

Plurinational State of Bolivia

FY2017 Ex-Post Evaluation of Technical Cooperation Project

“Project of Establishment of Implementation System
for Sustainable Rural Development Phase II”

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0. Summary

The “Project of Establishment of Implementation System for Sustainable Rural Development Phase II” (commonly called “Rural Change Project II”) aimed at establishing an integral rural development model to conserve natural resources and improve living standards, and its implementation system based on the cooperation of related organizations in the northern part of the department of Chuquisaca in Bolivia. With the overall goal of improving the quality of life of small farmers in the Department, the project was implemented by training core human resources in rural development in communities, municipalities, the Departmental government and the university, and carrying out rural development projects in line with the needs of the communities. This project is of high relevance because it was highly consistent with Bolivia’s development plans of the country and agricultural sector, development needs of the target area and Japan’s ODA policy, and because the project approach was appropriate. Effectiveness and impact of the project are high, because this project largely achieved the project purpose since the implementation system was established with the University of Saint Francis Xavier (Universidad San Francisco Xavier de Chuquisaca, hereinafter referred to as “USFX”) as the core organization to be able to take advantage of the clarified rural development model on a constant basis, although a comprehensive implementation system was not established. The overall goal is also identified to be achieved as planned. Although the relatively frequent replacement of Counterparts (C/Ps) and the departure of the Department from this project had negative influence on the progress of the project activities, subsequent works were conducted by the effort of the JICA experts and the C/Ps of USFX, resulting in the achievement of the expected outputs. As a whole, efficiency of the project is high because the project cost was lower than planned and the project period was as planned. Sustainability of the project effects is fair, because some problems have been observed in terms of the technical and financial aspects though sustainability from the policy and institutional perspectives is considered to be high.

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

1. Project Description



Project Location



Former demonstration farm where the terrace is maintained (Catana, Municipality of Yamparaez)

1.1 Background

The northern part of the department of Chuquisaca in the Plurinational State of Bolivia (hereinafter referred to as “Bolivia”) is one of the poorest areas where the rates of poverty and extreme poverty are 92.5% and 87.8%, respectively (National Institute of Statistics, *Population and Housing Census 2012*). Land suitable for cultivation has been reduced and land productivity has been deteriorated caused by large-scale soil erosion and depletion of water resource, and farmers engaged in subsistence agriculture and stock farming have had distressed life. This has prompted farmers to migrate to the other areas, which has been perceived as a major social problem in the area.

In order to demonstrate technical improvement measures under such circumstances, the Japanese government conducted a study titled *the Verification Study of Sustainable Rural Development based on Soil and Water Conservation* from 1999 to 2003 in the department of Chuquisaca. The results were compiled as the rural development plan and soil erosion prevention technique. While the survey presented technical guidelines, the establishment of a system to promote development projects was left as an issue using the survey results.

With a view to solving this problem, at the request of the Bolivian government, JICA conducted a technical cooperation project “Project of Establishment of Implementation System of Sustainable Rural Development,” which was equivalent to Phase I of this project with USFX, the department of Chuquisaca and four municipalities in the project areas as the implementing agencies from January 2006 to January 2008. In the Phase I project, development plans were formulated for eight communities in the four municipalities, and human resources related to rural development were trained. Also, an investigation on development funding sources was conducted.

In response to the additional request of the government of Bolivia, this project was carried out for the five-year period from May 2009 to May 2014, expanding the areas to 36 communities in nine municipalities¹ in the north of the department of Chuquisaca.

1.2 Project Outline

Overall Goal	A rural development model is extended and the quality of life of small farmers in the northern part of the department of Chuquisaca is improved.	
Project Purpose	<p>A rural development model (*1) and implementation system (*2) will be established through implementing rural development projects in the northern part of the department of Chuquisaca.</p> <p>(*1) Rural development model: It is a model utilized by municipalities, the Department and university, and shows how to proceed rural development for the residents of the communities in the northern part of Chuquisaca Department to autonomously tackle conservation of natural resources and improvement of living standards. This model consists of “development technology” and “cycle of development project”. Development technology is a list of techniques that can be utilized for conservation of natural resources and improvement of livelihoods and shows a method to utilize according to the situation of the area. The cycle of development project is a method of participatory planning, implementation, monitoring and evaluation.</p> <p>(*2) Implementation system: It is a system whereby the rural development model can be implemented by municipalities, the Department and university of the Bolivian side on their own (securing personnel, budget, and external funds; establishing roles, responsibilities and collaboration system among related organizations).</p>	
Outputs	Output 1	Core human resources for integral rural development are trained in communities, municipalities, the Department and USFX.
	Output 2	Through the implementation of integral rural development projects based on community development plan, process from planning to implementation of integral rural development projects is modeled.

¹ Nine municipalities: Sucre Rural-Distrito 8, Yotala, Poroma, Tarabuco, Yamparaez, Zudañez, Presto, Mojocoya, and Icla.

	Output 3	Internal and external development funds for implementation of integral rural development projects are procured by municipalities, the Department and USFX.
	Output 4	Coordinating Committee for defining the direction of integral rural development of northern Chuquisaca is properly operated by municipalities, the Department and USFX.
Total cost (Japanese Side)	381 million yen	
Period of Cooperation	May 2009 – May 2014	
Implementing Agency	Municipal government of northern Chuquisaca (nine municipalities), Commonwealth of Northern Chuquisaca Municipalities, Departmental government of Chuquisaca, USFX, Ministry of Agriculture, Rural Development the Environment (reorganized into Ministry of Rural Development and Land in 2009)	
Other Relevant Agencies / Organizations	None	
Supporting Agency/Organization in Japan	Ministry of Agriculture, Forestry and Fisheries	
Related Projects	Ministry of Agriculture, Forestry and Fisheries, “Validation Study of Sustainable Rural Development based on Soil and Water Conservation” (1999–2003); JICA, “Project of Establishment of Implementation System for Sustainable Rural Development Phase I” (2006–2008)	

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

The achievement level of indicators at the time of the evaluation was high: the project results and the project purpose were judged to have been almost achieved.

1.3.2 Achievement Status of Overall Goal at the Terminal Evaluation (Including other impacts.)

Impact and ripple effects of the Project were identified at the time of the evaluation: it was judged that there was sufficient prospect of achieving the overall goal after the project was completed.

1.3.3 Recommendations from the Terminal Evaluation

- It is necessary to steadily prepare a list of techniques and manuals for participatory rural development during the six months to completion of the project.
- The list of techniques created in the project and the manuals for participatory rural development are expected to be utilized by USFX. Until the completion of the project, efforts should be made toward the public relations and extension of the results of the project even for a person or an organization other than USFX interested in rural development of Chuquisaca, so that the results can be utilized widely after the completion of the project.
- It is expected that the organizations involved in rural development in the northern part of Chuquisaca respect each other's position and activities and tackle common issues in rural development.

2. Outline of the Evaluation Study

2.1 External Evaluator

Yusuke Hasegawa, International Development Center of Japan Inc.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: October, 2017 – January, 2019

Duration of the Field Study: March 5, 2018 - April 26, 2018; July 26, 2018 - August 10, 2018

3. Results of the Evaluation (Overall Rating: A²)

3.1 Relevance (Rating: ③³)

3.1.1 Consistency with the Development Plan of Bolivia

The project was in line with the direction of both the national medium- and long-term development plans and the sector development plan of the ministry in charge of agriculture, from the time of the planning through to the completion of the project. In other words, the *National Development Plan (2006-2011)* developed in 2006 under the government of President Evo Morales, and *the Patriotic Agenda 2025* which is a long-term vision that took over it, both placed an emphasis on poverty reduction and rural development, indicating that the project and the plans shared the common purpose of improving living standards through rural development including food production. In addition, the sector development plan titled *Reforming Rural Areas, Agriculture and Forestry* formulated by the then Ministry of Agriculture, Rural Development and the Environment (Ministerio de Desarrollo Rural, Agropecuario y Medio

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

³ ③: High, ②: Fair, ①: Low

Ambiente, hereinafter referred to as “MDRAyMA”) in 2007, focused on “securing food sovereignty and safety” and “promoting food production and rural development in an integrated way,” and the same policy was taken over by the *Agricultural and Pastoral Sector Development Plan (2011-2015)* formulated by the Ministry of Rural Development and Land (Ministerio de Desarrollo Rural y Tierras, hereinafter referred to as “MDRyT”) that was established by the reorganization of MDRAyMA. Then, the succeeding development plan (2014-2018) updated by MDRyT emphasizes “food sovereignty and safety”, “sustainable family agriculture” and the like. These series of sector development plans were consistent with the project that intended to improve the living standards of small farmers through improvement of food production and rural development.

