5	Training on the quality management of processed animal products and milk
Others	13.5	Project administration, Field survey, Project evaluation
Total	166	

2. Retention and Redundancy of Essential Equipment

- Were facilities, equipment, and chemical reagents essential for diagnosis and hygiene inspection provided?¹⁹⁾
 - Animal disease diagnosis: 31 kinds of test equipment including real-time PCR and 133 chemical agents such as PK15 and vehicles for the collection and transport of samples were essential in cell culture and diagnosis, virus and gene isolation, and sample storage.

18) Chemical agents, equipment, and water utility fall under the category of "cooperation in material assistance," whereas training, expert dispatch, etc., were classified as "personnel cooperation."

19) The projects are divided into two aspects: building of capacity in diagnosing animal disease and enhancement of safety management for animal products. Thus, the provided agents and equipment are also classified into two categories.

- Hygiene inspection on animal products: Harmful materials from livestock products are divided into physical, chemical, and biological factors. The equipment provided to Mongolia consisted of HPLC and Spectrophotometer for the analysis of chemically harmful materials and Clean Bench, Microscope, and PCR (polymerase chain reaction) for biological analysis, which were properly supported for the project goal. Diagnostic kits and related consumables were also provided.
- Even though some of the equipment provided were of the same kind, their usage differed by purpose. Therefore, redundancy was not an issue. Moreover, within the hygiene-safety management project, more than two of the same equipment were provided. Note, however, that they needed to be divided into "for residue inspection" and "for microorganism inspection," or some were consumable equipment. Therefore, the issue of redundancy was hardly raised in these projects.

3. Consultation among PMC, KOICA, and Recipient Country

- Did PMC, KOICA, and the recipient country share their views with each other?
 - The results of interviews with KOICA staff, PMC, Mongolian government official, SCVL staff, and Korea MIFAFF official showed that there were sufficient consultations between PMC and KOICA and between the Mongolian government and PMC.
 - The Korean government decided to cooperate in "Strengthening the Early Warning System for Transboundary Animal Disease" as strongly requested by Mongolia during the state visit of then President Roh Moo-Hyun of Korea to Ulan Bator. In connection with this, MIFAFF, NVRQS(currently QIA), KOICA, and MoFALI had consultation and started the projects for the "Establishment of Animal Disease Diagnosis Center" and "Safety Management of Livestock Products." The interviewees from the Mongolian government and SCVL said that they actively presented their opinions on

the projects. They also mentioned in the questionnaire survey that the budget scale and implementation were appropriate.

- NVRQS (currently QIA) of Korea has been performing diagnosis of animal disease and analysis on the safety of livestock products. It also has experience in the operation of BL3 facilities. Since the Agency is capable of supervising the construction of the BL3 laboratory, the project operation system seems to have been set properly.

4. Utilization of Equipment and Facilities

- Were the BL3 laboratory provided under the project utilized for disease and hygiene inspection?
 - The laboratory was accessed by only eight (authorized) people who completed safety education. The accumulated number of users was 160.²⁰⁾ The facility has been used by research centers of universities, other research institutes, and foreign organizations for diagnosis or research purposes.
 - VADDC is the only BL3 laboratory in Mongolia that has been carrying out diagnosis on FMD, AI, rabies, anthrax, and pox. Its utilization would likely be expanded to other international cooperative research projects, zoonosis research, and counter-terrorism.
- Were the equipment provided under the projects used for disease diagnosis?
 - A total of 31 equipment including Real-time PCR and 133 chemical reagents including PK15 were divided into "for BL3 lab. use only" and "others." Vehicles, desks, and computers were also included in the equipment (Table 24).

20) The evaluation team contacted the BL3 facility manager to try to compare the frequency of BL3 laboratory use of Mongolia and that of Korea. Nonetheless, the comparison was deemed inappropriate since the frequency could vary depending on the skill of the tester and the characteristic of the experiment.

Table 24. Equipment for Animal Disease Diagnosis

Classification	Equipment
BL3 Laboratory	25 kinds of equipment (Real-time PCR, Deep freezer, CO2 Incubator, Freeze-Microtome, DNA calculator, Centrifuge, Liquid nitrogen tank, Desks, Computers)
Disease Diagnosis Laboratory	34 kinds (Real-time PCR, Deep freezer, CO2 Incubator, Centrifuge, Freeze-Microtome, DNA calculator, Liquid nitrogen tank, Desks, Computers)

- Were the provided equipment and consumables used for the safety management of animal products?
- The equipment for animal product safety were properly divided depending on the purpose: chemical residue analysis, food microorganism analysis, and safety management system development (Table 25).

