

Ex-ante Project Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: Republic of Cape Verde

Project: Water Supply System Development Project in Santiago Island

Loan Agreement: 20th December 2013

Loan Amount: 15,292 million Yen

Borrower: The Government of the Republic of Cape Verde

2. Background and Necessity of the Project

(1) Current status and issues the Water Sector in Cape Verde

Due to the fact that mean annual precipitation over Cape Verde is as little as approximately 225mm and that it consists of volcanic islands, the country has poor potential for groundwater development, and is challenged by chronic water shortages. The national action plan for the integrated water resources management (2010) highlighted the needs to develop water resources to resolve an imbalance between freshwater supply and demand – the supply is expected to increase to more than 70 million m³ in 2020 from 42million m³ in 2007, while the demand is expected to increase to 100million m³ from 47million m³ during the same period. Given limited potential on the development of surface water resources (dam construction), declines in groundwater level and the occurrence of saltwater intrusion due to excessive pumping, the country has to rely on seawater desalination to increase its capacity for freshwater supply.

In 2007, approximately 90% of the population was served by water distribution systems, and the country aims to increase the percentage to 100% in 2020, but average freshwater use remains low at about 50 liters per capita per day for household connections and 15 liters for community water taps. Facing the increase of population and the improvement of household level water supply, the demand for freshwater is expected to increase.

In the Santiago Island, where the government of Cape Verde conducts its Water Supply System Development Project in the Santiago Island (“the project”) and where more than half of the Cape Verde population live and therefore demand for freshwater is high, the government needs to address issues of stable water supply and economic efficiency of water supply such as temporary transfer of water among municipalities in dry season, since each municipality operates its water distribution system. Accordingly, the project aims to ensure a stable supply of safe freshwater across the island by building a water supply network covering the whole island.

(2) Development Policies for the Water sector in Cape Verde and the Priority of the Project

Cape Verde is now classified as middle income country. Since the economy’s transition to upper middle income country may result in a decline in donor support

including loans, the country has been making efforts to improve basic infrastructure by using loans from donors before it reaches upper middle income classification.

The country's latest government program for the eighth legislature (2012-16) prioritizes the modernization of infrastructure for water and sewerage and electricity, etc, to ensure economic competitiveness, with focus on projects to increase desalination capacity. In its strategy for water sector, the national action plan for the integrated water resources management indicated that seawater desalination would be crucial for addressing increasing demand for freshwater and that the country intended to build seawater desalination facilities. Thus, the project is highly prioritized.

(3) Japan and JICA's Policy and Operations in the Water sector

With Yokohama Action Plan (May 2008) prepared by The Forth Tokyo International Conference on African Development (TICAD IV) which prioritizes "boosting economic growth", Japan places its focus on support for infrastructure development. The project corresponds to the two of the three main themes for TICAD V in June 2013, i.e. "robust and sustainable economy" and "inclusive and resilient society".

In addition, the project plan for the country regards "improvement in economic and social infrastructure" as a priority area of support. Thus, the project is relevant to Japan and JICA's support polices. JICA's support for the country to date includes: the Santiago Island Water Supply Project in Cape Verde (Grant aid for community empowerment, grant aid agreement signed on March 2009, amount: 829million yen).

(4) Other Donors' Activity

Other international donors for the country's water and sewage sector include: the United States government's Millennium Challenge Corporation (MCC) supporting water sector reforms, France, Austria and Portugal conducting various programs for infrastructure development, The European Union (EU), Spain and Luxembourg conducting programs for small scale infrastructure development.

(5) Necessity of the Project

As mentioned above, the project is to improve access to safe freshwater in the country and also promote climate change adaptation. Thus, the project addresses the issues facing the county and corresponds to the country's development policy. In addition, as the project is in line with Japan and JICA's support policy, JICA's support for implementing the project is deemed highly necessary and relevant.

<h2>3. Project Descriptions</h2>

(1) Project Objectives

The project aims to ensure stable freshwater supply and improve access to safe freshwater by connecting regional water systems in the Santiago Island, Cape Verde through construction of seawater desalination facilities and treated water transmission facilities in the island, thus contributing to improvement in living conditions and economic revitalization. Furthermore, the project facilitates the country's climate

change adaptation by the subsequent preservation and replacement of underground water resources through seawater desalination.

(2) Project Site/Target Area

The Santiago Island (Area: 991km², Population: about 270,000)

(3) Project Components

- 1) Construction of water supply facilities (seawater desalination facilities with a capacity of 40,000m³ per day) , water transmission pipelines (about 130km), etc.)
- 2) Consulting services (reviews on feasibility study, detailed design, bid assistance, construction supervision, environmental and social considerations, etc.)

(4) Estimated Project Cost (Loan Amount)

18,862 million yen (Loan Amount : 15,292 million yen)

(5) Schedule

From December 2013 to November 2019 (72 months) The project will be completed at the time of the completion of the construction.

