Plurinational State of Bolivia

FY2017 Ex-Post Evaluation Report of Technical Cooperation Project "Project for Value-Added Agriculture and Forestry for Improvement of the Livelihood of Small Scale Farmers in Northern La Paz"

External Evaluator: Yusuke Hasegawa, International Development Center of Japan Inc.

0. Summary

The "Project for Value-Added Agriculture and Forestry for Improvement of the Livelihood of Small Scale Farmers in Northern La Paz" (hereinafter referred to as "the project") aimed to establish a value-added agriculture and forestry base by formulating value-added agricultural strategies based on improved farming by increasing the productivity of single-year crops and introducing permanent crops and by developing a strategy implementation system of relevant organizations through pilot projects and strengthening the capacity building of relevant organizations and farmers, thereby, improving the livelihood of farmers and reducing poverty in the northern La Paz region in Bolivia. The Project was aligned with the Bolivian National Development Plan and the Agriculture Sector Development Plans, which emphasize poverty reduction of small-scale farmers, developmental needs of the target areas, and Japan's assistance policies. It also recognized the appropriateness of the intended phase separation and the project approach. Therefore, the project is considered highly appropriate. The project purpose was achieved with high productivity and added value for both rice and cacao. However, the project did not fully achieve its overall goal because rice markets have deteriorated and communities without demonstration farms have not yet introduced irrigated rice cultivation. Therefore, the project has fair effectiveness and impact. Efficiency is low because both the project cost and project period exceeded the plan. No major problems have been observed in the policy background. However, major financial problems and some organizational and technical problems have been observed. Therefore, the project effects have low sustainability.

Therefore, this project is evaluated to be unsatisfactory.

1. Project Description





Project Location

Cacao tree of a farmer trained under the project (San Felipe Community)

1.1 Background

There was insufficient development in the northern La Paz region in Bolivia, despite high potential for agricultural production. While 90% to 95% of the economically active population was engaged in agriculture, many farmers did not have adequate cultivation techniques and were unable to harvest commercially viable agricultural products (JICA, *Preparatory Survey for Northern La Paz Development Project focusing on Cacao, Bolivia*, 2009). Consequently, not a few farmers earned their livelihoods through illegal timber harvesting. However, the decline in income resulting from deforestation made farmers increasingly aware of the need for stable income through other methods.

Against this background, the government of Bolivia requested the government of Japan to provide technical cooperation to comprehensively strengthen production, processing, and distribution of recommended crops and to promote development in the area by increasing agricultural productivity. In response, the project was launched with the planned period of three years from March 2010 to March 2013. It had four implementing agencies: the Ministry of Rural Development and Lands (Ministerio de Desarrollo Rural y Tierras, hereinafter referred to as "MDRyT") - the National Institute for Agricultural and Forestry Innovation (Instituto Nacional de Innovación Agropecuaria y Forestal, hereinafter referred to as "SBV"), and the Municipality of Ixiamas (hereinafter referred to as "IXM"). This project was envisioned as Phase 1 to be implemented in the first three years of the seven-year overall cooperation, and the base would be developed in this phase for full-scale implementation of the value-added agriculture and forestry strategy expected in Phase 2.

1.2 Project Outline

Overall Goal		To alleviate poverty of small-scale farmers in the Project's target area			
Project Purpose		To establish a value-added agriculture and forestry base within the			
		Project's target area			
	Oraciana 1	A strategy for value-added agriculture and forestry is elaborated			
	Output I	through the improvement of the production system.			
Outputs		Capacities of relevant institutional engineers and small-scale farmers			
	Output 2	are strengthened to implement the value-added agriculture and forestry			
		strategy.			
Tota	ıl Cost				
(Japan	ese side)	431 million yen			
Per	iod of	March 2010 - September 2014			
Coop	eration	(Extension period: March 2013 - September 2014)			
		Ministry of Rural Development and Lands - National Institute for			
Imple	menting	Agricultural and Forestry Innovation, Department of La Paz,			
Âge	encies	Municipality of San Buenaventura, Municipality of Ixiamas			
		(Responsible Agency: Ministry of Rural Development and Lands)			
Other	Relevant				
Agencies/ Organizations		None			
Supporting		Contractor (Chief Advisor): TASK Co., Ltd.			
Agencies/Organizat		(March 2010 - September 2013)			
		World Bank "National Roads and Airport Infrastructure Project"			
Related	Projects	(2011-2018) "Integrated Community-Driven Territorial Development			
Related	110jeets	for Remote Communities in the Amazon" (2014-2017)			
		for Remote Communities in the Amazon" (2014-2017)			

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

It was judged as follows: The project purpose was unlikely to be achieved. The value-added agricultural strategy was under development, and challenges remained for securing funds and human resources to implement the strategy undertaken by the four implementing agencies directly involved in the project in Bolivia. The roles and responsibilities of each organization under the strategy were under consideration and the project had not yet reached the stage of formulating detailed action plans based on the strategy.

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

It was difficult to determine attainability at terminal evaluation. One of the overall goal indicators was the increase in income of small-scale farmers. Although this project was intended to conduct baseline surveys and establish numerical indicators, it was impossible to accurately estimate farmer income due to the existence of income other than agriculture (illegal timber harvesting, etc.).

1.3.3 Recommendations from the Terminal Evaluation

It was concluded that the project period needed to be extended to achieve the project purpose and ensure the sustainability of cooperation results. The following recommendations were made.

- Further emphasis on direct technical guidance to farmers is desirable. Practical technical guidance would be provided by expanding the scale of irrigated rice cultivation from a pilot scale to one that would generate income in a demonstration farm. Technical guidance should be continued for cacao. In addition, it is recommended to train neighboring communities other than those with demonstration farms to pursue technological spillovers.
- It was desirable to secure an extension period of one year and six months for the expansion and maintenance of the demonstration farm, maintain it for two seasons of irrigated rice cultivation, and continue agroforestry¹ for cacao.
- Hereafter, implementing agencies should follow up on activities within their respective responsibilities. It was also necessary to clarify the responsibilities and roles of the national coordinator.
- In accordance with the division of roles among Bolivian agencies, it was essential to continuously allocate personnel, and secure and execute budgetary allocations.

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 - April 26, 2018 and July 26 - August 10, 2018

¹ Agroforestry is a form of cultivation that is intended to be sustainable, by not only planting cacao but also combining it with trees and other crops such as citrus fruits and platano (a kind of banana), considering the agricultural ecosystem of the region.

3. Results of the Evaluation (Overall Rating: D)²

3.1 Relevance (Rating: $(3))^3$)

3.1.1 Consistency with the Development Plan of Bolivia

From planning to completion, the purpose of this project was consistent with the policies in both medium- and long-term national development plans and sector plans of the ministry in charge of agriculture. First, the National Development Plan (2006-2011) "Live Well (Vivir Bien)," formulated under the administration of President Morales in 2006, and its long-term vision, the Patriotic Agenda 2025 (Agenda Patriótica 2025), both emphasized poverty reduction and rural development, and were consistent with the project's overall goal of reducing poverty of small-scale farmers. The Sector Development Plan (2007) of the erstwhile Ministry of Agriculture, Rural Development and Environment (Ministerio de Desarrollo Rural, Agropecuario y Medio Ambiente, hereinafter referred to as "MDRAyMA") stated that, "securing food sovereignty and food security" and "integrated promotion of food production and rural development" as strategies. The MDRyT, established through the reorganization of the MDRAyMA, continued the same policy in the Agriculture and Livestock Sector Development Plan (2011-2015). Subsequently, the MDRyT updated the Development Plan (2014-2018) to emphasize, among others, "food sovereignty and food safety" and "sustainable family agriculture." These plans were consistent with the expected project results of improving the production systems of small-scale farmers to implement the value-added agriculture and forestry strategy, and thus the overall goal of reducing poverty until the completion of the project. At the Department level, the La Paz Department Development Plan (2007-2010) followed the aforementioned direction of the National Development Plan and aimed at building a society and economy to overcome poverty. The next plan (La Paz Department Development Plan until 2020) formulated in 2010 also called for poverty reduction, aiming for integrated and sustainable development based on productivity improvement and inclusive and equitable economic promotion. Both were aligned with the project's goals of improving productivity and reducing poverty of small-scale farmers.

