Funding Proposal

FP008: Fiji Urban Water Supply and Wastewater Management Project

Fiji | Asian Development Bank (ADB) | Decision B.11/11

15 October 2015

GREEN CLIMATE FUND

Funding Proposal

Version 1.0

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

GREEN CLIMATE FUND

Contents

Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

"FP-ADB-31/07/2015-1"

A.1. Brief Project / Programme Information			
A.1.1. Project / programme title		Fiji Urban Water Supply and Wastewater Management Project	
A.1.2. Project or programme		Project	
A.1.3. Country (ies) / region		Republic of Fiji	
A.1.4. National designated authority (ies)		Mr. Esala Nayasi, Acting Permanent Secretary, Ministry of Foreign Affairs	
A.1.5. Accredited entity		Asian Development Bank	
A.1.5.a. Access modality		☐ Direct ☒ International	
A.1.6. Executing entity / beneficiary		Executing Entity: Ministry of Finance Beneficiary: Government of Fiji	
A.1.7. Project size category (Total investment, million USD)		☐ Micro (≤10) ☒ Medium (50<x≤250)	☐ Small (10<x≤50) ☐ Large (>250)
A.1.8. Mitigation / adaptation focus		☐ Mitigation ☒ Adaptation ☐ Cross-cutting	
A.1.9. Date of submission		31/July/2015	
A.1.10. Project contact details	Contact person, position	Ms Maria Paniagua, Unit Head, Project Administration Unit, Pacific Department / Ms Hanna Uusimaa, Climate Change Specialist, Pacific Department	
	Organization	Asian Development Bank	
	Email address	mppaniagua@adb.org / huusimaa@adb.org	
	Telephone number	(+679) 3318101 / (+63 2) 632 4840	
	Mailing address	6 ADB Av, Mandaluyong, 1550 Metro Manila, Philippines	

A.1.11. Results areas *(mark all that apply)*

Reduced emissions from:

- ☐ Energy access and power generation
  (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
- ☐ Low emission transport
  (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
- ☐ Buildings, cities and industries and appliances
  (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
- ☐ Forestry and land use
  (E.g. forest conservation and management, agroforestry, agricultural irrigation, **water treatment and management**, etc.)

Increased resilience of:

- ☒ Most vulnerable people and communities
  (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
- ☒ Health and well-being, and food and water security
  (E.g. climate-resilient crops, efficient irrigation systems, etc.)
- ☒ Infrastructure and built environment
  (E.g. sea walls, resilient road networks, etc.)
- ☒ Ecosystem and ecosystem services
  (E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

Please provide a brief description of the proposed project/programme, including the objectives and primary measurable benefits (see investment criteria in section E). The detailed description can be elaborated in section C.

1. The project will improve access to safe water and sewerage services by building infrastructure to increase water production by 20% and wastewater treatment (WWT) by 200% in the greater Suva area (GSA), and supporting government to develop and implement policy and regulatory reforms in water and sewerage. A capacity development technical assistance was provided by the ADB to prepare the project.[1]

2. The project features a strong focus on climate change adaptation and mitigation measures, critical to resilience and sustainability of the infrastructure. Climate change considerations have been included in the design of the project, particularly in adaptation to floods, droughts, and salinity intrusion due to sea level rise, as well as ecosystem conservation through the increase of sewerage coverage and improvement of wastewater processes and mitigation through use of energy efficient technologies and the increase of sewerage coverage. Only water supply adaptation measures in this submission are to be considered by the GCF Board Meeting in November 2015.

3. **Water Supply**. The project will design and construct a new water intake by the Rewa River, with a pumping station, water treatment plant, and clear water reservoir and a pipeline to increase water production by 30,000 m^3 per day; and will reduce non-revenue water (NRW) due to technical and non-technical losses. The project will improve resilience through appropriate siting of the intake higher up the river catchment, away from the projected salinity wedge moving up the river system due to sea-level rise, and lower river flows during pronounced droughts. While the water sources are still all reliant on surface water systems, the impacts on stream flows associated with future climate change are less likely in the much larger Rewa river system. The proposed water supply scheme will also be designed to allow future flexibility for demand increases and/or changing supply source yields.

4. **Wastewater Management**. The project will increase sewer coverage and reliability of wastewater treatment (WWT) processes in the GSA through increasing WWT capacity of the Kinoya plant. The project will design and build new treatment facilities, upgrade existing wastewater pumping stations, replace wastewater infrastructure; and expand sewerage network to service an additional 15% of households. This will improve overall effluent quality and minimize the incidents of wastewater bypass, thereby improving water quality downstream in receiving waters and reducing pollution levels affecting Laucala Bay; as well as enable the servicing of backlog areas and allow future growth within the Suva-Nausori wastewater system.

5. **Institutional Framework**. The project will improve sector management and sustainable service delivery capacity by supporting implementation of a water demand management program; strengthening the NRW reduction program; supporting the approval and implementation of the National Liquid Waste Trade Program; supporting the institutional strengthening of WAF; and supporting WAF to develop a decentralization strategy to reduce number of sewer pumping stations and increase efficiency in the remaining pumping stations.

6. The proposed financing structure combines a maximum debt financing and a minimum grant financing, taking into account the country's debt burden, the project's revenue-generating capacity at completion, and the urgent need to adopt least-cost climate change solutions. Current debt levels constrain Fiji's ability to borrow for investments in water and sewerage. The additional costs of adaptation and mitigation measures will substantially increase the cost of providing such infrastructure. While investments in water and wastewater treatment have a strong social, economic, and environmental return to Fiji, the financial returns are limited. Grant funding by GCF will allow Fiji, a small island developing state (SIDS), to undertake vital adaptation measures without either reducing funding for other high priority development needs or increasing its risk of debt distress.

[1] ADB. 2013. *Technical Assistance to Fiji for Urban Development Planning and Institutional Capacity Building.* Manila.

A.3. Project/Programme Milestone	
Expected approval from accredited entity's Board (if applicable)	Project Design Advance Loan: 17 December 2015 Project Loan: 15 September 2016
Expected financial close (if applicable)	Project Design Advance Loan: 31 July 2016 Project Loan: 30 June 2023
Estimated implementation start and end date	Project Design Advance Loan Start: 7 January 2016 End: 31 January 2017 Project Loan Start: 1 February 2017 End: 31 December 2022
Project lifespan	7 years

B.1. Description of Financial Elements of the Project / Programme

7. A detailed financial analysis for the project is provided as a linked document to the Project Appraisal Report and the financial analysis model together with detailed estimated cost by component, output, financier, cost category and year is included as a supporting document to this proposal.

Indicative Cost Estimates Summary Table by Component and Financier (million USD)

Component	Sub-component (if applicable)	Total	ADB	EIB	GCF	GoFiji
1. Water Supply	1.1 Rewa Water Treatment Plant	63.88	15.91	10.61	26.99	10.37
	1.2 Non Revenue Water Production	10.01	1.55	1.03	0.00	7.42
2. Wastewater	2.1 Kinoya Wastewater Treatment Plant Upgrade	29.10	12.69	8.46	0.00	7.95
	2.2. Pump Station Upgrades	10.56	5.35	3.56	0.00	1.65
	2.3. Sewer Mains Upgrade	12.71	3.00	2.00	0.00	7.70
	2.4 Sewer Extension	31.68	3.93	2.62	0.00	25.12
3. Capacity Building		4.50	3.47	0.00	0.00	1.04
4. Project Management		4.50	4.50	0.00	0.00	0.00
5. Recurrent Costs (O&M)		12.88	0.00	0.00	0.00	12.88
6. Contingencies	Physical	14.20	3.98	2.24	2.13	5.86
	Price	12.81	3.59	2.02	1.92	5.28
7. Interest during Construction		14.94	9.57	5.37	0.00	0.00
8. Commitment Charges		0.24	0.15	0.09	0.00	0.00
Total		**222.00**	**67.70**	**38.00**	**31.04**	**85.26**

B.2. Project Financing Information

Indicative Project Financing Plan

Source	Amount ($ million)	Share of Total (%)
ADB (OCR Loan)	67.70	30%
EIB (Loan)	38.00	18%
GCF Grant	31.04	14%
Government[a]	85.26	38%
Total	**222.00**	**100%**

[a] Government will make a submission to the GCF in time to be considered for the March 2016 Board Meeting for the financing of climate change related activities under Component 2: Wastewater. The estimated cost of climate change related activities under this component amount to $39 million and funding source will be subject to confirmation of funding from GCF in March 2016.

Source: ADB estimates.

ADB = Asian Development Bank; GCF = Green Climate Fund; EIB = European Investment Bank; OCR = Ordinary Capital Resources.

8. ADB will provide a loan of $67.70 million from its ordinary capital resources (OCR) to help finance the project. The loan will have a 20-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, and a commitment charge of 0.15% per year. The interest and other charges during construction will be capitalized in the loan. The EIB has indicated intent in principle[2] to provide a loan with similar terms and conditions to ADB loan to cofinance the project. The proposed grant from the GCF will finance the cost of adaptation measures of the project. The Government will finance taxes and duties, land acquisition, and operation and maintenance cost included in the Design-Build Operate (DBO) contracts as well as mitigation and ecosystem conservation activities under component 2.

