Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Bolivia Office: January 2017

Country Name	**Water is Health and Life (Phase 2)**
Plurinational State of Bolivia	

I. Project Outline

Background	In Bolivia, 71% (2006, the World Bank) of the national population had access to safe water. The water supply coverage in the rural area was only 50% (2005, the World Bank), which caused the spread of water-borne diseases as well as infant mortality. Reacting to such a situation, the Government of Japan has implemented three grant aid projects to procure necessary equipment for development of underground water, dig wells and construct water supply facilities in pilot communities in six departments among the nine. Also, the Government of Bolivia took its own measures concerning establishment and maintenance of water supply facilities to be managed by the municipalities, which, however was not sufficient. To tackle with this, Japan's technical cooperation project "Water is Health and Life" was implemented from 2005 to 2008 in those six departments to support the municipalities, by improving the capacity of the Unit of Water, Basic Sanitary and Housing (UNASBVI) of each department, promoting productive rural development activities to maintain water supply facilities, and strengthening cooperation among water-related organizations. However, some issues remained such as different capacity level among the six departments, insufficient techniques for digging wells and developing groundwater, etc. So as to solve these issues, the Government of Bolivia requested the succeeding phase of the project, expanding the target to all the nine departments in the country.				
Objectives of the Project	The project aimed at strengthening UNASBVI's capacity for supply of drinking water in the rural area, in order to improve the health conditions of the people. 1. Overall Goal: To contribute to improvement of the water supply rate in the rural area throughout the nation, so that the people could have better quality of health. 2. Project Purpose: UNASBVI´s capacity is strengthened for supply of drinking water in the rural area in a sustainable way.				
Activities of the Project	1. Project site: Santa Cruz of Santa Cruz Department (SC), Oruro of Oruro Department (OR), and capital municipality of the other departments (Chuquisaca (CH), Tarija (TR), Potosí (PT), La Paz (LP), Beni (BE), Pando (PA) and Cochabamba (CB)). 2. Main activities: i) Establishment of the operational committee of Technical Centers (CT-ASVI), ii) Training by CE-ASVI for municipal technicians and community water committees on selected topics, iii) Development of the database by the department offices on the water supply facilities, iv) Conduct of researches by CT-ASVI on selected topics related to water supply, v) UNASBVI's coordination among the stakeholders related to water supply. 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 6 persons 2) Training in Japan: 9 persons 3) Equipment: 195 million yen for vehicles, well drilling machines, etc. 4) Local operation cost: 76 million yen for the local operation expenses. Bolivian Side 1) Staff allocated: 46 2) Land and facilities: Office spaces and technical centers. 3) Expenses: 133 million Bs. for project operation.				
Ex-Ante Evaluation	2008	Project Period	June 2008 to December 2011	Project Cost	(Ex-ante) 290 million yen (Actual) 256 million yen
Implementing Agency	Ministry of Environment and Water Resources, 9 Department Governments.				
Cooperation Agency in Japan	None.				

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Bolivia at the time of ex-ante evaluation and project completion>

The project was consistent with Bolivian development policies, as the National Development Plan (2006-2011), Basic Hygiene Sector Plan (2001-2010, 2011-2015), and National Plan of Basic Hygiene (2008-2015), prioritizing improvement of the water supply in the rural area.

<Consistency with the Development Needs of Bolivia at the time of ex-ante evaluation and project completion >

There were issues related to management of water quality deteriorated by pesticide contamination in irrigation water and mine pollution in the mine areas. People have had needs for ensuring safe drinking water in the rural areas and building capacity of the department government through the water quality analysis and groundwater development.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

Based on the policy dialogue in 2006, three areas were selected as assistance priorities including social development. In this priority area, water and hygiene was considered necessary for improving the livelihood.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was mostly achieved. UNASBVI's capacity for supplying drinking water in the rural areas was strengthened, as more production wells were drilled in five departments and more wells with water supply facilities were operated than planned in seven of the nine departments. Non achievement in some departments was because of delayed construction of the facilities. The beneficiaries of water supply increased as planned in seven of the nine departments[1]. On the other hand, no production well was drilled by the project and no water facilities were implemented in Cochabamba because no activity was conducted given the low priority for the water supply services by the department government. However, with the central government program under support from Inter-American Development Bank, wells were drilled for drinking water in Cochabamba.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