3.1.2 Consistency with the Development Needs of Bolivia

Poverty and basic services in the target areas have improved from the planning to the completion of the project. However, except for SBV's water supply and basic sanitation services, which were relatively developed already, there remain large disparities in the conditions between this area and national averages. Thus, the conditions were well aligned with the project aimed at improving these services. For example, according to data from the

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

³ ③: High, ②: Fair, ①: Low

National Statistical Institute in 2012, the poverty rate was 62% for SBV and 77% for IXM compared to the national average of 45%. Electricity service coverage was 71% for SBV and 61% for IXM compared to the national average of 85%.

In terms of agricultural production, as described in the "1.1 Background," La Paz Department's agricultural production, including the target areas, remained sluggish for a long time, with continued need for productivity improvement. The implementation of this project was consistent with developmental needs. According to an analysis by the department's *Integral Regional Development Plan (2016-2020)*, the department's share in Bolivian GDP was 25% in 2014, which was on a long-term downward trend. The plan cites weaknesses in the productive structures of La Paz Department and notes that no crops in the agricultural sector have significantly increased production over the last two decades.

3.1.3 Consistency with Japan's ODA Policy

The content of this project was consistent with Japan's assistance policies at the time of planning the project. JICA's Country Assistance Implementation Plan for Bolivia, formulated in 2006, established "poverty reduction for small-scale farmers" as a cooperation program that contributed to both "social development" and "productivity improvement," which were priority areas of assistance, and this project was positioned below the program. The project, which aimed to raise incomes through improved productivity of small-scale farmers, is considered consistent with the program. In addition, *Japan's Country Assistance Program for Bolivia (April 2009)* had two pillars of support: "social development for poverty reduction" and "assistance for sustainable economic growth." The former included rural development, including the development of agricultural infrastructure such as irrigation, and the latter included technical support in the agricultural sector. These measures were in line with the project aiming to improve the living standards of small-scale farmers by improving their productivity.

3.1.4 Appropriateness of the Project Plan and Approach

(1) Grand design of two-phase cooperation

The project was originally planned as the first part (three years, Phase 1) of the overall seven-year cooperation. The phased approach envisioned a collaboration and cooperation system among relevant organizations in Phase 1, and developing full-scale value-added agricultural activities in Phase 2. In practice, Phase 2 cooperation was not implemented, and cooperation on this project was extended for 18 months.

The approach was to enable the relevant organizations to establish a support system for farmers in Phase 1. This idea is considered appropriate for sustaining and expanding the effect of cooperation. The division of phases also reflected the shared recognition of the difficulty of establishing a system based on past project experiences in Bolivia. Therefore, this approach was reasonably appropriate. However, it is considered possible to have examined the activities in advance, from the aspect of how the results of Phase 1 could be preserved, if the system was not established in Phase 1, and Phase 2 was not implemented.

(2) Extension of cooperation and changes in approach to "development of implementation base"

This project (Phase 1) was extended to achieve the project purpose, which was considered difficult to achieve during the initial cooperation period at the time of the terminal evaluation, and to ensure the sustainability of cooperation results. However, the extension was accompanied by a change in the indicators of the Project Design Matrix (PDM)⁴ (for details, see "3.2 Effectiveness and Impact"). This is because the approach to establishing the implementation base for achieving the project purpose was changed from developing the division of roles and systems of relevant government organizations to realizing value-added agriculture in the target areas, using the recommendation of the terminal evaluation, of emphasizing direct technical guidance to farmers.

To a certain extent, the extension of the project and the revision of indicators related to the project purpose and project results were reasonable for the following reasons. At the time of terminal evaluation, the range of the project effects, such as the results from on-site activities in experimental farms and others and the technology acquisition of farmers, was small. Without the extension, it was unlikely that such results would have been utilized and disseminated. In addition to the development of the supporting system of cooperation and role sharing among the relevant organizations toward a value-added agriculture and forestry strategy, the possession of technologies on the ground, as stated above, can be another important factor in the promotion of the strategy. It is reasonable to a certain extent to focus on practical guidance for farmers during the extended cooperation period and revise the indicators to prepare a foundation for smooth acceptance and effective dissemination, when the cooperation system of the relevant agencies is established in the future.

Based on the above, this project was highly relevant to Bolivia's development plan and development needs, as well as Japan's ODA policy. The project planning and approaches are considered to have been largely appropriate. Therefore, its relevance is high.

⁴ A "theoretical framework" used to plan, monitor, and evaluate projects. It consists of a project summary, indicators, means of collecting data, external conditions, inputs, and assumptions.

3.2 Effectiveness and Impact (Rating: 2)⁵

- 3.2.1 Effectiveness
- 3.2.1.1 Achievement of Project Purpose
- (1) Changes in the Project Design Matrix (PDM)

The project purpose was "to establish a value-added agriculture and forestry base within the target area of the project." The project purpose was expected to be achieved through the formulation of a value-added agriculture and forestry strategy plan by improving production systems (Output 1) and strengthening the capacity of engineers in relevant agencies and small-scale farmers to implement the strategy (Output 2).

The PDM was revised three times during project implementation. When revising from the second to the third edition (the last edition), due to the aforementioned extension, significant changes were made to the expected outputs and indicators of outputs and project purpose. Behind the changes was the inability to formulate a value-added agriculture and forestry strategy plan during the initial cooperation period. This was mainly due to the long-term absence and frequent turnover of counterpart (C/P)⁶ officers and lack of collaboration among implementing agencies. As a result, the scope of responsibility and division of roles among the agencies, which were key elements of the plan, were not clarified. Accordingly, the project shifted its approach to the project purpose of "establishing an implementation base for value-added agriculture," and then intended to establish the base through the realization of value-added agriculture in the target areas and by having farmers maintain the technologies shared in this project. Therefore, in the final PDM, major changes were made to the project purpose indicators from those concerning the establishment of implementation system of the implementing agencies of the value-added agriculture and forestry strategy (securing funds and human resources, sharing of roles and responsibilities, and so on) to those related to the increased production of rice and cacao. In addition, the "development of implementation system," which was previously included in Output 2, was removed, and the positioning of the value-added agriculture and forestry strategy plan related to Output 1 was changed from a government plan formulated by the relevant organizations, to a proposal document prepared mainly by the project team.

As stated in "3.1.4 Appropriateness of the Project Plan and Approach," there was a certain degree of appropriateness in the revisions of such approaches and indicators. Accordingly, the achievement level of the project purpose is assessed based on the final version of the PDM.

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

⁶ Refers to the person in charge of the project at the implementing agency

(2) Achievement of Project Purpose

Project Purpose		Indicator	Actual
To establish a	1	In the	It was achieved.
base for		demonstration	According to the document provided by JICA, the production
value-added		farms ⁷ , rice	volume reached 16t/ha/year as a result of the test production of
agriculture and		production of	irrigated rice during the implementation stage of this project.
forestry in the		6t/ha/year or	For rice production in the demonstration farms in 2014, when
target area		more is achieved	this project was completed, the performance data had to rely on
		through the	partial information obtained through interviews with individual
		introduction of	farmers ⁸ , as the data was not collected systematically. However, a
		irrigated rice	farmer in BeA produced approximately 8.8t/ha in the three
		cultivation.	harvests of the year. In SRM, it is estimated that 7.7 to 9.4t/ha
		(production	were produced from the entire demonstration farm in the year,
		volume of	combining the rainy season and the second harvest. Although the
		slash-and-burn	number of farmers participating in the demonstration farm
		upland rice in the	activities was relatively limited in both BeA and SRM, it is judged
		target area is 1 to	that the planned level of production was achieved in the final year
		2t/ha/ year)	of this project.
	2	Derelict cacao	It was largely achieved.
		fields are	According to the document provided by JICA, the average
		recovered in the	yield of nine farmers who harvested in 2013 out of all cocoa
		demonstration	farmers who received guidance in this project was about 175kg/ha,
		farms, and cacao	sufficiently exceeding 100kg/ha.
		production	Approximate cacao yields of the three farms (two farmers in
		improved from	BeA and one in SF) in 2014, whose responses were obtained in
		the current level	the ex-post evaluation, were 92kg/ha, 276kg/ha, and 92 kg/ha,
		of about	respectively (all based on interviews).
		20kg/ha/year to	Thus, the average production of cacao had already far exceeded
		100kg/ha/year or	the planned volume in 2013 (100kg/ha), and data for a full-year of

Table 1 Achievement of Project Purpose

⁷ In this project, the demonstration farms were developed in three communities of Bella Altura in SBV, and Santa Rosa de Maravilla and San Felipe in IXM. In this report, these communities are referred to as BeA, SRM, and SF, respectively. Demonstration farms for irrigated rice cultivation were set up in BeA and SRM. Both farms were expanded in the extended period of this project.