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	**(a) = (b) + (c)**	220.00	million USD ($)		
(b) Requested GCF amount	(vi) Grants *	31.04	million USD ($)		
	** Please provide economic and financial justification in section F.1 for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria indicated in section E.*				
	Total requested (i+ii+iii+iv+v+vi)	31.04	million USD ($)		

	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
(c) Co-financing	Loan Loan Government contribution	67.70 38.00 …… 85.26	million USD ($) million USD ($) million USD ($)	ADB EIB Government of Fiji	20 years	See above	pari passu pari passu
	Lead financing institution: Asian Development Bank						
	** Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution.*						

B.3. Fee Arrangement

9. Fee arrangement for the proposed project is to be aligned with the GCF Board's decision on fees, which is expected to be taken at the 11th meeting of the Board. In the absence of a GCF Board decision ADB will submit a fee proposal as requested by the GCF.

B.4. Financial Market Overview (if applicable) Not Applicable

[2] The project is in an advanced stage of appraisal, awaiting presentation to EIB decision making bodies.

C.1. Strategic Context

10. Fiji has a population of approximately 868,000, of which 53% is urban. By 2030, it is estimated that two in three Fijians will be living in the country's urban centers. While poverty rates in Fiji are highest in rural areas, the rapid growth of peri-urban squatter settlements implies that the majority of poor people in Fiji now live in and around urban areas. Fiji's urban sector accounts for 60%, and only the GSA accounts 40%, of the country's gross domestic product (GDP). The GSA, which consists of Suva City—the national capital—as well as the towns of Lami, Nasinu, and Nausori and their surrounding peri-urban areas, accounts for 57% of Fiji's urban population. By 2023, the population of the GSA is expected to grow by 12.8%.

11. Despite the economic importance of the country's cities and towns, urban infrastructure and services have not kept pace with rapid urban growth. Extreme drought and flooding events as well as sea level rise result in higher cost in the provision of these services by the Government. Inevitably this is contributing to environmental degradation and increased health risks, and acts as a binding constraint on social and economic development. The improved delivery of urban water supply and sanitation services is thus essential for ongoing economic development and is a high priority of government. The investments to be financed by the project have been identified based on the WAF draft Water Supply and Sewerage Master Plan 2013-2033 and the WAF 2014 corporate plan and through consultation with stakeholders in Fiji.

12. Fiji's development plan, entitled the *Government of Fiji: Roadmap for Democracy and Sustainable Socio-Economic Development 2010–2014*[3], aligned to the Millennium Development Goals, has prioritized water and sanitation services in Fiji's socio economic development. *The Green Growth Framework for Fiji: Restoring the Balance in Development that is Sustainable for Our Future*[4] reiterates a similar commitment to enhancing accessibility to safe drinking water and sanitation in Fiji, and has recognized increased population growth, water consumption and climate change impacts as an impediment to efforts to achieving sustainable development.

13. Fiji has developed its National Climate Change Policy in 2012[5] to provide a policy framework which guides government's strategic direction on issues relating to climate change. A strategy identified for adaptation is the inclusion of vulnerability assessments and climate change impact projections into resource management planning, such as integrated coastal and watershed management plans. In addition, the draft National Climate Change Adaptation Strategy provides detailed and specific actions for implementation of adaptation measures per sector including the water sector.

14. The SIDS have adopted the Barbados Programme of Action (BPoA, 1994), the Mauritius Strategy (2005), and the SAMOA Pathway (2014), which all include climate change as a significant issue for the SIDS. Fiji also supports the Strategy for Climate and Disaster Resilient Development in the Pacific[6], aligning itself with the view that the cross-cutting issues of climate change and disaster risk management should be implemented through the policies of other sectors, such as those of agriculture, water resources, health, land use, environment, energy, infrastructure development and finance and planning.

C.2. Project Objective against Baseline

15. For the **Overall Project Objective against Baseline,** please refer to the Project Design and Monitoring Framework included as Annex I of the Project Appraisal Report and Section H.1.2. of this proposal.

[3] Government of Fiji, 2009. Suva.

[4] Government of Fiji. 2014. Suva.

[5] Government of Fiji, 2012. Suva.

[6] Secretariat of the Pacific Community. 2015. Draft Strategy for Climate and Disaster Resilient Development in the Pacific (Version 17). Suva.

C.3. Project Description

16. The project will ensure that residents of some of Fiji's most densely populated areas have improved access to safe piped water and an environmentally friendly sewerage system. The project's impact is aligned with the government's policy to improve delivery of water supply and sanitation services as articulated in the Roadmap for Democracy and Sustainable Socio-Economic Development, 2010–2014. The outcome will be improved access to sustainable water supply and sewerage services. The project has three main components: (i) increasing access to reliable and safe water supply in the GSA; (ii) increasing sewer coverage capacity and reliability of WWT processes in the GSA; and (iii) improving management and sustainable delivery of water and sewerage services.

17. The Project meets the requirements to access financing from the Green Climate Fund (GCF). Climate change considerations have been included in the design of the Project, particularly in adaptation to floods and droughts due to changes in rainfall patterns, salinity intrusion due to sea level rise; and mitigation through use of energy efficient technologies in pumping stations, and the increase of sewerage coverage for further reduction of greenhouse gas emissions. The project will also contribute to protection of Laucala Bay and surrounding coral reefs by reducing sewage spills and improving Kinoya wastewater treatment processes.

18. **Water Supply.** The Waimanu River is the only raw water source for the Waila and Tamavua water treatment plants which currently serve the GSA. Both water treatment plants are running 24 hours per day at full capacity and at times cannot meet peak demands. With NRW estimated at 46% by WAF, WAF has no capacity to extend the network to peri-urban areas or new growth areas. As a consequence, some of the served areas suffer intermittent service. Service interruptions are more pronounced during drought periods, when the Waimanu River flow is insufficient to operate the plants at their full production capacity and during periods of high rainfall, when the Waimanu waters become highly turbid, reducing the output of both plants as the filters require more frequent backwashing. The situation is compounded with the predicted onset of climate change and the expected changes in rainfall patterns and increase in extreme rainfall events, forecasting more frequent interruptions to supply into the future. The reduction of NRW is a parallel priority but even if the 25% target is achieved, current production will still not be sufficient to cater for growing demand.

19. The project will increase access to reliable and safe water supply in the GSA through: (i) increasing production by 30,000 m^3 per day by designing and constructing a new water supply source in the Rewa river, with a water treatment plant, pumping station and reservoir to serve the GSA water supply system; and (ii) reducing non-revenue water due to technical losses and non-technical losses by replacing meters; improving leak detection and repairs; establishing district metering and demand management areas and pressure management systems. This will address the existing shortfall in bulk water supply and water treatment during peak dry weather periods, therefore improving water supply reliability and continuity across the GSA water supply system; and provide additional bulk water supply and water treatment capacity to allow the servicing of areas not currently supplied by the system as well as to service future growth in GSA.

20. The new raw water intake at the Rewa River will result in a more resilient water supply system by reducing the risk posed by dependency solely on the Waimanu River system, as is the case currently. While the water sources are still all reliant on surface water based systems, the Rewa River is a much larger river system and any impact on stream flows associated with future climate change impacts are not likely to impact extractions for urban water supply. In addition, the new location of the new intake takes into account new insights concerning the impact of climate change on sea water levels and decreased river flows during extended drought periods and provides as such additional security against salinity impacts that are likely caused by climate change in the near future.

21. **Wastewater Management.** Current planning regulations ban high-density urban development in unsewered areas. Existing sewerage infrastructure covers only 36% of the GSA and the lack of adequate wastewater infrastructure has constrained high density development. This is directly contributing to urban sprawl and environmental degradation. To address this problem, the government intends to increase sewerage coverage in the GSA to 90% by 2023. The main WWT facility in the GSA, the Kinoya WWT plant, is currently working at full capacity and needs to be upgraded and expanded before additional flows can be treated. Wastewater modeling has also revealed major deficiencies in the pump stations and gravity and rising mains.

22. The project will increase WAF sewer coverage capacity and reliability of WWT processes in the GSA through: (i) increasing WWT capacity of Kinoya to approximately 277,000 population equivalent (PE) by designing and building new treatment facilities, namely two primary sedimentation tanks, a carbon and nutrient removal facility, a new

digester and upgrade of sludge dewatering plant, and a new combined heat and power (CHP) equipment for power production; (ii) upgrading around 31 existing wastewater pumping stations to allow more wastewater to flow efficiently to the treatment plant; (iii) replacing of around 18km of wastewater trunk mains and relining of around 18km of wastewater reticulation and trunk mains that are reaching the end of their asset life; and (iv) the design and construction of new wastewater infrastructure to service additional 15% of the households in backlog areas (4,500 households currently equipped with septic tanks causing uncontrolled biogas emissions) and new development areas (approximately servicing 6,500 new lots). This will improve overall effluent quality and help to minimize the incidents of wastewater bypassing treatment, thereby improving water quality downstream in receiving waters. More importantly, it will enable the servicing of sewerage backlog areas and allow future growth within the Suva-Nausori wastewater system.

23. **Institutional Framework.** WAF is a commercial statutory authority promulgated under the ambit of the Public Enterprise Act 1996 and manages both water and wastewater services across Fiji in accordance with the functions and powers of the Promulgation reporting to the Ministry of Infrastructure and Transport (MoIT). Since becoming a statutory authority in 2010, WAF has been focusing on operational improvements to both the supply of water and wastewater systems. For WAF to be able to improve its financial sustainability and to be more accountable to regulatory bodies, government is tasked with tackling water and sewerage tariff reform, introducing and enforcing liquid waste trade regulations, and reviewing regulations that affect municipal waste water management.

