

Country Name	Project for Rural Development in Altiplano Central
The Plurinational State of Bolivia	

I. Project Outline

Background	<p>Altiplano Central Region, covering from Patacamaya (La Paz Department) to Tambo Quemado (Oruro Department), is plain sweeping away in the mountainous areas at altitude of 3,700 -4,500m. Around 40% of rural population in Bolivia inhabited in this region. However, since low land productivity had been induced by cold and sever climate condition with limited rainfall (250-400mm) and soil erosion caused by geographical condition and concentrated heavy rain in the rainy season, the rural poverty ratios in the two provinces were about 85% (the National Institute of Statistics (INE), 2001). After the construction of arterial road supported by JICA in the region, municipalities in the region had showed a strong desire of rural development under the cooperation of JICA. While necessary activities for rural development had been prioritized by the municipalities in the region, there were issues to be addressed including lack of technical skills of local technicians for construction of small scale irrigation facilities and lack of extension services for farming management utilizing irrigation system.</p>														
Objectives of the Project	<p>The project aimed at implementation of small irrigation agriculture in the target municipalities through construction of small scale irrigation system and enhancement of technical capacity of municipal technicians on soil management and cultivation techniques, thereby improvement of agricultural productivity and dissemination of activities introduced by the project to other areas of target provinces. The following project objectives were set forth in the project plan.</p>														
	<p>1. Overall Goal : 1) Productivity of agriculture and livestock products identified is improved in the target area, 2) Similar activities are implemented in other areas of La Paz Department and Oruro Department. 2. Project Purpose : Small irrigation agriculture are implemented in the 10 target municipalities.</p>														
Activities of the project	<p>1. Project site: 10 municipalities (La Paz: Patacamaya, Umala, San Pedro de Curahuara, Chacarrilla, Santiago de Callapa, Charaña, Calacoto; Oruro: Curahuara de Carangas, Totora, Turco) 2. Main activities: 1) On the Job Training (OJT) for municipal civil engineers on construction of small scale irrigation system and development of manuals for design, supervision, and audit on small irrigation system construction, 2) Development of project management manual for construction of small scale irrigation system by the target municipalities, 3) Supporting irrigation system control committee by the municipal technicians, 4) Development of manuals for soil management and cultivation techniques and trainings for the municipal technicians, on-site guidance on soil management and cultivation techniques for farmers, 5) Establishment of commissions to make arrangement on construction of irrigation system among relevant organizations. 3. Inputs (to carry out above activities)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">Japanese Side</td> <td style="width: 50%; border: none;">Bolivian side</td> </tr> <tr> <td style="border: none;">(1) Dispatch of experts 4 experts</td> <td style="border: none;">(1) Counterpart personnel: 24 persons</td> </tr> <tr> <td style="border: none;">(2) Acceptance of trainees in Japan: 1 person</td> <td style="border: none;">(2) Land and facilities: Office space for project</td> </tr> <tr> <td style="border: none;">(3) Cost for local consultant</td> <td style="border: none;">(3) Local cost: Cost for construction of pilot irrigation system, personnel cost for driver, fuel cost, cost for project office, cost for trainings</td> </tr> <tr> <td style="border: none;">(4) Cost for construction of pilot irrigation system</td> <td style="border: none;"></td> </tr> </table>					Japanese Side	Bolivian side	(1) Dispatch of experts 4 experts	(1) Counterpart personnel: 24 persons	(2) Acceptance of trainees in Japan: 1 person	(2) Land and facilities: Office space for project	(3) Cost for local consultant	(3) Local cost: Cost for construction of pilot irrigation system, personnel cost for driver, fuel cost, cost for project office, cost for trainings	(4) Cost for construction of pilot irrigation system	
Japanese Side	Bolivian side														
(1) Dispatch of experts 4 experts	(1) Counterpart personnel: 24 persons														
(2) Acceptance of trainees in Japan: 1 person	(2) Land and facilities: Office space for project														
(3) Cost for local consultant	(3) Local cost: Cost for construction of pilot irrigation system, personnel cost for driver, fuel cost, cost for project office, cost for trainings														
(4) Cost for construction of pilot irrigation system															
Ex-Ante Evaluation	2007	Project Period	January, 2008 to June, 2011 (Extension Period: January, 2011 to June, 2011)	Project Cost	(Ex-Ante) 137 million yen (Actual) 209 million yen										
Implementing Agency	Regional Government of La Paz, Regional Government of Oruro, Municipality of Patacamaya, Municipality of Umala, Municipality of San Pedro de Curahuara, Municipality of Chacarrilla, Municipality of Santiago de Callapa, Municipality of Charaña, Municipality of Calacoto, Municipality of Curahuara de Carangas, Municipality of Totora, Municipality of Turco														
Cooperation Agency in Japan	None														