⁸ These interviews were conducted as part of the qualitative survey (Qualitative Survey 1) carried out during ex-post evaluation. Qualitative Survey 1 aimed to confirm the achievement status of the project purpose in the three communities of BeA, SRM, and SF, where the demonstration farms were prepared and identify the project impact. The survey targeted all farmers in the three communities. However, it was not possible to contact some farmers for the following three reasons. (1) Some farmers own residences in neighboring towns, in addition to one in the community, and usually live in the former. (2) Some farmers were away from the community for a medium and long term because they were staying in other areas as migrant workers, or working in forest areas in a group of community members. (3) Some refused to cooperate because they were busy. In total, 63 households were registered in the three communities. Of them, 47 were considered to be ordinarily living in the communities, and 36 were interviewed. The interviews included common question items to the quantitative survey (which targeted communities without the demonstration farms) to obtain the aggregated results of changes in farmers' income covering the entire area of the project.

more.2014 from certain farms showed that the planned level of production was largely achieved.③ In communities with demonstration farms, farms, small-scale tasks, such as threshing, drying, and polishing rice by the farmers utilize post-harvest processing fermentation and drying of cacao beans extracted from cacao pods technology for by the completion of the project.④ In communities with introduced by the sometantionTherefore, rice and cacao farmers who participated in the introduced by the completion of the demonstration farms were using the post-harvest project.④ In communities with farms, small-scale tasks, such as chieved.It was achieved.④In communities with farms, multiced by the comformed that paste processing was being practiced with the sell rice, and intention to sell at a high price during the project implementation cacao under stage.●Therefore, rice and cacao farmers in communities where the demonstration farms, such attempts were undertaken during the project by those who participated in irrigated rice cultivation on small-scale the knowledge to confirmed that paste processing was being practiced with the sell rice and intention to sell at a high price during the project implementation cacao under stage.Better conditions.Therefore, rice and cacao farmers in communities where the demonstration farm activities were carried out were induced to sell the intervious under better conditions.	·····		T
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their products under better conditions.			demonstration farm activities were carried out were induced to sell
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The four project purpose indicators shown in Table 1 were highly achieved. All these indicators were concerned with improving farmer skills in communities with demonstration farms. For rice, planned yields were achieved in both the pilot production stage of the initial cooperation period (before extension) and the expanded demonstration farm in the extended period. Cacao also achieved its target production as of 2013.

With regard to the relationship between the project purpose and the results of planned activities, activities under Output 2 aiming to strengthen the capacities of engineers in the relevant organizations and small-scale farmers are considered to have contributed to achieving the indicators. As explained in the appendix, the C/Ps became able to provide guidance to farmers using technical manuals, although their technical level likely varied due to the frequent turnover of C/P personnel. In addition, small-scale farmers had acquired basic techniques by the completion of the project, practicing the use of technologies not implemented before, such as collaborative activities in irrigated rice cultivation, and sharing

technologies promoted by advanced farmers in cacao cultivation. Based on the relevant documents of this project and interviews with farmers, it is believed that although rice farmers did not acquire sufficient skills in terms of some cultivation and management methods adopted during project implementation, the basic techniques proposed in this project are judged to have been acquired for both crops. On the other hand, in communities with demonstration farms, the number of farmers participating in irrigated rice cultivation declined significantly throughout the project period, and the number of farmers participating in expanded demonstration farm activities during the extended cooperation was about half for both BeA and SRM. Reasons for withdrawal included heavy physical burden in the irrigated rice cultivation process and domestic factors such as disease and migration.

Although the value-added agriculture and forestry strategy plan expected under Output 1 was formulated by the completion of the extended cooperation, the logical path from this output to the project purpose was not necessarily clear. At the seminar to present the project results, the strategy plan was reported to the participating organizations and producers; however, they did not make any specific commitments on the coordination and division of roles. As mentioned above, the value-added agriculture and forestry strategy plan, which was positioned as a government plan, was changed to a proposal document at the start of extended cooperation, and the project purpose indicators were changed accordingly. This perhaps made the role of the strategy plan in achieving the project purpose unclear.

As described above, although the number of rice farmers who improved irrigated rice cultivation techniques was limited and the path from some output to the project purpose was unclear, judging by the overall project purpose indicators, the project largely achieved its purpose.



The second ear grows in the former demonstration farm (April 2018) (Santa Rosa de Maravilla Community)



Rice husk storage and drying table provided during follow-up cooperation (Bella Altura Community)

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

(1) Changes in the Project Design Matrix (PDM)

The overall goal of this project was "to reduce the poverty of small-scale farmers in the target area." Although the ex-ante evaluation summary did not specify the time to achieve the overall goal, the overall goal was also positioned as the project purpose of Phase 2 cooperation (four years) envisioned when planning this project. Therefore, the achievement would have been approximately four years after project completion. Since the timing of the ex-post evaluation was close to this estimated period, the degree of achievement was verified based on the information obtained at the time of ex-post evaluation.

In the PDM revision accompanying the project's extension, the overall goal indicators were also changed. Prior to the change, it was planned that the target values of "agricultural income" and "share of agricultural income in total income" of small-scale farmers in the target area would be set as indicators based on the household survey conducted in this project. However, the household survey revealed that it was difficult to set and verify numerical targets due to data unreliability. For example, farm income, such as from illegal logging in the target area had to estimated. Therefore, the increase in production of rice and cacao in communities with demonstration farms was used as indicators. In this ex-post evaluation, the achievement level of the overall goal will be verified based on the final version of the indicators. However, as reference information, the status of income changes of farmers in the target area obtained from the quantitative survey⁹ will also be examined.

(2) Achievement of Overall Goal

Table 2 A	Achievement	of Overal	l Goal
		01 0 10100	

Overall Goal Indicator				Actu	al						
То	alleviate	① In	communities	It was not	achieve	ed.					
poverty	of	with d	emonstration	The qual	itative	survey 10	of	farmers	in	the	three
small-sca	le	farms,	small-scale	communities	with	demonstra	ation	farms	reve	aled	that
farmers	in the	farmer	s have	respondent f	armers	self-suffic	cient	in rice	(i.e	. dic	l not
target are	ea of the	achiev	ed	purchase rice) in the	past year v	vas e	extremely	low.	Tha	t is, 1

⁹ In this ex-post evaluation, a quantitative survey was conducted to ascertain the increase in agricultural income of small-scale farmers in the target area and the impact on small-scale farmers in communities without demonstration farms. Farmers (households) of eight communities were selected as the survey population, and two-stage extraction was conducted. The eight communities were decided by excluding three communities with demonstration farms and one community with poor-access among the 12 communities in the household survey conducted in 2012 as part of this project. In the primary extraction, five sample communities were selected by equal probability extraction. In the secondary extraction, farmer families, equivalent to 40% of the total number of households, were selected from each community for a total sample size of 80. However, in the secondary extraction, it was not possible to randomly extract farmers as the household list was not necessarily maintained, and some districts were difficult to access even within the community. Of the 80 sample households, 79 responded (response rate: 99%), consisting of 32 females and 47 males. ¹⁰ See footnote 8.