24. **Sector management and sustainable service delivery capacity** will be improved through: (i) supporting WAF with the implementation of a water demand management program, NRW reduction program[7] and the National Liquid Waste Trade Program; (ii) supporting the Department of Environment with the review of the environmental regulatory framework for municipal wastewater treatment discharge as well as sludge treatment and disposal practices and standards, and with monitoring and enforcement of these regulations; (iii) assisting the government and WAF with completing the corporatization of WAF, including transfer of assets, governance arrangements, greater financial sustainability and the retention of revenue within WAF; (iv) assisting the Ministry of Local Government, Housing and Environment and WAF with formulating water safety plans to protect the quantity and quality of the water at the intakes for all the water sources in the project area (this should consist of developing land use plans and ensuring required protective measures are in place for all water source locations); (v) reviewing policies used by WAF in financial reporting and supporting the implementation of changes to WAF accounting policies and financial management, including the provision of accounting training; (vi) supporting the promotion of gender equity within WAF business practices; and (vii) carrying a study on options long terms alternatives to reduce energy consumption of the GSA wastewater treatment system.

25. **Non-Revenue Water**. ADB has been supporting WAF to reduce NRW since 2007. The project will finance an international NRW specialist and an international water demand management specialist (see their TORs in Project Appraisal Link Document 1: Project Administration Manual). In addition to the support to be provided by the project, ADB is financing twining arrangements between WAF and Hunter Water and WAF and Sydney Water to provide advice in NRW and water demand management. NRW is a priority for WAF who is also receiving training and technical assistance from the Government of Japan and from the Government of New Zealand. Supporting Document 14 - WAF Non Revenue Water Reduction Strategy and on-going Technical Assistance on NRW and Water Demand Management provides further details of WAF strategy to reduce NRW and its high priority within WAF.

26. **Water and Sewage Tariff Review**. A water and sewerage tariff review has been recommended by ADB to support water demand management efforts and to improve the financial sustainability of WAF. Such review is currently being undertaken by Government who has requested KPMG to revise a tariff review study that was carried out in 2012. In addition, the Pacific Regional Investment Facility has financed a tariff review study which is now on-going. The result of these two studies will be the basis for WAF to submit a proposal to its Board.. Supporting Document 15 – Water and Sewage Tariff Review Studies and Government Commitment to Tariff Review includes a copy of the Memorandum of Understanding signed between ADB and the Government of Fiji committing “WAF to complete by December 2015 the water and wastewater tariff review study that will allow WAF to recover its operational cost and maintenance (O&M) and asset depreciation. Based on this tariff study, the government to commit by December 2016 to approve a tariff increase to allow WAF to recover its O&M cost, and/or to subsidize O&M and

capital budget necessary for WAF to implement any social and community obligations agreed to with government for access to services by vulnerable groups, particularly in informal settlements." The Supporting Document also includes a summary of on-going initiatives and action plan, the TORs of the tariff review financed by the Pacific Infrastructure Regional Facility, and the tariff review undertaken by KPMG in 2012.

27. In addition to the support provided under the project, which includes an international State Own Enterprise reforms expert and an international financial management expert, ADB is providing financial assistance to WAF to undertake an independent review of its service quality, efficiency in planning and execution of investments, operating efficiency, business management efficiency, financial sustainability, access to service and corporate governance. The assessment will be carried out using Aquarating which is a methodology developed by the International Water Association with financing by the Inter-American Development Bank. The results are audited by international team of experts which provide a report with detailed recommendations to improve processes. *Supporting Document 16 – Aquarating Assessment* includes a copy of the Memorandum of Understanding between ADB and the International Water Association to support WAF to undertake this assessment and a description of Aquarating Methodology.

C.4. Background Information on Project Sponsor

28. The Asian Development Bank (ADB) has been working with the Government of Fiji since 1970. As of 31 December 2014, $417.26 million in loans and $30.72 million in technical assistance have been provided to the country. National elections—held on 17 September 2014 and endorsed by an observer group of 14 nations as a "credible reflection of the will of the Fijian people"—have resulted in Fiji's full re-engagement with the international community. ADB and the government have since formulated a new country partnership strategy (CPS), 2014–2018. The CPS provides the foundation for higher, more inclusive growth, and assists Fiji in achieving its Millennium Development Goals. Consistent with the priorities of successive governments, ADB engagement in Fiji has focused on promoting inclusive economic growth and poverty reduction. Strides have been made toward these goals through direct investments in transport and urban water and sanitation infrastructure, and improved public sector management.

29. ADB road transport investments in Fiji over a 20-year period have helped disadvantaged groups participate in the cash economy by reducing transport costs and traveling times. This has increased access to employment opportunities and social services. An improved transport system in Fiji has helped to bolster market efficiencies, and to broaden access to education, health, and business services.

30. In 2005, ADB commenced its Water Supply and Sewerage Project concentrated in the Suva–Nausori corridor. This has delivered improved water supply to about 150,000 people, representing almost half the population living in the project area. Supplementary financing to complete the roads and urban water and sanitation projects was provided in 2009. ADB also provided emergency assistance in 2009 and 2012 to help meet humanitarian and relief expenses following devastating floods in the Western Division. This allowed the retroactive financing of unforeseen government spending, and improved the government's fiscal position.

31. In December 2014, ADB built on its commitment to infrastructure development through the approval of a $100 million investment in the transport sector. This project, which will receive additional cofinancing from the World Bank, will upgrade and rehabilitate roads, wharves, and jetties in line with priorities identified in the Government's draft 20-year National Transport Sector Plan. ADB has also provided technical assistance to support the reform of state-owned enterprises in Fiji, to develop the national 20-year transport strategy, and to formulate an urban water and sanitation master plan. Fiji also continues to participate in ADB technical assistance projects in the region, covering areas such as climate change, public sector management, information and communication technology, and trade facilitation.

32. ADB's presence in Fiji has been enhanced by the location of its Pacific Subregional Office in Suva, strong coordination and harmonization with other development partners, and significant analytical work—including an ongoing country diagnostic study and a private sector assessment—on behalf of the country.

33. The Ministry of Finance (MOF) will be the executing agency for the project. MOF has extensive experience as executing agency for infrastructure projects and has been executing agency for the following ADB's financed projects: Transport Infrastructure Investment Sector Project, approved in Dec 2014; Fiji Roads Upgrading Project III (Supplementary) approved in Mar 2009; Suva-Nausori Water Supply and Sewerage Project (Supplementary) approved in Dec 2009; Suva-Nausori Water Supply and Sewerage Project approved in Dec 2003; and Fiji Roads

Upgrading Project approved in Nov 2005.

34. The main tasks of the MOF are to cause WAF to implement the project as agreed in the project documents, submit withdrawal applications to ADB and disbursement requests to EIB, and to submit required annual audit reports and financial statements of project account to ADB and EIB. MOF will also coordinate appropriate government representation for loan negotiations, loan signing, and loan effectiveness and will chair the Project Coordination Comittee. The role of the MOF and overall project implementation structure is described in Appraisal Report, Link 1: Project Administration Manual.

35. The Water Authority of Fiji is the Implementing agency for the project. A risk assessment of WAF was undertaken and included in the project appraisal report, Link 8: Risk Assessment. Specific measures have been built within the project to mitigate the risks identified, including financing consulting services to strengthened WAF financial management and procurement processes among others.

C.5. Market Overview (if applicable) Not Applicable

C.6. Regulation, Taxation and Insurance

36. To carry out the project activities, WAF will be required to obtain the necessary operating and environmental licenses and permits required to comply with Fiji policies and regulations as well as with ADB guidelines on environmental and social safeguards.

37. The government will finance all taxes and duties for the project – no exchange regulations are applicable.

38. Firms contracted by WAF will be required to have the necessary insurances. The Government has agreed to follow ADB Procurement Guidelines. ADB standard contract templates will be used for the contracting of goods and services.

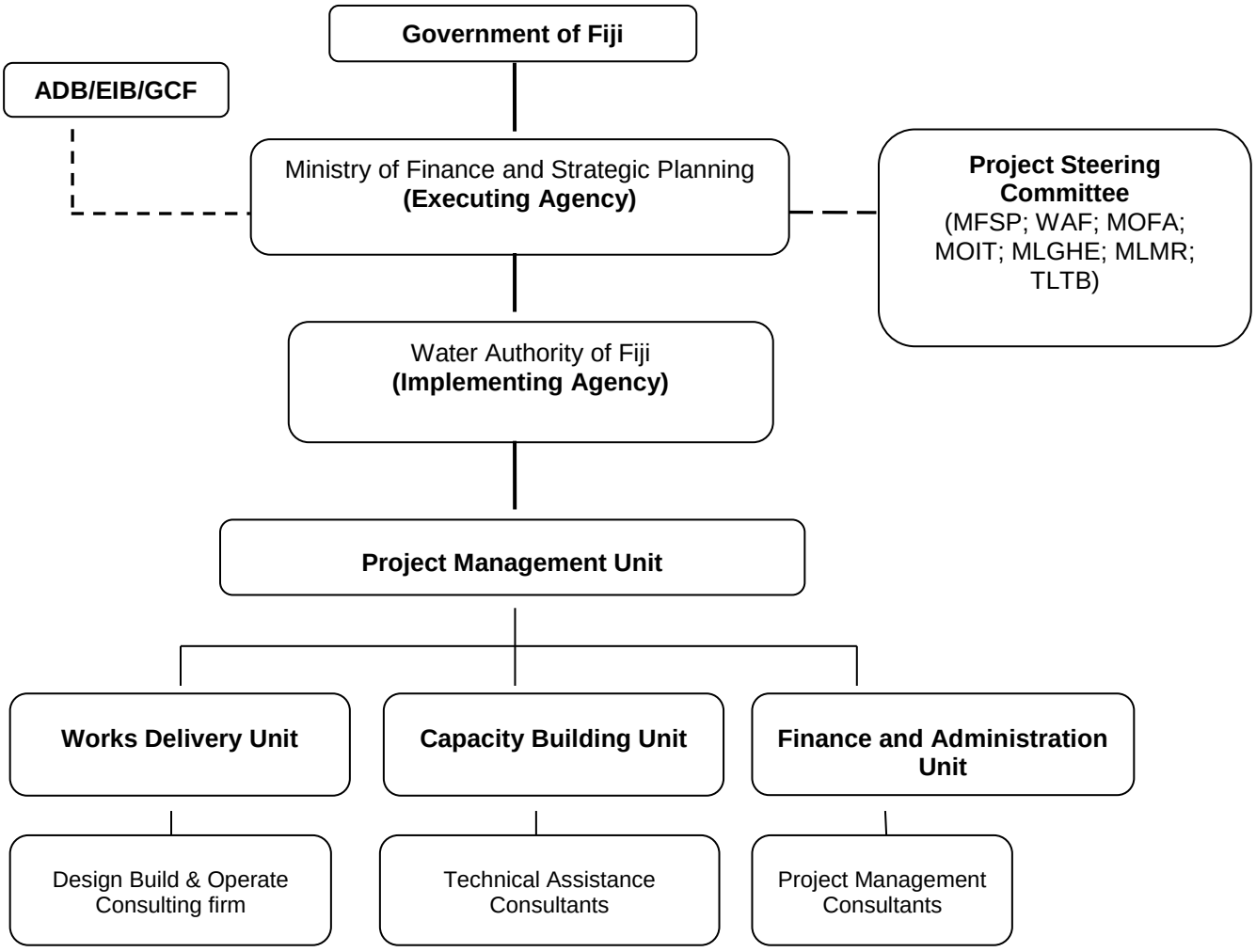
C.7. Institutional / Implementation Arrangements

