# Report and Recommendation of the President to the Board of Directors

Project Number: 46346-002
September 2015

# Proposed Grant and Administration of Grant Republic of the Marshall Islands: Ebeye Water Supply and Sanitation Project



Asian Development Bank

## CURRENCY EQUIVALENTS

The currency of the Republic of the Marshall Islands is the United States dollar.

## ABBREVIATIONS

| | | |
|---|---|---|
| ADB | – | Asian Development Bank |
| KAJUR | – | Kwajalein Atoll Joint Utilities Resource, Inc. |
| m | – | meter |
| mm | – | millimeter |
| RMI | – | Republic of the Marshall Islands |
| SWRO | – | saltwater reverse osmosis |

## NOTES

(i) The fiscal year (FY) of the Government of Republic of the Marshall Islands and its agencies ends on 30 September. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2015 ends on 30 September 2015.

(ii) In this report, "$" refers to US dollars.

| | |
|---|---|
| **Vice-President** | S. Groff, Operations 2 |
| **Director General** | X. Yao, Pacific Department (PARD) |
| **Director** | E. Veve, Urban, Social Development, and Public Management Division, PARD |
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| **Team members** | F. Asistin, Senior Operations and Institutional Coordination Officer, PARD<br>L. Levaque, Social Development Specialist (Gender and Development), Sustainable Development and Climate Change Department (SDCC)<br>E. Milne-Paul, Development Coordination Officer, PARD<br>T. Morita, Counsel, Office of the General Counsel<br>N. Sapkota, Safeguards Specialist, PARD<br>C. Tinio, Associate Economics and Statistics Analyst, PARD<br>J. Williams, Senior Environment Specialist, PARD |
| **Peer reviewer** | Alan Baird, Senior Water Supply and Sanitation Specialist, SDCC |

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# PROJECT AT A GLANCE

## 1. Basic Data

**Project Number:** 46346-002

| | | | |
|---|---|---|---|
| **Project Name** | Ebeye Water Supply and Sanitation Project | **Department /Division** | PARD/PAUS |
| **Country** | Marshall Islands, Republic of | **Executing Agency** | Office of the Chief Secretary |
| **Borrower** | Marshall Islands, Republic of | | |

## 2. Sector

| | Subsector(s) | ADB Financing ($ million) |
|---|---|---|
| ✓ **Water and other urban infrastructure and services** | Urban sewerage | 1.56 |
| | Urban water supply | 2.96 |
| **Energy** | Electricity transmission and distribution | 0.48 |
| | **Total** | **5.00** |

## 3. Strategic Agenda

| | Subcomponents |
|---|---|
| Inclusive economic growth (IEG) | Pillar 2: Access to economic opportunities, including jobs, made more inclusive |
| Environmentally sustainable growth (ESG) | Urban environmental improvement |

## Climate Change Information

| | |
|---|---|
| Climate Change impact on the Project | Medium |

## 4. Drivers of Change

| | Components |
|---|---|
| Governance and capacity development (GCD) | Institutional development<br>Organizational development<br>Public financial governance |
| Knowledge solutions (KNS) | Knowledge sharing activities |
| Partnerships (PAR) | Official cofinancing<br>Regional organizations |

## Gender Equity and Mainstreaming

| | |
|---|---|
| Effective gender mainstreaming (EGM) | ✓ |

## 5. Poverty Targeting

| | |
|---|---|
| Project directly targets poverty | No |

## Location Impact

| | |
|---|---|
| Rural | Low |
| Urban | High |

## 6. Risk Categorization: Low

## 7. Safeguard Categorization

**Environment:** B **Involuntary Resettlement:** B **Indigenous Peoples:** C

## 8. Financing

| Modality and Sources | Amount ($ million) |
|---|---|
| **ADB** | **5.00** |
| Sovereign Project grant: Asian Development Fund | 5.00 |
| **Cofinancing** | **4.00** |
| Australian Grant | 4.00 |
| **Counterpart** | **10.02** |
| Government | 10.02 |
| **Total** | **19.02** |