project	self-sufficiency in out of 16 households in BeA, none of the 11 households in
	rice. SRM, and 3 out of 9 households in SF; therefore, 4 out of 36
	households in the 3 communities (percentage of
	self-sufficient households was 11 %) (see Table 3).
	In the same survey, a small number of farmers produced
	rice in the past year: two, three, and four households in BeA,
	SRM, and SF respectively; therefore, 9 households (25 %)
	out of 36 in the 3 communities.
	2 In communities Moderate achievement
	with demonstration The qualitative survey showed that very few farmers sold
	farms in the target rice in the past year: one household in BeA and none in SRM
	area, small-scale and SF. As stated above, only nine farmers produced rice in
	farmers earn the three communities.
	income by selling Considering the special circumstances of BeA in the past
	rice and cacao. vear (described later), the results in the vear prior to the last
	were also reviewed. Out of 36 farmers in the three target
	communities, 22 were producing, and 9 were selling rice
	(about 41% of the producers and 25% of the total farmers)
	interviewed). The market price of rice has decreased in the
	last few years, making the farmers less willing to produce
	rice as a source of income
	The communities experience variations in cacao
	production In BeA out of the 16 farmers interviewed 13
	households (81% of the interviewed farmers) were producing
	cacao of which 12 households (92% of the producing
	farmers) were selling it in the form of beans and/or paste
	However, no formers interviewed in SPM produced caceao
	due to damage from disease and ants. In SE of the nine
	formers interviewed seven households (78% of the
	interviewed formere) were producing eacher of which four
	(57% of the producing formers) were calling it in certain
	(57% of the producing farmers) were senting it in certain
-	Interview Interview
	3 In the other Limited Achievement
	communities, The quantitative survey in five communities without
	small-scale farmers demonstration farms, 21 and 3 nouseholds among the 79
	utilize the nousenoids interviewed participated in the project activities
	(e.g., seminars and training) on rice and cacao, respectively.
	introduced by the 11 households had visited the demonstration farms, and 18
	project. Inad heard about the techniques or other issues introduced by
	this project from other farmers who participated in the
	project. While 54 and 40 farmers produced rice in 2017 and

2018, respectively, utilizing the traditional upland rice
cultivation method, the irrigated rice cultivation
recommended in this project has not been introduced.
19 and 17 farmers produced cacao in 2017 and 2018,
respectively. However, they do not include the three
households who responded that they participated directly in
the activities of this project. Of the 19 cacao producers in
2017, 13 and 7 households answered that they sold cacao
beans and processed paste, respectively.
According to the interview results as part of Qualitative
Survey 2 ¹¹ , which was conducted in a community (Tahua)
without a demonstration farm, and not included in the target
communities, a farmer who participated in the project
activities for cacao has been supporting other cacao farmers
in the community in grafting and pruning tasks, using the
techniques he acquired in the project.

As shown in Table 2, the overall achievement of the three overall goal indicators is limited.

Regarding Indicator ①, the following factors contributed to the small number of farmers who were self-sufficient in rice and/or producing rice in communities with demonstration farms.

- As background, the price of rice in the local market has declined significantly due to its mass production and sales by Mennonites¹², who have begun migrating to the target area in recent years. Consequently, many farmers in both SBV and IXM municipalities recognize that rice production is no longer worth the effort, and have either stopped or reduced production. Visits and interviews at the Rurrenabaque (Beni Department) market, which is the main market where farmers from both cities sell their products, show that in recent years many customers have come to prefer cheaper Menonite-produced rice than rice produced by farmers from local communities.
- > BeA was targeted by the Bolivian government's housing development project between

¹¹ As part of this ex-post evaluation, in addition to Qualitative Survey 1 that targeted the communities where the demonstration farms were developed, Qualitative Survey 2 was conducted to confirm the effect of this project on small-scale farmers in communities without demonstration farms. The survey included interviews with community representatives and three farmers in Tahua, a municipality of IXM. Tahua was selected because it had the largest number of households among the three remaining communities out of the target communities of the household survey implemented during the project, excluding those already chosen by the quantitative survey and the three communities with demonstration farms. Another reason was that the community was located relatively close to one with a demonstration farm.

¹² Mennonites are mainly German immigrants who belong to the Christian Anabaptist denomination. In migrant areas, they live traditional lives in groups and are engaged in agriculture and livestock farming. In Bolivia, Santa Cruz Department has a large number of their colonies, some of which have moved to the target area of the project since around 2012. At the time of this ex-post evaluation, there are two Mennonite communities in IXM.

2017 and mid-2018, with many farmers stopping rice production in 2017. The project is a housing support scheme for poor districts through which the national government and municipality provide materials for buildings, and the target households bear the burden of building work. As the housing project was completed by July 2018, some farmers showed intention to resume rice production from October of the same year. However, based on the aforementioned market environment, it is expected that many will produce rice for self-consumption.

With regard to Indicator ②, as mentioned above, the number of farmers producing rice is limited and the number selling rice is small. Only farmers who participated in the demonstration farm activities (about four farm families in BeA and SRM each) continued to cultivate irrigated rice after project completion in communities with demonstration farms, and the other rice farmers are cultivating upland rice. On the other hand, many farmers earn from producing and selling cacao in two communities.

With regard to Indicator ③, the utilization of introduced technologies was judged to be limited as a whole because there was no adoption of irrigated rice cultivation that was targeted by this project. As for cacao, one farmer who participated in the project activities used his acquired techniques to support other farmers, while few farmers participated directly in project activities in the quantitative survey, and those who participated were not cultivating cacao at the time of this ex-post evaluation.

)gr		ject/		Rice (2018)				Cacao		
Community	Number of households/ Constant resident amon, hem	Number of households interviewed	Participated in this pro	Production	Selling	Purchasing	Self-sufficient	Unknown	Production (2018)	Selling beans (2017)	Selling paste (2017)
Bella Altura (BeA)	22/20	16	12/4	2	1	14	1	1	13	8	9
Santa Rosa de Maravilla (SRM)	22/17	11	10/1	3	0	10	0	1	0	0	0
San Felipe (SF)	19/10	9	8/1	4	0	5	3	1	7	3	1

Table 3 Production and Sales of Rice and Cacao by Individual Farmers in Communities with Demonstration Farms

Source: Qualitative Survey 1

In addition to these three indicators, the results of quantitative and qualitative surveys to understand the income changes of farmers in the target area over the last five years in relation to the overall goal "To reduce poverty of small-scale farmers in the target area" are as follows (see Figure 1).

As for total income, 45% farmers answered "no change," 26% answered "significantly increased" or "moderately increased," and 28% answered "significantly decreased" or "moderately decreased." For rice income, the answers were 32%, 18%, and 50%, and for cacao income, 34%, 41%, and 25%, respectively. For income from timber, the answers were 8%, 12%, and 80%, respectively. From the results of these surveys, we calculated the "rate of increase" minus the "rate of decrease" as an index indicating the overall degree of change for each income item. These income items can be categorized into groups of items showing a clear upward trend (craft products, cacao), a slight upward trend (agricultural products, term employment), almost unchanged (total income, livestock farming), and a clear downward trend (timber, rice). It is difficult to accurately calculate the income changes because the income scale and proportion of each item varies depending on the farmer. However, the clear decline in rice income and increase in income from cacao support the recent decline in rice market prices confirmed in this ex-post evaluation and that many cacao producers in communities with demonstration farms are also selling cacao. Of the 110 farmers in the quantitative survey, 70 purchased rice (share of self-sufficient farmers: 36%). According to the household survey conducted in 2012 as part of this project, of the 116 households, 63 were self-sufficient farmers (share of self-sufficient farmers: 57%), indicating that the share of self-sufficient rice farmers is decreasing in the entire target area.

The quantitative survey results showed no clear change in gross income overall; however, income from timber declined significantly. Income from agricultural products other than rice and cacao increased slightly. Interviews in the qualitative survey revealed that some farmers were attempting to increase the production of traditional crops such as bananas and corn, as well as cash crops such as cacao, citrus, acai, and cupuassu, in response to the sharp decline in timber income. Although it is impossible to draw accurate conclusions from the results of this survey, it can be inferred that the share of agricultural income in the total income of small-scale farmers has the same trend as in the past, or is slightly increasing.



Note: Common questions were asked in the quantitative survey targeting communities without demonstration farms and Qualitative Survey 1, which targeted all households in communities with demonstration farms. Figure 1 shows the aggregates of both results.

Source: Quantitative Survey and Qualitative Survey 1

Figure 1 Changes in income of farmers in the target area over the past five years

As the overall goal, it was expected that the utilization of technologies introduced by this project would lead to self-sufficiency in rice and income generation from rice and cacao in communities with demonstration farm activities. However, the willingness of farmers to produce and sell rice has declined, especially due to changes in markets over the entire target area, and very few farmers have achieved self-sufficiency and income generation. A certain proportion of farmers produce and sell cacao, although the situation varies depending on the community. In communities without demonstration farms, the introduction of irrigated rice cultivation has not been achieved. Some examples of technical utilization of this project are recognized for cacao. Thus, the project has achieved a limited level of its overall goal.

3.2.2.2 Status of Project Effects after Completion

Of the outputs and project purpose planned in the project, the key changes identified at the ex-post evaluation regarding the status of effects after project completion are described here.