39. The key organizations involved in the project include the Ministry of Finance (MOF) that will represent Fiji as the Client and within ADB terminology is considered the executing agency. WAF will be the agency responsible for the day-to-day implementation of the project and under ADB terminology is considered the Implementing Agency. The project management unit (PMU) will be established within WAF. ADB as the accredited entity will monitor project implementation activities.

40. A Project Steering Committee will be established and chaired by MOF. Members of the Project Steering Committee will include Ministry of Foreign Affairs (MOFA) as the National Designated Authority for the GCF; the Ministry of Infrastructure and Transport (MOIT); the Ministry of Local Government, Housing and Environment (MLGHE), the Ministry of Lands and Mineral Resources (MLMR), the iTaukei Land Trust Board (TLTB) and WAF. Details of the implementation organizations' key roles and responsibilities are indicated in the table and figure below:

Project implementation organizations	Management Roles and Responsibilities
• MOF	➢ Client and Executing Agency (as per ADB terminology) ➢ Cause WAF to implement the project ➢ Submit withdrawal applications to ADB ➢ Submit required annual audit reports and financial statements of project account to ADB ➢ Coordinate appropriate government representation for project negotiations, project signing, and project effectiveness
• Project steering committee (PSC)	➢ The PSC will include representatives from MOF (chair); MOFA, WAF; MOIT, MLGHE, MLMR, TLTB. ➢ Oversee implementation of the project and its consistency with national government policies (Green Growth Framework, Roadmap to Democracy and Sustainable Socioeconomic Development, Public Sector Investment Program, Updated National Infrastructure Policies and Plan) ➢ Monitor project progress and cooperatively resolve issues hindering progress ➢ Guide the executing and implementing agencies
• WAF	➢ Implementing agency (as per ADB terminology) – tasked with the delivery of the project outputs. ➢ Assist MOF in recruitment of project management and design and supervision consultants in accordance with Guidelines on Use of Consultants by ADB and its Clients ➢ Establish a Project Management Unit which will be responsible for day to day implementation of the project ➢ Prepare overall implementation plan and annual budgets ➢ Supervise project management and design and supervision consultants ➢ Oversee detailed design of subprojects ➢ Ensure timely bidding and award of civil works contracts in accordance with ADB Procurement Guidelines ➢ Safeguards implementation and monitoring ➢ Monitoring and evaluation of project performance in accordance with project design and monitoring framework ➢ Review of withdrawal applications before submission to executing agency
• ADB	➢ Project financier and overall project administrator of the project on behalf of GCF ➢ Lead on conducting regular joint project reviews ➢ Monitor and support project implementation and compliance with ADB policies and procedures in relation to technical, economic, financial, procurement, safeguards, governance, and anticorruption policies and procedures ➢ Overall coordination and advisory support

Project Organization Structure



41. The Loan proceeds including ADB administered co-financier funds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2007, as amended from time to time), and detailed arrangements agreed upon between the Government and ADB. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),[8] ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list (Appendix 5) to subprojects financed by ADB.

42. In addition, a financial management assessment was conducted for WAF as the IA and the MOF in its capacity of EA. No major country level financial management issues are apparent, since Fiji has a well-developed and functioning public sector. However, due to the recent nature of the restoration of democracy, overall inherent risk has been assessed as moderate. The overall control risk has been assessed as significant due to: (i) lack of financial autonomy of IA; (ii) audit issues arising from the external audit of the IA; and (iii) weak information systems and reporting issues of the IA. The project will address the control risk associated with the IA through long term financial management capacity building of WAF. The project will also support WAF to complete its corporatization, including

[8] Available at: http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf

achieving financial autonomy. In addition, the capacity of WAF's financing and accounting staff will be strengthened through training programs conducted under the project and the placement of an accountant within the PMU. WAF has adequate capacity for procuring goods, works, and consulting services in accordance with ADB procedures and requirements. The PMU will have one procurement officer and will be supported by consultants in bid preparation and evaluation, particularly for the complex design–build contracts.

43. Before the submission of the first withdrawal application, MOF will submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing. All disbursements under government financing will be carried out in accordance with regulations of the government and prevailing ADB guidelines. The WAF will maintain separate project accounts and records by funding source for all expenditures incurred on the project. Project accounts will follow international accounting principles and practices or the national equivalent, acceptable to ADB[9].

44. WAF will (i) prepare the annual financial statements for the project, in accordance with accounting principles acceptable to ADB; (ii) have such financial statements audited annually by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB[10]; and (iii) furnish to ADB, not later than 6 months after the end of each related fiscal year, copies of the audited financial statements, audit report and management letter, all in the English language, and other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.

45. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).[11] After review, ADB will disclose the annual audited financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt, by posting them on ADB's website. The audit management letter will not be disclosed.

46. All advance contracting and retroactive financing will be undertaken in conformity with ADB's Procurement Guidelines (February 2007, as amended from time to time) (ADB's Procurement Guidelines)[12] and ADB's Guidelines on the Use of Consultants (2007, as amended from time to time) (ADB's Guidelines on the Use of Consultants).[13] The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower, MOF and WAF have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project. Information on all procurement notices and contract awards financed under the project will be made public in ADB website.

47. MOF will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including: (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan; and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project.[14] To ensure projects continue to be both viable and sustainable, project accounts and the executing agency audited financial statements, together with the associated auditor's report, should be adequately reviewed.

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[9] WAF follows the International Financial Reporting Standards.

[10] OAG follows the International Standards on Auditing.

[11] Available at: http://www.adb.org/documents/pcp-2011.

[12] Available at: http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf

[13] Available at: http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf

[14] Project completion report format is available at: http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar

48. ADB will undertake 2 project reviews a year to (i) discuss progress of project implementation activities, compliance with covenants and project agreements, (ii) monitor progress in achieving project outputs; and (iii) agree on any required changes to the project implementation arrangements. A mid-term review will be undertaken within 3 years of project being effective or at any time that ADB and Government consider it necessary. The midterm review mission will carry out: (i) a review of institutional, administrative, organizational, technical, environmental, social, economic, and financial aspects of the project based on the assumptions and risks included in the design and monitoring framework and updated project performance reports; (ii) a review of covenants to assess whether they are still relevant or need to be changed, or waived due to changing circumstances; (iii) an assessment of need to restructure or reformulate the project and the effects of this on the immediate objectives (purpose) and long-term goals of the project; and (iv) an updating of the project's design and monitoring framework where restructuring or reformulation is necessary or its immediate objectives will change. ADB will also carry out a Project Completion Report after approximately one year after physical completion of the project. The Independent Evaluation Department will review the findings of the Project Completion Report. Both reports will be made publicly available.

49. The key contractual agreements under the project will be procured in full compliance with the ADB Procurement Guidelines (April 2015, as amended from time to time), and the conditions of contract shall be the Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer, Multilateral Development Bank Harmonized Edition, prepared by the Fédération Internationale des Ingénieurs-Conseil, or FIDIC (FIDIC MDB Harmonized Construction Contract) available at FIDIC MDB June 2010. Two construction packages will follow the FIDIC Conditions of Contract for Design, Build and Operate Projects, Edition 2008.

50. Prior to construction contracts procurement, the project will finance consulting services to design each construction package and provide support to WAF to supervise the construction works and do the construction contract management. During the construction contractual implementation, the consultancy firm recruited will provide the day to day construction works supervision, to ensure compliance with the quality and technical specification requirements, compliance with all relevant administrative regulation, monitor works progress to ensure construction implementation within the projected time frame, and record all works completed in compliance with the Bill of Quantities under the contract. Upon works completion, the supervision consultant will perform all the required technical tests necessary to declare the acceptance of the works and will establish all the monthly progress certificates to be approved by WAF for issuance of Progress Claims by the contractor and related payment by WAF. The contractor will produce weekly reports on progress of its Construction Environment Management Plan (CEMP) implementation, and the supervision consultant will also produce monthly progress reports reflecting on contract implementation status, works progress, financial disbursement and implementation time monitoring. When necessary, the consultant will coordinate with WAF to prepare and issue all necessary Variation Order under the contract.