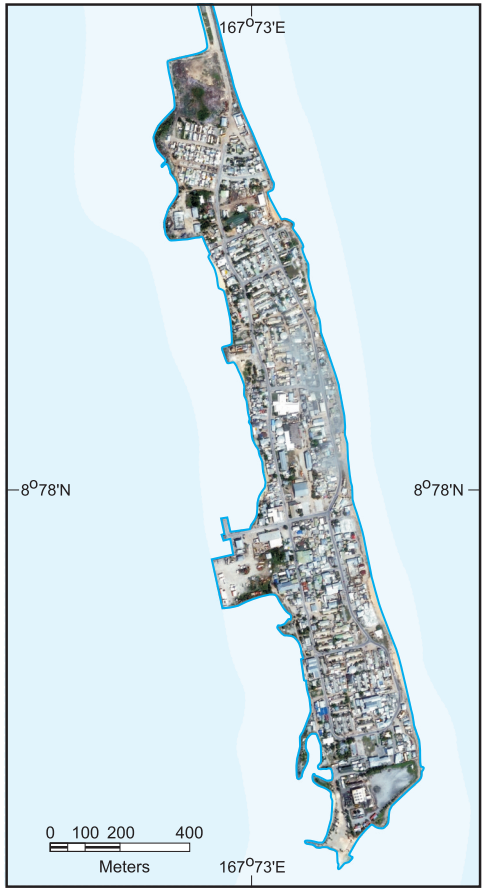
## 9. Effective Development Cooperation

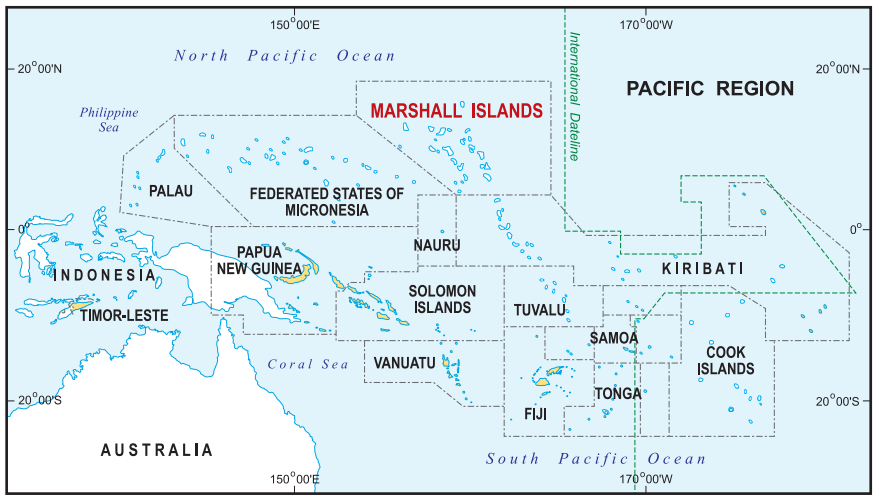
| | |
|---|---|
| Use of country procurement systems | No |
| Use of country public financial management systems | No |

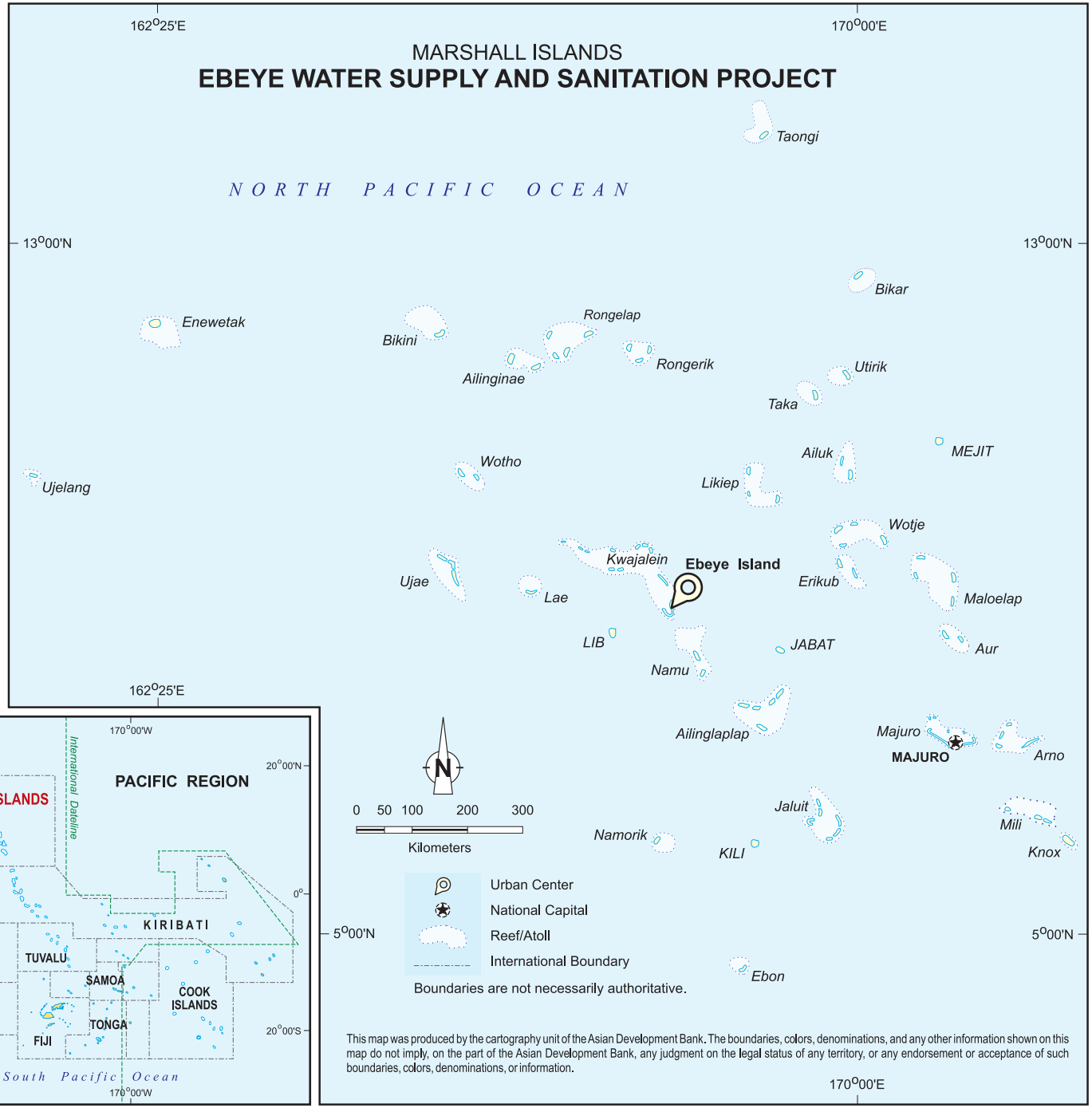
Source: Asian Development Bank

MARSHALL ISLANDS

# EBEYE WATER SUPPLY AND SANITATION PROJECT






15-1734 15 RMI ABV

# I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed grant, and (ii) the proposed administration of a grant to be provided by the Government of Australia, both to the Republic of the Marshall Islands (RMI) for the Ebeye Water Supply and Sanitation Project.[1]

2. The project will increase access to safe water and sanitation and promote behavioral change to improve hygiene standards on Ebeye, an island within Kwajalein Atoll. Ebeye is the largest population center in Kwajalein Atoll and is the second largest urban center in RMI with an area of approximately 31 hectares and a population of more than 9,600.[2]

# II. THE PROJECT

## A. Rationale

3. Ebeye has a high incidence of waterborne disease: about one reported case per eight residents each year. Since 2001, Ebeye Hospital has reported an average of 1,182 cases per year of waterborne disease, primarily gastroenteritis. The high incidence of waterborne disease is due to (i) limited access to safe water; (ii) ineffective hygiene, particularly among children; and (iii) a dilapidated sanitation system.