It is judged that the project effects have mostly continued since the project completion. Though the current status of the drilled production wells and wells in the water facilities implemented during the project period could not be confirmed at the ex-post evaluation, it is judged that they have been continuously functioning based on the fact of the increase of the beneficiary population and water coverage supply in the rural area, as mentioned later. Regarding the capacity of the development of water supply programs, even since the project completion, new wells have been continuously drilled and operated with water facilities in all the departments except Cochabamba. The water supply coverage in the rural areas increased to 72% by 2015[2]. The Ministry of Environment and Water Resources and the Department Committees and National Water Committees (DINESBVI) tried to involve the department of Cochabamba in improving UNASBVI's capacity, but it has failed as the department priority has been put on the irrigation water sector.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

It can be judged that the Overall Goal has been achieved, although it is difficult to strictly verify the contribution of the project intervention. The cases of diarrhea caused by water have decreased in the rural area. According to the interviewed residents, officials of the Ministry of Health and Department Health Service (SEDES) of La Paz, diarrhea cases have decreased because of the improved water quality and hygiene. CT-Oruro has conducted water quality analysis in all the departments and the percentage of the water which satisfies the quality standard has increased from 76% in 2010 to 85% in 2015.

<Other Impacts at the time of Ex-post Evaluation>

The model on productive community development (DESCOM-P)[3] elaborated by the former phase and implemented by the project has been incorporated in the national regulation since 2014, so as to promote the sustainable use of the water facilities. As an example, the greenhouse for vegetable production constructed by the project has succeeded in generating revenues for the community water committee and also provided healthy diet to the community children. This productive activity created employment opportunities in the municipality, too. Another impact is the reduced burden of fetching water. Before the project, women and children had to fetch water from the water sources which were 100 to 1,000 meters away, but now they can get water much nearer the houses than before, which motivated them to improve hygiene customs such as washing hands and taking a bath more frequently at home, according to the interviewed residents in the six departments (OR, SC, CH, PT, LP and BE).

No negative impacts have been reported on the natural environment and land acquisition and resettlement.

<Evaluation Result>

The Project Purpose (strengthening of UNASBVI's capacity for supplying drinking water in the rural area) was mostly achieved, and it has continued. As its effects, water-borne diseases have decreased (Overall Goal), and other positive impacts have been reported. Therefore, effectiveness/impact of the project is high.