II. Result of the Evaluation

1 Relevance	<p><Consistency with Development Policy of Bolivian Government at the time of ex-ante evaluation and the project completion> The project was consistent with the Bolivia's development policy of "expansion of irrigation" as set forth in the policy documents including the National Plan for Soil Utilization and Management (2003) and the National Plan of Irrigation Development (2007-2011). <Consistency with Development Needs of Bolivia at the time of ex-ante evaluation and the project completion> The project met the development needs of Bolivia to increase agricultural productivity through construction of small scale irrigation systems in Altiplano. <Consistency with Japan's ODA Policy for Bolivia at the time of ex-ante evaluation> The project was consistent with the Japan's ODA policy toward Bolivia in 2006 prioritizing improvement of production capacity, including improvement of production and management skills and development economic infrastructure. <Evaluation Results> In the light of above, the relevance of this project is high.</p>				
-------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--

2 Effectiveness/Impact

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

The Project Purpose was partially achieved by the project completion. Although the project planned to construct small irrigation systems in the 10 target municipalities, only 8 irrigation systems were functioning to irrigate 102.95 ha which was far below the target value of 250 ha. Out of the 8 irrigation systems, 5 systems were constructed by the project as pilot systems. Other 2 systems were funded by the Grant Assistance for Grass-Roots and Human Security Project (GGP)¹ and 1 system was funded by NGO Chacana². On the other hand, 396 producers were trained to use the water of irrigation system and 250 producers out of them utilized the irrigation system by the end of the project: 139 producers for the 5 systems in the pilot sites, 63 producers for the systems constructed by GGP, 48 producers for the systems constructed by NGO Chacana³.

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

After the project completion, 716 ha have been irrigated by 13 systems in the target municipalities at the time of ex-post evaluation as additional 5 systems in Municipalities of Patacamaya - Chusicani, Umala-Kellhuiri, Calacoto-Collana A, Charaña-Junuta Condoraca, Santiago de Callapa-Qolipaqanta were constructed by the target municipalities using the procedures introduced by the project with the support of the central government programs. 272 producers in the existing 8 irrigation system and 403 producers in the 5 newly constructed systems have been utilizing irrigation system.

In the target departments, besides the 5 system constructed after the project completion, 11 irrigation systems in La Paz and 1 system in Oruro were constructed following the procedures introduced by the project. In addition, 21 systems in La Paz and 7 systems in Oruro were constructed by other typologies. The constructions of the irrigation system in La Paz and Oruro were financed by the program “*Mi Agua* (My Water)” (for 27 systems) and the National Irrigation Program with a Watershed Approach (PRONAREC) (for 1 system). Those programs are politically backed up with the strong commitment by the central government and more construction of new systems in the target departments will be expected by the end of 2025, the target year of “the 2025 Patriotic Agenda” (Agenda Patriótica 2025⁴). The manuals developed by the project have been used for not only the constructions of 12 irrigation system following the procedures introduced by the project but also other constructions conducted by Regional Government of Oruro (the Regional Office of Agriculture and Livestock). The contents of those technical manuals were also revised by the succeeding project of JICA with the National Office of Irrigation Service (SENARI) and the National Irrigation School (ENR) to meet the level of farmers and are applied in the course of training conducted by the Regional Offices of Irrigation Service (SEDERIs).

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

The Overall Goals have been partially achieved. In terms of the Overall Goal 1 of increases in agricultural production in the 10 target municipalities, data is available for only 6 municipalities of Patacamaya (marshes), Umala, San Pedro de Cuahuara, Chacarilla, Charaña, Totora and Turco. Production of alfalfa (for livestock) and vegetables, which had been promoted by the project, increased in those municipalities. In particular, production of alfalfa in Chacarilla considerably increased from 546 tons in 2012 to 2,184 tons in 2014. For the Overall Goal 2 of implementation of similar activities in other municipalities in La Paz and Oruro, the data is available for only Oruro. In Oruro, the technology of pumps called “Yaku” developed by the project has been replicated by the Departmental Service of Agriculture and Livestock of Oruro (SEDAG OR) to the Project of Ovine covering 12 municipalities and 144 constructed pumps.