4. **Limited sources of freshwater.** The primary sources of potable water for households on Ebeye are the public freshwater supply (78%) produced by a seawater reverse osmosis (SWRO) desalination plant operated by the Kwajalein Atoll Joint Utilities Resource, Inc. (KAJUR),[3] household rainwater tanks (21%), and bottled water (1%). Ebeye has minimal groundwater reserves and no freshwater streams. The Ebeye SWRO plant has four units with the following potable water production capacities: 387,500 liters per day for units 1 and 2, 581,250 liters per day for unit 3, and 116,250 liters per day for unit 4. The first two units were installed in 2000, but unit 1 has not operated since 2005 and unit 2 has not worked since 2011 because essential spare parts are no longer available. Unit 3, commissioned in 2001, produces an average of 474,000 liters per day, but it requires about 20% more energy than modern SWRO plants to produce the equivalent volume of potable water. Unit 4 was commissioned in 2014 and is operating at about 67% of its rated capacity.[4] In total, the SWRO plant produces about 590,100 liters of freshwater daily, potentially providing 61.5 liters per day to each Ebeye resident.

5. However, about half of the freshwater produced is lost because of leaks in the supply network. Freshwater production capacity is also constrained by the limited capacity of the saltwater water supply system. Freshwater is supplied to households through the freshwater supply network for about 1 hour per week. Although KAJUR provides a water carting service, most households cannot afford the delivery charge and obtain water from a freshwater filling station operated by KAJUR when household supplies are depleted. Households are increasingly harvesting rainwater to increase access to freshwater, but this source is not secure because of seasonal rainfall patterns and more frequent droughts. In drought years, water stored in

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[1] The design and monitoring framework is in Appendix 1.

[2] The project was prepared under Asian Development Bank. 2012. *Technical Assistance to the Republic of the Marshall Islands to Prepare the Ebeye Water Supply and Sanitation Project*. Manila (TA 8306-RMI).

[3] KAJUR, a state-owned enterprise, also provides electricity generation and distribution, and sewerage services on Ebeye. KAJUR also has a saltwater distribution network for the operation of the Ebeye's sewerage network.

[4] The United States provided unit 4 as part of its response to the RMI drought disaster in 2013.

rainwater tanks is rapidly consumed and the tanks may remain empty for long periods unless filled from the KAJUR freshwater supply.

6. **Low awareness on hygiene and water-related issues.** Public awareness and education activities and outreach on hygiene and water-related issues are limited. A long-duration hygiene and water awareness campaign is required to foster the sustained behavioral change required to improve hygiene and reduce the incidence of waterborne diseases. Campaigns need to focus on women and children through programs delivered to womens' groups and in schools.[5] Upgrading school sanitation facilities on Ebeye, where the ratio of students to functioning toilets exceeds 150 to 1 in some cases, is necessary to foster improved hygiene behavior among Ebeye's students.

7. **Dilapidated sewer system.** The Ebeye saltwater sewerage system, commissioned in 1967, has progressively failed because of a lack of maintenance. Saltwater for the operation of the sewer system and for firefighting is sourced from two deep wells and pumped through a dedicated saltwater reticulation network to most areas on Ebeye. However, pressure in the saltwater reticulation mains is too low to operate fire hydrants. The sewage treatment plant has not operated since 2001 and untreated sewage is discharged into the lagoon. The sewage pump stations have limited pumping capacity and break down frequently. Most sewers on the northern and eastern sides of Ebeye are partially blocked with sediment, and high levels of seawater have infiltrated the sewers. The seawater infiltration and pump failures often result in sewage overflows. Those overflows and the discharge of raw sewage to the lagoon present a serious health hazard. Water quality testing by the government's Environmental Protection Agency indicates that the marine water quality at several locations on Ebeye's lagoon foreshore does not meet agency standards because of sewage contamination.

8. **Reliance on electricity supply.** Because of the topography and the scarcity of freshwater, the water supply and sewerage systems on Ebeye rely on the electricity distribution system to (i) pump saltwater from wells to the SWRO plant and to the saltwater sewerage system, (ii) operate the SWRO plant for production of freshwater, (iii) distribute freshwater through the freshwater supply network, and (iv) operate the sewage pump stations. Overall, Ebeye's electricity system is reliable and continuously meets the demand for electricity. However, several components of the electricity distribution system have outlived their design lives or require replacement to build the resilience of the electricity supply. These components include the high-voltage busbars and protection systems and high-voltage switchgear at the Ebeye power station, and most wooden power poles. The power station monitoring system needs to be replaced to improve the station's operational efficiency.