Achievement of the Project Purpose and Overall Goal

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th></tr>
<tr><td rowspan="2">(Project Purpose)
UNASBVI´s capacity is strengthened for supply of drinking water in the rural area in a sustainable way.</td><td>1. Target by 2011 in each department
1) # of production well (2008-11)</td><td>(Project Completion) Partially achieved.
(Ex-post Evaluation) Mostly continued.
- Production wells were drilled as follows.
<table>
<tr><th></th><th>SC</th><th>CH</th><th>TR</th><th>OR</th><th>PT</th><th>LP</th><th>BE</th><th>PA</th><th>CB</th><th>Total</th></tr>
<tr><td>Plan (2008-2011)</td><td>176</td><td>56</td><td>40</td><td>40</td><td>64</td><td>64</td><td>36</td><td>18</td><td>18</td><td>512</td></tr>
<tr><td>Achievement (2008-2011)</td><td>478</td><td>86</td><td>98</td><td>60</td><td>37</td><td>142</td><td>19</td><td>16</td><td>0</td><td>936</td></tr>
<tr><td>Achievement (2012-2015 May)</td><td>248</td><td>86</td><td>135</td><td>94</td><td>25</td><td>131</td><td>21</td><td>4</td><td>0</td><td>744</td></tr>
</table>
Note: SC: Santa Cruz, CH: Chuquisaca, TR: Tarija, OR: Oruro, PT: Potosí, LP: La Paz, BE: Beni, PA: Pando, CB: Cochabamba.</td></tr>
<tr><td>2) # of wells implemented</td><td>(Project Completion) Achieved.
(Ex-post Evaluation) Mostly continued.
- Wells in the water facilities were implemented as follows.
<table>
<tr><th></th><th>SC</th><th>CH</th><th>TR</th><th>OR</th><th>PT</th><th>LP</th><th>BE</th><th>PA</th><th>CB</th><th>Total</th></tr>
<tr><td>Plan(2008-2011)</td><td>158</td><td>50</td><td>36</td><td>36</td><td>58</td><td>58</td><td>32</td><td>16</td><td>16</td><td>460</td></tr>
<tr><td>Achievement (2008-2011)</td><td>469</td><td>62</td><td>68</td><td>66</td><td>75</td><td>91</td><td>25</td><td>16</td><td>0</td><td>872</td></tr>
<tr><td>Achievement</td><td>247</td><td>39</td><td>135</td><td>94</td><td>8</td><td>131</td><td>21</td><td>4</td><td>0</td><td>679</td></tr>
</table></td></tr>
</table>

[1] In Beni Department, less water facilities were implemented than planned but more population was benefited than planned. The reason for this was not confirmed at the ex-post evaluation.

[2] No activities related to the project were implemented in Cochabamba. However, water facility development programs were implemented as a part of the central government program, and the water supply coverage in the rural area were improved.

[3] DESCOM-P is a water supply management model developed based on the participatory rural development methods and productive activities which raise fund for operation and maintenance of the water supply facilities. In the project, various productive activities including apiculture, greenhouse horticulture, bakery, livestock raising, etc. were conducted.

<table>
<tr><td></td><td></td><td>(2012-2015 May)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>3) # of municipalities and districts where the water supply coverage is 100% (Santa Cruz-15)</td><td colspan="11">(Project Completion) Partially achieved.
- 5 municipalities had 100% coverage of water supply. 20 other municipalities had more than 95% coverage.
(Ex-post Evaluation) Continued.
- 15 municipalities had 100% coverage of water supply in 2015.</td></tr>
<tr><td></td><td>4) # of beneficiaries</td><td colspan="11">(Project Completion) Achieved.
(Ex-post Evaluation) Continued.
- The increased population who has been benefited.
<table>
<tr><td></td><td>SC</td><td>CH</td><td>TR</td><td>OR</td><td>PT</td><td>LP</td><td>BE</td><td>PA</td><td>CB</td><td>Total</td></tr>
<tr><td>Plan (2008-2011)</td><td>256,511</td><td>11,162</td><td>19,761</td><td>3,475</td><td>18,919</td><td>11,127</td><td>13,724</td><td>3,019</td><td>13,303</td><td>351,000</td></tr>
<tr><td>Achievement (2008-2011)</td><td>269,214</td><td>42,000</td><td>15,892</td><td>31,710</td><td>29,169</td><td>49,676</td><td>22,652</td><td>3,276</td><td>0</td><td>463,609</td></tr>
<tr><td>Achievement (2012-2015 May)</td><td>122,645</td><td>84,859</td><td>17,921</td><td>87,032</td><td>19,932</td><td>54,027</td><td>39,311</td><td>840</td><td>0</td><td>426,567</td></tr>
</table></td></tr>
<tr><td></td><td>5) % of the functioning production wells against those implemented in 1998-2011 (90%)</td><td colspan="11">(Project Completion) Achieved.
- Among 1,867 production wells, 1,616 wells were functioning (86.5%).
(Ex-post Evaluation) Continued.
- Among 2,610 production wells, 2,553 wells were functioning (97.8%).</td></tr>
<tr><td></td><td>2. National water supply coverage in the rural area by 2011:
65% (512 wells, 351,000 habitants.)</td><td colspan="11">(Project Completion) Achieved.
- According to the project's estimation, the coverage increased to 68%.
(Ex-post Evaluation) Continued.
- The national water supply coverage in the rural area in 2015 is estimated as 72% (calculated with the data obtained from each department).</td></tr>
<tr><td>(Overall Goal)
To contribute to improvement of the water supply rate in the rural are through the nation, so that the people could have better quality of health.</td><td>2. Decrease of diseases (diarrhea, intestinal parasite, etc.) attributed to inappropriate water, after the project completion in the communities where the project activities were implemented.</td><td colspan="11">(Ex-post Evaluation) Achieved.
- The population under 5 who become ill with acute diarrhea per thousand cases.
<table>
<tr><td></td><td>2008</td><td>2009</td><td>2010</td><td>2011</td><td>2012</td><td>2013</td></tr>
<tr><td>Urban</td><td>26</td><td>25</td><td>NA</td><td>23</td><td>21</td><td>20</td></tr>
<tr><td>Rural</td><td>20</td><td>23</td><td>NA</td><td>20</td><td>18</td><td>18</td></tr>
<tr><td>Total</td><td>35</td><td>29</td><td>NA</td><td>27</td><td>26</td><td>23</td></tr>
</table></td></tr>
</table>