Table 25. Equipment for Animal Product Safety Management

Classification	Equipment provided
Chemical residue analysis	Water Purification System, Hybridization Water Bath, Spectrophotometer, Plate-heat exchanger Food Stirrer, Electronic scale, Vacuum Drier, Incubator, Low-temperature incubator
Food microorganism analysis	Centrifuge, Ball Mill, Hybridization Water Bath, Shaker, Digital Thermometer, Clean Bench, pH Meter, Milk Analyzer, Computer
Safety management system development	Metal Analyzer, HPLC Column Set, Dairy Product Analyzer, Microorganism Analyzer, Meat & Cheese Analyzer, Fluorescence Microscope, Light Microscope, Spectrophotometer, Electronic Scale, Clean Bench, Hybridization Water Bath, Microorganism Incubator, pH Meter, Plate-heat Exchanger

- To check the utilization of equipment provided for capacity building in hygiene inspection (24 equipment, 40 chemical reagents) and safety management (52 equipment, 22 consumables), the report on equipment use was requested to SCVL. Data on the use hour of 22 out of a total of 76 equipment was received, but data on 54 was not. As for the other equipment,

information only on the year when the equipment was received as well as whether its function worked under normal condition was provided. It was difficult to evaluate their utilization.

- Among the 22 types of equipment, chemical residue analysis equipment including HPLC (used for 6552 hours) and Clean Bench (microorganism analyzing function, 10,509 hours) and basic equipment for microorganism analysis were frequently used. The Milk Analyzer had reportedly been used for 3658 hours, indicating that quality analysis was also performed actively along with hazard analysis.
 - The provided equipment were apparently used efficiently, based on the satisfaction level drawn from the interview with SCVL and use hours. For the pieces of equipment that were not used, there is a need to identify the reasons and provide consistent assistance including related training. Judging from the utilization records, efficiency would be doubled.
 - For more accurate evaluation, the use record by equipment seems to be needed. Note, however, that SCVL (including the Darkhan center) tended to avoid providing accurate information on details (no. of analyzed samples and analysis content and result).
- In the case of hygiene inspection, how was the utilization of equipment by hazardous factor?
- According to the 2005~2009 report on safety test on animal products, equipment use notably increased.
 - In particular, the test on residue in food increased from 118 cases in 2005 to 1,674 in 2009, whereas the number of molecular biological test grew from 185 to 896. This indicates that test on safety has been on the rise; accordingly, the relevant equipment are being used more frequently.
 - Some equipment (Kjeldahl equipment, Beta-ray spectrometer, Southern blotting, etc.) have not been properly used due to the lack of technicians and experts.
 - The milk analyzer (used for 3,568 hours) and meat analyzer (102 hours), which are very useful for quality management, had been used less,

contrary to expectations. Constant education and management are required.

- The food analyzer in the Darkhan center can be utilized for various foods, but available programs are limited; thus leading to low utilization. More programs need to be assisted to improve utilization.



4.3. Effectiveness

1. Capacity Enhancement of SCVL

- Were the overall competencies of SCVL such as diagnosis or inspection improved as results of project implementation?
 - Animal disease diagnosis: The number of newly-introduced diagnosis technologies was increased from 2 kinds in 2003 to 19 in 2010 thanks to the establishment of BL3 laboratory. Particularly, the time for diagnosis test has been shortened from 2-3 days to less than 23 hours (Table 26). It is evaluated that the overall competencies have been enhanced.

Table 26. Diagnosis Methods Introduced by the Projects

Year	Diagnosis Method(kinds)	Animal Disease
2003	2	<i>Pasteurella multocida, Listeria monocytogenes</i>
2004	1	<i>Sarcocystis spp</i>
2005	1	<i>H5 virus</i>
2006	2	<i>Jaagsiekte sheep retrovirus, Cysticercus tarandi</i>
2007	4	<i>Arterivirus, Lentivirus, M. hyopneumonia</i>
2008	3	<i>Flavivirus, Flavivirus, Papillomavirus</i>
2009	4	<i>A. Pleuropneumoni, Borllia burgdorferi, B. afzelii, Calicivirus, Eimeria stiedae</i>
2010	2	<i>Paramyxovirus(Velogenic), Lentivirus</i>
Total	17	

- Safety Management: Hygiene tests definitely increased from 2005 to 2009 when the projects were being implemented. Especially, the increase of residue test and molecular diagnosis indicates that the competencies in these fields have been greatly enhanced (table 27). Most of modern safety management technologies for livestock products in Mongolia were established under these projects.