<Other Positive and Negative Impacts>

Some positive impacts by the irrigation systems have been observed at the time of ex-post evaluation. In the target municipalities and the extended areas with the irrigation system, cultivation of agricultural products has been diversified. Cattle farmers in the target areas have increased cultivation of forages. In particular, at the time of ex-post evaluation, since falaris, which was a kind of forage introduced by the project in the municipalities of Totora and Turco, were highly appreciated because of its high drought resistance, this cultivation was extended to other communities. Also, in the 3 target municipalities in Oruro, variety of vegetables, such as parsley, radish, celery, tomato, cucumber, lettuce and strawberry have been cultivated in green houses. In other cases, the technique (forraje hidropónico) introduced by the project was applied by community Sarcota (Charaña) in a greenhouse and their good performance resulted in the construction of two additionally bigger greenhouses in the same community to cultivate vegetables and forages (barley and oat plants hydroponic). Furthermore, according to the 2 producers out of ones interviewed by the site visits in the target municipalities for this ex-post evaluation, there were 2 cases with improved profitability of farmers, such as cattle farmers and vegetable producers, by the improvement of access to water. On the other hand, some negative impacts have been observed at the time of ex-post evaluation. In some communities such as the municipalities of Umala in La Paz and Curahuara de Carangas (Chiscalla) in Oruro, conflicts over use of irrigation lands among users of the irrigation system have been observed because the demonstration sites were introduced in communities' lands in some cases but there was no case of land acquisition and resettlement induced by the project. In addition, in the community of Marka Marka (Municipality Curahuara de Carangas), since one of the wells has salty water, it has been sealed and abandoned by community by following the Rule NB512 Bolivian Norm (Quality Control of Water for Household Consumption)⁵. Nowadays the well has never been in use any more. No other negative impact by the project on natural environment was confirmed.

<Evaluation Results>

The Project Purpose and the Overall Goal were partially achieved through the construction of irrigation systems and the extension of the agricultural production using irrigation system in the 2 target departments. While some positive impacts of diversification of agricultural products, extension of falaris, application of technologies (hydroponic) and improvement of profitability of farming in the target municipalities have been observed, some negative impacts such as conflicts among users over use of the irrigated lands and issue of salty water had occurred. Therefore, effectiveness/Impact of the project is fair.

¹ GGP assists NGOs and local public authorities by provision of grant aid.

² The community of Capunuta (Municipality Patacamaya)

³ NGO Chakana is an international non-profit organization based on Netherland focusing on development for the indigenous peoples of the Andes Mountains in Bolivia and Peru.

⁴ The 2025 Patriotic Agenda constitutes a comprehensive development programme for Bolivia in the framework of Living Well and respect for the rights of Mother Earth.

⁵ NB512 Norma Boliviana (Control de la Calidad de Agua para el Consumo Humano)