9. **Unsustainable water and sewerage services.** Since 2008, KAJUR has recorded annual operating losses of $2 million or more. Electricity services account for about 88% of KAJUR's operating revenue, with the balance sourced from freshwater sales to commercial and government customers. KAJUR provides freshwater and sewerage services to residential customers for free. KAJUR has financed the gap between expenditure and operating revenue through grants from the United States.[6] KAJUR has developed a reform strategy to improve its financial sustainability through better operational efficiency and higher revenues.[7] The reform strategy includes the installation of consumer meters and the introduction of user charges for

[5] Children under the age of 15 years are 45% of Ebeye's population.
[6] Through the RMI–United States Compact of Free Association.
[7] KAJUR. 2011. *Comprehensive Reform Strategy*. Ebeye.

freshwater and sewerage services. Implementation of the reform strategy has been delayed to synchronize with the implementation of the project.

10. The project supports several of RMI's national development themes, as articulated in National Strategic Plan, 2015–2017.[8] It is also aligned with (i) the strategic priority of the Asian Development Bank (ADB), as stated in the Midterm Review of Strategy 2020,[9] to make infrastructure more inclusive; (ii) ADB's Approach to Assisting the Pacific, 2010–2014,[10] which includes improving water supply and sanitation services; and (iii) ADB's Water Policy[11] and Water Operational Plan, 2011–2020,[12] which aim to increase efficiency and productivity in the delivery of water services, and to increase investments in sanitation and wastewater management. The project is included in RMI's country operations business plan, 2015–2017.[13]

## B. Impact and Outcome

11. The impact will be reduced incidence of waterborne disease on Ebeye, which is aligned with RMI's national development theme of empowering people and communities to reduce the incidence of "access-related" poverty through improvements in all areas, including social, economic, environment, governance, and infrastructure, as articulated in RMI's National Strategic Plan, 2015–2017. The outcome will be improved access to safe water and improved sanitation.

## C. Outputs

12. **Output 1: Secure and safe freshwater supplies**. Ebeye's public water supply system will be improved and safe freshwater supplied continuously to all households by

(i) increasing the availability of freshwater to each resident of Ebeye to 105 liters a day through (a) the installation of a new SWRO unit with a freshwater production capacity of 1.6 million liters per day,[14] (b) the construction of two new saltwater wells with the capacity to fully meet the saltwater demand, (c) the construction of a brine outfall to dispose of effluent from the SWRO plant, and (d) the installation of bulk supply meters at strategic locations within the water supply network;

(ii) improving the delivery of freshwater through the supply network by (a) building a new freshwater pumping station, (b) upgrading about 350 meters (m) of freshwater distribution mains from 100 millimeter (mm) to 200 mm diameter, (c) installing an 100,000-liter elevated freshwater reservoir, (d) implementing a leak detection and repair program and replacing up to 370 m of 100 mm and 150 mm diameter mains, and (e) replacing up to 880 freshwater service connections and installing prepayment water meters on all freshwater service connections; and

(iii) expanding the freshwater supply network by about 160 m and installing service connections to 365 unserviced households.

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[8] Government of the Marshall Islands. 2014. *National Strategic Plan, 2015–2017*. Majuro.
[9] ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.
[10] ADB. 2009. *ADB's Pacific Approach, 2010–2014*. Manila.
[11] ADB. 2001. *Water for All: The Water Policy of the Asian Development Bank*. Manila.
[12] ADB. 2011. *Water Operational Plan, 2011–2020*. Manila.
[13] ADB. 2014. *Country Operations Business Plan: Marshall Islands, 2015–2017*. Manila.
[14] Unit 3 may be retained as a standby facility and unit 4 will augment the supply to the freshwater distribution system.

13. **Output 2: Effective and efficient sewerage services.** The sewerage system on Ebeye will be upgraded to minimize the frequency and severity of uncontrolled sewage overflows and to reduce the environmental and health impacts of effluent disposal by

(i) upgrading the sewerage collection system by (a) reconstructing all four sewage pump stations, (b) rehabilitating or replacing 450 m of existing sewers, (c) rehabilitating or replacing 120 manholes, and (d) expanding the sewerage system by about 500 m and connecting 445 unserviced households;

(ii) upgrading of the saltwater supply system including (a) rehabilitation or replacement of 500 m of saltwater mains, (b) rehabilitation or replacement of 880 saltwater service connections, (c) construction of an elevated saltwater reservoir with a capacity of 50,000 liters, and (d) replacement of corroded fire hydrants (connected to the saltwater supply system) with 62 standpipes and purchasing a new fire truck; and

(iii) improving the treatment and disposal of sewage by (a) installing primary sewage treatment facilities (milli-screens), and (b) constructing a 350 m lagoon outfall discharging at a depth of 35 m.

14. **Output 3: Enhanced hygiene awareness and improved hygiene behaviors.** A hygiene awareness and promotion program focusing on women and children, and building upon hygiene awareness and promotion activities undertaken during project preparation, will be implemented over the duration of the project. Educational activities will promote good sanitation and hygiene practices that help prevent water- and sanitation-related diseases. Sanitation facilities at schools, where the ratio of students to functioning toilets exceeds 150 to 1, will be upgraded and expanded.

15. **Output 4: Secure electricity supply for water and sewerage operations.** The power generation and electrical distribution system on Ebeye will be improved to reduce risks to Ebeye's water supply and sewerage systems by (i) replacing the Ebeye power station's high-voltage busbars and protection equipment, (ii) replacing the existing switchgear, (iii) installing a power plant data monitoring system, and (iv) replacing all wooden power poles.