51. All the works completed under the project will be transferred to WAF after the satisfactory commissioning period and issuance of the Completion Certificate. The facilities will be operated by WAF in accordance with WAF Standard Operation Procedures (SOP) to ensure adequate operation and maintenance, but will remain under the contractor's warranty during the defect liability period. For the two works contracts that include operational period under the construction contract, the contractor will perform the operation and maintenance duties of the constructed facilities over the contractual operation period (5 years) and in compliance with the contractual requirements defined by WAF and following the WAF SOP for operation and maintenance of treatment facilities.

52. Regarding credit analysis and eligibility criteria, in accordance with the ADB Procurement Guidelines (April 2015, as amended from time to time), all contractors will be required to meet minimum average annual construction turnover and minimum financial resources to ensure it has the capability and resources to effectively carry out the contract as offered in the bid. Performance security shall be required from all contractors, based on the size and complexity of each particular contract.

C.8. Timetable of Project Implementation

Task	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
1.Improved access to reliable and safe water supply in GSA																												
1.1. Design-Build and Operate Rewa river new water supply systems			D	D	T	T	B	B	B	B	B	B	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
1.2. Reduce NRW in GSA			X	X	X	X	x	X	X	X																		
2.Improved wastewater Management in GSA																												
2.1 Increasing WWT capacity of Kinoya to approximately 277,000			D	D	T	T	B	B	B	B	B	B	B	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
2.2 Upgrading around 31 existing wastewater pumping stations			D	D	T	B	B																					
2.3 Replacing of around 18km of wastewater trunk mains			D	D	T	B	B	B																				
2.4 Relining of around 18km of			D	D	T	B	B	B																				

wastewater trunk mains																												
2.5 Sewer network extension			D	D							T	T	B	B	B	B												
3.Sector Capacity Building																												
3.1 Water demand management and NRW reduction			X	X	X	X	X	X	X	X																		
3.2 Environmental regulations for municipal discharge			X	X	X	X																						
3.3 National Trade Waste Program			X	X	X	X	X	X	X	X																		
3.4 Corporatization of WAF			X	X	X	X	X	X	X	X																		
3.5 Catchment Protection Plans				X	X	X	X																					
3.6 Strengthening WAF Financial Management Systems			X	X	X	X	X				X				X													
3.7 Promotion of gender equity within WAF business practices			X				X				X				X													
3.8 WAF carries out a study on options and alternatives to reduce energy consumption of the GSA wastewater treatment system				X	X			X																				

4. Project Management																												
4.1 Recruitment of consultants	x	x																										
4.2 Implementation of communication and consultation plan			x	x	x	x	x	x	x	x	x	x	x	x	x	x												
4.3 Implementation of Social and Environmental Management Plans			x	x	x	x	x	x	x	x	x	x	x	x	x	x												
4.4 Project Supervision and Monitoring			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
4.5 Financial Closing and Project Completion Report																											x	x
D = Detailed Design/Concept Design; T = Tendering of Works; B = Building of works; O = Operation period for DBO contracts																												

D.1. Value Added for GCF Involvement

53. GCF involvement will provide approximately 30% of the financing required to deliver Output 1, which will significantly increase water supply in the greater Suva area, the main metropolitan center of Fiji, and ensure that Fiji's water supply system is increasingly resilient to anticipated climate change impacts.[15]

54. Critically, grant funding by GCF will allow Fiji, small island developing country, to undertake vital adaptation measures without further increasing external debt. The Fiji Government is committed to reducing total debt from 49% to 45% of GDP. The Government is also committed to ensuring that external debt is capped at 30% of total debt. Current debt levels potentially constrain Fiji's ability to borrow for investments in water and sewerage. The additional costs of adaptation and mitigation measures will substantially increase the cost of providing such infrastructure. While this investment will have a strong social, economic, and environmental return to Fiji, the financial returns from such investments are limited. Without grant funding from GCF, Fiji would potentially not be in a position to be able to fund additional adaptation and mitigation costs, or could only do so by diverting constrained resources from other development needs.

55. GCF financing for the water supply component will finance adaptation measures for building a new water intake by the Rewa River, a new pumping station, a new water treatment plant, a new clear water reservoir and a pipeline to increase production by 30,000 m^3 per day and supplement water supply for the GSA.

56. GCF financing will cover the additional costs associated with moving the facility from 29 km to 49km from the river mouth to avoid projected climate change impacts: (i) 19.6 km of DN750 mm transmission mains; (ii) 50% of site access costs; (iii) costs of bringing electricity to the site and (iv) 50% of land acquisition and resettlement costs. All other costs are assumed to be identical for both sites, including capital costs of the river intake, raw water pumping station, WTP and balance reservoirs. These are not included as costs of adaptation. Please see cost tables in the project administration manual (PAM, Link 1). The contingency costs associated to the GCF activities are calculated to be 15% of the base cost to take into account the high risk of currency exchange and the difficulty to arrive to accurate cost estimates in the Pacific due to high dependence on imports for materials and equipment, need to recruit international experts and limited number of qualified contractors with experience in similar projects in Fiji.

57. The project will improve adaptive capacity and resilience of these activities through appropriate siting of the intake higher up the river catchment, away from the projected salinity wedge moving up the river system due to expected sea-level rise and lower river flows during pronounced droughts expected in future. In addition, by constructing a new raw water intake at the Rewa River an additional water supply source will be established, which will provide a more resilient water supply system that is not just dependent on the Waimanu River system, as it is currently the case. While the water sources are still all reliant on surface water based systems, the Rewa River is a much larger river system and any impact on stream flows associated with future climate change impacts are less likely to impact extractions for urban water supply. The proposed Rewa water supply scheme will also be designed to be upgradable to allow future flexibility for demand increases and/or changing supply source yields. In this regard it is highlighted that during extended dry periods and based on historical performance and yield assessments the Waimanu River is not capable of supplying the full 150 million liters/day (ML/d) calculated year 2013 demand during low flow periods. Therefore, it becomes clear that, until a new source is operational, additional demand can actually only be covered by reductions in NRW.

[15] Output 1is estimated at $102.92 million of which the GCF would finance $31.05 million. See Cost Table by Output in Supporting Document Integrated Financial Model (under tab PAM Cost Tables).

D.2. Exit Strategy

58. Since becoming a statutory authority in 2010, WAF has been focusing on operational improvements to both the supply of water and wastewater systems. Some key achievements have included improvement of water treatment quality and the reduction of intermittent zones from 64 to 24 in the GSA. WAF however has yet to be fully corporatized and key areas such as financial autonomy, human resources management, procurement process and role and governance of the board need to be strengthened. The capacity building aspect of this project which looks to fully corporatize WAF and give it financial viability is crucial for the ongoing success of this intervention.

59. Currently the government provides an operation and maintenance budget for WAF– although there is a need to strengthen WAF asset management strategies, WAF has the capacity to maintain and operate the assets financed by the project. Fiji's 2015 budget, delivered in November 2014, prioritized water and sanitation, increasing funding for WAF by almost $50 million to just over $120 million – equivalent to over 7% of total public spending. In addition, government is committed to introducing the National Liquid Tradewaste Policy which will introduce fees based on discharge volumes and pollution levels and to review the water and sewerage tariff for commercial customers and domestic customers exceeding basic consumption levels.

60. The use of design-build and operate contracts for the Rewa Water Treatment Plant and Kinoya Wastewater Treatment Plant expansion aims at ensuring high quality design and construction of the assets and providing WAF a period to build capacity to operate and maintain the assets in the long term.

61. A detailed analysis of WAF financial capacity and sustainability of the project is included in Linked Document 1 (the Project Administration Manual, PAM) of the Project Appraisal Report.

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

62. **Adaptation impact – Contribution to increased climate-resilient sustainable development:**

- Expected total number of direct and indirect beneficiaries:
  - 290,854 people (projected population in service area in 2018)
- Number of beneficiaries relative to total population:
  - 32 % of Fiji Population
  - Of which 15 % are of the most vulnerable groups
- Degree to which the activity avoids lock-in of long-lived, climate-vulnerable infrastructure:
  - 16.6% of GSA water supply will be constructed in a climate-resilient way instead of locking in alternative long-lived, climate-vulnerable infrastructure
- Expected strengthening of adaptive capacity and reduced exposure to climate risks:
  - The new water source in Rewa river will allow WAF to serve areas (Korovou-Nausori corridor) that are prone to severe drought and currently rely on on-site ground water sources.
  - The new water treatment plant in Rewa river will prevent future incidences by diversifying the source of bulk water and increase resilience to flooding or other climate related events; as well as sea level rise and associated salt water intrusion.
  - The capacity of WAF will be strengthened through development of catchment protection plans and other institutional strengthening.