Source: Terminal Evaluation Report, Project monitoring report, data provided by each department, INE, MOH.
Note: Indicator 1-6) of the Project Purpose was not used as it was decided by the project that it would not be targeted.
Indicator 1 of the Overall Goal was not used, either, because it is overlapped with one of the Project Purpose.

3 Efficiency

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

4 Sustainability

<Policy Aspect>

Provision of safe drinking water has been prioritized in the government development plan such as the Sector Plan of Basic Sanitation Development (2016-2020), as well as in many other government laws and regulations. It has been prioritized also at the department level. As mentioned in the effectiveness/impact section, six guidebooks of DESCOM-P have been applied to all public and private institutions, local governments and NGOs, etc. when they conduct projects of drinking water and sanitation.

<Institutional Aspect>

UNASBVI as a section in the department government is in charge of water and basic sanitation and conducts programs for drilling well and constructing water facilities. The number of the technical personnel is sufficient in the six departments (32 in SC, 30 in CH, 39 in OR, 37 in LP, 15 in BN and 15 in PD). The department committees[4] promote activity coordination and information sharing on the training and research activities among the organizations related to water supply in the six departments (SC, CH, TR, LP, PT and CB), but in the other three departments the Department Government or municipality performs the same function. Experiences of the nine departments are exchanged through regularly conducted meetings of the national coordination committee (ADESBVI, former DINESBVI)[5]. Water-related data of the nine departments have been consolidated into the national database. Water quality analysis has been conducted by CT-ASVI of Oruro and Santa Cruz at no charge for the departments, municipalities and other organizations such as SEDES and Department Irrigation Service. CT-ASVI of Santa Cruz has eight personnel and they themselves consider the number is sufficient to conduct training and technical support for the municipalities. On the other hand, CT-ASVI of Oruro lacks personnel in the technical and social sections due to the unavailability of such professionals in the department. At the municipal level, necessary technicians have not been assigned for monitoring and maintenance of the water facilities, but the community committees for water cover the functions.

<Technical Aspect>

CT-ASVI of Santa Cruz has conducted 60 training for UNASBVI personnel and community committees on well drilling, construction of the water facilities, and operation and maintenance (O&M) since the project completion till 2015. The inspection of the

[4] The department committee consists of the organizations related to water and basic hygiene in each department, chaired by UNASBVI.
[5] The national coordination committee (former DINESBVI) was established by the project, consisting of the representatives of the nine departments. It coordinates with the Ministry of Water and Environment and donors' sectorial meeting for water-related activities.