16. **Output 5: Financial and technical sustainability of Kwajalein Atoll Joint Utility Resource, Inc.** A program will be implemented to help KAJUR implement its reform strategy to build its financial, technical, and operational sustainability. The program will (i) strengthen KAJUR's financial management systems; (ii) implement the tariff frameworks developed during project preparation to ensure KAJUR's services are accessible to all households, including those in greatest hardship, with a target of full recovery of operations, maintenance, and depreciation costs; (iii) introduce mechanisms to improve cost recovery, such as universal (prepayment) metering of electricity and freshwater supply; (iv) review the personnel structure and strengthen KAJUR's administrative capacity; and (v) strengthen water and sewerage operations. To foster household water conservation and reduce KAJUR's water supply and sewerage system operational costs, KAJUR will implement a household water service and sanitation fixtures program to repair plumbing leaks and install water-efficient water supply and sanitation fixtures. This component will initially focus on poorer households.

## D. Investment and Financing Plans

17. The project is estimated to cost $19.02 million (Table 1).

**Table 1: Summary Cost Estimates**
($ million)

| ` | | Amount[a] |
|---|---|---|
| **A.** | **Base Cost**[b] | |
| | 1. Output 1: Secure and safe freshwater supplies | 8.61 |
| | 2. Output 2: Effective and efficient sewerage services | 4.55 |
| | 3. Output 3: Enhanced hygiene awareness and improved hygiene behaviors | 0.67 |
| | 4. Output 4: Secure electricity supply for water and sewerage operations | 1.39 |
| | 5. Output 5: Financial and technically sustainability of KAJUR | 1.11 |
| | **Subtotal (A)** | **16.33** |
| **B.** | **Contingencies**[c] | **2.49** |
| **C.** | **External Grant Administration Fee** | **0.20** |
| | **Total (A+B+C)** | **19.02** |

[a] Includes taxes and duties of $1.86 million. All project costs will be exempted from taxation and duties in RMI.
[b] In early-2015 prices.
[c] Physical contingencies computed at 15% of base costs less grant administration fees and provision for land acquisition and resettlement costs. Price contingencies computed at an average of 1.3% on foreign exchange costs and 1.9% on local currency costs over the duration of the project.
Source: Asian Development Bank.

18. The government has requested a grant not exceeding $5.00 million from ADB's Special Funds resources to help finance the project.[15] The Government of Australia will provide, on a cost-sharing basis, grant cofinancing of $4.00 million that will be administered by ADB.[16] The Government of the Marshall Islands will provide $10.02 million equivalent as a cash contribution of $8.16 million, including contingencies and exemption of taxes and duties amounting $1.86 million. The financing plan is in Table 2. The grants will be passed on to KAJUR by the government as a once-only equity injection to support KAJUR in moving to a sustainable financial position. This is necessary to facilitate KAJUR's reform plan and reflects the social nature of KAJUR's services.

**Table 2: Financing Plan**

| **Source** | **Amount** ($ million) | **Share of Total** (%) |
|---|---|---|
| Asian Development Bank | | |
| Special Funds Resources (grant) | 5.00 | 26.3 |
| Government of Australia (grant)[a] | 4.00 | 21.0 |
| Government of the Marshall Islands | 10.02 | 52.7 |
| **Total** | **19.02** | **100.0** |

Note: ADB and ADB-administered grants may finance local transportation and insurance charges.
[a] A grant administration fee amounting to 5% will apply to the Government of Australia grant.
Source: Asian Development Bank.

## E. Implementation Arrangements

19. The Office of the Chief Secretary will be the executing agency. KAJUR will be the implementing agency. A project management unit has been created in KAJUR comprising KAJUR personnel and will be supported by project implementation assistance consultants. KAJUR will be responsible for project implementation, including all procurement (with ADB

[15] A country's eligibility for Asian Development Fund (ADF) grants under the revised grant framework is determined by its risk of debt distress. The latest debt sustainability analysis determined that RMI had a high risk of debt distress and was therefore eligible to receive 100% of its ADF allocation as grants.
[16] ADB and ADB-administered grants may finance local transportation and insurance charges.

oversight). The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual.[17]

**Table 3: Implementation Arrangements**

| **Aspects** | **Arrangements** | | |
|---|---|---|---|
| Implementation period | 1 October 2015–31 December 2021 | | |
| Estimated completion date | 31 December 2021 | | |
| Management | | | |
| (i) Oversight body | Project Steering Committee:<br>Chief secretary (chair)<br>Deputy chief secretary; a senator representing Kwajalein; mayor of Kwajalein, 2 representatives from Kwajalein Atoll Local Government, KAJUR; assistant secretary of Health; assistant secretary of Finance; assistant secretary of Education; 1 representative from the Environmental Protection Agency; KAJUR general manager; 2 representatives from Ebeye-based NGOs or CSOs (members) | | |
| (ii) Executing agency | Office of the Chief Secretary | | |
| (iii) Key implementing agency | KAJUR | | |
| (iv) Implementation unit | Project management unit KAJUR, 5 staff:<br>(i) project manager, (ii) accountant and finance officer, (iii) water supply and sewerage manager, (iv) electricity supply manager, (v) community liaison officer | | |
| Procurement | International competitive bidding | 4 contracts | $ 12.5 million |
| | National competitive bidding | 2 contracts | $ 0.4 million |
| | Shopping | 5 contracts | $ 0.4 million |
| Consulting services | Quality- and cost-based selection (90:10) | 192 person-months | $ 2.4 million |
| | Individual consultant selection | 75 person-months | $ 0.6 million |
| Advance contracting | Advance contracting for (i) PIA consultants, and (ii) SWRO plant | | |
| Disbursement | The grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB. | | |

CSO = community services organization, KAJUR = Kwajalein Atoll Joint Utilities Resource, Inc.; NGO = nongovernment organization, PIA = project implementation assistance, SWRO = saltwater reverse osmosis.
Source: Asian Development Bank.