E.1.2. Key impact potential indicator

GCF core indicators	*Expected tonnes of carbon dioxide equivalent (t CO_2 eq) to be reduced or avoided (Mitigation only)*	*Annual*	
		Lifetime	
	Expected total number of direct and indirect beneficiaries (reduced vulnerability or increased resilience); number of beneficiaries relative to total population (adaptation only)	*Total*	290,854
		Percentage (%)	32% of Fiji Population
Other relevant indicators	• **See E.1.1. and Project Design and Monitoring Framework (Annex I of Project Appraisal Report)**		

Methodology for adaptation impact indicators

63. **More resilient water supply system:** The construction of a new intake at the Rewa River will lead to a direct improvement of the complete existing water supply system in GSA, since the new system is foreseen to be connected to the existing reticulation system. Current connection rates in GSA to the water supply system are some 95% and the project will allow 50,000 people to benefit from new connections. Therefore, 98% of the population will benefit. The total number of beneficiaries was assumed to be equal to the projected population in the service area in 2022.

64. Although the addition of the Rewa River offtake and WTP will result in a municipal water system for GSA that is more resilient to the impacts of present and future climate variability, only the incremental cost of climate change adaptation are included in the financial request to the GCF.

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

65. It is critical that climate change mitigation and adaptation measures are integrated into WAF's normal operating procedures and in particular any new water and sewerage infrastructure investments. Successful and measureable demonstration of these proposed climate investments in the GSA will have a genuine potential to drive a social change initiative within WAF, government and relevant sector agencies to use this as a basis for future strategic planning and decision-making in water and wastewater sector investments. Through this project, WAF will acquire knowledge and experience in developing long-term investment strategies that integrate adaptation and mitigation considerations. These practices can then be replicated in other urban centers around the country such as Nadi, Lautoka and Lambasa by WAF. Fiji is at the forefront of the Pacific Island countries in experience in water and wastewater management, and lessons can be shared at the Pacific Water Association, of which Fiji is an active member. This will enhance the replication of the best practices in urban areas in the Pacific with similar geophysical characteristics, economic fragility, limited technical capacities and climate vulnerabilities.

E.2.2. Potential for knowledge and learning

66. The project will support WAF in better addressing key knowledge issues and gaps related to adaptation which include inadequate integration of climate change adaptation and mitigation measures into urban water supply and wastewater planning and investment strategies. The project emphasis in optimizing investments taking into account longer term implications for operation and maintenance is expected to change WAF's approach and learn by doing. In addition, it will provide the appropriate mechanisms to address the difficult issue of measuring, reporting, and verifying actions related to adaptation and mitigation, such as technology transfer and capacity building. It will more importantly address the lack of tools, guidelines, and document good practices and lessons learned, especially those related to mainstreaming adaptation and mitigation into national and sector policies, planning processes, and regulations in order to change the status quo.

67. The Appendix 1 of the Project Appraisal Report contains a design and monitoring framework with performance targets and indicators as well as a clear indication of potential data sources and clear responsibilities for reporting.

E.2.3. Contribution to the creation of an enabling environment

68. For adaptation, proposed project investments will demonstrate how long term planning through appropriate siting of the water supply investment at a distance up the Rewa river catchment can ensure sustainability in light of expected salinity migration due to potential sea level rise. In addition it can demonstrate climate resiliency in diversifying water supply through the provision of a second source of bulk water to address current shortfalls in the GSA brought on from employing only one river system as opposed to two.

69. The project will introduce to WAF the use of Design, Build and Operate contracts for major infrastructural investments.. One of the objectives of opting for this type of contract is to ensure that the O&M cost is factored in the proposed technology which should encourage the use of more energy efficient technologies. Combined these proposed initiatives will create conditions conducive to low carbon development through offering capacity building and staged incentives to the private and public sector to change from conventional designs and their present reliance on inefficient conventional methods to implement more efficient energy solutions. This will be integral to mitigating GHG emissions, providing the technical assistance is made available to improve project performance, enable local maintenance of new technologies, and to disseminate good practices and lessons.

E.2.4. Contribution to regulatory framework and policies

70. Fiji is presently embarking on a strategic long-term development plan for low carbon emission and climate resilient development. In the absence of such a strategic development plan, the implementation of the proposed project will support Fiji's Green Growth Framework (2014) in achieving its overall objective of supporting and complementing actions which contribute to development that is sustainable for "A Better Fiji for All". The project in this context will be fundamental to advancing the national legal and regulatory framework to systematically promote investment in low-emission and climate resilient development through addressing the environment pillar of building resilience to climate change and disasters, waste management and the social pillar of freshwater resources and sanitation management. In doing so, this will promote integrated and inclusive sustainable development, strengthen environmental resilience, drive social improvement and reduce poverty enhancing economic growth and also building necessary capacity to withstand and manage adverse effects of climate change.

71. Current policies, strategies and plans that will guide this activity in meeting low-emission and climate resilient development and achieving the objective of the Green Growth Framework:

1. Developed/Existing
- National Climate Change Policy 2012
- National Disaster Management Act 1998
- Clean Development Mechanism Policy Guidelines 2012

2. Under Development/Draft
- National Climate Change Adaptation Strategy (NCCAS)
- Nationally Appropriate Mitigation Action (NAMA)
- Intended Nationally Determined Contribution (INDC)
- Energy Policy
- Energy Strategic Action Plan

3. Yet to be developed – It must be highlighted that Fiji is committed to the development of the following to enhance resilience;
- Climate Change Act
- National Adaptation Plan

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

72. **Key poverty and social issues**. Rural poverty has risen across the main ethnic groups of indigenous iTaukei and Indo-Fijians, now standing at 44% (2013), leading to a steady migration to urban areas. The Suva Greater Area (GSA) contains 50% of the urban population of Fiji and is the fastest growing urban area with the urban growth rate of over 2% in the GSA, (with Nausori being 2.7%) against the national urban rate of 1.5%. In addition, the area has a high susceptibility to climate change, the type and scale of the works required to upgrade the water supply and sewerage network are more technically challenging than for other networks. With 49% of the population living in rural areas, the rural–urban gap is widening, associated mainly with lack of income-earning opportunities, poor access to services, and isolation. Overall, 22% of people still rely on subsistence agriculture for their livelihoods and many more combine growing food for home consumption with cash sales of surplus produce. The extra produce is mostly brought by the women to Suva for sale. In the GSA, where subproject sites were studied, a large number of informal settlements have come up with little access to clean water or sewage.

73. **Beneficiaries**. Primary project beneficiaries are people living in the GSA and peri-urban areas—(i) squatter colonies will benefit from a regular supply of clean and adequate water for their daily needs and reduction of time spent in collecting and storing water , (ii) women will be freed from drudgery to avail of economic activities (iii) connection to piped sewers will result in better living conditions, cleaner environment and costs saved of having septic tanks cleaned at regular intervals (iv) there will be a reduction of water borne diseases leading to reduced costs due to less expenditure on health. Specifically, beneficiaries will have a better quality of life

3. **Impact channels.** The main channel for impacts on the poor and vulnerable is through better access to basic human necessities such as clean water and sanitation, clean environment, economic opportunities such as jobs openings during project implementation and through maintaining the expanded infrastructure.

74. **Design features**. The project will prioritize rehabilitation, replacement, and construction of infrastructure based on agreed criteria of need of the urban and peri-urban population to efficient and adequate supply of water and sanitation services. It will help reduce poverty by building/replacing old, leaking pipes with new, bigger pipes, both for waste water treatment and providing additional sewer pipes for new connections. The project aims to provide better and more effective delivery of services by improving water and sanitation infrastructure, and by strengthening project management capacity in planning, executing implementing the project and incorporating gender mainstreaming in every aspect of the project design, during implementation, monitoring and evaluation. . Poorly built septic tanks and pit latrines over flow during heavy rainy season and are a main source of pollution of creeks and rivers and major threat to health, particularly in informal settlements which lack suitable drainage or concrete paths for pedestrians.

75. See **Annex I of the Project Appraisal Report for the Design and Monitoring Framework**, including expected benefits and target indicators. For detailed discussion of project benefits, see **Economic Analysis** and the **Summary Poverty Assessment** included as a Link documents to the Project Appraisal Report or RRP.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

76. The GermanWatch (Kreft & Ecstein, 2013)[16] released the Climate Risk Index (CRI) for 2012 citing Fiji as fifth of the top ten countries with high CRI, with their averaged and weighted ranking CRI score. The risk indicators used in the analyses are: death toll, deaths per 100,000 inhabitants, absolute losses in millions US $ PPP and losses in GDP (%). The Human Development Index (HDI)[17] is included for purpose of comparing the level of development across countries. The HDI is also a measure of adaptive capacity. The results are presented in the table below. Using the same indicators but averaged over the period 1993 to 2012, the overall ranking of Fiji as countries most at risk to climate and weather events is 27, with a total CRI score of 43.5.

Table: The GermanWatch Climate Risk Index for 2012

Ranking 2012 (2011)	Country	CRI score	Death toll	Deaths per 100,000 inhabitants	Absolute losses (millions $ PPP)	Losses in GDP (%)	Human Development Index
1 (37)	Haiti	6.83	128	1.23	1220.66	9.53	161
2 (4)	Philippines	10.33	1408	1.47	1205.48	0.29	114
3 (3)	Pakistan	12.67	662	0.37	6087.82	1.11	146
4 (22)	Madagascar	15.67	113	0.50	356.98	1.69	151
5 (131)	Fiji	17.00	17	1.89	135.55	3.18	96
6 (36)	Serbia	17.67	28	0.39	1325.06	1.70	64
7 (131)	Samoa	18.33	6	3.28	220.91	19.57	96
8 (49)	Bosnia and Herzegovina	21.67	13	0.33	920.21	2.92	81
9 (95)	Russia	22.17	716	0.50	1365.20	0.05	55
10 (29)	Nigeria	22.33	405	0.25	837.45	0.19	153

77. Fiji's mean sea level is projected to continue to rise over the course of the 21st century. Global models simulate a rise of between approximately 5-15cm by 2030, with increase of 20- 60cm indicated by 2090 under the high emissions scenarios[18]. Ocean acidification is expected to continue, and the risk of coral bleaching will increase in the future. By destroying natural coastal barriers, these changes will increase the country's exposure to disasters brought about by such climatic events as tropical cyclones and storm surges. Tropical cyclones are one of the most severe extreme events to affect Fiji on numerous occasions in the past four decades. They usually

[16] Kreft, S. and Eckstein D., 2013: Briefing Paper, Global Climate Risk Index 2014: "Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2012 and 1993 to 2012".GermanWatch.