Achievement of project purpose and overall goal

Aim	Indicators	Results																														
<p>(Project Purpose) Small irrigation agriculture is implemented in the 10 target municipalities.</p>	<p>Indicator 1: The irrigated area increases to 250 ha.</p>	<p>Status of achievement: Not achieved. (Project Completion) ➤ 102.95 ha were irrigated <ul style="list-style-type: none"> • 5 systems constructed by the project: 29.95 ha (Patacamaya, Umala, San Pedro de Titora, Curahuara de Carangas and Turco) • 2 systems constructed by GGP: 31 ha (Patacamaya-Patarani- and Umala-San Miguel de Copani) • 1 system constructed by NGO Chacana: 42 ha (Patacamaya-Capunuta) (Ex-post Evaluation) Achieved. ➤ 716 ha were irrigated by 13 systems at the time of ex-post evaluation <ul style="list-style-type: none"> • 5 systems constructed by the project: 86 ha • 2 systems constructed by GGP: 55 ha • 1 system constructed by NGO Chacana: 500 ha • 5 systems newly constructed by the target municipalities: 75 ha (the investment project - <i>fichas FIV</i>- were formulated by technicians of municipalities (Patacamaya, Umala, Calacoto, Santiago de Callapa and Charaña) during the project, in which the four typologies were considered and financed by different sources after the project completion) </p>																														
	<p>Indicator 2 The number of farmers who utilize irrigation increases to 300 in the 10 target municipalities.</p>	<p>Status of achievement: Partially achieved. (Project Completion) ➤ During the project, 396 producers were trained to use the water of irrigation system. ➤ 250 producers were engaged in the 8 irrigation systems. (Ex – Post Evaluation)Continued.. ➤ 272 producers trained by the project have been using the existing 8 irrigation system. ➤ 403 producers additionally trained after the project completion have been using the 5 newly constructed irrigation systems in different communities of the target municipalities. The systems were built by central government programs such as Mi Agua, PRONAREC and Evo Cuple Bolivia Cambia. [The number of farmers trained by the project using irrigation system]</p> <table border="1" data-bbox="882 1200 1414 1350"> <thead> <tr> <th>Type \ Year</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015 As of ex-post evaluation</th> </tr> </thead> <tbody> <tr> <td>Livestock</td> <td>126</td> <td>192</td> <td>250</td> <td>250</td> </tr> <tr> <td>Agriculture</td> <td>22</td> <td>22</td> <td>22</td> <td>22</td> </tr> <tr> <td>Total</td> <td>148</td> <td>214</td> <td>272</td> <td>272</td> </tr> </tbody> </table>	Type \ Year	2012	2013	2014	2015 As of ex-post evaluation	Livestock	126	192	250	250	Agriculture	22	22	22	22	Total	148	214	272	272										
Type \ Year	2012	2013	2014	2015 As of ex-post evaluation																												
Livestock	126	192	250	250																												
Agriculture	22	22	22	22																												
Total	148	214	272	272																												
<p>(Overall goal) 1) Productivity of agriculture and livestock products identified is improved in the target area.</p>	<p>Indicator 1-1 The production volume in the area is identified, improvement compared with study implemented in 2007 is observed, and the increase is observed. (Expansion of cultivated land in the newly developed irrigation land)</p>	<p>(Ex-post Evaluation) Partially achieved. [Production Volume in the target municipalities]</p> <table border="1" data-bbox="778 1413 1517 1744"> <thead> <tr> <th>Municipality</th> <th>Products</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Umala</td> <td>Carrots White Onions</td> <td>-</td> <td>0.92ton</td> <td>2.3 ton2.3ton</td> </tr> <tr> <td>Chacarrilla</td> <td>Alfalfa (4 cutting)</td> <td>546 ton</td> <td>1092 ton</td> <td>2,184 ton</td> </tr> <tr> <td>Charaña</td> <td>Falaris Alfa Alfa Barley Potato</td> <td>-</td> <td>250 ton</td> <td>-</td> </tr> <tr> <td>Titora</td> <td>Alfalfa</td> <td>327 ton</td> <td>2 ton</td> <td>4 ton</td> </tr> <tr> <td>Turco</td> <td>Alfalfa Falaris</td> <td>109 ton 64 ton</td> <td>163.8 ton</td> <td>177 ton</td> </tr> </tbody> </table> <p>(Reference) The average production volume (per 1 ha) in the demonstration farm in 2010 (at the time of terminal evaluation) are as follows: - White Onion: 20 tons - Carrots: 37 tons - Falaris (dry): 12 tons - Alfa-Alfa: 12.5 tons</p>	Municipality	Products	2012	2013	2014	Umala	Carrots White Onions	-	0.92ton	2.3 ton2.3ton	Chacarrilla	Alfalfa (4 cutting)	546 ton	1092 ton	2,184 ton	Charaña	Falaris Alfa Alfa Barley Potato	-	250 ton	-	Titora	Alfalfa	327 ton	2 ton	4 ton	Turco	Alfalfa Falaris	109 ton 64 ton	163.8 ton	177 ton
Municipality	Products	2012	2013	2014																												
Umala	Carrots White Onions	-	0.92ton	2.3 ton2.3ton																												
Chacarrilla	Alfalfa (4 cutting)	546 ton	1092 ton	2,184 ton																												
Charaña	Falaris Alfa Alfa Barley Potato	-	250 ton	-																												
Titora	Alfalfa	327 ton	2 ton	4 ton																												
Turco	Alfalfa Falaris	109 ton 64 ton	163.8 ton	177 ton																												
<p>2) Similar activities are implemented in other areas of La Paz Department and Oruro Department.</p>	<p>Indicator 2-1 Activities of farmers in other areas are initiated: more than 1 municipality in each department.</p>	<p>(Ex-post Evaluation) Partially achieved. ➤ No information available in La Paz though cultivation has been promoted in one target municipality (Charaña) during the project period. ➤ The technology of pumps called “Yaku” developed by the project has been replicated by SEDAG OR covering 12 municipalities.</p>																														