## III. DUE DILIGENCE

### A. Technical

20. An integrated approach will be adopted to address the water supply, sewerage, and electricity supply infrastructure deficiencies in addition to fostering improved hygiene behaviors through hygiene awareness and education programs. Water supply, sewerage, and electricity master plans and associated prioritized investment plans have been prepared along with a hygiene awareness and education program. Project components were selected and investments were prioritized in the master plans through a public consultation process. The

[17] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

project adopts the least-cost approach, which (i) minimizes operation management risks, (ii) has the lowest environmental risk, and (iii) offers the greatest flexibility for future growth.

21. The existing water supply and sewerage systems will be rehabilitated and expanded to connect households that are unserviced. The energy-inefficient SWRO plant will be replaced and the freshwater production capacity increased. Primary sewage treatment facilities will be installed and treated effluent will be discharged through a new lagoon outfall. The SWRO freshwater production and primary sewage treatment technologies are appropriate given KAJUR's SWRO plant operation experience and the simplicity of the proposed sewage treatment process. Under their supply contracts, SWRO and sewage treatment plant suppliers will be required to guarantee the availability of essential spare parts for at least 15 years.

## B. Economic and Financial

22. The integrated benefits of the project are expected to outweigh the project costs. The financial evaluation of the project was based on its full financial costs, including taxes and duties and physical contingencies. Incremental financial costs were evaluated against projected incremental revenues from electricity, water supply, and sewer service operations that are enabled by the project. Incremental values, for both costs and revenue, were determined by comparing the with-project and without-project scenarios. The financial internal rate of return for the project is 18.1%, substantially above the estimated weighted average cost of capital of 3.5%, indicating that the project is financially viable.

23. The economic analysis compared the discounted costs and benefits under the with- and without-project scenarios during 2014–2048 in constant 2015 prices.[18] The without-project case represents a continuation of the existing situation; the with-project case represents the project investment scenario. The project cost is estimated at $16.6 million, excluding taxes and duties, price contingencies, and grant administration fees. The economic benefits used to assess the project economic viability were (i) incremental water supply valued at willingness to pay; and (ii) health benefits measured as avoidance of the costs of illness related to waterborne diseases, especially diarrhea and gastroenteritis. The economic internal rate of return of the project is estimated at 12.8%, above the opportunity cost of capital (12.0%).

24. Sensitivity analyses were undertaken on the economic results to examine the impacts of key assumptions and project risks as follows: (i) capital cost increased by 20%, (ii) operation and maintenance cost increased by 20%, (iii) incremental water supply benefits decreased by 20%, and (iv) health benefits decreased by 20%. Under these scenarios, when assessed individually, the viability of the project falls, with economic internal rates of return of 8.9%–12.8%. When all scenarios are considered together the economic internal rate of return for the project drops to 5.9%.[19]

## C. Governance

25. **Financial management.** Since 2008, KAJUR has recorded operating losses of $2 million or more, primarily because of inadequate tariffs and high fuel costs for electricity production. Limited financial reporting and poor financial record management, coupled with

[18] Economic Analysis (accessible from the list of linked documents in Appendix 2).

[19] Programs and projects in weakly performing countries should not be expected to always yield the same financial and economic rates of return as would be expected in stronger performing developing member countries. ADB. 2007. *Achieving Development Effectiveness in Weakly Performing Countries (The Asian Development Bank's Approach to Engaging with Weakly Performing Countries)*. Manila.

turnover of experienced senior management since 2010, have also contributed to KAJUR's poor financial performance. The financial management assessment of KAJUR concluded that the financial control risk is high because of KAJUR's (i) lack of experience in managing large projects, (ii) weak record-keeping, and (iii) new management. Mitigating measures are incorporated in the project. KAJUR will be responsible for maintaining project accounts and preparing grant withdrawal applications. A financial management advisor will be recruited under the project to help KAJUR implement its financial reform plan, build its financial management capacity, and support the preparation of the project's financial documentation.

26. **Procurement capacity.** Procurement capacity assessments were undertaken of the government for the public sector program in 2012 and of KAJUR in 2014. Government procurement is done in accordance with the Procurement Code (Act), 1988 and applies to expenditure of public funds irrespective of their source by the government. KAJUR, as a state-owned enterprise, is subject to the Procurement Code. Procurement risks under the project are considered low. However, KAJUR has limited procurement experience and no experience with the procurement procedures of a multilateral development bank. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2015, as amended from time to time).[20] All consultants will be recruited according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). Targeted procurement training for KAJUR will be conducted soon after project approval. The project implementation assistance consultants will support the project management unit's procurement activities.

27. **Anticorruption.** ADB's Anticorruption Policy (1998, as amended to date) was explained to, and discussed with, the government. The specific policy requirements and supplementary measures are described in the project administration manual.

## D. Poverty and Social

28. Ebeye residents have a high incidence of gastroenteritis and other waterborne diseases. The project impact will reduce the incidence of waterborne diseases by providing all residents with direct access to safe and sustainable water and sewerage services, and by enhancing public awareness of hygiene and water issues. The result will be a healthier and more productive population with fewer private and public funds spent on medical services, and fewer work and school days lost to illness. About 50% of households have access to both freshwater supply and sewerage connections. Households that do not have access to freshwater and sewerage connections are those that suffer income poverty. The project will reduce poverty of opportunity by improving and extending potable water and sewerage services to all residents. The project will also help institute lifeline tariffs to enable poor households to access freshwater, sewerage, and electricity services.