[17] HDI is a composite index that uses 4 indicators to represent the level of development: Life expectancy, Income, per capita GDP and average number of years schooling. The lower the HDI is, the higher is the development of the country. (Source:http://hdr.undp.org/en/content/table-1-human-development-index-and-its-components)

[18] Pacific Climate Change Science Program, Climate Change in the Pacific: Scientific Assessment and New Research, Volume 2: Country Report.

affect Fiji from November to April but have occurred in October and May. On average, one or two cyclones affect some part of Fiji every season, with the greatest risk during the El Nino season. Major droughts in Fiji have been associated with El Nino events, the annual rainfall is reduced by as much as 20-50% over most parts of Fiji, as experienced during the 1982/83, 1986/87, 1992/93 and 1997/98.

78. Large-scale flooding in Fiji is mostly associated with prolonged heavy rainfall during the passage of a tropical cyclone, tropical depression and/or enhanced, slow moving convergence zone. Localised flash flooding during the wet season (November to April) is quite common[19]. The intensity and frequency of days of extreme rainfall are projected to increase over the course of the 21st century. Past flooding events in Fiji have resulted in water contamination, overflow of dams, damages to water supply infrastructure and disruptions in water treatment and distribution.

79. The Pacific-Australia Climate Change Science and Adaptation Planning Program[20] (PACCSAP) reports reflect the results of Coupled Model Intercomparison Project (Phase 5) (CMIP5)-based global climate model (GCM) projections for individual countries. The CMIP5 models and scenarios are the most recent and scientifically credible model projections available, and they also provide the basis for the IPCC Fifth Assessment Report (2013), Working Group I on Physical Science.

80. Among key findings described in the PACCSAP report Chapter 5 on Fiji Islands, there is very high confidence in the direction of long-term change in a number of key climate variables, specifically an increase in mean and extremely high temperatures, sea level and ocean acidification. There is high confidence that the frequency and intensity of extreme rainfall will increase. However, it is unclear whether average annual rainfall and drought frequency will increase, decrease or remain similar to the current climate. With respect to El Niño and La Niña, these events will continue to occur in the future (very high confidence), but there is little consensus on whether these events will change in intensity or frequency, and there is no agreement on the direction of annual average rainfall change in the models. In general, historical data is limited.

81. Previous studies in Suva City, Lami Town and Nausori Town point to their physical vulnerability to natural hazards, such as cyclones, coastal and riverine erosion, landslides, floods and projected mean sea level rise. This vulnerability is largely linked to the physical geography of the GSA. Also, mangrove deforestation and coral reef extraction in order to accommodate urban development and for reasons of income generation are increasing the vulnerability of urban areas to coastal hazards. Both mangrove forests and coral reefs provide effective barriers against storm surges and cyclones. Of particularly critical concern are the residents of informal settlements in towns and cities as many such settlements are located in highly vulnerable areas, such as riverbanks and pockets of coastal land. In 2007, it was estimated that upwards of 140,000 people (15% of Fiji population) were living in 200 informal settlements. The majority of these settlements are located along the Lami-Suva-Nausori corridor, Nadi-Lautoka-Ba corridor, and Labasa.[21]

82. Fiji's vulnerability to natural disasters comes at a big economic cost. Among the Pacific countries, Fiji tops

[19] National Climate Change Policy 2012

[20] Australian Bureau of Meteorology and CSIRO. 2014. Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports. Melbourne

[21] McKinnon. J, Whitehead, S. Chung, M. and Taylor, L. 2007. Report of the Informal Settlements Scoping Mission. NZAID. Wellington

the highest damage and losses from natural disasters in the Pacific with a sum of $1.2 billion, a record for the last 30 years[22]. However, town planning schemes elaborated by the municipalities contain very limited consideration of climate change or disaster risk management (UN-Habitat, 2012a)[23]. Due to projected increases in climate-related hazards and extreme events, as well as the increased size and density of urban areas, such costs are likely to increase unless municipalities consider climate change and disaster risk in urban planning and development operations. In the case of the GSA, in Lami town alone, the risk of flooding is substantial[24] . These include coastal flooding from high waves in the Suva harbor, flash flooding from rivers, and surface flooding in low lying areas during intense rainfall. Overall, disasters that occurred in Fiji from 1995 to 2012 are largely weather and climate related events. Tropical cyclones-related disasters topped the frequency, list with floods coming as a poor second. However, as mentioned earlier, tropical disturbances are the major cause of flooding in the GSA. We can simply assume that floods, whether due to heavy rainfall events or tropical cyclone passage will be a major threat to the GSA's Urban Growth.

83. Climate change can prevent Fiji from attaining its Millennium Development Goals and poses a particular threat to infrastructure and water resources, which will inevitably result in economic losses, particularly critical in the GSA which is estimated that accounts for 40% of Fiji GDP.[25] Any increase in frequency and severity of floods, drought, and saline water intrusion will jeopardize WAF capacity to provide safe water supply in the GSA and might result in the more widespread and frequent occurrences of vector-borne diseases. Sea level rise increases the cost of providing water and sewerage services in GSA through seawater intrusion into low lying coastal areas. Higher frequency of drought events would increase pressure in WAF to increase their services to peri-urban populations currently relying in ground water. Flash flooding has damaged WAF critical infrastructure, with an event in December 2013 that damaged the water intake of Waila water treatment plant, which resulted in intermittent water supply for over one week in major areas of GSA. The project will provide an alternative source in a location less prone to flush flooding and which takes into account longer term risk of salinity intrusion.

84. As climate change continues to threaten people's livelihoods, infrastructure and ecosystems, it is imperative that proposed development investments develop, implement, replicate, and upscale adaptation and mitigation strategies that are technically, financially and economically achievable. The project seeks to incorporate climate proofing measures into the water and sewerage infrastructure, and to integrate climate change considerations into national development plans and sector development plans. The adaptation measures proposed for GCF financing intend to respond to the increased salt water intrusion due to sea-level rise and increased risk of flooding due to increased frequency and intensity of extreme rainfall; and to increase the resilience of the "locked-in" investments in water supply systems to any future changes in rainfall variability and average rainfall.

[22] Quoted from the Minister for Works and Transport TimociNatuva while speaking at the opening of the Fiji National Platform for Disaster Risk Management and Climate Change conference in August 19, 2014. http://fijione.tv/

[23] UN-Habitat, 2012a: Fiji's National Urban Profile; ISBN Number (Series): 978-92-1-132023-7

[24] Rao N.S., Carruthers T.J.B., Anderson P., Sivo L., Saxby T., Durbin, T., Jungblut V., Hills T., Chape S., 2013: An economic analysis of ecosystem-based adaptation and engineering options for climate change adaptation in Lami Town, Republic of the Fiji Islands. A technical report by the Secretariat of the Pacific Regional Environment Programme. – Apia, Samoa : SPREP 2013, 62 pp. ; 978-982-04-0473-1 (print) 978-982-04-0474-8 (online)

[25] Cities Development Initiative for Asia. 2012. *Pre-Feasibility Study for GSA Sustainable Urban Transport Project*. Volume 1. Manila.

E.4.2. Financial, economic, social and institutional needs

85. Although Fiji has achieved its Millennium Development Goal 7 targets for water supply and sanitation,[26] piped water supply in some urban areas is still intermittent, with demand for new connections growing faster than supply. The social dimensions of clean water and sanitation problems in the rapidly growing urban areas are exceeding the government's capacity to finance services. Fiji's urban population of around 457,900 is equivalent to 53% of the total population. While poverty rates in Fiji are highest in rural areas, the rapid growth of peri-urban squatter settlements[27] means that the majority of poor people in Fiji live in and around urban areas.

86. In the Greater Suva Area (GSA), the efficiency of urban infrastructure is adversely affected by low population densities, which in some areas are due to low coverage of sewerage services as regulations for septic tanks limit the land occupancy ratio. In middle income residential areas, provision of piped water supply and sewerage might reduce urban sprawl and unlock potential for private investment in housing development and lower the cost and efficiency of other urban infrastructure and services.[28] With tourism becoming one of the key drivers of growth, proper wastewater management and conservation of fresh water is key to ensuring environmentally sustainable urban growth and subsequent economic growth.