Source : Terminal Evaluation Report, the reports of project activities (2008-2011), Interviews with technicians of the Regional Government, Municipalities and producers, and field visits

3 Efficiency

Although efficiency of the project was judged as “high” at the time of terminal evaluation, both of the project cost and the project period exceeded the plan (ratios against the plan: 152%, 117%) because commitments by the implementing agencies of the Bolivian side such as contracts with technicians for construction of irrigation system was delayed and the terminal evaluation mission recommended the extension of the project period. The delay of project activities required dispatch of additional Japanese experts to enhance the project implementation and additional inputs without increase in the outputs. Therefore, efficiency of the project is low.

4 Sustainability

<Policy Aspects>

After the project completion, the government of Bolivia changed their policies and strategies from decentralized irrigation development by regional level to centralized irrigation development at national level through the national programs such as *Mi Agua I, II, III*, financed by CAF (Corporación Andina de Fomento) and PRONAREC I, II financed by the Inter-American Development Bank (IDB). Also, “the Irrigation Decade 2015-2025”, the law under “the Patriotic Agenda 2025”, aims to change the dry land farming to the irrigated farming to 1 million ha nationwide and hence to increase in yield and diversify production. Those national programs and the law have endorsed promotion of the small irrigation system introduced by the project in the two Departments of La Paz and Oruro.

<Institutional Aspects>

The role of each organization to promote irrigation system, such as the Ministry of Environment and Water (MMAyA), the Ministry of Rural Development and Land (MDRyT), SENARI and SEDERIs, has not changed at all. Moreover, the strong commitment by the government of Bolivia under their political strategy has backed up the activities of those responsible organizations and the sufficient number of personnel for each organization.

On the other hand, changes in donors’ policies and completion of their projects consequently weakened the implementation structure of SENARI, SEDERIs and municipality level. In addition, high rotation of authorities and technicians in community level can be an issue. However, ENR with support by “the Project of Capacity Development of Agriculture with irrigation” (2012-2016), the JICA’s technical cooperation project, has implemented training for engineers and farmers, including ones in La Paz and Oruro, through SENARI and SEDERIs and still sustains to provide services of irrigation into municipalities by other budget sources. As a result, the qualification in irrigation of more than 700 producers of Oruro was recognized by the Ministry of Education and soon more than 1,000 producers in La Paz will be certified. It is also observed that in several municipalities, the Regional Governments and SEDERIs of La Paz and Oruro are engaged in some water projects financed by the Central Government, and the number of organizations involving in promoting the irrigation sector has been increased year by year. Under those frameworks, the number of stakeholders to be engaged in the irrigation sector has been steadily increasing year by year in despite of the fluctuated number of training opportunities by year. As a result, the promotion of irrigation sector by the existing organizations has been sustained.

<Technical Aspects>

As mentioned above, due to the reduction of cooperation by donors, the numbers of trainings in La Paz and Oruro have decreased. However, since it was confirmed by the field visits for this ex-post evaluation that the irrigation system had been developed in the target municipalities in accordance with the process introduced by the project, technicians of SEDERI LP and OR have sufficient technical knowledge to deliver trainings and technical support for municipal technicians and the municipal technicians have sufficient technical knowledge to promote construction of small irrigation system. SENARI delivers technical trainings to technicians and producers through ENR. Those trainings have been enhanced by the Technical Cooperation Project of JICA and the technical trainings have been delivered under the coordination with SENARI and SEDERI La Paz and Oruro For the period from 2013 to 2015, Oruro provided 6 series of training courses and La Paz provided 16 series of training courses. Universities with the support of donors, also perform upper education programs on irrigation for Civil Engineers and Agronomist. Also a Unity of UCP-CAF (a unit of MMAyA) was established in 2015 to provide technical assistance for effective use of irrigation systems to farmers. Consequently, it is expected that diversification of actors offering the training opportunity in the irrigation sector will contribute to development and refreshment of the technical skills in every level of the country.

Therefore, it can be judged that sustainability of the project effects have been sustained at a certain level of quality in the technical aspect because some of institutions have delivered training opportunities for various actors to be engaged in irrigation in accordance with their level.