(1) Implementation system development of the value-added agriculture and forestry strategy plan

With respect to Output 1, the relevant organizations made no specific commitments on coordination and role sharing of the value-added agriculture and forestry strategy plan, which was announced as a proposal document at project completion, and no implementation system was established by the relevant organizations by that time.

Interviews with relevant parties indicated that after project completion, INIAF had hired engineers for rice and cacao for a certain period and continued their activities in the Northern La Paz region. However, there were no integrated activities based on the cooperation and harmonization of the relevant agencies as was proposed by the above strategies, including other organizations. Subsequently, from January 2016 to March 2017, the JICA Bolivia Office worked with INIAF to follow up on this project (F/U). The aim was to apply irrigated rice cultivation technology and improve post-harvest processing and commercialization of rice, focusing on production and marketing of rice seeds that were expected to be highly profitable. In total, eight farmers participated in this F/U cooperation in BeA and SRM. At the end of the activity, a memorandum of intent (Carta de Intenciones) was signed to confirm the cooperation of the department, municipalities, INIAF, seed buyers, rice farmers' association, and so on, to establish a value chain for the production of rice seeds in the Northern La Paz area. The memorandum of intent is expected to remain in force for two years, and the municipalities will play a leading role in promoting the implementation of the initiative. The results of interviews with relevant agencies regarding their handling of the memorandum are as follows. 1) INIAF independently provided seed production support to rice farmers in BeA and SRM after the F/U, which is scheduled to continue in the future. However, INIAF faces financial problems, and a rice engineer stationed in SBV was withdrawn in December 2017. 2) In the Department, the Deputy Governor signed the memorandum of intent, but the Secretariat of Economic Development and Industrial Transformation (Secretaria Departamental de Desarrollo Económico y Transformación Industrial, hereinafter referred to as the "SDDETI"), which had cooperated with the F/U activities, did not recognize the existence of the memorandum at the time of the ex-post evaluation. 3) Although both SBV and IXM municipalities are aware of the memorandum, the implementation of activities is essentially dependent on the implementation of programs with external funds due to budget constraints, and there is no movement to actively promote cooperation among relevant organizations. Thus, although an opportunity was created to share the recognition that comprehensive efforts by relevant organizations are necessary for realizing value-added agriculture in the Northern La Paz area, the response of each organization was limited at the time of the ex-post evaluation, and there is no consensus and division of roles.

(2) Status of effects of project purpose indicators

As mentioned above, the F/U cooperation provided support for rice seed cultivation in relation to project purpose indicator ①, and 1.3 ha of the 4.4 ha area of the entire former demonstration farm was certified by INIAF as a seed cultivation field. The F/U cooperation aimed to revitalize the rice producers' associations formed in BeA and SRM at project completion and sell the seeds to a government-affiliated seed company; however, this did not happen because of low production volumes and procedures for obtaining contract qualifications for farmers. After the F/U, in the harvest period of March 2018, three farmers continued to produce seeds in the former demonstration farm with the support of INIAF, with yields ranging from 1.4 t/ha to 1.7 t/ha. In the last two years, the former demonstration farm has not experienced two crops of irrigated rice a year. Poor water intake in BeA and leakage due to ants in SRM has made it impossible for the entire field to demonstrate sufficient capacity. Therefore, the effect on rice yield set in Indicator ① has not been sustained.

For project purpose indicator ②, the 2017 data were collected in the three communities where demonstration farm activities were implemented. There was no cacao production in SRM for the last two years due to damage by disease or ants; however, in BeA and SF, cacao production by proactive producers ranged from 92 kg/ha to 230 kg/ha in 2017. Cacao growth is largely influenced by the weather and disease outbreaks, in addition to the level of management by cacao farmers. However, productivity growth is sustained, especially among farmers who are highly motivated to cultivate cacao.

As for project purpose indicator ③, rice farmers continue to work on threshing, drying, and milling after harvest. Cacao producers also work on post-harvest processing such as fermentation, drying, and paste processing.

For project purpose indicator (4), rice farmers who participated in the F/U cooperation attempted to jointly develop sales channels for the rice seeds they produced. For cacao, as stated above, a producers' association was established in BeA to standardize the quality of beans and paste and to promote branding. These are all moves to utilize and develop the sales innovations and expertise addressed in this project, indicating that the project effects continue to be realized.

3.2.2.3 Other Positive and Negative Impacts

(1) Impact on the natural environment

Responses to the questionnaire and interviews with implementing agencies, and interviews with farmers at communities with demonstration farms and with concerned persons of the project revealed no negative effects of this project on the natural environment. There was no information available on the situational changes of illegal logging of forests. However, as the results of the quantitative survey show, market prices have declined due to a decline in domestic and overseas demand for timber in recent years, farmers' income from forestry has fallen dramatically, and other sources of income have to be established to compensate for this decline. Cacao cultivation as an alternative source of income may have contributed to curbing the illegal logging of forests; however, it is difficult to determine its impact.

(2) Resettlement and land acquisition

All the demonstration farms in the three communities developed in this project were prepared using the common land in the community and there was no resettlement or land acquisition. There were no complaints or comments on resettlement or land acquisition in interviews with the target farmers in this project, including those involved in activities other than demonstration farm activities.

(3) Effects on gender aspect

Two of the three members of the rice producers' association in BeA were women, who negotiated and communicated with external supporters as beneficiary groups in JICA's F/U cooperation and subsequent seed production support by INIAF. Mostly men had undertaken these jobs. Furthermore, in the community, two individuals played an active role in decision-making on F/U cooperation and management of rice production. Since collaborative work is particularly required for irrigated rice cultivation, the activities of this project and the F/U have led to the promotion of women's activities within the community. For example, as described later, some farmers who have not been involved in demonstration farm activities after project completion indicated their willingness to start (resume) cultivation of irrigated rice in the future. The women members play a key role as contact persons for these willing farmers to exchange information and consult regarding rice.

(4) Establishment of cacao producers' association in BeA

In BeA and SF, farmers who proactively participated in cacao activities have taken the lead in sharing techniques and collaborating with other cacao farmers. In BeA, in particular, a cacao producers' association called ASEPCH MADIDI (Asociacion de Elaboradores de Pasta Casera de Chocolate Madidi) was established in 2018. The Madidi National Park and Italy supported the construction of a processing center and provided equipment and technical guidance on fermentation, drying, sorting, processing, and packaging of cacao. The association members themselves decided to sell a packaged product named "home-made chocolate" directly in the market, rather than selling it to a major chocolate manufacturer. At

the time of the ex-post evaluation, the association had already conducted a trial sale and sold 200 boxes (for the price of 20 Bolivianos¹³ per box). Many of the 15 members of the association were trained in the project, and they stated in interviews that the techniques they learned in this project, particularly soft skills in post-production, are very helpful.

Summarizing the evaluation results of effectiveness and impact, since this project has to some extent achieved the project purpose and overall goal, effectiveness and impact of the project are fair. For the project purpose, both rice and cacao have achieved high productivity and added value. Regarding the overall goal, while many cacao farmers produce and sell cacao, the project's effects on rice have not been fully realized due to the influence of market conditions, and irrigated rice cultivation in communities without demonstration farms has not yet been introduced. In addition, to continue the project effects, there is no comprehensive implementation system of agriculture and forestry strategy based on the division of roles and collaboration among relevant organizations. However, other indirect impacts were confirmed, such as promotion of women's participation, sharing and cooperation of techniques among cacao farmers, and contribution to producers' association activities.



Cacao tree grafted a year and a half ago (Bella Altura Community)



Many cacao farmers process and sell paste (Bella Altura Community)

¹³ The exchange rate at the time of the ex-post evaluation was 1 Boliviano (BOB) = approximately 16 Japanese yen.

3.3 Efficiency (Rating: ①)

33	1 Iı	nnute	2
5.5.	1 11	uput	5

Inputs	Plan	Actual	
(1) Experts	Chief advisor/ Agricultural management improvement/ Annual crops, Project coordinator/ Implementation structure, Perennial crops, Other experts as necessary (no information on man-month)	Chief advisor/ Agricultural management improvement (2 persons); Project coordination/ Dissemination and implementation structure development (3 persons); Rice cultivation and dissemination (3 persons); Irrigation drainage (1 person); Farmer household economy (1 person); Cacao expert from Brazil (1 person)	
(2) Trainees received	No information on the number of persons	Training in Japan (twice) 10 participants Third Country Training in Brazil (5 times) 20 participants	
(3) Equipment	Provision of necessary equipment, including vehicles, within the budget	Vehicles, laptop computers, copy machines, video cameras, digital cameras, and others	
(4) Expenses of local project promotion	No information	5 million Bolivianos (Estimated amount until the project completion as of August 2014)	
Japanese Side Total Project Cost Total	270 million yen	431 million yen	
Bolivian Side Inputs	Budgetary measures required for the deployment of counterparts, establishment of project offices, cost sharing for the establishment of demonstration farms, and project implementation	Deployment of counterparts, provision of project offices, provision of pilot farms, and local cost expenses	

Source: Documents provided by JICA

3.3.1.1 Elements of Inputs

Experts in the planned fields were largely dispatched.