ex-post evaluation confirmed that UNASBVI personnel have sufficient techniques for supporting the communities' O&M of the water facilities and productive activities, which is also self-evaluated by UNASBVI personnel themselves. The majority of the trainers trained by the project still work at the ex-post evaluation, and some have newly joined CT-ASVI as trainers. For the departments of Beni and Pando, UNASBVI personnel were trained on deep well drilling, facility O&M, sanitation, etc. The manuals of DESCOM-P have been utilized in the six departments where the site survey was conducted (OR, SC, CH, PT, LP and BE). Besides, several manuals on appropriate and sustainable use of water were elaborated by CT-ASVI of Oruro and widely distributed to the communities. Techniques introduced by the project have been utilized, including the solar panel for pumping and pumping with wind power. UNASBVI personnel consider that they have sufficient technique for providing support to the municipalities and communities for facility O&M, as they can have technical support from CT-ASVI upon necessity.

<Financial Aspect>

The budget of the department government comes from the central government and hydrocarbon tax. The budget of UNASBVI in the most departments has increased since 2012, but according to the conducted interview during the site survey, only that of Oruro is sufficient (3.02 million Bolivianos (Bs) in 2015). In the other departments, the budget for conducting programs of UNASBVI is not sufficient, since the counterpart resource from the municipalities is not sufficient, either. In Cochabamba, no budget has been assigned for the water sector as it was during the project period because the priority was given to the irrigation sector. The budget of CT-ASVI of Santa Cruz for 2015 was 12.83 million Bs. The budget increased compared to 2012 and the budget was disbursed more than planned every year. However, it was not sufficient to cover all the needs for technical development, training and horizontal cooperation among the departments. The expenditure of CT-ASVI of Oruro has decreased since 2012. However, regarding the future budget, at least the minimum budget related to water supply will be secured for both offices of CT-ASVI because water supply is covered by the program of the Government of Santa Cruz and also the water sector is prioritized in most departments, according to CT-ASVI.

<Evaluation Result>

Some problems have been observed in terms of the institutional and financial aspects of the implementing agencies. Therefore, sustainability of the project is fair.

5 Summary of the Evaluation

The Project Purpose (strengthening of UNASBVI's capacity for supplying drinking water in the rural area) was mostly achieved, and it has continued. As its effects, water-borne diseases have decreased (Overall Goal), and other positive impacts have been reported. On the other hand, no drilling activities have been implemented since the project inception to the time of the ex-post evaluation as the project intervention in Cochabamba. Regarding the sustainability of the project effects, the organizational structure and responsibilities for provision of the safe drinking water have been sustained, but the number of the personnel is not sufficient in some departments. For continuity of the activities for underground water development and support for the municipalities, the budget is not sufficient in most of the departments. The budgets of CT-ASVI for training and horizontal cooperation are not sufficient, either.

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

III. Recommendations & Lessons Learned

<Recommendations for Ministry of Environment and Water Resources>

1. In the six departments where the department committee functions (SC, CH, TR, LP, PT and CB), more wells have been drilled and more water facilities have been implemented than targeted. It is quite important to promote the continuation of the department committees in these departments to exchange experiences and information for the sustainable use of the water facilities. It is also recommended to reactivate the committee or relevant institution in the other three departments (OR, BE and PA).
2. It is recommended for the department governments to secure a sufficient number of the personnel for technical and social matters for provision of the safe drinking water and let them be trained by CT-ASVI.

<Lessons Learned for JICA>

1. Based on DESCOM-P model, some communities have operated the water facility for supply of the safe drinking water and also gained necessary profits from the productive activities for sustaining the water facility. This has been realized through the needs-oriented and a participatory approach. It is also because the community members were trained during the project period on O&M of the facility. In cases in which the community people are expected to conduct the facility O&M with their initiative and their own funds after the project completion, it is important that they decide the fund raising activities in accordance with their needs, and that the project provide sufficient technical training to them during the project period.

(Water facility with the solar Panel System in Puerto Geralda Community, Beni)

(Aquaculture Project of DESCOM-P productive activity in Jorochito Community, Santa Cruz)