3.1.2 Consistency with the Development Needs of Bolivia

Although the improvement in the poverty and social development situations in the target area can be seen from the time of planning to completing this project, there have still been large development needs from various aspects: this project was well aligned with these development needs. From the data comparison between 2001 and 2012 of the National Bureau of Statistics, although the poverty ratio decreased in all of the nine target municipalities and the basic service coverage was clearly improved as well, all municipalities did not reach the average level of the country and the Department except for some such as Sucre which includes urban areas. As of 2012, the poverty ratio of a municipality remained more than 90%. In addition, while agriculture has been a key sector in the economy of Chuquisaca, accounting for 13% of the Departmental GDP of 2014 next only to mining (19%) and the administrative services (19%), its real annual growth rate from 2010 demonstrated only 1.8% in spite of that of the Departmental GDP being 7.8%. According to the 2012 Census, 38% of workers in the Department belonged to the industry of agriculture, livestock farming, forestry and fisheries (whilst 27% of workers did in the entire country), and more than 80% of those were seen to make their living principally by agriculture and livestock farming (Source: National Institute of Statistics, *Statistical Yearbook 2016, Population and Housing Census 2012 and Agriculture Census 2013*). This implies that stagnation of agriculture has a relatively large impact on the economy of the Chuquisaca Department. Therefore, the need to strengthen the agricultural sector remained high. In addition, reduction of forest resources across the country, including the target area, was in progress until the completion of this project, the need to deal with the conservation of natural resources still existed. According to the Food and Agriculture Organization of the United Nations (FAO), net deforestation area of Bolivia during 2010 and 2015 was 289,000 ha annually, and the county was included in the top 10 of the world in terms of reduced area size (Source: FAO, *Global Forest Resources Assessment 2015*).

3.1.3 Consistency with Japan's ODA Policy

This project was consistent with Japan's aid policy at the time of planning of the project. JICA's *Country Implementation Plan of Bolivia* formulated in 2006 set "poverty reduction of small farmers" as one of the six cooperation programs, and the program was positioned under two priority areas of "Social Development" and "Production Improvement." The contents of this project, which aimed at establishing a model and implementation system of rural development projects leading to improvement of living standards of small farmers, were consistent with the above program. In addition, Japan's *Country Assistance Program for Bolivia* (April 2009), whose preparation work was underway at the time of planning of this project, placed "social development for poverty reduction," and "sustainable economic growth" as two pillars of assistance. The former covered regional development including infrastructure development of agriculture and rural areas, and the latter contained agricultural sector including direct support to farmers. Both of them were in line with this project aiming at improving living standards of small farmers through carrying out rural development projects.

3.1.4 Appropriateness of the Project Plan and Approach

In this project, the planned content of Output 4 (Proper operation of the coordination committee by related organizations) was not be achieved. The content had been clarified as a concrete form of coordination and division of roles among the implementing agencies, as a result of examination in the mid-term review of the project. After that time, however, differences of opinions between the Departmental government and USFX became apparent. This triggered prolonged discussions for nearly a year, such as on proposed system reconstruction of this project, resulting in the withdrawal of the Departmental government from this project. It became realistically impossible to achieve the result. Project Design Matrix (PDM)⁴ of this project stated that "C/Ps do not change significantly" as an external factor related to the achievement of the project purpose. It is considered that the statement assumed the effect of frequent changes of staff in the implementing agencies on the anchoring of technology and the project progress, and that it could not assume the possibility of withdrawal of an implementing agency that had developed cooperative relations since the preceding projects (i.e. the validation study by the Ministry of Agriculture, Forestry and Fisheries and the phase I project). Therefore, we find the planned basic approach of the project reasonable.

From the above, this project was highly consistent with Bolivia's development plan and development needs, as well as Japan's ODA policy. Also, the project plan and approach were appropriate. Therefore, its relevance is high.

⁴ Project Design Matrix is a "theoretical framework" used for project planning, monitoring and evaluation. It is composed of project summary, indicators, means of collecting data, external conditions, inputs, and assumptions.

3.2 Effectiveness and Impact⁵ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Project Outputs

Four outputs had been planned to be achieved by the time of completion through the activities in this project. As described below, Outputs 1, 2 and 3 were largely achieved, but Output 4 is judged not to have been achieved. The detail of the actual values for the outputs are summarized in the attached table.

As Output 1, “Core human resource in integral rural development is trained in communities, municipalities, the Department and USFX.” was planned. Through the creation of teaching materials and the implementation of training corresponding to the various needs of technicians of the implementing agencies and farmers, it is judged that the fostering of core human resources has almost been achieved.

Output 2 was set to be “Through the implementation of integral rural development projects based on community development plan, process from planning to implementation of integral rural development projects is modeled.” The “list of development techniques” and the manual of the development method were completed by the time of the project completion, through the process of carrying out activities such as the formulation of development plans of the target communities and the implementation of mini-projects based on the needs of the communities, as well as the implementation of monitoring and evaluation in the latter half of the project. Thus, the modeling of the process was achieved.

As Output 3, “Internal and external development funds for implementation of integral rural development projects are procured by municipalities, the Department and USFX.” was laid out. As a result of activities to enhance the ability to raise funds by the municipalities as the main target, such as organizing seminars, preparing manuals and creating databases, all the target communities submitted their applications to external funds support organizations. However, the realization of fund procurement was limited to some of the communities. Therefore, it is judged that the expected result was achieved to a certain degree.

In Output 4, “Coordinating Committee for defining the direction of integral rural development of northern Chuquisaca is properly operated by municipalities, the Department and USFX.” was expected. Specifically, it was planned that a coordinating committee would be set up to discuss and agree on the system of the division of roles and responsibilities among the implementing agencies engaged in integral rural development, and that the committee would be held regularly. According to the interviews with and the questionnaire answers from the implementing agencies, however, as stated above, the implementation system of this

⁵ Sub-rating for Effectiveness is to be put with consideration of Impact.

project stayed in an unstable state due to the differences of opinions between the implementing agencies that occurred during the project. As a result, the coordinating committee for discussing the division of roles among the implementing agencies was held only once, and there was no agreement in that committee. Since then the Departmental government withdrew from the project, the planned output was not achieved.

The terminal evaluation report of this project states that after the above coordination committee was held, JICA Bolivia office and the Ministry of Development Planning acted as mediators among the implementing agencies and clarified the division of roles, and the report goes on to conclude that an implementation system was substantially constructed. From the interviews with the persons concerned to the project in Bolivia and Japan conducted in the ex-post evaluation, applicable information, such as a document that shows a clear division of roles involving all of the implementing agencies including the Departmental government, was not be identified.

3.2.1.2 Achievement of Project Purpose

Table 1 Achievement of Project Purpose

Project Purpose	Indicator	Actual
A rural development model and implementation system will be established through implementing rural development projects in the northern part of the department of Chuquisaca.	1. One or more good practices that can be presented as rural development models are implemented at each city municipality.	It was achieved. In all 36 communities of the nine target municipalities, projects on natural resource conservation (soil conservation) and afforestation had been implemented at the time of the terminal evaluation. In addition, projects referred to as mini projects (with the total project cost upper limit of 6,000 US dollars), as well as pilot projects (upper limit of 10,000 US dollars) were implemented. Good practices were selected from these projects and introduced in the list of techniques. For example, "Production alternatives for strengthening household economy," one in the list of techniques, summarized examples of good projects that were successful in earning income from the activities.
	2. The personnel necessary for implementation of the rural development model is arranged in the Department, USFX and each municipality.	It was largely achieved. At the time of the terminal evaluation, an extension worker employed for this project was placed in the rural development section at each of nine target municipalities, and planning officers were also working as C/P of this project at seven communities. The Departmental government had started its own rural development project and had hired ten technicians at the completion of this project (2014). For USFX, see below 3.
	3. A section in charge of research, extension and human resources development to support	It was achieved. In the Faculty of Agriculture of USFX, the Institute of Integral rural development (IDRI) was established in April 2014, shortly before the

	integral rural development projects is established in the Faculty of Agriculture of USFX, and the necessary personnel is arranged.	completion of this project. All of the C/Ps of this project who had been appointed by the university were placed in IDRI.
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Project Purpose of this project was “A rural development model and implementation system will be established through implementing rural development projects in the northern part of the department of Chuquisaca,” where “rural development model” showed how to proceed rural development for the residents of the communities to autonomously tackle conservation of natural resources and improvement of living standards. The model consisted of “development technology” that was a list of techniques and a method utilizable and “cycle of development project” that was a method of participatory planning, implementation, monitoring and evaluation. “Implementation system” was explained as a system whereby the rural development model can be implemented by the related organizations on their own (securing personnel, budget, and external funds; establishing roles, responsibilities and collaboration system among related organizations). The purpose was expected to be realized through fostering the core human resources for integral rural development in communities, municipalities, the Department and USFX (Output 1); formulating the model of a process from planning to implementation of integral rural development projects by implementing the pilot projects in line with the needs of the community led by the trained human resources (Output 2); and building the implementation system of the model for its sustained implementation by improving the ability of related organizations to raise funds (Output 3) and preparing relevant personnel and organizations as well as coordinating mechanisms among the organizations (Output 4).