In the extension period, emphasizing on teaching rice cultivation techniques, inputs commensurate with the planned results were planned, such as intensive placement of experts on rice cultivation/dissemination. However, according to the documents provided by JICA, in reality, experts on "Chief advisor/Agricultural management improvement" and "rice cultivation/dissemination" were not dispatched as planned. The former was absent for approximately one year prior to the completion of the project without bidders for public notices, and twice JICA dispatched its internal expert to the project as chief advisor for short-terms. The latter expert was absent for about four months for health reasons. Accordingly, the JICA Office hired a local consultant to address the strategy plan, which was

its main task. Consequently, such management had no major negative impact on the output, such as expansion of demonstration farms and preparation of the strategy plan.

As for the C/P placement on the Bolivian side, the total number of persons assigned by August 2014 was 44 for the 10 main positions, as described in "Annex Achievement of outputs," according to the analyses of the documents provided by JICA. Of these, the National Coordinator (NC), which was not originally planned, was assigned by INIAF during the implementation of this project, as the promotion of project activities was significantly hampered by the departure and absence of many C/Ps. Although the activities of the project implementation team had been facilitated to a certain extent under the NC who took office in July 2012, the frequent turnover and absence of C/Ps did not improve until the completion of the project. During the extension period, JICA hired three local consultants to cover the lack of C/P placement. In addition, delays in budget execution occurred due to personnel turnovers at the top of the four implementing agencies and changes in the administrative system. According to the documents provided by JICA, the Bolivian side was supposed to bear the cost of the project office and farm management; however, most of this cost was borne by the Japanese side due to the delay in the budget execution procedure.

The main reasons for frequent C/P turnover and absence are as follows.

- (1) In Bolivian government agencies, project engineers are generally employed based on a term-contract of less than one year, as were the C/Ps of this project.
- (2) In Bolivia, with the change of the head of the government agency, it is also common for regular staff to be turned over, and it is common for the new management to suddenly change the policies promoted by their predecessors or dismiss their employees.
- (3) Salary arrears were common among the implementing agencies of this project.
- (4) The C/P of two municipalities, in particular, had a low salary level, and many employees were recruited from outside the target area. Therefore, in some cases, the C/P left the project during the contract.

This had a major impact on the project's activities. According to interviews with individuals involved in the project at the time, experts had to repeatedly provide guidance every time C/Ps were replaced. As for the top management of the four implementing agencies, the two committees (Joint Coordination Committee and Management Committee) established to facilitate project operations were not functioning appropriately due to constant turnover of managers, and the Bolivian implementation system based on the expected coordination among these organizations remained weak.

According to interviews with some C/Ps at the time, the initial period of this project, particularly in early 2010, was a period of confusion for the Bolivian government and administrative agencies. The constitution was amended in 2009, and the shape of national

and local governance has changed dramatically. In response, government and administrative organizations had to confront organizational reforms and determine the content and scope of their activities. One interviewee stated that at that time, government staff was working by trial and error. Frequent personnel turnover, including the mayors of the two municipalities, policy changes, and unpaid salaries, were particularly prevalent at the time. However, interviews with concerned individuals suggest that it was difficult to foresee the extent of confusion when planning this project.

3.3.1.2 Project Cost

The project cost on the Japanese side totaled 431 million yen (160% of the planned amount) compared to the planned amount of 270 million yen, significantly higher than planned. This was probably because the project extension resulted in additional expenditure on personnel and project activities of experts, and as JICA employed three local consultants to cover the shortage of C/Ps.

3.3.1.3 Project Period

The planned period of this project was 36 months. However, it was extended by one year and six months; therefore, the actual period was 54 months (150% of planned period) from March 2010 to September 2014, significantly longer than planned.

As described in "1.3 Outline of the Terminal Evaluation," it was judged difficult to achieve the project purpose within the planned period and that the project effects generated were unlikely to continue; therefore, the project was proposed to be extended.

Consequently, both the project cost and project period significantly exceeded the plan. Therefore, efficiency of the project is low.

3.4 Sustainability (Rating: ①)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

At the time of the ex-post evaluation, the policy direction of development and dissemination of rice and cacao technology to reduce poverty and secure the food sovereignty of small-scale farmers, and the policy to expand production focusing on the Northern La Paz area are continuing.

Based on the *Patriotic Agenda 2025* described in "3.1.1 Consistency with the Development Plan of Bolivia," the *Economic and Social Development Plan (2016-2020) (Plan de Desarrollo Económico y Social 2016-20*; hereinafter referred to as "PDES") aims to expand the production of small-scale farmers in the Amazonian region, including Northern La Paz, as one of the pillars of productive food sovereignty and diversification of production. Sustainable

production of cacao is listed as one of the specific programs. In addition, the *Integrated Development Plan for Agriculture, Livestock and Rural Sector Strategies (Plan del Sector Agropecuario y Rural con Desarrollo Integral Para Vivir Bien) (2016-2020)* prepared in accordance with PDES mentions the development and production of high-quality seeds in Priority Strategy 2 "Technological Development and Innovation." In line with these policies, INIAF states that it will continue to improve and disseminate technologies such as the introduction of high-quality cacao varieties, and research and develop seeds for various crops, including rice.

La Paz Department's Integral Development Plan (Plan Territorial de Desarrollo Integral, hereinafter referred to as "PTDI") for 2016-2020 emphasizes productive economic development as one of the pillars of development set in accordance with PDES, and aims to strengthen production chains in accordance with the potential of each area within the department. SBV's *PTDI 2016-2020* advocates the establishment of food sovereignty in line with national and department plans and regional economic development through production diversification. Major priority products include cacao, livestock farming, fish farming, rice, and sugar cane. IXM's *PTDI 2016-2020* incorporates rice cultivation and irrigation, in addition to livestock farming, agroforestry and sustainable tourism, to diversify production, based on the municipal economy's previous dependence on timber.

3.4.2 Institutional/Organizational Aspects in Sustainability of Project Effects

As stated in "3.2.2.2 Status of Project Effect after Completion," by the time of the ex-post evaluation, there were opportunities to share the recognition that the comprehensive efforts of relevant agencies across the value chain were needed to achieve value-added agriculture in the Northern La Paz area through F/U cooperation and other occasions. However, the response of each organization is limited, and there is no consensus and division of roles.

Since 2011, INIAF, which was the implementing agency responsible for this project, has been the implementing institution of the *National Rice Program* and the *National Forest Program* in Bolivia. Of the INIAF's three main lines of work (research, production and services, seeds), the research department is responsible for implementing these national programs. The *National Rice Program* promotes the development of high-yielding varieties, production of high-quality seeds, and dissemination of these technologies to ensure food security and reduce poverty by improving rice productivity and quality. The program targets La Paz Department along with the departments of Santa Cruz and Beni. However, according to interviews with INIAF, at the time of the ex-post evaluation, the research division in the Northern La Paz area had conducted no specific activities based on these national programs. According to interviews conducted in July 2018 with the production and services division, which is responsible for the expansion and dissemination of developed seeds, a total of only

ten staff members are in charge of supporting production and dissemination on the ground over the country. For La Paz Department, one engineer is in charge of a wide area, including three departments of La Paz, Potosi, and Oruro. Also, In December 2017, rice cultivation engineers stationed in the SBV office completed their assignment, and there is a marked shortage of personnel to continue work in the Northern La Paz area.

At La Paz Department, SDDETI, which was in charge of this project, is responsible for promoting measures for diversification of production and industrialization. At the time of ex-post evaluation, 22 staff members, including about ten under short-term contracts, belong to the secretariat. Department Agricultural Services (Servicio Departamental Agropecuario, hereinafter referred to as "SEDAG") is another departmental organization that provides technical and extension services to farmers. There are 13 technical staff members, including five officers under short-term contracts. SDDETI rendered support for the incorporation of the rice producers association in the F/U cooperation. On the other hand, although the Department signed the memorandum of intent for establishing the rice seed value chain, which was created as a result of the F/U cooperation, not sharing the information internally led to not realizing concrete activities thereafter.