29. The project is classified as effective gender mainstreaming. The project includes gender design features to ensure women's participation in the project and access to project benefits. A gender action plan has been prepared and includes (i) the Hygiene Awareness and Promotion Program, which targets women and children; (ii) creation of jobs and skills training for women in operation and maintenance and as part of the household water service and sanitation fixtures program; (iii) engagement of an international gender specialist and a national community

[20] Since ADB is administering cofinancing in the form of a grant from the Government of Australia for operations financed by the ADF, universal procurement will apply to all procurement packages to be financed by ADF resources and/or the grant from the Government of Australia.

participation and gender specialist; and (iv) training in gender analysis and gender mainstreaming in service provision for KAJUR staff.

## E. Safeguards

30. **Environment.** The project is classified category B for the environment. An initial environmental examination was prepared in accordance with ADB's Safeguard Policy Statement (2009). The project provides positive environmental benefits by improving the environmentally safe collection and treatment of sewage on Ebeye. Sewage overflows within the collection network will be reduced significantly. The quality of sewage treatment will meet appropriate standards for the marine environment. Sludge disposal will go to landfills complying with international standards. Adverse environmental impacts of the project will mainly be construction impacts, which are expected to be minimal for land-based works. The proposed sewer effluent outfall construction on the lagoon reef will require adequate mitigation measures. The environmental management plan outlines the risks and mitigating actions to be undertaken during project implementation.[21] As KAJUR's environmental management capacity is limited, an international and a national environmental specialist will be engaged through the project to strengthen KAJUR's capacity in this area.

31. **Climate change.** The project is assessed as having medium climate change risks. Key climate change risks are sea level rise and onshore category 1 storms. Climate risk profiles for RMI indicate that the main impacts of climate change will be higher air and water temperatures, higher sea levels, changing rainfall patterns, more severe and frequent droughts, and continuing ocean acidification. Best estimates of long-term, systematic changes in the average climate for RMI indicate that sea level is likely to rise by up to 30 centimeters and the frequency of severe short-term sea level rise resulting from a storm surge will increase from a one in 500-year event to a one in 2-year event by 2055.[22] The project will help Ebeye develop greater resilience to climate change by increasing freshwater production and introducing more energy-efficient water supply and sewerage systems.

32. **Involuntary resettlement and indigenous peoples.** The project is classified category B for involuntary resettlement and category C for indigenous peoples. A resettlement plan was prepared for the project in accordance with ADB's Safeguard Policy Statement. Most of the civil works will be constructed on land leased to the Kwajalein Atoll Development Authority, which dedicates existing and planned road and utility corridors to public use in perpetuity. The project will have minor resettlement impacts affecting 20 households (147 persons), including the acquisition of easements (about 0.54 hectares). KAJUR and the government will finance, implement, and monitor the resettlement plan. The people of Ebeye consider themselves indigenous in terms of ethnic origin. The project is not expected to have a negative impact on any distinct or vulnerable group of indigenous peoples as defined under ADB's Safeguard Policy Statement. The project will support capacity development within KAJUR to manage safeguards.

## F. Risks and Mitigating Measures

33. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[23]

[21] Initial Environmental Evaluation (accessible from the list of linked documents in Appendix 2).
[22] Marshall Islands National Weather Service Office. 2011. *Current and future climate of the Marshall Islands*. Majuro.
[23] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

**Table 4: Summary of Risks and Mitigating Measures**

| Risks | Mitigating Measures |
|---|---|
| KAJUR's financial record management and financial reporting does not improve and KAJUR's financial planning capability remains low. | A financial management advisor will be recruited under the project to help KAJUR strengthen its financial management systems and assist KAJUR in preparing financial documentation relating to the project. |
| KAJUR does not retain its senior management and finance personnel, and is unable to recruit suitable qualified and experienced managers and finance personnel. | KAJUR has a staff recruitment and development plan to develop managerial and financial management skills and to reduce key personnel risks. A financial management advisor will be recruited under the project to help KAJUR strengthen its financial management. |

Source: Asian Development Bank.

## IV. ASSURANCES

34. The government and KAJUR have assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the project administration manual, grant documents, and the project agreement.

35. The government and KAJUR have agreed with ADB on certain covenants for the project, which are set forth in the grant agreements and the project agreement.

## V. RECOMMENDATION

36. I am satisfied that the proposed grants would comply with the Articles of Agreement of the Asian Development Bank and recommend that the Board approve

(i) the grant not exceeding $5,000,000 to the Republic of the Marshall Islands from ADB's Special Funds resources for the Ebeye Water Supply and Sanitation Project, on terms and conditions that are substantially in accordance with those set forth in the draft grant and project agreements presented to the Board, and

(ii) the administration by ADB of the grant not exceeding the equivalent of $4,000,000 to the Republic of the Marshall Islands for the Ebeye Water Supply and Sanitation Project, to be provided by the Government of Australia.

Takehiko Nakao
President

4 September 2015

## DESIGN AND MONITORING FRAMEWORK

**Impact the project is aligned with:**

The project impact will be reduced incidence of waterborne disease on Ebeye and is aligned with RMI's national development theme of empowering people and communities to reduce the incidence of "access-related" poverty through improvements in all areas including social, economic, environment, governance, and infrastructure, as articulated in RMI's National Strategic Plan, 2015–2017.