As shown in Table 1, the achievement level of the three indicators of the project purpose was high. As regards Indicator 1, a large number of rural development projects concerning agricultural development, environmental conservation, and social development were practiced in the municipalities. In addition, many cases that produced tangible results by the time of the project completion were confirmed from the interviews with the residents in the target communities. The success cases included such areas as afforestation, land conservation (countermeasures against gully erosion), terrace building, soil improvement, micro irrigation, cultivation of new crops such as vegetables and flowers, livestock improvement, women's group activities, and life improvement. For Indicator 2, although the C/P staff were sometimes changed during this project in the municipalities, the arrangement of the planned two C/Ps consisting of an extension worker and a planning officer in each municipality was largely maintained. On the other hand, one year after its withdrawal from the project in 2012, the Departmental government started its own rural development project that incorporated the methodology of this project (see below “3.2.2 Impact”). The Departmental technicians

remained deployed in the target communities of this project at the time of completion. Concerning Indicator 3, the C/P staff of USFX was transferred to the Institute of Integral rural Development (Instituto de Desarrollo Rural Integral, hereinafter referred to as “IDRI”.), which was established in the Faculty of Agriculture of USFX by the time of completion of the project. The staff in IDRI continued to engage in the activities of the project.

However, judging from the relationship between the planned outputs and the project purpose, since Output 4 (Proper operation of the coordination committee) was not achieved, as mentioned above, it is inferred that the establishment of a comprehensive implementation system by the main organizations involved in rural development in the northern Chuquisaca was not completed. On the other hand, from the results of the other outputs, as well as from the achievement level of the indicators of the project purpose, it is understood that by the time of the completion of the project, the rural development model was clarified and that the implementation system was established with USFX as the core organization to be able to take advantage of the model on a constant basis. As described in “3.4 Sustainability,” IDRI defines its own organizational mission as promoting integral rural development in cooperation with all the related organizations in the Department, including the Departmental government, showing within and outside the institute the intention to collaborate with other organizations to advance rural development projects, along with its high commitment to integral rural development. Although a comprehensive implementation system was not established in the project, it can be interpreted that an important foundation of expanding integral rural development in the target area was built as a result of the establishment of a permanent institution with the objective described above.

In view of the above as a whole, the project largely achieved its purpose.



Introduced tank for small-scale irrigation
(Misión Pampa, Municipality of Presto)



Carnation grower who ships to the market in
Sucre (San Jose de Molles, Municipality of
Yamparaez)

3.2.2 Impact

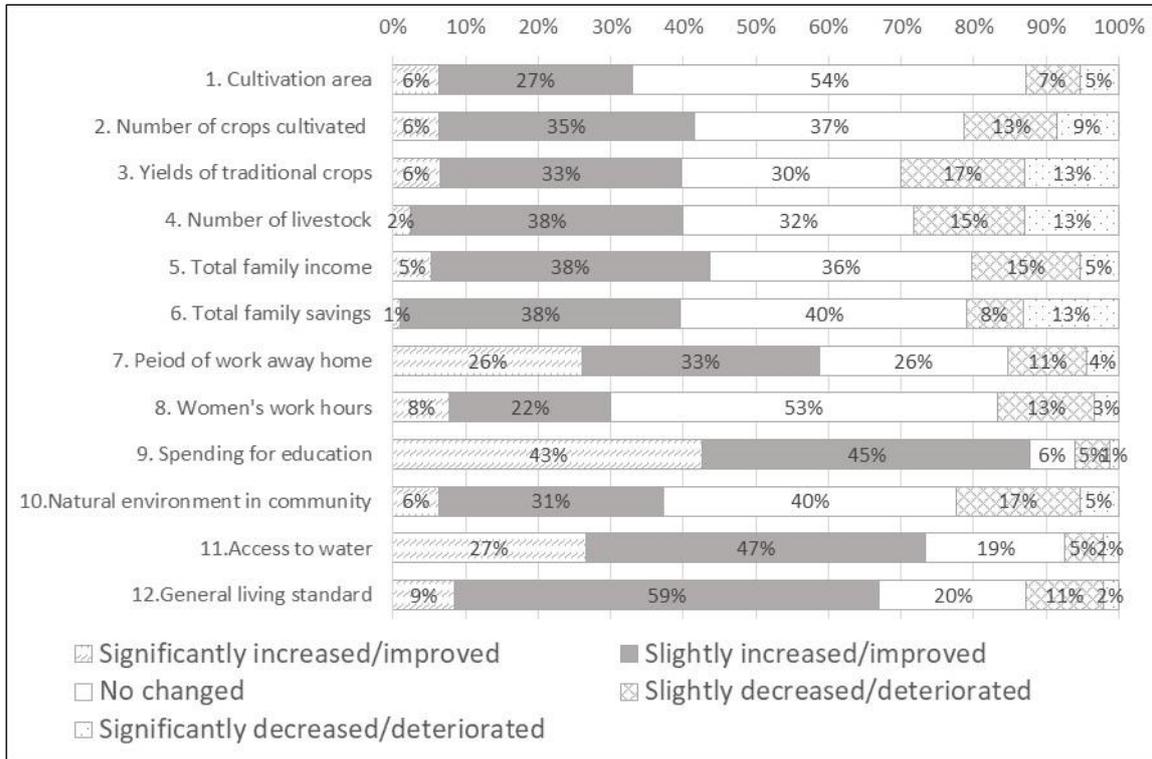
3.2.2.1 Achievement of Overall Goal

The overall goal of this project was “A rural development model is extended and the quality of life of small farmers in the northern part of the department of Chuquisaca is improved”. Since the expected timing of achieving the overall goal was not set in the relevant documents, such as ex-ante evaluation summary and PDM, the level of achievement was analyzed from the information available at the time of ex-post evaluation.

Table 2 Achievement of Overall Goal

Overall Goal	Indicator	Actual
A rural development model is extended and the quality of life of small farmers in the northern part of the department of Chuquisaca is improved.	1. Rural development projects utilizing the rural development model are implemented in more than 72 communities in the northern part of the department of Chuquisaca.	<p>It was achieved.</p> <p>The Departmental government, which withdrew from the project as an implementing agency, implemented its own program using the methodology of this project in the northern part of Chuquisaca (including some municipalities in the central part) from 2013 to 2015. The target communities of this program included 22 communities targeted by this project, totaling 63 communities. Together with the communities covered only by this project, in a total of 77 communities (14 only by this project, 22 by both projects, and 41 only by the Departmental program), rural development projects were implemented based on the same model. The program had components similar to this project (e.g. water resource reservation, soil conservation, vegetable and fruit tree cultivation, livestock farming, etc.), and technicians were placed in the municipalities by the Department.</p> <p>In addition, in the interviews with the municipalities, which were the implementing agencies, there were a large number of responses stating that rural development projects are carried out following the methodology of the model for some components of this project, in the communities other than the target ones of this project (See Table 3 below).</p>
	2. In the sample survey at the communities where the rural development model was utilized, more than 70% of the surveyed people realize that their standard of living improved compared with before the model was applied.	<p>It was largely achieved.</p> <p>A quantitative survey (The detail is elaborated below) conducted in eight communities extracted from the communities where the rural development model was utilized. The main results of the survey as follows:</p> <ul style="list-style-type: none"> ➤ With regard to production activities, income, and living aspects, clearly many answers from farmers showed improvement trends currently compared to before the project. ➤ Items markedly improved by percentage of respondents were “spending for education” (78%), “Access to living/drinking water” (74%), and “General living standard” (68%). Also 43% of the respondents answered that the total income of family has increased (the above ratios are the

		<p>combined figures of answers “significantly improved” and “slightly improved.”) (Figure 1). On the other hand, from the interviews with farmers in the target communities, in addition to the answered cases of increased revenue due to vegetables cultivation introduced by this project, there were also many responses that cultivation of vegetables for home consumption has helped the household economy improve even without selling.</p>
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Source: Quantitative Survey

Figure 1 Results of Quantitative Survey: Changes in living conditions of farmers compared to before 2010

The degree of achievement of the two indicators of the overall goal shown in Table 2 is high. In regard to Indicator 1, the department of Chuquisaca, which had placed the technicians as the implementing agency of this project until 2012, carried out a program with its own budget based on the rural development model of this project from 2013, after the departure from this project. In this ex-post evaluation study, the activities implemented under the Department’s program were regarded as the impact of this project. It should be noted that how exactly this program practiced the methodology of this project was not confirmed in detail in this ex-post evaluation. From the interviews with the concerned persons, including officers of the Department, however, there were not a few cases where the technicians who had served as C/Ps of this project from the Department later worked as technicians of the Department program. This implies that the project was clearly referred to in the field of the program. In

addition, although this project and the Department program were implemented in parallel in some municipalities, there were certain coordinating or supplementary relations between the two in the field, where the C/P of this project and the technician of the Department program, stationed in the same office of a municipality, made adjustments such as avoiding duplication of particular target people or areas.

In addition to the Departmental program, many cases were observed in the target municipalities of this project where rural development projects were conducted by themselves outside the target communities based on the methodology of the project, as mentioned in the next section,

From a quantitative survey⁶ that was conducted related to indicator 2, nearly 70% of the respondents recognized that their overall living standards have improved. The quantitative survey also shows that a certain percentage of respondents have increased their income. From the visits and interviews with farmers of the target communities, taking into consideration that this project especially targeted communities and farmers under adverse conditions of accessibility and land, cultivation of vegetables for home consumption brought about important impacts on many farmers at the subsistence or living level, even if the cultivation may not directly lead to money income.

Based on the above, the project has achieved its overall goal.

3.2.2.2 Status of the Project Effect after Completion

In this section, important changes and circumstances that were confirmed at the time of ex-post evaluation are described, on the effect of the planned project outputs and the project purpose after project completion.