<Financial Aspects>

Since the irrigation sector is one of the prioritized sectors in “the Patriotic Agenda 2025”, there are several commitments to support the sector mainly by donors. The overall budget of MMAyA for the present fiscal year 2017 reach approximately 120 million USD (34% oriented to administration and 66% to programs of cooperation). In the last months, two decrees were approved to finance two programs on irrigation “Mi Riego II” and “Construction of Dams”. The Decree of “Mi Riego II” (August 2016) approved a credit of 158 million USD to support projects on development of irrigation systems in the rural areas of Bolivia. At the end of the same year, approximately 122 million USD (jointly financed by CAF and the OPEC (Organization of the Petroleum Exporting Countries) Fund for International Development -OFID) was approved to support the construction of small and medium dams with the aim to supply water to people in the rural areas. Both programs have components of construction of infrastructure and technical assistance. Also with the Decree 3026, “Harvesting Water-Cosecha de Agua” approved with an amount of 10 million USD financed by FONPLATA⁶. The focus of the program is provision of water for consumption and irrigation. The mentioned three programs show the strong commitment of central government to support the irrigation sector with development of infrastructure of the country.

Furthermore, there exist other bilateral donors’ commitments. The Cooperation of Argentine (FOAR) approved a Technical Cooperation to provide technical assistance in cultivation of products under irrigation in some departments of Bolivia such as Cochabamba, Santa Cruz, Beni and Tarija. This cooperation will execute with SENARI and ENR and start in March 2017 for the next two years. The cooperation aims to strengthen human resources of SEDERIs included La Paz and Oruro (the process considers training and business trip to Argentine). The Belgium Cooperation commit to develop the Center of Excellence that coordinates programs of training to staff of both Ministries (Agriculture and Water) by the end of 2017. German Cooperation (GIZ) put importance to the strengthening of human resources

⁶ FONPLATA is an regional multilateral organization composed of the member countries in the La Plata River basin of Argentine, Brazil, Bolivia, Paraguay and Uruguay in order to promote sustainable economic development in the region.

and they concentrate to develop upper educational programs such as Diplomas Course and Masters with those Ministries related. This program provided approximately 80 training programs on irrigation until now and it will continue to the middle of 2017.

By those cooperation, it is expected that the irrigation sector will be strongly backed up and secured in terms of financial aspects.

<Evaluation Results>

In the light above, there had some problems observed but they were solved with the participation of other actors. Local human resources trained are also important actors for development of irrigation systems and socialization of knowledge to others. Therefore, there is no problem observed from the institutional, technical and financial aspects, sustainability of the project is high.

5 Summary of the Evaluation

Although the Project Purpose was partially achieved by the project completion, the project contributed to the extension of small irrigation systems in the target departments of La Paz and Oruro and the improvement of agricultural production as well as diversification of cultivation in the target municipalities after the project completion. As for sustainability, there is no problem from any aspects at the time of ex-post evaluation. As for efficiency, the project period and cost exceeded the plan in accordance with the recommendation by the terminal evaluation mission due to the delay of construction of small irrigation system.

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

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

[MMAyA (VHRyR), SENARI, ENR, SEDERIs]

The counterpart organizations for the project of JICA have important roll to disseminate the result of the project. These organizations ought to secure sufficient budget for their activities and are expected to develop human resources for the sector applying the knowledge gained by the project.

Lessons learned for JICA:

< Setting indicators to verify various improvement by the project effects with introduction of irrigation system >

In this project, improvement of productivity for agricultural products was set as one of the indicator to evaluate the achievement of overall goal. However, those targeted agricultural products were specified during the beginning of the project period. In general, farmers need their production management based on the demand and price of the target market and those targeted products are not necessarily measurable products that reflect an expected impact of the project achievement. In this kind of project, consideration is preferable to set indicators such as diversification of the products variety, sales volume per farmer, risk hedge against drop of production and so on.

< Follow up activities after completion of the project in case where a regime or policy change affecting continuity of activities related to the project >

After completion of the project, the government of Bolivia has formed several national programs to increase agricultural land with irrigation. Taking advantage of this political decision, JICA implemented new technical cooperation so that the project impact sustains and develops human resources more. However, even if political supports are unlikely to exist in the future, it is important to develop contents and tools for promotion and dissemination of the project effect and conduct promotion of the results of project during or after the period of the project in order to promote and utilize the result of the project for other various programs and projects together with counterpart organizations during the project period or post-project period. As a result, such efforts enable to create opportunities to use/reuse the results of project in the national programs. JICA should put more importance on the management of the result of the impact by the past projects.



(Pumped well in Curahuara de Carangas – community of Marka Marka)



(Irrigation Facility in Turco – community of Macaya)