- SCVL informed that it could analyze the following items:
 - meat, milk, egg;
 - general bacteria, lactobacillus, coli form bacteria, food-poisoning bacteria (5 kinds), mold & fungi, toxin; and
 - more than 10 kinds of anti-biotics.

The laboratory has also secured the technology to analyze heavy metal and melamine which recently became a big safety issue.

- The method of analysis was also changed from traditional substrate analysis to more prompt diagnosis such as PCR and ELISA. Also the use of HPLC allowed supersensitive analysis on residue.

Table 27. Hazard and Molecular Diagnosis on Animal Products by Year

Analysis Method	2005	2006	2007	2008	2009
Food Microorganism	1499	2301	1175	2029	2200
Residue (antibiotics)	118	113	1458	1198	1674
Molecular diagnosis	185	108	472	614	896

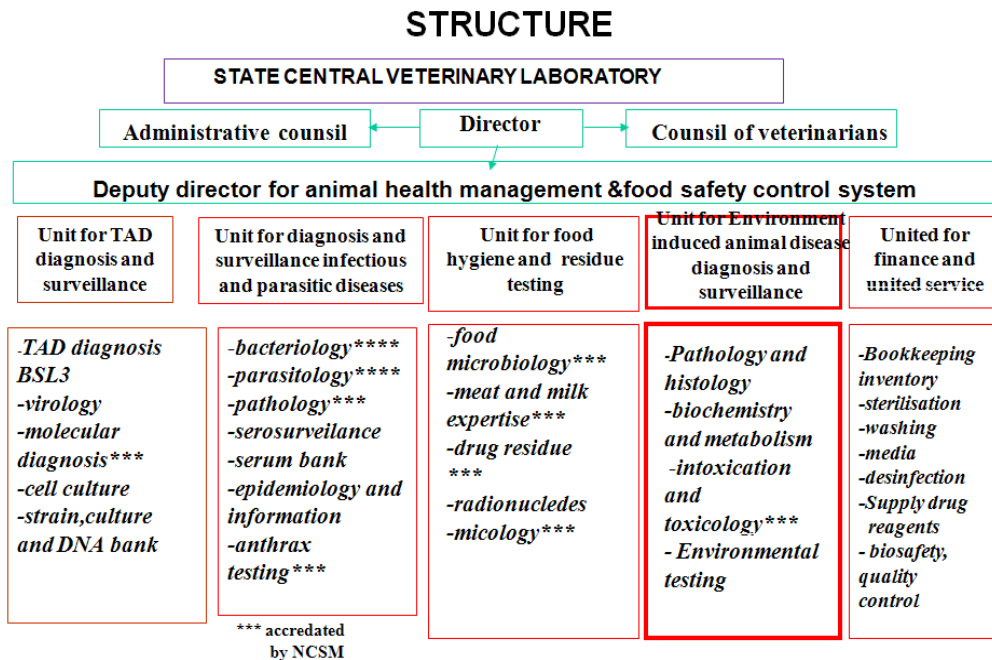
- It is expected that the capacity enhancement would lead to the supply and distribution of safe animal products, and consequently, to the increase in the demand and export. This would bring out the growth of national economy and income increase of livestock farms.
- Were the competencies of SCVL in disease diagnosis and hygiene inspection improved as a results of training and expert dispatch?

- The satisfaction level on invitation training and education for operational staff of VADDC was high. The utilization of equipments has also increased due to the training on the equipments.
 - The result of questionnaire survey showed that the trainees were satisfied with the lecture on hazardous factors in livestock products overall (positive evaluation 95%; very satisfied 45, satisfies 50), while they were unsatisfied with insufficient time of practicum.
- Most of the trainees have constantly carried out the work in the relevant fields and presented papers in Mongolia and abroad. It is concluded that they came to be equipped with expertise.
- The trained experts have provided seminar and education for SCVL and local center staff and also made work manual. However, considering the situation that they expressed difficulties in training new staff, it seems that there would be some issues in communication or technology transfer among the relevant staff.
- In conclusion, the training programs drew out high satisfaction from participants and the practitioners mentioned in interview and questionnaire survey that the competencies in inspection were consolidated and they came to have confidence in their capacity in safety management.