The Production Development Division, which was in charge of this project at SBV, covers five areas (tourism, environment, agriculture, agricultural machinery, and risk response) and has four engineers, including a manager, and three contract consultants. At IXM, at the time of the ex-post evaluation, one engineer and three project contract staff members are engaged in production development. Both municipalities have a division to support farmers in improving productivity; however, staff is limited.

As for the situation of farmers in the target area, interviews at two municipalities and communities with demonstration farms showed that several farmers were willing to start (resume) cultivation of irrigated rice, apart from those already engaged in irrigated rice cultivation on the demonstration farms.

Based on the above, although the importance of collaboration among the relevant agencies of this project is recognized to a certain extent by the respective agencies, as yet, there is no momentum to form proactive collaboration on the part of Bolivia and to implement strategic support based on such collaboration. In addition, although divisions support the improvement of farmer productivity in respective institutions, they have a limited number of personnel. Particularly, INIAF, which was the main implementing agency of the project, faces concerns about the continuation of the project effects in terms of the lack of human resources in the section responsible for the expansion and dissemination of seeds. In conjunction with the above, sustainability from the perspective of the organization is an issue.

3.4.3 Technical Aspect for Sustainability of Project Effects

INIAF stores the electronic data of the technical manuals and guidelines for rice and cacao prepared in this project. The data were referred to in the F/U cooperation. An incumbent officer of IXM who worked as C/P of the project for some time responded that he uses the technical manuals as needed, but the current officers of SBV and the Department did not know about the manuals. These technical documents are no longer used because technicians, especially those under employment contracts of less than one year, are frequently replaced, and information handover is not frequent between staff.

In terms of retaining technologies by continuing project activities, INIAF was involved in F/U cooperation on supporting rice seed production, as mentioned above. Since the planting season in October 2017, after the F/U cooperation was concluded, INIAF has provided rice seeds (Taita and Chasqui) that it developed and technical support for production to farmers in BeA and SRM, who were also targeted by the F/U. As described later, INIAF's budget has been declining and the scale of this support is very small. However, since the promotion of high-quality seeds is a core business of INIAF, the support is scheduled to continue from 2018 onwards. Such continuous implementation of cooperation is expected to contribute to the maintenance of technology in INIAF, which provides support, and promotes technology accumulation among target farmers.

As described in "3.2.2.2 Status of Project Effects after Completion," the target farmers of this project have basic skills to continue the cultivation of irrigated rice and cacao, mainly led by the farmers from communities with demonstration farms. However, some farmers indicated that they need advanced knowledge and skills, such as preventing and coping with new diseases in cacao cultivation.

In summary, the manuals prepared in this project were reused in the F/U cooperation, and INIAF continues to implement a part of the project and F/U cooperation in the field. However, in Department and municipalities, it was not confirmed that incumbent technicians, with the exception of some cases, directly used the techniques of this project. Although farmers in communities with demonstration farms possess basic techniques for cultivating and processing irrigated rice and cacao, some technical problems of project sustainability remain.

3.4.4 Financial Aspect for Sustainability of Project Effects

INIAF's budget for activities has been declining in recent years. Although the amount of funds from government resources has been largely maintained, the scale of the overall budget reduction has affected the activities, and the sustainability of the INIAF from a financial standpoint is currently low. Examining the changes in INIAF's budget by source of financial resources over the last three years, the World Bank loans accounted for more than half the total budget in 2015 and 2016; however, in 2017, they declined significantly to around 25% (Table

4). This may be because the Agricultural Innovation and Services Project (PISA) with INIAF as the implementing agency since 2011, was completed in 2017.

According to interviews with INIAF personnel, national programs, including those for rice and cacao (forests) will continue to be implemented by the research and development section, and the production services section will continue to provide technical guidance on seeds to farmers. However, INIAF also answers that in terms of the financial position, budget reduction due to a decline in World Bank funds would be likely to affect the scope of INIAF activities. As of July 2018, 42 million Bolivianos was allocated as the annual activity plan (POA) budget for 2018 (cf. 72 million Bolivianos for the 2017 POA budget), and it is looking for sources of external support. It is considered that although INIAF will continue the above-mentioned support for seed production in BeA and SRM, financial constraints will also affect the employment of engineers for this purpose.

	2015		2016		2017		
	Budget	Share	Budget	Share	Budget	Share	
	(Bolivianos)	(%)	(Bolivianos)	(%)	(Bolivianos)	(%)	
Government Budget and Special Funds Transfer	48,036,519	25%	36,000,167	29%	35,537,342	49%	
World Bank Loans	126,504,787	66%	69,949,124	57%	18,065,064	25%	
Donations from foreign institutions	18,365,796	10%	17,603,024	14%	18,598,101	26%	
Total	192,907,102	100%	123,552,314	100%	72,200,507	100%	

Table 4 Trends in Budgets by Funding Source in INIAF

Note: The share of each item has been rounded to the nearest whole number, and the total for 2015 is not 100%. Source: INIAF, *Memoria Institucional 2015, 2016, 2017*

In the Department, SDDETI has a mission of public investments in the productive sector and pre-investment surveys, with program expenditures between 2014 and 2017 ranging from 8 million to 13 million Bolivianos. SEDAG conducted projects for promoting and expanding production, with program expenditures ranging from 6 million to 12 million Bolivianos over the same period. Although there is no specific trend in the total expenditure, there is a track record in the implementation of the Project to Strengthen Cacao Production in the Amazon Region. On the other hand, there has been no project for rice, indicating that rice is currently not a high priority.

In the agricultural development unit under the production development division in SBV, the 2018 budget is 120,000 Bolivianos, and the 2018 budget for IXM's production unit is 200,000 Bolivianos, both of which are primarily used as contributions from municipality in the implementation of external programs. SBV is planning to promote the mechanization of rice production using a program by the Indigenous Fund (Fondo Indígena), which is expected to start soon. IXM incorporates rice irrigation into its PTDI, assuming the implementation of

national programs, but no specific resources were available at the time of the ex-post evaluation.

In summary, there are major concerns about the sustainability of INIAF's financial position at present. In addition, for the municipalities, realization of activities largely depends on securing funds from external programs. Thus, overall financial sustainability is a major challenge.

Therefore, major problems have been observed in terms of the financial aspect and some problems in terms of the organizational and technical aspects. Therefore, sustainability of the project effects is low.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

This project aimed to establish a value-added agriculture and forestry base by formulating value-added agricultural strategies

based on improved farming by increasing the productivity of single-year crops and introducing permanent crops and by developing a strategy implementation system of relevant organizations through pilot projects and strengthening the capacity building of relevant organizations and farmers, thereby, improving the livelihood of farmers and reducing poverty in the northern La Paz region in Bolivia. The Project was aligned with the Bolivian National Development Plan and the Agriculture Sector Development Plans, which emphasize poverty reduction of small-scale farmers, developmental needs of the target areas, and Japan's assistance policies. It also recognized the appropriateness of the intended phase separation and the project approach. Therefore, the project is considered highly appropriate. The project purpose was achieved with high productivity and added value for both rice and cacao. However, the project did not fully achieve its overall goal because rice markets have deteriorated and communities without demonstration farms have not yet introduced irrigated rice cultivation. Therefore, the project has fair effectiveness and impact. Efficiency is low because both the project cost and project period exceeded the plan. No major problems have been observed in the policy background. However, major financial problems and some organizational and technical problems have been observed. Therefore, the project effects have low sustainability.

Therefore, this project is evaluated to be unsatisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agencies

This project attempted to demonstrate successful practices in value-added agriculture, from cultivation to sales of irrigated rice and cacao. Consequently, farmers participating in demonstration farms harvested rice, which was distributed among them, shipped jointly, and earned them a large income. Although some farmers are willing to cultivate irrigated rice after observing these successes, others seem hesitant to participate in irrigated rice cultivation due to the recent deterioration of the market environment, unseasonable weather, and various input costs related to paddy field development. To sustain the aforementioned results, it is proposed that respective relevant agencies support farmers as much as possible, particularly at the introduction stages, such as paddy field development, to create conditions in which farmers can sustain motivation and continue production independently, even at a small-scale initially. For example, as in the past, the municipality may provide support with farming machines such as tractors, provide information on farming and markets to willing farmers, and guidance by reusing the technical manuals and guidelines prepared in this project. INIAF may promote certification of seeds and provide guidance on seed cultivation, and the Department could refer farmers to financial support agencies.