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of Cape Verde
- 2) Guarantor: None
- 3) Executing Agency: Ministry of Environment, Housing and Land Development
- 4) Operation, Maintenance System: National Water and Sanitation Agency (ANAS)

(7) Environmental and Social Consideration/Poverty Reduction/Social Development

1) Environmental and Social Consideration

- ① Category: B
- ② Reason for Categorization: The project does not fall into sensitive sectors under the JICA Guidelines for Environmental and Social Considerations (April 2010), and its potential adverse impact on the environmental is not considered to be significant.
- ③ Environmental Permit: Approval for Environmental Impact Assessment (EIA) report for the project was obtained from Ministry of Environment, Housing and Land Development in September 2013.
- ④ Anti-Pollution Measures: Necessary measures will be taken to comply with the country's laws and regulations and International Finance Cooperation (IFC)'s Environmental, Health, and Safety (EHS) Guidelines, e.g. the use of mobile sprinkler systems and soundproof equipment to control particles and noise pollution from construction sites and an agitator set to outlet pipes to mitigate the environmental impact of returning the brine to the ocean.
- ⑤ Natural Environment: The project sites are not located in environmentally vulnerable areas such as national parks or their vicinity, and it is likely to have minimal adverse impact on the natural environment.
- ⑥ Social Environment: The project involves acquisition of approximately 1ha of land, which will be undertaken in compliance with the country's laws and

regulations and the JICA Guidelines for Environmental and Social Considerations (April 2010),

⑦ Other / Monitoring: The executing agency will monitor construction waste, impacts on ecosystems from construction and land acquisition activities, and will also conduct post-construction monitoring on waste, noises and seawater quality in the sea off the facility and so forth.

2) Promotion of Poverty Reduction: The project aiming to improve access to safe freshwater in rural areas where poverty is concentrated and to increase freshwater supply is expected to contribute to poverty reduction through improvement in living conditions in the target area. Furthermore, as part of the country's efforts towards reducing poverty, government's support for connection to water supply network is expected in the water and sewage master plan that is currently being implemented by the country. In addition, other international donors are directly providing support for water distribution network.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Considerations for the Persons with Disabilities etc.) : Ensuring stable supply of freshwater through the project may help improve hygienic conditions and reduce women's workload.

(8) Collaboration with Other Donors

MCC implements water sector reforms including legal framework, the EU and various European countries provide support for the development of water supply network for the islands of Cape Verde including the Santiago Island.

(9) Other Important Issues

The country's plan for climate change adaptation cites flood, drought and sea level rise as risks related to climate change. The country also expects that impacts of climate change on the country will include: a decline in water resources and the subsequent crop yields decrease and decrease in forestry resources. Therefore, ensuring water resources through the project will help reduce the country's vulnerability to climate change.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (Actual Value in 2012)	Target (2020) 【Expected value 2 years after project completion】
Population served by water supply (,000)	151	274
Household served by piped water supply (%)	54.6	95.0

Desalinated water supply capacity (m ³ /per day)	11,700	55,000
Desalination Facility utilization rates (%)	—	90
Number of interconnected municipalities in Santiago Island for water supply	0	9

Notes:

- ① Population served by water supply: Population having access to desalinated water through “household connection or community water taps” or “tanker” (number of households x average number of members in family)
- ② Households served by piped water supply: [Number of households having access to desalinated water through a piped water connection and/or community water taps]/[number of households in the Santiago Island]
- ③ Desalinated water supply capacity: a total capacity of desalination facilities connecting to water supply network and reservoir to be developed in the project. A total capacity of the existing facility in the suburbs of Praia (11,700m³/day), new facility under construction (5,000m³/day) and facility to be built in this project (40,000m³/day) minus small scale facility (1,200m³/day × 1) used as emergency measures by ELECTRA that is scheduled to be relocated to other island.
- ④ Desalination Facility utilization rates: [average annual desalinated water supply]/[supply capacity (40,000m³/day)] of desalination facilities to be developed in the project.

(source) ① and ②: The country’s statistics bureau, ③ and ④: national electricity and water utility

2) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of the project is 15.1%, and the Financial Internal Rate of Return (FIRR) is 1.3%.

【EIRR】

Cost: Project cost and operating and maintenance costs (excluding taxes)

Benefits: Willingness to pay, mitigation of time-consuming task of fetching water , reduction in health care expenditures.

Project life: 20 years

【FIRR】

Cost: Project cost and operating and maintenance costs

Benefits: Water rate revenues

Project life: 20 years

- (2) Qualitative effects: improvement of living conditions, decrease in water-related diseases , revitalization of the economy such as agricultural development

5. External Factors and Risk Control

A major natural disaster that may adversely impact construction period.

6. Lessons Learned from Past Projects

- (1) Evaluation results of similar projects: evaluations on “Metropolitan Water Supply Project (Khanpur I)” in Islamic Republic of Pakistan point out that it is imperative to urge agencies executing water supply for which no yen loan is provided to proactively participate in various activities towards increasing development effectiveness and ensuring sustainability.
- (2) Lessons learnt for the Project: In this project, yen loan is not applied to water distribution. Reflecting the lesson learnt as mentioned above, from the feasibility study phase and onwards, cooperation between the central government ministries and agencies and local governments has been promoted. The project will be designed to ensure that such cooperation will continue.

7. Plan for Future Evaluation

- (1) Indicators to be used
 - 1) Population served by water supply (person)
 - 2) Household served by piped water supply (%)
 - 3) Desalinated water supply capacity (m³/day)
 - 4) Facility utilization rates (%)
 - 5) Number of regional water systems (local authorities) to be connected
 - 6) EIRR (%)
 - 7) FIRR (%)
- (2) Timing: Two years after project completion

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