⁶ In this ex-post evaluation, a quantitative survey was conducted with the objective of grasping the perception of changes in living standards of farmers in the communities where the rural development model was utilized. The outline of the implementation is as follows. The survey population of the 77 communities (See Table 2, the column of Indicator 1) was divided into two groups, after excluding the communities where data on the number of households were incomplete. One group (Group A) consisted of the communities where this project was implemented (32 communities) and the other (Group B) consisted of communities where only the departmental program was carried out (30 communities). Then, two-stage extraction was conducted for each group. In the primary extraction, eight sample communities were extracted by probability proportional extraction based on the number of households in each community. In the secondary extraction, 15 household farmers were extracted from each community. However, allocation of the number of communities to the two group does not reflect the proportion of household number of them, but six communities were chosen from Group A, and two communities from Group B. Also, in the sampling of farmers in the secondary extraction, it was not possible to randomly extract them for such reasons as the fact that the household list was not necessarily maintained, and there were districts difficult to access even in the community. Of the 120 sample farm households, the number of responses was 94 households (response rate: 78%). Among the respondents were 35 females and 59 males. Households survey population (after removal of incomplete community data) was 4,839 households, and the sampling error range was $\pm 10.0\%$ (for population proportion of 50%; confidence level of 95%) assuming a random sampling.

(1) Procurement of development funds for implementing integral rural development projects by the relevant agencies

Regarding the procurement of development funds planned as Output 3 in this project, according to the interviews with the municipalities which worked as implementing agencies and the answers to the questionnaire from them, at the time of the ex-post evaluation, the database on funds support organizations and the manual for procuring funds, which were introduced in this project, have hardly been recognized by the present officers in the relevant section of municipalities. Accordingly, funding applications utilizing these have not been carried out. Factors that the database and the manual are not utilized include 1) relevant persons in municipalities are replaced without carrying out the handover, 2) there was a perception among some C/Ps during the project that the procedures and regulations for acquiring foreign funds were complicated, 3) Major financial support programs, such as Fondo Indigena (indigenous fund: support program for rural infrastructure and social development from the state budget and hydrocarbon tax) and MIAGUA (“my water” program: financial support for water supply and irrigation development by Andean Development Corporation (CAF)), have been actively operated and municipalities have increased their utilization experience, and 4) some municipalities obtain information on financial support organizations through inquiries to such organization as the Commonwealth of Northern Chuquisaca Municipalities.

(2) Practice of integral rural development model

Relating to Indicator 1 of the project purpose, from the interviews with the current officers in the relevant municipalities and the visits of the target communities, the following examples of exercising the rural development model after the project completion were identified.

- 1) In the target communities, diversification of production such as vegetables and fruit trees, in combination with small-scale irrigation, are observed. While some farmers stopped vegetable cultivation which they had started in this project and some reduced their production to a self-consumption level, vegetable cultivation is rooted in many communities. In addition, there is a success case of a flower farmer, who expanded the greenhouse cultivation of carnation, which was initiated by the training as part of this project, now shipping 300 thousand carnations a year to the market in Sucre.
- 2) There are many examples of rural development projects practiced by municipalities on their own or municipalities and the Department utilizing a part of the technology or the method of integral rural development acquired in this project (such as soil conservation, afforestation, organization of women’s group, domestic animal health). Table 3 shows examples of activities by the target municipalities.

- 3) There is a case that a municipality has implemented its own project to evolve or complement the activities undertaken by this project. Specifically, the municipality of Zudañez independently supported a small-scale irrigation to promote vegetable cultivation for some farmers in the neighboring area which was missing from the target of this project in the community of Cerezal.

Table 3 Examples of utilizing methods and components of this project

Municipalities	Example of activity
Sucre (District 8)	<ul style="list-style-type: none"> • Support for soil recovery and production based on the planning of the community residents in seven communities (2016-2018)
Yamparaez	<ul style="list-style-type: none"> • Knitting and dressmaking training for women’s groups (municipality’s own additional support to San Jose de Molles and Molle Punku; new support to Jatun Khakha and La Mendoza) • Extension of afforestation activities in other communities which had interest after the project (in cooperation with the Ministry of the Environment and Water or the Department) (Talahuanca, Urayampara, Acharani, Kompucuo, Palkamayu, Potrerros, Sirichaca, Pulki Abaroa, Esquisma), and utilization of afforestation protection method practiced in the project. • Continuing animal health activities utilizing domestic animal health equipment introduced in this project (promoter training, disease prevention campaign, etc. in collaboration with National Agricultural Health and Food Safety Service (SENASAG)).
Yotala	<ul style="list-style-type: none"> • The municipality opened a seedling center, triggered by the afforestation activities carried out in this project. As a municipal afforestation project, in Chamina, 10 ha was planted in addition to 3 ha planted by this project. The activities have been extended to other communities (Pulqui, Cancha Pampa, etc.). Afforestation campaign is carried out every year in the municipality.
Icla	<ul style="list-style-type: none"> • Promotion of vegetable cultivation through development of small-scale irrigation system by the Departmental program utilizing the method of this project (Chunca Cancha Baja, Chunca Potolo, Jatun Huasi, Tranquitas)
Tarabuco	<ul style="list-style-type: none"> • Training of various fields related to integral rural development (vegetable cultivation, soil improvement/recovery, organic cultivation, fruit cultivation management, food processing, small scale irrigation system) in the communities of El Carmen, Humahualso, Kara Kara, Tarcañi Alta, Tarcañi Baja, Tipa Villque, Paccha, Yerba Buena, Tambo Atajo, Moromarca, Cusi Wasi, Quiscoli Grande, and Quiscoli San Jaquin in collaboration with an NGO. They are carried out as municipality’s program, which was started in response to the other communities’ requests triggered by the project.

Source: Interviews with municipalities and questionnaire answers

(3) Personnel allocation related to implementation of the rural development model in the municipalities

In relation to Indicator 2 of the project purpose, two to eight technicians are arranged in the section of production development in each municipality (including the persons in charge of agriculture, animal husbandry, environment, disaster prevention, or other non-agricultural issues). They also include contract employees hired for a particular program. Although the staff size of the section is largely unchanged compared to the time of this project, there are municipalities that have fewer employees than before, such as Icla (three staff at the time of the ex-post evaluation from five at the time of the project). While the number of staff who have been working from the time of this project is limited, those who were engaged in this project in other municipality or the Departmental government as C/P technicians are observed in some cases.

(4) Personnel allocation in Institute of Integral rural development (IDRI) at USFX

With respect to Indicator 3 of the project purpose, seven faculty members, who used to work as the C/Ps of the project at IDRI established in April 2014 at USFX, have been working at the institute to conduct technical support to municipalities and provide research guidance to the university students (See “3.4 Sustainability” below for details).

3.2.2.3 Other Positive and Negative Impacts

From the results of the interviews and the questionnaire surveys to the implementing agencies, as well as the site visits and the interviews in 17 communities among the 36 target communities, which were conducted as part of the ex-post evaluation, the following impacts have been confirmed.

(1) Impact on the natural environment

Afforestation activities implemented in this project have provided necessary protection to the lands that were not covered with plants, suppressing soil erosion. A total of 567,000 seedlings were used in this project, and afforestation or reforestation was carried out covering at least 60 ha in each municipality. In addition, various construction works were conducted for soil conservation, such as stone walls, measures against gully erosion, infiltration trenches, water collecting ditches, etc. All these works for soil conservation have reached a length of 67,000 m in total, and a total of 20,000 m² of terraces has been developed.

According to the interviews with the officers of the municipalities, residents in Chamina Community of the municipality of Yotala recognize that the amount of spring water increased as a result of afforestation and vegetation protection at the water source where a small-scale irrigation was developed. Also, in the municipality of Icla, it is recognized that vegetation has

been recovered with soil erosion having decreased sharply in the communities of Molle Mayu and Kollpa Pampa.

(2) Awareness change of technicians in the municipalities and Department

Some of the technicians in the municipalities and the Department involved in this project stated the change in their own consciousness and its impact on their work afterwards. For example, a technician in the municipality of Yotala learned afforestation for the first time through this project, and at the time of ex-post evaluation he was actively promoting afforestation activities and campaigns in the municipality.

(3) Indirect effects on target areas and farmers

In many cases, this project targeted the communities located in remote areas under severe natural conditions in the municipalities. In that situation, indirect effects of this project on the living of farmers were observed in several communities (Presto Porvenir, Saichuma, Kollpa Pampa, Rio Tococho and Casa Grande). For example, increased production of subsistence crops and vegetables caused by the project eliminated the need of the farmer families for going out to a distant market to purchase them. In another case, because the water source was secured for the farmers by the project, it became unnecessary to spend their energy in collecting water.

(4) Gender effect

The strengthening of women's group activities led to their revenue growth and improved management capabilities, thus the advancement of the status of women in the community (increased involvement in community activities such as meetings and events; grant of responsibility based on the division of labor in the activity). In the group interview at a community, a beneficiary woman commented that in the project not only men but also women shared tasks such as making terraces, and she appreciated that unlike cooperation projects by other support organizations up until then, women and men could participate in the same training in this project. Also, in the same interview, the following three points were pointed out as changes brought by women's group activities. The first one was a change in awareness: the project activities made them clarify the things to do, though they had not understood what to do before the start of the activities. The second was improvement of concrete skills such as knitting. The third change was on the economic aspect through such group activities as running a mini-shop in the community by purchasing and selling everyday items and sharing the profits among the group members.