4.2.2 Recommendations to JICA

JICA's F/U cooperation in 2016-2017 has renewed awareness of the importance of collaboration among relevant organizations. On the other hand, as we have seen in the F/U, various challenges exist not only in cultivation technology, but also in the entire production chain, including the distribution and marketing stages, such as securing production volume. Assuming that it takes a long time for the division of roles and collaboration among Bolivian institutions, JICA should hold seminars on the development of production chains in the target areas by relevant agencies, including farmers. It should also conduct continuous ex-post monitoring of demonstration farms with INIAF, as was conducted after the conclusion of the F/U, to foster and maintain awareness of the project among the relevant organizations. It was observed that a community has taken a step toward self-reliant development by processing and selling cacao products in the market in La Paz. This was possible by obtaining support for equipment from external organizations, and utilizing the techniques acquired in this project. With the possibility of new sales channels, it would also be useful to consider promoting collaboration between cacao farmers and companies with different types of needs in relatively small quantities of supply, for example, of topping cacao added to ice cream.

4.3 Lessons Learned

Usefulness of assigning on-site operation coordinator with multiple implementing agencies

As described in "3.3 Efficiency," this project consisted of four implementing agencies, each of which agreed to assign C/P engineers or technical officers. However, the project was delayed due to the frequent turnover and absence of such C/Ps. In addition, the project was intended to develop value-added agriculture and forestry strategy based on collaboration among the

implementing agencies, and the cooperation and coordination of these four agencies was essential. However, as the heads of the agencies changed frequently, the project was forced to re-coordinate, including fresh decision-making. Due in part to employment practices in Bolivia, the problem of employing engineers was not resolved until the end of the project. However, during project implementation, the national coordinator responsible for on-site management was newly assigned to the project team as the representative of the Bolivian C/Ps. Since then, the project began smooth operations. In particular, the third national coordinator played an active role during the extended cooperation period, with fewer dispatches of Japanese experts. In a project such as this, in which C/P employment is unstable or complex coordination among the relevant local agencies is required, such as the involvement of numerous implementing agencies, it is useful to establish the supervisory position for on-site operations of all implementing agencies.

Inclusion of farmer organizations to ensure the sustainability of technologies in the project, expecting frequent C/P turnover

As described above, the frequent turnover and absence of decision-makers and personnel in charge at the implementing agencies caused delays in the project and hampered the achievement of the planned result, which was the establishment of a collaboration system among the relevant organizations. However, one reason for such frequent personnel turnover were the practices of employing technical staff in Bolivian government agencies, and this situation was expected to a certain extent during project planning. Accordingly, when planning a project in Bolivia or in a country where the employment of C/P staff is generally unstable, it is necessary to ensure the sustainability of the project effects assuming such a situation. This project recognized that the farmers in question possess techniques for cultivating, processing, and selling rice and cacao by strengthening direct guidance to participating farmers in demonstration farm activities. However, to maintain and expand technologies, it is worthwhile to consider incorporating farmers' organizations or social organizations based in the local area constantly as recipients of the instructed techniques into the project design. In this regard, when selecting such farmers and social organizations, it is necessary to examine the activities of the organization, its operational state, and the organization's representation in the target areas.

Project designing for premature termination of phased cooperation

This project was envisioned as Phase 1 of two phases of total cooperation (seven years). Based on the implementation base of the value-added agriculture and forestry strategy to be developed, full-scale implementation and expansion of value-added agriculture was planned in Phase 2. This idea of phasing was based on the experiences of many technical cooperation projects in Bolivia in which the lack of implementation system of C/P organizations limited the

results of the cooperation or prevented the sustainability after the cooperation was completed. Accordingly, this project was designed to prioritize establishing the systems of relevant organizations (securing necessary resources, sharing of roles, approval of strategy plan, etc.), and activities such as technical testing and dissemination of rice and cacao were on a preparatory scale for the next phase. Therefore, when it was decided not to implement Phase 2, it was also judged that if Phase 1 were completed during the initial period, it would not ensure the sustainability of the project effects. Consequently, the project period was extended to provide direct technical guidance to farmers. When designing a series of cooperation projects considered to be particularly difficult, such as this project that needed collaboration and cooperation among numerous related organizations, it is necessary to fully examine how to ensure project results and its sustained effectiveness upon termination during implementation, and subsequently, plan the components of the project activities.

END

Attachment

			Achievement of Outputs
Outputs		Indicators	Actual Results
1. Through	1	A plan is	It was achieved.
improvement		formulated that	A value-added agriculture and forestry strategy, "Strategic Plan
of the		comprises	for Strengthening the Rice and Cacao Production Chains in the
production		policies for	Northern Part of La Paz" (PEPAC) was prepared by September
system, a		production	2014 by a consultant employed by the JICA office.
value-added		chains	PEPAC aimed to promote activities based on agreement among
agriculture		(cultivation,	institutions related to agricultural development in the region and
strategic plan		processing, and	develop the production chains of irrigated rice and cacao
is formulated.		distribution) of	(processing, distribution, and commercialization) for the next five
		rice and cacao for	years (2015-2019). It was positioned as a proposal document. As a
		small-scale	basic principle of the strategy, cooperation and harmonization
		farmers in the	among relevant government agencies and provision of financial
		target area.	aid to promote the participation of public specialized agencies
		-	were presented.
			A seminar to announce the completion and achievements of
			this project was held in September 2014 in which the relevant
			organizations and producers participated. The seminar included a
			report on PEPAC; however, no concrete commitments were
			signed by the relevant organizations for collaboration and role
			sharing.
2. Capacity of	1	Technicians in	It was largely achieved.
technicians of		related	Technical manuals were written on cultivation management,
related		institutions	harvesting, and processing of rice and cacao, and utilizing the
institutions		provide technical	manuals, 17 seminars for technicians and farmers and 15 sessions
and small-scale		guidance on	of domestic field training were undertaken by August 2014.
farmers is		cultivation and	In the extended period of this project, "Farmers schools" were
strengthened		processing of rice	opened in several main communities to spread the relevant
to implement		and cacao to	technology. All C/P technicians participated in the schools to
the		small-scale	provide training to farmers together with Japanese experts.
value-added		farmers by	For the ten major positions of C/Ps (a national coordinator, two
agriculture and		utilizing	from each of NIAF. Department of La Paz. SBV, and IXM, an
forestry		manuals.	assistant for project operation), 44 persons were placed during the
strategy.		guidelines. and	project period until August 2014, according to the document
8,1		dia de campo	provided by JICA.
		(field workshops)	Although there was variation in the technical level of the C/Ps
		developed in the	due to their frequent replacements, it was possible for the C/P
		project.	technicians to teach farmers using the technical manuals.
	2	Small-scale	It was largely achieved.

farmers acquire	Interviews at communities with demonstration farms for
techniques	irrigated rice cultivation showed that a series of tasks not
proposed in the	undertaken before, such as group work and management in
project.	cultivation, distribution of harvests, joint shipment and
	consideration of marketing timing, were practiced during the
	project period. Cacao farmers who participated in the third country
	training in Brazil, acting as instructors, shared cultivation
	management techniques among farmers during the project period.
	On the other hand, some interviews revealed that the
	cultivation and sales methods practiced by rice farmers during the
	project included those not necessarily optimal (e.g., direct sowing
	of seeds in paddy fields in some cases, rather than transplanting
	seedlings).
	In addition, in communities with demonstration farms, the
	number of farmers who participated in irrigated rice cultivation
	decreased sharply due to their withdrawal from the activity during
	the project period. The number of participating farmers in the
	activities (such as expansion of demonstration fields) during the
	extended period of the project was about five families each in BeA
	and SRM. Although there was no record of the number of
	participating farmers at the beginning of the project, 12 of 16
	farmers interviewed at the ex-post evaluation in BeA and 10 of 11
	farmers interviewed in SRM had participated in irrigated rice
	cultivation activities at demonstration farms, if only for a short
	period of time. Their reasons for discontinuing activities include
	large physical burden in rice cultivation, and family circumstances
	such as illness and migration.

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.

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

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.

- 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.

- 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.