| Results Chain | Performance Indicators with Targets and Baselines | Data Sources and Reporting | Risks |
|---|---|---|---|
| **Outcome**<br>Improved access to safe water and improved sanitation | By 2022, all households on Ebeye are connected to the freshwater and to the sewerage system.<br>(2014 baseline: water supply, 71%; sewerage 64%) | KAJUR records | Population growth on Ebeye exceeds growth projections. |
| **Outputs** | | | |
| 1. Secure and safe freshwater supplies | 1a. By 2019, the minimum quantity of freshwater produced increases to 105 liters per person per day (benefiting about 5,150 women and girls).<br>(2014 baseline: 26 liters per person per day). | 1a. KAJUR water production records | The commitment of the Ebeye community and RMI leadership to improving water supply services wanes. |
| 2. Effective and efficient sewerage services | 2a. By 2019, the frequency of overflows from the sewer network is reduced to less than 25 events per year.<br>(2014 baseline: more than 360) | 2a. EPA reports and observations. | The commitment of the Ebeye community and RMI leadership to improving sewerage services wanes. |
| | 2b. By 2019, all sewage on Ebeye is treated to at least primary treatment standards (2014 baseline: 0%) | 2b. EPA surveillance records | |
| 3. Enhanced hygiene awareness and improved hygiene behaviors | 3a. By 2021, 90% of women on Ebeye are aware of the benefits of improved sanitation and hygiene.<br>(2014 baseline: 50%) | 3a. Household health survey reports | Improved hygiene behaviors are not sustained.<br><br>Living conditions on Ebeye deteriorate. |

| Results Chain | Performance Indicators with Targets and Baselines | Data Sources and Reporting | Risks |
|---|---|---|---|
| | 3b. By 2021, 95% of children on Ebeye between the ages of 5 and 15 years have participated in hygiene awareness programs on benefits of improved sanitation and hygiene (disaggregated by sex).<br>(2014 baseline: less than 50%) | 3b. Ministry of Education and household health survey reports | |
| 4. Secure electricity supply for water and sewerage operations | 4a. By 2019, the SAIDI for the KAJUR electricity distribution system reduced to less than 90 minutes and SAIFI cut to 3 interruptions/ customer/year. (2012 baseline: 127 minutes and 5.54 interruptions/customer /year). | 4a. Pacific Power Association annual benchmarking reports and KAJUR monthly and annual reports. | KAJUR commitment to proactive asset management wanes. |
| 5. Financial and technical sustainability of KAJUR | 5a. By 2022, KAJUR fully recovers operation and maintenance costs with power, water, and sewerage revenue. (FY2011 baseline: $1,864,778 loss). | 5a. Annual independent audit reports. KAJUR annual reports | Community willingness to pay for KAJUR water supply and sewerage services is not sustained. |
| | 5b. By 2022, KAJUR has strengthened water and sewerage operation and maintenance (with 30% of jobs held by for women) | 5b. KAJUR annual reports | |
| | 5c. By 2022, at least 80% of KAJUR staff successfully complete gender awareness, hygiene, and sanitation training. | 5c. KAJUR annual reports | |
| | 5d. The project is fully implemented and within budget. | 5d. KAJUR annual reports | |

**Key Activities with Milestones**

**1. Output 1: Secure and safe freshwater supplies**
1.1 Two new saltwater wells constructed and commissioned by December 2015 (by KAJUR)
1.2 SWRO plant with capacity of 1.6 million liters per day commissioned by July 2016 and managed by the supplier until June 2021.
1.3 Water supply system rehabilitated by October 2018.
1.4 Water supply network expanded to unserviced areas by July 2017.

**2. Output 2: Effective, efficient, and safe sewerage services**
2.1 Sewage system rehabilitated by July 2017.
2.2 Saltwater supply upgraded by July 2017.
2.3 Sewerage system expanded to unserviced areas by July 2017
2.4 New sewage treatment facilities and effluent outfall commissioned by October 2017.

**3. Output 3: Enhanced hygiene awareness and improved hygiene behavior**
3.1 Hygiene awareness program delivered to schools and community groups starting June 2016.
3.2 School sanitation facilities upgraded by February 2017.

**4. Output 4: Electricity supply for water and sewerage operations is secure**
4.1 Busbars and protection system, switchgear, and wooden power poles replaced by July 2017.
4.2 Power station monitoring system upgraded by May 2017.

**5. Output 5: Financial and technical sustainability of KAJUR**
5.1 KAJUR staff structure reviewed by April 2016.
5.2 Financial management system strengthened by October 2018.
5.3 KAJUR's water and sewer operations strengthened by March 2020.
5.4 KAJUR's household fixtures program started by March 2016.
5.5 Contracts for project outputs awarded as follows:
5.5.1 Project implementation assistance consultants (21 October 2015)
5.5.2 SWRO supply, install, manage (21 October 2015)
5.5.3 Water supply and sewer network rehabilitation and expansion program (30 June 2016)
5.5.4 Electricity distribution system upgrading program (14 July 2016)
5.5.5 Sewage treatment and outfall (8 September 2016)
5.5.6 Power station monitoring system (14 July 2016)
5.5.7 School sanitation upgrade program (28 July 2016)
5.5.8 Fixtures program manager (15 February 2016)

**Inputs**

ADB: $5.00 million (grant)
Government of Australia: $4.00 million (grant)
Government of the Marshall Islands: $10.02 million (grant)

**Assumptions for Partner Financing**
Not applicable

ADB = Asian Development Bank; EPA = Environmental Protection Agency; KAJUR = Kwajalein Atoll Joint Utility Resource, Inc; RMI = Republic of the Marshall Islands; SAIDI = system average interruption duration index; SAIFI = system average interruption frequency index; SWRO = saltwater reverse osmosis.
Source: Asian Development Bank.

## LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=46346-002-2

1. Grant Agreement
2. Grant Agreement (Externally Financed)
3. Project Agreement
4. Sector Assessment (Summary): Water Supply and Sanitation
5. Project Administration Manual
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Financial Analysis
9. Economic Analysis
10. Country Economic Indicators
11. Summary Poverty Reduction and Social Strategy
12. Initial Environmental Examination
13. Gender Action Plan
14. Resettlement Plan
15. Risk Assessment and Risk Management Plan