As described above, this project has largely achieved the project purpose of "A rural development model and implementation system will be established through implementing rural

development projects in the northern part of the department of Chuquisaca.” The overall goal has been achieved as planned through the extension of the model and improvement of small farmers’ quality of life. Although it was found about procurement of development funds that the municipalities gain information on funding support organizations by other means without utilizing the database developed as part of the project, it was also confirmed that the rural development model continues to be practiced and that various indirect impacts are actualized. Therefore, effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

Inputs	Plan	Actual
(1) Experts	Long-term: 3 persons (180 MM ^{*1}) Short-term: 2 persons (26 MM)	Long-term: 7 persons (171 MM) Short-term: 6 persons (25 MM)
(2) Trainees received	Training in Japan and the third country (Planned number unknown)	Training in Japan: 8 persons Third Country Training Program (Ecuador): 4 persons
(3) Equipment	Vehicles, small-scale radio station equipment, OA equipment etc.	1 million bolivianos (mini bus, motorcycle, computer, wireless equipment, video camera, surveying equipment etc.)
(4) Expenses for supporting local project operation	Planned amount unknown	6 million bolivianos ^{*2}
Japanese Side Total Project Cost	460 million yen	381 million yen
Bolivian Side Total Project Cost	C/P personnel expenses, project offices, facilities such as farm fields, equipment, local costs	Placement of C/Ps (USFX, municipalities, Department of Chuquisaca (up to 2012)), provision of project offices and garage (USFX), costs for project operation (7 million bolivianos during 2009-2011)

*1: MM stands for man month.

*2: The exchange rate was approximately 16 Japanese yen (JPY) per 1 boliviano (BOB) at the time of the ex-post evaluation.

Source: Document provided by JICA

3.3.1.1 Elements of Inputs

Japanese experts were dispatched largely as planned, as shown in the above table. From the Bolivian side, a total of 36 persons were planned to be arranged as direct C/Ps, namely eight persons from USFX, ten persons from the department of Chuquisaca, two persons (one extension worker and one planning officer) from each of nine municipalities. Except for one municipality that participated in the activity in the middle of the project, C/Ps were placed from each institution from the start of the project. However, many of the C/Ps, mainly those from the Department and municipalities, were replaced frequently, which necessitated the implementation of trainings for capacity building to newcomers repeatedly. In the background of this situation exists a factor specific to Bolivia: it is common in Bolivia that technicians in the government agencies are employed on the basis of a contract for a period of less than one year, and that even the general staff are replaced by the change of the leader of the government agencies.

However, a more significant change that occurred to the system of implementing agencies during the project was a withdrawal of the Department from the project in 2013. As a result of unified local elections in April 2010, in all of the implementing agencies except for the municipality of Sucre and USFX, a political party based on the local indigenous group, called Socialist Movement (Movimiento al Socialismo, hereinafter referred to as “MAS.”), took office. After then, the operation of this project became stable as the political system of MAS was gradually stabilized. Nevertheless, stemming from the differences of opinion that occurred between the Department and USFX on the involvement and management of the project, discussions continued for almost one year concerning a proposed reconstruction of the implementation system of the project. This was followed by the withdrawal of the Department from the project. In fact, judging from the documents provided by JICA and the interviews with concerned persons of the two countries, it was difficult indeed to have supposed in advance a departure of the implementing agencies that had been in cooperation with Japan through the predecessor projects (the validation study by the Ministry of Agriculture, Forestry and Fisheries and phase I of the project)

According to the questionnaire answers from the implementing agencies, the withdrawal of Chuquisaca Department from the project caused the human resources as C/Ps stationed in municipalities as well as the financial inputs from the Department to stop from 2013. This had negative influence on the development of activities of this project, in such a sense that municipalities and JICA had to increase their burden on activities such as implementation of mini-projects. On the other hand, after the prolonged problem was settled, the operation of the project was facilitated. In addition, the withdrawal of the Departmental government affected the compilation work of the rural development model, which was supposed to be undertaken by the Department. This work was, however, conducted by the effort of the JICA experts and

the C/Ps of USFX, and the expected outputs such as the list of techniques and the methodology for exercising the rural development model were achieved as planned.

3.3.1.2 Project Cost

The planned amount of the total project cost on the Japanese side was 460 million yen. The actual cost amounted to 381 million yen (83% of the planned amount), falling within the plan.

It is considered that the actual cost was less than the plan by 17% for the reason that there was a period of stagnation of the project activities such as a temporary stop to accept applications for mini-projects, in the process of the Department departing from the project. From 2013 on, the mini-projects were again implemented without contributions from the Department. However, as a whole, there was a possibility that the number of mini-projects was suppressed. In addition, according to the documents provided by JICA, since the application of a mini-project was prepared based on the intention or plan of the community, it was difficult to estimate accurately the number of projects, amount of money, timing of start and so on. As a result, a total of 266 mini-projects in the 36 target communities, meaning seven projects per community on average, were carried out for environmental protection, production improvement and social development. From the above, it is judged that these inputs were commensurate with the outputs and provided flexibly in accordance with the situation. Of the total project cost of the mini-projects, JICA's share of contribution was about 33%.



Non-target vegetables farmer supported by the municipality (Cerezal, Municipality of Zudañez)



IDRI is actively utilizing the list of techniques and training materials created by the project (IDRI, USFX)

3.3.1.3 Project Period

The planned cooperation period of this project was five years. The actual period was 60 months (five years) as planned, from May 2009 to May 2014.

Both the project cost and project period were within the plan. Therefore, efficiency of the project is high.

3.4 Sustainability (Rating: ②)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

The *Patriotic Agenda 2025* and the *Agricultural and Pastoral Sector Development Plan (2014-2018)* mentioned in “3.1.1 Consistency with the Development Plan of Bolivia,” continued to be effective until the time of the ex-post evaluation. The project that aimed to improve the living standards through the improvement of food production and rural development was in line with these policies.

In addition, included in the 12 pillars of policies in the *Development Plan of the Department of Chuquisaca (Plan Territorial De Desarrollo Integral: PTDI) (2016-2020)* are reduction of extreme poverty, improvement of agricultural production and productivity to ensure food sovereignty, promotion of sustainable development and afforestation by respecting the “mother land.” These are aligned with the direction of the project.

Therefore, in the light of the national long-term vision, the agricultural and pastoral sector development plan and the Departmental development plan, the direction of policy was consistent with the purpose of this project even at the time of the ex-post evaluation: sustainability of the project from the policy aspect is high.

3.4.2 Institutional/Organizational Aspect for the Sustainability of Project Effects

As the main institution responsible for spreading the integral rural development model that was introduced by this project, the Faculty of Agriculture of USFX established IDRI in April 2014, shortly before the completion of this project. All of the C/Ps who had been appointed by the university were placed in IDRI. At the time of the ex-post evaluation, the Director and seven researchers or lecturers belonged to the institute, all of whom used to work as C/Ps of this project. Furthermore, three of them have been working since Phase I of the project.

IDRI specifies its objective, mission, and vision in the Strategic Plan (2016-2020), as follows⁷:

- Objective: To achieve an integrated and sustainable rural development that can be replicated at least in the Department in collaboration with the courses and faculties in the university in a multifaceted manner, by cooperating with the Departmental government, municipalities in the Department, and rural development organizations in the area.

⁷ IDRI (2015), *Plan Estrategico Del Instituto De Desarrollo Rural Integral 2016-2020* and USFX Faculty of Agriculture website: <http://Cienciasagrarias.Usfx.Bo/instituto/instituto-de-desarrollo-rural-integral> (accessed on September 1, 2018)

- Mission: As an institute adjunct to the Faculty of Agriculture at USFX, focus on sustainable integral rural development, through actions of management and generation of knowledge; based on research, extension, interaction and capacity building processes, interacting with sector organizations in accordance with regional development policies, to contribute to the improvement of life and alleviation of poverty.
- Vision: Consolidate a Departmental reference university entity, a pioneer of sustainable integral rural development, based on research, extension, interaction and capacity building processes, interacting with sector organizations in accordance with regional development policies, contributing to the improvement of life and relief to poverty.

In this way, IDRI has set the direction of the organization and arranged the staff in order to support and extend integral rural development projects by applying the rural development model created by this project.

In regard to actual activities, IDRI has concluded agreements with a total of 14 municipalities in the department of Chuquisaca, Potosí and Tarija during the four years since its establishment until the time of the ex-post evaluation and has provided cooperation such as training and technical assistance in such areas as vegetable cultivation, life improvement, forest management, urban and suburban agriculture (including some activities in preparation). On the facility aspect, in addition to the office on the premises of Faculty of Agriculture of USFX in Sucre City, IDRI has set up a new base of activities in the campus of the municipality of Yotala, in an attempt to strengthen its function by utilizing the facility that has the experimental farm field and training rooms and is located more closely to the rural areas.