2. Organizational Changes in SCVL

- Were there any changes in SCVL with relation to the improved competencies in disease diagnosis and hygiene inspection?
 - When the projects were launched, SCVL had three divisions for animal disease diagnosis and hygiene inspection. In 2010, one more division for environmental disease was newly established (Figure 14).
 - Through the reorganization at the same year, the manpower increased from 42 people to 50.

Figure 14. SCVL Organizational Structure (2011)



3. Satisfaction of the Stakeholders

- Were the stakeholders satisfied with the results of the project?
 - The stakeholders are SCVL (or staff in charge) as the recipient of the projects and other relevant agencies (or staff in charge) dealing with animal disease control and food safety management.
 - According to the interview with recipients from MoFALI and SCVL, satisfaction with the equipment provided for the projects was high. The utilization was good, and the satisfaction of users and staff in charge was also high.
 - The interviewed trainees said, “Through the training program, the technical process of analysis was enhanced, and new high technology was also introduced,” and “The program was so important (in doing work). I will practice what I have learned from the program in disease control and

safety management.”

- An interviewee in charge of animal disease at MoFALI said, “In the past, we asked Russia to carry out the diagnosis work. Now, however, we can complete it within 24 ~ 48 hours. Last year, we diagnosed Newcastle Disease and had the same result from Korea. The BSL3 facility at SCVL is the first biosafety laboratory, and even other agencies (Ministry of Public Health) has requested for cooperation to use the facility. We are so proud of it since other Asian countries do not have facilities of such kind. Russia also recognized our diagnosis results.”
- Other donors such as SDC also noted, “We already knew of KOICA’s work for the Mongolian livestock sector. The material and training inputs were provided together, and the facility is better equipped than hospitals.”
- Note, however, that the veterinarians of private inspection centers in markets, company managers, and livestock farmers do not see the actual benefit yet. Apparently, the benefits are not spread to others, and this requires government efforts.



■ 4.4. Sustainability

1. Policy-Institution-Budgetary Support (external factors)

- Were there policies and institutions for using in a sustainable manner the equipment and facilities provided to SCVL?
 - MoFALI does not have separate policies and institutions to support SCVL.
 - In case of outbreaks of risky animal disease such as FMD, however, the Ministry provides financial support to SCVL for diagnosis. Generally, SCVL charges for the inspection tests to secure funds for itself. Note, however, that the financial resources have not been enough (interview).

- Has the government of Mongolia provided budget to operate the equipment and facilities?
 - SCVL is a government-funded organization. Since 2007, it has been funded with USD 80,000 ~ 90,000 every year for the operation of the BS3 laboratory (including purchase of diagnosis kit and consumables). The support is expected to increase continually.
 - Although the government plans to continue its support for SCVL, the financial resources are not enough to cover all needs.
 - The Mongolian government has exerted its effort in safety enhancement and designated the safety management as a national program.
 - The government plans to build a diagnosis center and station a veterinarian in each Aimag soon.
 - It is concluded that capacity building in animal disease diagnosis and safety management will be continually implemented.

2. Operational Capacity of the Recipient Organization (Internal Factor)

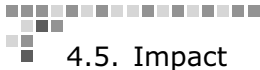
- Does SCVL have organizational, budgetary, and technical know-how to operate the equipment and facilities?
 - Through the interview with SCVL staff, the laboratory was found to have reinforced its efforts to increase its manpower and technical capacity for the KOICA projects. The constant increase in manpower indicates that the laboratory is efficiently operated.
 - Mid- and long-term programs such as “Animal Health Program,” “Prevention & Eradication of Chronic Infectious Animal Disease,” and “Capacity Enhancement of Laboratory” have been performed; the financial base (government support and revenue from service charge) seems to have been established as well.
 - There were some 1~2 cases wherein the equipment were left broken due to the high repair cost and lack of expertise. There were also some issues regarding operation during winter season when the HEPA filter was clogged

and the water pipe was frozen due to snow and ice.

- Considering the capacity of SCVL, sustainability of the projects for SCVL is evaluated to be high. For future assistance, identifying expensive equipment and providing repair or other program assistance for them would be ideal. Through the interview, demand for education was found to be high as well. More support in the demanded area would be helpful in maintaining the sustainability of the projects.

