Evaluation Report 2018-4

Ex-post Evaluation of Ruhunupura Water Supply Project in Sri Lanka

The Export-Import Bank of Korea

(Government Agency for EDCF)

EDCF Operations Evaluation Team

1. Overview

- The Government of Sri Lanka requested EDCF's support for the Ruhunupura Water Supply Project ("Project") in order to support the effective implementation of the Ruhunupura Development Plan. The Project aimed to contribute to the industrial development and economic growth in Hambantota area by addressing increased water demand.

- The Project was implemented by the National Water Supply and Drainage Board (NWSDB). The consortium of Kolon Global Corp. and other firms was entrusted with design and construction of the water treatment facility ("Facility") on a design-build basis.

- The primary beneficiaries of treated water were shifted to domestic users from industrial/institutional users due to a delay of the Ruhunupura Development Plan. At the time of evaluation, the Facility was supplying 14,480m^3/day of treated water to 16,600 households in the area.

2. Evaluation Method and Results

☐ **(Purpose of Evaluation)** The purpose of this evaluation was (1) addressing accountability for the Project and (2) providing lessons learned and recommendations for the improvement for the similar projects in the future.

☐ **(Evaluation Criteria)** This ex-post evaluation adopts relevance, efficiency, effectiveness and sustainability for the criteria in accordance with the evaluation guidelines of the Sub-committee for Evaluation of Korea and EDCF guidelines for ex-post evaluation.

☐ **(Overall Rating)** The Project was rated as "successful." The relevance and effectiveness of the Project were found to be high.

<Summary of Findings>

Criteria	Score	Rate	Results
Relevance	4	Highly Relevant	▪ The Project was highly consistent with two priority goals under Sri Lanka's national development plan—regional economic development and stable water supply. ▪ The capacity of the Facility met expected water demand. ▪ The Government of Sri Lanka played a leading role in performance management and other tasks for the planning, implementation and management of the Project.

Criteria	Score	Rate	Results
Efficiency	3	Efficient	▪ The Project was completed within 86.3% of the planned budget. ▪ Construction was delayed by 16 months due to disputes over the results of the bidding.
Effectiveness	4	Highly Effective	▪ Due to delayed regional development and slow population increase, the construction of one out of four scheduled water towers was canceled. ▪ As of May 2018, the Facility produced 14,480m3 of treated water a day. ▪ There was no water supply suspension due to an accident or failure. ▪ The non-revenue water (NRW) rate was relatively higher than expected considering that the Facility was newly constructed. NRW was mainly caused by the existing aged pipelines. ▪ The Facility provided water to domestic users since industrial users were small in number due to the delayed economic development plan. ▪ The users showed a high level of satisfaction.

Criteria	Score	Rate	Results
Sustainability	3.6	Sustainable	▪ The number of beneficiaries of the water supply services was higher than expected and was likely to increase. ▪ More effective measures for preservation of the Ridiyagama tank would be needed. ▪ The skillfulness and available number of operation and maintenance (O&M) staff were found to be sufficient for ordinary O&M services. ▪ NWSDB was in high debt due to the low water tariff and continuously expanding infrastructure. However, the Facility had no financial distress in O&M activities with the adequate support from the Government of Sri Lanka.
Cross-cutting Issues			▪ The Facility has proper safety measures against sludge and chemical discharges. ▪ Increased water usage could lead to water pollution due to the lack of sewage treatment facilities. ▪ Some households reported the reduction of women's water-fetching time.
Overall Rate	**3.66**	**Successful**	

- **(Relevance)** The Project was rated as “highly relevant”; as part of the Southern Development Plan, the Project was aligned with Sri Lanka’s development goals and EDCF’s support principles. The Government of Sri Lanka showed high levels of initiative. Also, the Facility was properly designed for the required water treatment capacity and the selection of location was appropriate.

  - The Project was planned as part of the Hambantota Development Plan of Mahinda Chintana.
  - The Project was well aligned with EDCF’s mission: “Supporting infrastructure construction for economic development and welfare enhancement.”
  - The Government of Sri Lanka and NWSDB had high levels of initiative in the planning, implementation and management of the Project. Their risk management addressed the environmental changes in the Project, contributing to more effectiveness.
  - The Project was designed to ensure that water supply was available in areas without sufficient water supplies from NWSDB and other providers.
  - The capacity and equipment of intake and water treatment facilities, i.e. outputs of the Project, were appropriately designed for water demand and living condition improvement in Hambantota.

- **(Efficiency)** The Project was rated as “efficient.” It was completed within the planned budget but construction was delayed by 16 months due to disputes over the results of the bidding.