In the department of Chuquisaca, the directorate of agriculture and industry (Dirección de Desarrollo Agropecuaria E Industrial, hereinafter referred to as “DDAI.”) under the Secretary of Productive Development and Economic Diversity has been in charge of the rural development projects. The directorate has ten technical staff in agriculture at the time of the ex-post evaluation. Though the Department is not engaged in such programs that take full advantage of the methodology of this project, as it was in the integral rural development program in 2013-2015, it has been carrying out its own program called “Agricultural Development Enhancement Program” since 2016. The program is composed of various components such as support for holding agricultural product fairs and construction of wheat flour mill. Currently, it is being considered that training of cultivation techniques coupled with the provision of seeds and fertilizer to the producer will be added as a new component. Since this activity assumes participation of the target farmers from the planning stage and provision of comprehensive support based on a combination of resources, this approach can be understood to partly incorporate the methodology of the project and the Department’s program implemented in 2013-2015.

In each of the nine municipalities, two to eight technicians are placed in the section of production development (often including the persons in charge of agriculture, animal husbandry, environment, disaster prevention, and so forth). They also include contract employees hired for a particular program. The staff size of the section is largely unchanged compared to the time of this project. Out of the 16 C/Ps in total who had been assigned by the municipalities at the time of completion of the project, six persons were identified to be working in the same position at the time of the ex-post evaluation (including those who returned from other position or organization recently). In addition to that, it was observed that some of the present technicians had been engaged in the project as C/Ps at other municipalities or the Department. As described above, since the completion of this project, IDRI have promoted rural development through training and technical assistance by concluding agreement with municipalities. Among the target municipalities of this project, Sucre (District 7), Tarabuco, Yamparaez, and Yotala have implemented rural development projects in cooperation with IDRI. On the other hand, Department's own programs are also implemented in municipalities, and some examples of cooperation between the municipalities and the Department in afforestation and animal health were observed.

From the interviews with the implementing agencies and their questionnaire answers, it was not confirmed that after the completion of this project, rural development projects were implemented through cooperation of USFX, the Department, and the municipalities, while there was no occurrence of duplication identified between activities on rural development by the university and those by the Department. In addition, in an interview with a municipality, there was a comment on the modalities of cooperation between related institutions in the light of the experience of this project, indicating that it would be desirable for the municipality to cooperate with the university and with the Department separately, rather than pursuing tripartite cooperation. Specifically, a project in response to technical problems could be worked in a cooperation between the municipalities and the university, and an area-wide project aiming at comprehensive development, such as the project at the small-basin level, could be done through cooperation between the municipality and the Department.

In consideration of the above, it is judged that a foundation of the cooperation system centered around USFX has been formed to sustain the effects of the project. IDRI was established for the purpose of promoting the integral rural development, and a large number of C/Ps of the project from the university have been involved in support of the integral rural development projects even after then. IDRI is also enhancing its function with the initiation of operation of the new facility. The cooperation system by the related institutions is not based on the three parties of USFX, the Department and the municipalities. However, USFX is actively promoting cooperative relations with municipalities. On the other hand, cooperation between the municipalities and the Department is taking place, as the Department programs are seen

implemented in municipalities. For the municipalities, tripartite cooperation is not necessarily considered a prerequisite to promotion of rural development projects. A substantive division of roles is seen in the current activities of related institutions, depending on the content and nature of the problems to be solved. Therefore, the sustainability of the effect of this project on the institutional aspect is largely high.

3.4.3 Technical Aspect for the Sustainability of Project Effects

As described above, the lecturers who used to serve as C/Ps of this project have been working in IDRI, and they actively utilize the list of techniques, brochures and teaching materials created in this project. These are used in the projects and training curriculums that IDRI supports and are exhibited or introduced in national and international seminars in the rural development or agriculture-related fields. A series of technical materials that were prepared in this project, have become the intellectual assets for IDRI to expand its activities as the core tools. IDRI also incorporates the methodology of “development cycle” that was an element making up the integral rural development together with the list of techniques, by making use of participatory tools for technical support in the cooperation to municipalities as stated above. Furthermore, playing a role to foster future technicians and engineers in agriculture and rural development as an educational institution of the university, at the time of the ex-post evaluation, IDRI was proposing within the university to open a new two-year course entitled the “Integral Rural Development Course” for senior technicians who already work as practitioners. If this course is realized, a continuous framework will be established to disseminate the technical products of this project to incumbent technicians in the Department and the municipalities.

Since the technicians of the Department and municipalities retire after two-three years in many cases, it was commonly observed that many of the C/Ps of the project had already been changed and the products such as the list of techniques were not utilized without a proper takeover between the relevant officers at the time of the ex-post evaluation. On the other hand, there was also a case in which a present technical officer in some municipality who was not directly the C/P of the project stated that he refers to the list of techniques and brochures created by the project when necessary and introduces these materials to newly employed officers for their reference as needed. In addition, it is observed that some technicians at one municipality move to another municipality in the Department or the Departmental government in their career. As described above, among the present technicians at the nine municipalities are those who used to serve as the C/Ps of this project at a different municipality or used to be engaged in the Department program utilizing the technique of this project as technical officer at the Department. Many of the officers who worked as the C/Ps of the project stated in the interviews at the time of the ex-post evaluation that they have been taking advantage of the acquired knowledge and skills through participation in this project for their current jobs.

From the above, IDRI has been contributing to the maintenance of technology necessary for sustaining the effects of this project through retaining human resources and actively utilizing the technical results of this project. In the Department and municipalities, the tendency for technical human resources to move among the municipalities in the same department and between the municipalities and the Department would be leading to technical spillover in the Department to some extent, through the experience and technology accumulated in individuals being utilized in other municipalities. However, there remain challenges to systematic inheritance of technology in a state of low retention of human resources. Therefore, the sustainability of the effect of this project on the technical aspect is moderate.

3.4.4 Financial Aspect for the Sustainability of Project Effects

In Bolivia, due to a significant decline in oil prices since 2015, the hydrocarbon tax revenues (Impuesto Directo a los Hidrocarburos, hereinafter referred to as “IDH.”) and the royalty income, which the government receives from oil and natural gas producers and are allocated to the departments, municipalities, and national universities, have been greatly reduced after peaking in 2014. This effect has also reached the financial situations of USFX.

On the other hand, according to the interviews with IDRI, each of the teachers of IDRI whose important mission is to research and extend in the field of rural development, is required by the university to set in advance the time ratio of his/her engagement in educational activities (work for classes and student teaching along the university curriculum) and research activities (other work on his/her own such as research, extension and external training). For example, one could be set to work on educational activities for 60% and on research activities for 40% of the total work hours. Then, the university allocates to IDRI the budget corresponding to the amount calculated based on the total work hours and the unit amount of salary set on an individual basis. Therefore, the budget of IDRI that corresponds to personnel expenses has basically been allocated from the university every year. According to the interviews with IDRI, although there is a possibility that the time ratio of research activities and educational activities will be changed, the total number of hours that is the basis of the budget is expected to be relatively stable in the future. On the other hand, with regard to expenses necessary for research activities and specific equipment and instruments other than general ones, IDRI is required to cover the costs on its own, for instance, by seeking for external financial resources, not from the university budget. In this sense, the academic staff of IDRI are exploring the possibility of cooperation with municipalities, NGOs, and other funding support agencies on a routine basis. Table 4 indicates major projects funded by external funding support agencies that IDRI participated after its establishment in 2014. It should be noted that apart from these activities, IDRI has carried out the activities including technical guidance based on the agreement with municipalities described above and specific training for technicians.

Table 4 Major projects by external fund support agencies participated by IDRI

Period (Year)	Project name	Financial support organization	Budget amount (Boliviano)
2014-2016	Food Sovereignty and Food Safety Integrated Development Project (D ISSA)	2 KR (Counterpart Fund)	5,066,133
2015	Technical support for sustainable and autonomous hygiene for the ecological toilet project in the suburb of Sucre city	SNV (Netherlands)	146,440
2015-2016	Vegetable cultivation management improvement project in Eco Region 2	World Bank - INIAF (Instituto Nacional de Innovación Agropecuaria y Forestal)	1,252,800
2015	Expert capacity building training for clean vegetable production	LIDER (Línea Institucional de Desarrollo Rural)	22,864
2015	Equipment for IDRI laboratory	PSCU (Proyecto Sucre Ciudad Universitaria)	363,121
2016-2017	Technical adaptation to climate change through forest breed production and plantation in the Andes Highland	COSUDE (Switzerland), University of Mayor de Saint Simon Forestry School (ESFOR - UMSS)	406,030
2018-2019	Elaboration of a portfolio of integral projects in the sub-basin of Yuraj Molino, Pocona city in Cochabamba Department	Fondo Mallorquín de Solidaridad y Cooperación (Spain)	752,000

Source: Compiled from the questionnaire answers from USFX

In addition, as described above, at the time of the ex-post evaluation, as part of the educational activities, IDRI was proposing to open a two-year course entitled the “Integral Rural Development Course” for senior technicians already working as practitioners. If it is realized, a mechanism to continuously acquire tuition fee income will be established.

In the Departmental government, 1.5 million to 3 million Bolivianos was allocated annually to the program that it independently implemented during the three years after departure from this project. However, no successor programs of the same kind are currently implemented. As described above, the Department has been implementing its own program named “Agricultural Development Enhancement Program” since 2016, but the direction of the budgetary scale of the program in the future is not necessarily clear.