3. Relevance between the Project Effects and Situation of the Livestock Industry in Mongolia

- Are the effects of the projects – competencies in disease diagnosis and hygiene inspection – relevant to future demand regarding the livestock sector of Mongolia?
 - Traditionally, the livestock sector has been a major industry of Mongolia, and the animal products have been important export items; thus contributing considerably to economic development. As such, the project for product safety is believed to mean a lot to the country. So far, some large companies are undertaking hygiene management for the exported products. Most of the individual farmers and herders were very small scale, and their understanding of safety management was very low.
 - So far, consideration on “the safety of animal products” is mainly given by the government and large companies. Since the society, economy, and culture of Mongolia are rapidly developing, the demand for safe products is expected to grow steadily. For increasing export, needs in safety management and quarantine will also increase. Capacity in safety management and disease diagnosis will consistently develop.



4.5. Impact

1. Impact on the Formation and Improvement of Policy and Institution of Mongolia

- What impact do the projects have on the policies and institutions of the Mongolian livestock sector? Otherwise, what would be the possible impacts?
 - The implementing agency for the three projects was NVRQS of Korea, and the assistance recipient was SCVL. These agencies are central governmental organizations responsible for technological management for the livestock hygiene and safety of animal products. In terms of administrative organization, NVRQS (currently QIA) is under MIFAFF of Korea, whereas SCVL belongs to MoFALI of Mongolia; thus, they are directly influenced by the policy of the central government, but they also support policy-making.
 - During or after the three projects were implemented, the Mongolian government developed the following programs for its livestock sector: National Food Security Program (2009), National Mongolian Livestock Program (2009), State Policy on Herders (2010), Policy on FMD Prevention (2011), and Animal Product Trade Act (2011)
 - Since the technological capacity of the diagnosis (inspection) agency is a very important factor in policy-making, it is deemed to wield indirect influence on the policy and institutions related to the livestock industry.

2. Technology Dissemination from the Central to the Local Area

- Have the diagnosis and inspection technologies as the outputs of the projects spread to the local veterinary laboratories? Otherwise, is there a possibility of such spreading?
 - Currently, there are 21 Aimags in Mongolia, and each Aimag has veterinary agency and manpower. Their competencies in quarantine, diagnosis, and

test are low, however.

- It is impossible to transfer the result of material assistance – facility and equipment – to the local areas. Note, however, that the outcome of personnel cooperation, i.e., know-how on quarantine and diagnosis, can be spread to the other areas.
- Currently, SCVL is in charge of training for local government officials as well as research and test. Thus, if training efforts are reinforced, the test technology would more likely be disseminated to the local areas.

3. Technology Dissemination from the Government to the Private Sector

- Have the diagnosis and inspection technologies of SCVL as the outputs of the projects been applied to the private sector? Otherwise, is there a possibility of application?
 - The government agencies do not cover all inspection and diagnosis works. There are government-authorized private inspection institutes in the markets, albeit small-scale.
 - When the Evaluation Team visited the Darkhan market, the private inspectors conducted a simple test on major pathogens including anthrax. If there is a reliability issue in the test result, a local government agency inspects the result.
 - For now, the technology of SCVL seems not to have spread to private inspectors through the veterinary laboratories of the local government.
- Have the policies and institutions influenced the private sector? Otherwise, what could be the possible impact?
 - The final beneficiaries of the projects are the producer (herder), processing & distributing companies, and consumers. The benefits (effects) include the decrease in animal disease, safety enhancement of animal products, and enhanced public health.
 - The aforesaid policy programs including the National Food Security Program do not seem to have been established yet; over time, however, their influence is expected to grow.



Findings & Recommendations



5.1. Findings

1. Important Findings by Evaluation Criteria

○ Relevance

- The projects evaluated in this study reflected the policy goal stated in the “International Development Cooperation Framework” of Korea and “Assistance Strategy for Mongolia” of KOICA. The project fell under the category of “Development Assistance for Agriculture and Livestock Sector.”
- Capacity building in animal disease control and safety management is relevant to the “National Development Program” of the Mongolian government. The stable production and supply of safe animal products are key policies of MoFALI.
- Since the prompt and accurate diagnosis of animal disease supports the disease control of herders as the poorest class in Mongolia, and the safety management of animal products is related to public health and hygiene, the projects are also relevant to MDGs.
- SCVL, a direct beneficiary, is an institute undertaking animal disease diagnosis and hygiene test.

○ Efficiency

- Despite the relatively smaller budget of the projects compared to the programs of other countries and agencies, considerable personnel assistance (experts and training) was provided along with material cooperation (facility and equipment), which facilitated the use and maintenance of the facilities and

equipment.

- There was sufficient consultation among KOICA, the implementing agency, and the recipient country.
- SCVL lacked the equipment and chemical reagents provided even though they were essential for modernizing its service in animal disease diagnosis and safety management.