- **(Effectiveness)** The effectiveness of the Project was rated “very high.” Almost all of the expected outputs were delivered. The Facility was

providing about 20% of total treated water supplies in Hambantota. Also, it supplied good quality water with reliable services. However, its NRW rate was rather high.

- NWSDB estimated changes in water demand and canceled the construction of one out of four scheduled water towers. This led to a more effective service delivery and a more sustainable Facility.
- As of May 2018, the Facility daily provided 14,480m^3 of high quality treated water to approximately 16,600 households. The Facility already exceeded its optimal process capacity of 13,125m^3a day (75% of its maximum process capacity).
- There was no water supply suspension due to an accident or failure. The NRW rate was estimated to be 10 to 15%. This was lower than the regional average (24%) but relatively high for a newly constructed facility. Recognizing such high NRW rate as a persistent problem in Sri Lanka, NWSDB aims to lessen it to 18% by 2021.

☐ **(Sustainability)** The Project was sustainable in terms of water demand, environment, and human/material recourses management.

- The quantity of treated water supplied by the Facility was already over its optimum operating capacity. Also, water demand was expected to continuously increase as populations and industrial facilities would grow in the Hambantota area.
- The amount of intake was unlikely to affect the reservoir capacity of the Ridiyagama tank. Also, there was no significant impact of climate change on the current intake quantity of the Ridiyagama tank. The amount of intake was expected to be maintained as well.

- The water quality of the Ridiyagama tank was maintained at an acceptable level throughout the year. However, there was a risk of pollution from chemical pesticides as well as harmful algal blooms due to seasonal changes or pollutants. The farming households living in the vicinity of the tank need to raise their awareness of the importance of water source protection.
- The Facility was managed and maintained by 15 staff members. Considering the size of the Facility, the capacity and capability of the staff appeared to be sufficient for O&M activities. However, they are deemed to need the on-site training for SCADA.
- The Facility was supported by the government and thus had no difficulty in financing necessary O&M activities. However, NWSDB was in chronic deficits due to high NRW, low water tariff, and continuous expansion of water treatment infrastructure.
- The Facility was expected to be highly sustainable. The parts and chemicals needed for O&M were smoothly supplied to the Facility. Also, the Facility had the equipment to prevent damage of pipelines and other systems and prepared its operational plan for specific responsive measures against accidents.

- **(Cross-cutting Issues)** The risk of pollution due to discharges from the Facility appeared to be low. However, increased water usage could lead to water pollution due to the lack of sewage treatment facilities. Some households reported the reduction of women's water-fetching time, but this was caused by a high level of piped water distribution rather than the Project alone.

3. Lessons Learned and Recommendations

☐ Success Factors

- **(Clear Policy Goal & Implementation Strategy)** The Project was planned as part of the overall regional development and the implementation strategy to address the need for treated water in Hambantota.
- **(Effective Risk Management)** NWSDB effectively monitored and managed the biggest risk of the Project, i.e. time gap between the Hambantota Development Plan and the construction of the Facility.
- **(NWSDB's Initiative)** NWSDB altered the design and beneficiaries of the Project based on the effective risk monitoring and management. This high level of initiative eventually enhanced the effectiveness of the Project.
- **(Supplier's Stable Relationship with the Partner Country)** Kolon Global Corp. established its branch office in Sri Lanka and continuously provided necessary advice and services for the O&M of the Facility after completion of the Project. This relationship between NWSDB and Kolon Global Corp. contributed to stabilizing the Facility with more sustainability.

☐ Challenges and Limitations

- **(NWSDB's Financial Vulnerability)** NWSDB was in chronic deficits and its operation depended on subsidies from the Government of Sri Lanka. Financial vulnerability at a national level may affect the quality of NWSDB services in the future.
- **(High NRW Rate)** The NRW rate of the Facility was between 10 and 15%, which was relatively high for a newly constructed facility. This was caused by old pipelines and defective water meters.

- **(Risk of Pollution in the Water Source)** There was a risk of pollution in the Ridiyagama tank due to harmful algal blooms and agricultural chemicals discharged from neighboring farms.
- **(On-the-job Training for O&M Staff)** The O&M staff members express the need for the on-site training of SCADA system operation. The on-site training was provided during the project implementation, but rather insufficient due to delayed selection of staffs.

☐ Recommendations

- **(Sri Lanka) (**1) NWSDB should address NRW for a more efficient water management by replacing old pipelines and water meters; and (2) the Government of Sri Lanka should proactively promote the Water Safety Plan and prepare concrete actions to protect the Ridiyagama tank, such as training sessions for farms.
- **(EDCF)** Additional on-the-job training for the O&M staff may be taken into account as part of EDCF's ex-post support for more effectiveness when the selection of the O&M staff is delayed during the Project.