Since the majority of municipal budget revenue is allocated from the central government tax revenue (including IDH), obtaining new financial sources through external programs has become important to the municipalities with the allocation decreasing.

Development projects are carried out in the municipalities through programs of the central government such as the Indigenous Fund (Fondo Indígena) and the Rural Economic Inclusion Program (ACCESOS) and in cooperation with universities or NGOs. According to the interviews with the municipalities, they are attempting to acquire information on such external programs in various ways. Some of them also answered that they were making significant efforts for the works including negotiation and coordination in order to realize such programs in their municipalities. This implies that it is not always easy to secure financial resources. In this way, in the municipalities, since realization of development projects depends on whether to obtain external funds, such as programs of the central government, NGOs and foreign institutions, financial uncertainty is considered to continue.

Some problems have been observed in terms of the technical and financial aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project aimed at establishing an integral rural development model to conserve natural resources and improve living standards, and its implementation system based on the cooperation of related organizations in the northern part of the department of Chuquisaca in Bolivia. With the overall goal of improving the quality of life of small farmers in the Department, the project was implemented by training core human resources in rural development in communities, municipalities, the Departmental government and the university, and carrying out rural development projects in line with the needs of the communities. This project is of high relevance because it was highly consistent with Bolivia's development plans of the country and agricultural sector, development needs of the target area and Japan's ODA policy, and because the project approach was appropriate. Effectiveness and impact of the project are high, because this project largely achieved the project purpose since the implementation system was established with USFX as the core organization to be able to take advantage of the clarified rural development model on a constant basis, although a comprehensive implementation system was not established. The overall goal is also identified to be achieved as planned. Although the relatively frequent replacement of C/Ps and the departure of the Department from this project had negative influence on the progress of the project activities, subsequent works were conducted by the effort of the JICA experts and the C/Ps of USFX, resulting in the achievement of the expected outputs. As a whole, efficiency of the project is high because the project cost was lower than planned and the

project period was as planned. Sustainability of the project effects is fair, because some problems have been observed in terms of the technical and financial aspects though sustainability from the policy and institutional perspectives is considered to be high.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

- (To IDRI, USFX) Promotion of continuous exchanges with technicians of municipalities: Though this project aimed to establish the implementation system of integral rural development projects based on shared responsibility and cooperation among the Departmental government, municipalities and the university, a comprehensive system based on the harmonization of the three parties was not realized. Meanwhile, although technicians who work for rural development projects in municipalities generally have high mobility of employment, many of them continue to work as technicians within the Department or the country. If the university and technicians in the municipalities have an interface on a routine basis, the possibility of forming more projects in collaboration can be created. Therefore, it is suggested that by having more frequent contact with the people involved in rural development in the field, USFX play a role as “reference center” to the issues that such technicians face in their work. This would enable the university itself to understand the needs in the field and broaden the possibility of identifying new collaboration projects with the municipalities. As an example of concrete activities, it is considered that USFX will organize a network with technicians who were involved as the C/Ps in this project as the core members and continuously carry out exchange activities such as network events, seminars and workshops, in an attempt to actively extend rural development in the area. It is expected that forming a group of “graduates” engaged in this project would raise a sense of belonging and solidarity to the university, thereby promote the members to create a base of cooperation as alumni and raise their motivation to keep integral rural development.
- (To IDRI, USFX) Disclosing of the list of techniques and brochures on the website: The technical results of the project such as the list of techniques and brochures created as part of the project activities are still actively utilized by IDRI in various occasions. On the other hand, there was an opinion from the current technicians of some municipalities that used to be the implementing agencies of the project that they want to use these publications in their field but do not keep them at hand. It would be preferable that USFX disclose them on the website to the extent possible so that technicians at the Department and municipalities and farmers who need such information at the site of rural development could easily refer to them.

4.2.2 Recommendations to JICA

Indirect support for USFX's activities of network formation: In order to promote the sustainability of this project and extend its effects to other communities and areas, USFX (IDRI) needs to play a further role as a central institution of research and human resource development on integral rural development. It is proposed that JICA render indirect support to promote the above-stated networking activities between IDRI and the technicians in the municipalities. For example, it could consider dispatching resource persons or providing financial support for seminars, workshops and observation visits to other areas planned as part of these activities.

4.3 Lessons Learned

Selection of the implementation agencies considering employment stability in planning a project aimed at establishing the implementation system in a country where employment of government officers is generally unstable

In Bolivia, it is generally recognized as a major problem that employment of officers of government agencies (national government, departments, and municipalities) is susceptible to influence of contract type and change of leaders of the organization, thus unstable. It can be said that this project was highly challenging in the sense that it aimed at actualizing a continued implementation system by multiple institutions in such a country. On the other hand, the retention rate of the C/P teachers at USFX which was one of the implementing agencies is very high, even including those who have been working from the phase I of the cooperation, which is thought to be a major factor having contributed to promoting the project activities in terms of technical as well as operational aspects. Thus, in a country like Bolivia where the staff are highly mobile in government agencies such as municipalities due to the influences of employment contract and elections, it is expected to increase a possibility of sustaining project effectiveness and inheritance of technology by including an organization where employment is more stable (such as universities and research institutions in Bolivia).

END

Attachment

Achievement of Outputs

Outputs	Indicators	Actual Results
1. Core human resources for integral rural development are trained in communities, municipalities, the Department and USFX.	1. Ten university teachers, eight Departmental technicians, nine municipal extension workers, nine municipal planning officers and community leaders (at least 10% of the beneficiaries) are trained respectively.	It was largely achieved. During the project implementation period (2009-2013), 11 teachers of USFX, eight Departmental technicians, 16 extension workers in the municipalities, were trained. As described below in 3., during the same period a total of 64 persons participated in training for community leaders, the target ratio of leaders trained (10% of the beneficiaries = approximately 200 persons) was not reached. This may have been affected by the delay in the project's progress in the process of the Department separating from the project.
	2. Training materials and a curriculum that reflect the training results are elaborated.	It was largely achieved. Training materials were prepared for 32 themes. The manuals consist of six kinds for extension workers and 26 kinds for farmers, responding to various needs such as afforestation, soil conservation, cultivation of various horticultural crops (vegetables, fruit trees, flowers), livestock farming, beekeeping, and strengthening of organizations. The curriculum for training human resources for integral rural development projects based on these various teaching materials was not created, because the Integral rural development Institute (IDRI) had not yet started its full-scale activities.
	3. In the section for research, extension and human resource development of USFX, one training course for technicians and two training courses for farmers are implemented a year.	It was achieved. C/Ps of USFX played a central role in providing 24 training sessions to planners in the municipalities during the period of the project, participated by a total of 287 persons. In the communities, 211 training sessions in 21 communities were held for farmers, and at least 2,635 persons participated. Among them, a total of 64 farmers participated in the trainings for community leaders. USFX established IDRI in April 2014, before the completion of the project, the C/Ps of the university were placed in IDRI.
2. Through the implementation	1. 36 communities in the target nine	It was achieved.

<p>of integral rural development projects based on community development plan, process from planning to implementation of integral rural development projects is modeled.</p>	<p>municipalities each have community development plan.</p>	<p>In this project, community development plans and annual implementation plans for the target communities were planned to be prepared after conducting a baseline survey on each community and organizing the problems and activity needs of the community based on the survey results, through participatory workshops by community residents. The community development plan was prepared in all of 36 target communities by the time of completion of this project.</p>
<p></p>	<p>2. Based on monitoring and evaluation results of individual mini-projects and pilot projects, a list of techniques that can be utilized for conservation of natural resources and improvement of living conditions is organized.</p>	<p>It was achieved. Activities through mini-projects and pilot projects were carried out in all target communities, totaling 266 projects implemented. In the latter half of the project period, monitoring and evaluation of the projects were executed on a full scale, and the results were compiled and a list of nine techniques was created.</p>
<p></p>	<p>3. The methodology of participatory planning, implementation, monitoring and evaluation of integral rural development projects is summarized as a cycle of development project.</p>	<p>It was achieved. The methodology of participatory planning, implementation, monitoring and evaluation that had been practiced through the project was compiled and prepared as a manual of methodology for integral rural development projects titled "Project cycle."</p>
<p>3. Internal and external development funds for implementation of integral rural development projects are procured by municipalities, the Department and USFX.</p>	<p>1. Procedures for fund procurement are organized. 2. Extension workers, planning officers of municipalities and officers of the Department and USFX understand the various funding application procedures.</p>	<p>It was achieved. Activities were undertaken to organize information on various financial support organizations and to promote understanding of fund application procedures in order to raise the development fund procurement capability by the implementing agencies including municipalities. Specifically, in order to learn different application procedures by support organizations, seminars and briefing sessions for relevant officers in the municipalities were held by each support organization. Guidance materials were also prepared for each parliament of municipalities. In addition, along with a fund procurement manual, "Fund</p>

		management”, a CD-ROM containing a database that summarized the information on these support organizations. Also, training sessions on their operation were provided in the municipalities. The work of this component was carried out by a fund management team composed of C/Ps of USFX and the municipalities and Japanese experts.
	3. Appropriate application documents have been prepared for procuring funds for integral rural development projects in the target 36 communities.	It was achieved. As a result of the above activities for promoting understanding, up to October 2013, applications were submitted to a total of seven funding support institutions from all target communities. The number of applications amounted to 21 (including projects covering multiple municipalities), with a total of 58 million Bolivianos (approximately 928 million yen).
	4. The funds procured at the target 36 communities are utilized.	It was partly achieved. According to the questionnaire responses from the implementing agencies at the time of the ex-post evaluation, out of the projects for which applications were submitted, it was confirmed that eight projects totaling 13 million bolivianos (approximately 208 million yen) were approved by four institutions by February 2014. A state of all target communities realizing fund procurement by the time of the project completion, which the project had planned to achieve, was not accomplished. As possible reasons, in addition to the factors such as the degree of conformity with the supporting policy of the funding institution, retirement or replacement of C/Ps at the municipal level may have had an influence. However, it is possible to understand that fund procurement by the implementing agencies was achieved to a certain extent.
4. Coordinating Committee for defining the direction of integral rural development of northern Chuquisaca is	1. Coordinating Committee has been established to work on integral rural development in the northern part of Chuquisaca Department, in which the division of roles among municipalities, the	It was not achieved. Implementation system of this project continued in an unstable state due to the difference of opinions among the implementing agencies during the implementation of the project, and there was no agreement on the division of roles in the Coordinating Committee that was held only once.