○ Effectiveness

- The comparison of diagnosis and inspection between before and after the projects, SCVL has been able to undertake diagnosis test, once committed to other countries; the number and scope of test cases apparently increased. The residue test and molecular diagnosis increased by 14 times and 4.8 times, respectively.
- Along with the enhancement of technical capacity, the projects realized the effect of manpower increase and organization growth.²¹⁾
- SCVL and the other stakeholder mentioned – through the interview and the questionnaire survey – that the projects bore fruitful results in a short time because the projects provided training and expert assistance along with equipment and chemical reagents. Thus, the recipients are evaluated to have been satisfied with the projects.
- Note, however, that the assistance was limited to SCVL due to budget constraints. Therefore, additional projects in the same fields need to be carried out nationwide.

○ Sustainability

- Part of the budget for the BL3 facility has been provided by MoFALI, and manpower for diagnosis and test has increased; this seems to serve as a positive factor for sustaining the effects of the projects.

21) The Team understood 'influence' as macro social and economical effects while limiting the scope of 'impact' to policy-making, technology dissemination to local areas and effect on final beneficiary in private sector. The change in organization and manpower of SCVL can be regarded as both effect and impact.

- Nonetheless, the facility incurs high operation cost; thus, the current financial resources are not sufficient. The first task for sustainability is to secure the budget for the operation of the BL3 laboratory.

- Impact

- At this point, it is hard to assess the economic and social influence of the projects, but it is possible to evaluate their impact on policy-making and technology transfer to the local and final beneficiary in the private sector.

2. Conclusions (- and Lessons Learnt-)

- The Evaluation Team concluded that the overall relevance, efficiency, and effectiveness of the projects were high. If improvements are made regarding some issues, their sustainability and impact would increase. (Matters requiring improvements will be addressed in Recommendations below.)
- The projects can be evaluated as successful for the following reasons, which can also serve as lessons for other development cooperation projects:
 - During the planning process, the three projects constantly reflected the demands of the Mongolian government. This could be one of the good examples of the Ownership suggested in the “Paris Declaration on Aid Effectiveness” being practiced well.
 - As stated above, the projects were implemented through both material assistance (facility-equipment-chemical reagents) and personnel cooperation (expert-training), which placed emphasis on the development of human resources.
 - Because the implementing agency and the recipient had conducted joint research studies with other partners, they already had the foundation for international cooperation.
- In conclusion, the projects focused on specific parts of the livestock sector: animal disease and hygiene management. The focus was narrowed further

to “enhancement of diagnosis capacity” and “improvement of hazard analysis.” Technical capability enhancement in this narrow sense is evaluated to wield some impact through policy and dissemination to the local area and private sector.



■ 5.2. Recommendations

- From a broad perspective, capacity building in animal disease control and quality analysis of animal products need to be pursued continually through ODA programs for the Mongolian livestock sector. The enhanced capacity should also be spread to the local veterinary inspection agencies.
- Though the private sector has played a very important role as both producer and consumer, it has not recognized even the existence of the Animal Product Trade Act. Therefore, for the entire process from production to consumption, capacity enhancement project of the private sector is recommendable. (i.e. Infectious Animal Disease Management System)
- The existing invitation training programs cannot cover the increased manpower. Thus, a sustainable education system for animal disease and product analysis needs to be established within Mongolia. It would be appropriate to set up the capacity building system through cooperation between SCVL, which possesses and operates analysis equipment, and veterinary colleges of Mongolia. First of all, education on the operation of equipment and operational record are urgently needed.
- There is a need to consider cooperation among SCVL, Mongolian veterinary colleges, and Korean universities. In this case, some training programs can be provided in Korea.
- To sustain the operation of biosafety laboratory – a key element in infectious

animal disease diagnosis – particularly secure the quality of exported products, authorization on BL3 facility by a third party is required.

- Unlike general building and laboratories, the BL3 facility requires considerable budget and expertise. It also needs stable power supply, regular change of air filter, and management of electrical and electronic controller. Note, however, that it is hard to supply expertise in this area within the country; hence the need to send operation experts to Mongolia for 2~3 years through follow-up or complementary measures.
- For post-management such as expert dispatch, resources from the private sector can be used through CSR (Corporate Social Responsibility) or KOICA's PPP (Public-Private Partnership) programs.
- Essentially, the key goal of the projects was to secure food (meat) safety. To build a value chain for the livestock industry of Mongolia, programs to advance the downstream sector – the supply channel – and to develop the meat processing industry can be formulated.

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