<p>properly operated by municipalities, the Department and USFX.</p>	<p>Department and USFX is agreed.</p> <p>2. Coordinating Committee is regularly held to discuss and coordinate the activities for integral rural development.</p>	<p>It was not achieved.</p> <p>Coordination Committee was held only once as described above.</p>
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Column: Lessons Learned from the Comparison of Implementation System Improvement Projects in the Agricultural Sector in Bolivia

Two technical cooperation projects were implemented almost simultaneously in Bolivia with the aim of improving implementation systems in the agricultural and rural development sectors: the “Project of the Implementation System for Sustainable Rural Development Phase II” (CR2) and the “Project for Value-added Agriculture and Forestry for the Improvement of the Livelihood of Small Scale Farmers in Northern La Paz” (PANLAP).

The survey analysis conducted in conjunction with this ex-post evaluation categorized the characteristics of the implementation system development in both projects and the differences in the actual status of the project effects. It also analyzed the contributions and impediments to the realization of the results, referencing examples of similar projects in other Latin American countries. Based on this analysis, two categories of lessons are presented: (1) lessons learned from projects implemented in countries with characteristics and backgrounds similar to Bolivia; and (2) lessons common to agricultural and rural development projects aimed at improving implementation systems targeted not only at Bolivia.

1. Lessons Learned from Projects Conducted in Countries with Characteristics and Backgrounds Similar to Bolivia

Countermeasures against risks particularly likely to arise in projects implemented in countries with characteristics and backgrounds similar to Bolivia are listed below. In addition to addressing risks during the implementation of projects, these countermeasures also address risks that may arise after the completion of projects.

(1) Response to the risk to employment continuity of technicians at implementing agencies

In countries where national institutions or practices do not ensure the employment continuity of members of the implementing agency, not only are the activities delayed and the effects of the activities hampered during the project, but also the sustainability of the project’s results after its completion is hampered. When projects are implemented in countries with such systems and practices, the following risk response methods are considered.

- 1) It is important to ensure the continuity of project activities as a whole and the maintaining of technological systems involved by ensuring that the core technologies of the project are retained in institutions with higher employment continuity by including institutions that have implemented different employment practices and systems. In the case of the projects analyzed, as shown in CR2, it would be appropriate to assign responsibility for technology development in the project to the university which assumed the role and had high employment stability of its staff working for the project, rather than government and

administrative agencies.

- 2) When it is impossible to expect an appropriate succession at the time of a technician's turnover at the implementing agency, it is important to transfer technology directly to the beneficiary farmers and communities during the implementation of the project and to disseminate the target technology to the field as much as possible. In this case, since individual farmers directly possess the technology rather than receiving it through the engineers of the implementing agency who were intended to disseminate the technology after the project, the scope of extension is narrowed. However, to reduce these constraints to a certain extent, it is possible for the project to target producer organizations and social organizations in the target area.

(2) Response to the continuity risk of the implementing agency itself

In countries where the employment of lower-level staff, such as engineers, is affected by the appointment of top-level personnel in the government and in administrative agencies, it is challenging for implementing agencies to continuously commit to cooperation projects. In particular, when the head of the implementing agency is constantly changing due to election results and the wishes of a higher organization, it is necessary to judge the prospects of organizational stability more carefully. While it is difficult to predict how such political risks will materialize during the project period, it is possible to consider the following responses.

- 1) Include the establishment of laws and systems in project activities. Aiming for the establishment of laws and systems in cooperation projects is considered effective in ensuring a stable system that will not be influenced by turnover in the top management of implementing agencies. This is said with the acknowledgement that implementing projects can be difficult, particularly when the project aims to introduce laws and regulations that stipulate the involvement and cooperation of multiple organizations.
- 2) As in (1) above, including implementing agencies that are considered to have relatively few political risks and possess core technologies can enhance the continuity of project-wide activities and stabilize the maintenance of technology.

2. Lessons Common to Agricultural and Rural Development Projects for the Improvement of Implementation Systems

The following three points are the lessons learned from projects aimed at improving implementation systems.

(1) Confirmation of project structure and steps

Projects aimed at improving implementation systems are undertaken by combining various components, and there are no projects that merely put in place an implementation system

diagram. From this perspective, it is particularly important to consider the following two points when planning a project to develop an implementation system.

- 1) In addition to clearly defining what the implementation system will be developed for, namely, the plan, model, etc. to be implemented after establishing the system, the following elements will have a major impact on the realization of the establishment of the system: the positioning and nature of the plan or model and whether the formulation of the plan or model itself is included in the content of the project.
- 2) As in the projects examined in this analysis, it takes a long time to establish and stabilize systems when developing implementation systems for agricultural and rural development in specific regions, from the development of technologies such as appropriate crop varieties and cultivation methods to the guidance and practice of production, processing, and marketing. In CR2, the fact that some progress had already been achieved in the accumulation of elemental technologies required for integral rural development has contributed to the realization of the results. On the other hand, in its initial plan (before the extension of the project), PANLAP concentrated on developing implementation systems and technologies for the cultivation of appropriate rice and cacao varieties, and it envisioned steps to promote the extension and extended practice of these developments in its next phase. Therefore, it is somewhat likely that these technologies could not have been disseminated without an extension of cooperation when it was decided that the next phase would not be implemented, and that the results of the project as a whole would not have been achieved. Accordingly, it is important to carefully consider procedures and steps that take into account the context, positioning, and risks inherent in the process of implementation when planning a project.

(2) Alignment of the mission of the organization in charge with the project

Although neither project was able to establish a comprehensive collaboration system among the relevant organizations as originally planned, the approach of the lead implementing agency in utilizing the technical results of the project has led to a certain degree of sustainability for CR2. This was largely due to the fact that the mission of the Institute of Integral Rural Development (IDRI), established by the University of Saint Francis Xavier, was consistent with the extension and deployment of the “Integral Rural Development Model.” On the other hand, the National Institute for Innovation in Agriculture, Livestock and Forestry (INIAF), whose role is research, development, and extension of seeds related to agriculture and forestry, only played a part in the various activities of the value-added agricultural strategy relating to rice and cacao production that PANLAP was aiming to establish. This is considered to be one reason why INIAF was unable to demonstrate sufficient leadership in its project. Therefore, when considering the implementing agency at the planning stage of projects aimed at developing implementation systems, it is

important to center the organization whose role and function will allow full utilization of the technical results generated by the project.

(3) Consideration of regional characteristics and the mobility characteristics of the parties involved in the project

Northern La Paz, which is the target area of PANLAP, is an Amazonian region located in a lowland area isolated from the highland city of La Paz geographically, environmentally, and culturally. Because of the lack of specialist human resources within the region, there were many cases in which technicians engaged in the project at the implementing agency were recruited from other places, such as La Paz City. As a result, there were misunderstandings due to unfamiliarity of local practices by the employed technicians and early retirements due to problems within their families. In addition, the main activities of the project were carried out in indigenous Takana communities. Some representatives of the implementing agencies referred to the possibility that the lifestyle and social characteristics of the Takana impacted the results of PANLAP. For example, it was pointed out that for the Takana people, who were mainly engaged in traditional livelihoods such as hunting, fishing, and mobile agriculture, irrigated rice cultivation based on joint work in paddy fields is an entirely new technology and method, and it is necessary to consider the possibility that it will take a long time for them to accept these practices.

In light of these factors, it is especially important to consider the geographical conditions of the region and social and cultural factors of the local residents who will become the producers, including their lifestyles, historical customs, manners, and temperaments, in addition to the technical suitability of the crops to be promoted and the land to be targeted when planning implementation system development projects. This is especially true for projects targeting specific areas, such as CR2 and PANLAP. It is also important to reflect these factors in the approach to developing the system. Furthermore, when employing non-local project personnel, such as engineers, it is advisable to pay attention to characteristics such as their compatibility with the local community and the outlook for domestic mobility associated with employment during the implementation phase of the project.