87. Water and other urban infrastructure have been identified as critical infrastructure for ongoing economic development by the Fiji Government. The project will focus on the GSA where approximately 224,000 (30% of Fiji's population) live.[29] GSA includes Suva City and Lami, Nausori, and Nasinu town councils with Nausori and Nasinu being the fastest growing urban areas in GSA. Because of the size of GSA population and the geography of the city, the type and scale of works required to upgrade the water supply and sewerage network is technically more challenging than in other Fiji urban areas. Fiji's 2015 budget, delivered in November 2014, prioritized water and sanitation, increasing funding for this sector by almost $50 million to just over $120 million – equivalent to over 7% of total public spending. Experience in urban water supply and sanitation and good knowledge of the implementing agency was also considered when prioritizing water and sanitation as first investment in urban development sector after re-engagement (the Asian Development Bank (ADB) engagement in the water and sanitation sector in Fiji had been substantial, particularly through the $70 million Suva-Nausori Water Supply and Sewerage Project[30] and facilitated a utility twining partnership[31] between Water Authority of Fiji (WAF) and Hunter Water Australia). After

[26] By 2012 Fiji's urban population with access to safe water rose to 100% and access to improved sanitation to 92% (WHO and UNICEF. 2014. Progress on Drinking Water and Sanitation 2014 Update. WHO. Geneva)

[27] In 2007, it was estimated that upwards of 140,000 people (15% of Fiji population) were living in 200 informal settlements. The majority of these settlements are located along the Lami-Suva-Nausori corridor, Nadi-Lautoka-Ba corridor, and Labasa (McKinnon. J, Whitehead, S. Chung, M. and Taylor, L. 2007. Report of the Informal Settlements Scoping Mission. NZAID. Wellington).

[28] Inclusive Urban Development in the GSA Prefeasibility Study RETA: 6293 – FIJI: Drainage & Flood Management Project Final Report May 2012

[29] World Bank and Fiji Bureau of Statistics. 2011. Republic of Fiji: Poverty Trends, Profiles and Small Area Estimation (Poverty Maps) in Republic of Fiji (2003-2009). World Bank. Washington DC.

[30] ADB. 2003. Report and Recommendation of the President to the Board of Directors: Proposed Loan to Fiji for Suva-Nausori Water Supply and Sanitation Project. Manila and ADB. 2009. Report and Recommendation of the President to the Board of Directors: Proposed Loan to Fiji for Suva-Nausori Water Supply and Sanitation Project – Supplementary. Manila. The project, which was completed in June 2014, expanded water supply and sewerage services benefiting an estimated 250,000.

[31] ADB. 2007.Technical Assistance for Knowledge and Innovation Support to ADB's Water Financing Program (TA6498-REG). Manila.

assessment of the sector and government discussions, the Fiji Country Partnership Strategy 2014-2018 and the Fiji Country Operations Business Plan 2015-2017 identified water and sanitation in urban centers as key areas for ADB assistance.[32]

88. WAF is a commercial statutory authority promulgated under the ambit of the Public Enterprise Act 1996. WAF took over responsibilities, functions and operations previously carried out by the water and sewerage department in January 2010. WAF manages both water and wastewater services across Fiji in accordance with the functions and powers of the Promulgation reporting to the Ministry of Infrastructure and Transport (MoIT). Since becoming a statutory authority in 2010, WAF has been focusing on operational improvements to both the supply of water and wastewater systems. Some key achievements have included improvement of water treatment quality and the reduction of intermittent water supply zones from 64 to 24 in the GSA. While established as a commercial statutory authority, in practice WAF continues to operate through grants provided under the national government budget, and revenues collected are paid into the consolidated fund. The tariff for water and sewerage services is controlled directly by the Government, with no independent regulator involved.

89. WAF however has yet to be fully corporatized and key areas such as financial autonomy, human resources management, procurement process and role and governance of the board need to be strengthened.[33] For WAF to be able to improve its financial sustainability and to be more accountable to regulatory bodies, government is tasked with tackling water and sewerage tariff reform, introducing and enforcing liquid waste trade regulations and reviewing regulations that affect municipal waste water management. Key support areas under the project are to (i) implement the recently developed liquid trade waste policy to ensure processes at main wastewater treatment plant are not affected by sludge from commercial and industrial customers; and (ii) lower average water consumption of residential customers from the current 200 liters per day per person, translating to a reduction in capital investment needed. WAF has signed a twinning program with Sydney Water to advise WAF on a strategy on water demand management and trade waste, the project will provide support for its implementation. MOF has formally requested technical assistance on financial management planning and tariff review from the Pacific Regional Infrastructure Fund. Supporting document 14 provides further information on on-going activities in the area of Non-Revenue Water and water demand management; and Supporting document 15 provides information on tariff review activities and commitment of Government to review water and sewage tariffs. In addition, the project will finance consulting services to support WAF with detailed design and supervision of all major works and with monitoring and reporting of the project activities.

[32] ADB. 2014. Country Partnership Strategy: Fiji, 2014-2018. Manila; ADB. 2014. Country Operations Business Plan: Fiji, 2015-2017. Manila.

[33] WAF is undergoing an assessment using Aqua Rating, which is a tool developed by the International Water Association to assess water utilities' performance. The assessment covers all areas, including quality of service, asset management, operation and maintenance, customer service, financial sustainability, corporate governance, etc. The assessment is then audited by an independent technical team certified by the International Water Association and its recommendations will allow WAF to prepare a road map to implement key reforms.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

90. Fiji is currently in the development of a draft National Climate Change Adaptation Strategy (NCCAS). The draft NCCAS lays out an approach to identify and implement efficient and effective activities to manage the existing and anticipated consequences of climate change for all land-based resources sectors in Fiji, namely, agriculture, biodiversity, forestry, land and water. These sectors play dominant and essential roles in the economy of Fiji and contribute to livelihoods and the general well-being of the people and the country as a whole. In addition to the NCCAS, Fiji is currently formulating its Nationally Appropriate Mitigation Action (NAMA) in collaboration with UNDP, and will submit its Intended Nationally Determined Contribution (INDC) to the UNFCCC in September 2015. Fiji also has a ready-made commitment to develop a Climate Change Act and a NAP in the immediate future.

91. The proposed adaptation and mitigation actions of the draft NCCAS are aligned with proposed project activities and directly linked to the policy objectives and strategies of the existing Fiji National Climate Change Policy (NCCP, 2012). This inter linkage between the two documents allows the NCCAS and the NCCP to directly support the implementation of proposed mitigation and adaptation project activities. In addition, the project will be timely in piloting and demonstrating on-the-ground mitigation and adaptation infrastructure measures with complementary supporting institutional changes that Fiji can replicate elsewhere in the country.

E.5.2. Capacity of accredited entities and executing entities to deliver

92. The Fiji Government has extensive experience implementing investments by ADB and other partners. Since 1970, and ADB has committed over $417 million in investments in Fiji with a successful track record.

93. The Ministry of Finance (MOF) will be the executing agency for the project. MOF has extensive experience as executing agency for infrastructure projects and is currently the executing agency for a $100 million Transport Infrastructure Investment Sector Project (approved in Dec 2014). MOF has also been the executing agency for a range of other recent ADB investments that have now been successfully completed, including: a $68 million third Fiji Roads Upgrading Project (approved in 1997 with supplementary financing in 2009); and a $70 million Suva-Nausori Water Supply and Sewerage Project (approved in 2003 with supplementary financing in 2009). MoF is very knowledgeable of ADB process and project cycle and has ensured all covenants in the loan agreements of previous projects financed by ADB, including complex policy reforms, have been complied with.

94. As executing agency, the functions of the Ministry of Finance are to work with line agencies (in this case the Water Authority of Fiji) to implement the project as agreed in the project documents, submit withdrawal applications to ADB, and submit required annual audit reports and financial statements of project account. MOF will also coordinate appropriate government representation for loan negotiations, loan signing, and loan effectiveness and will chair the Project Coordination Committee. The role of the MOF and overall project implementation structure is described in Appraisal Report, Link 1: Project Administration Manual.

95. The Water Authority of Fiji (WAF) is the implementing agency for the project. ADB is confident in continuing to provide financing to investments with WAF as the implementing agency. WAF is a commercial statutory authority promulgated under the ambit of the Public Enterprise Act 1996. WAF took over responsibilities, functions and operations previously carried out by the water and sewerage department in January 2010. WAF manages both water and wastewater services across Fiji in accordance with the functions and powers of the Promulgation reporting to the Ministry of Infrastructure and Transport (MOIT). Since becoming a statutory authority in 2010, WAF has been focusing on operational improvements to both the supply of water and wastewater systems. WAF has been the implementing agency for ADB's $70 million Suva-Nausori water supply and sanitation project (approved 2003 with supplementary financing in 2009, and which completed in 2014) and one of the implementing agencies for the Emergency Flood Recovery Sector Project (approved in August 2009). A risk assessment of WAF was undertaken and included in the project appraisal report, Link 8: Risk Assessment.

Specific measures have been built within the project to mitigate the risks identified, including financing consulting services to strengthened WAF financial management and procurement processes among others.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

96. ADB and the Government of Fiji identified the proposed project during the discussions on Fiji's Country Partnership Strategy 2014-2018 and it was included in Fiji Operations Business Plan 2014-2018. In 2013 ADB approved financing of a Technical Assistance to Fiji for Urban Development Planning and Institutional Capacity Building and since April 2014, it has been working in close collaboration with the Ministry of Local Government, Housing and Environment, the Ministry of Infrastructure and the Ministry of Finance to identify water and sanitation sector priorities and to support the Water Authority in prioritizing the sector investments and defining the project scope, addressing critical policy and sector issues and carrying out the required project due diligence. Discussions and consultations took place with the Climate Change Division in the Ministry of Foreign Affairs to ensure that the project was in line with national policy and that climate change considerations were integrated within the project. ADB has also carried out consultations with local government, affected communities and other key stakeholders as part of the project due diligence. All discussions and agreements reached at each stage of project preparation have been reflected in the project Aide Memoirs and Memorandum of Understandings. Consultations with communities and civil society are reflected in the Poverty and Social Analysis and the environmental and social safeguards documents.

97. A combined Poverty and Social Analysis and Survey was conducted during Project Preparation Due Diligence. Consultations conducted were designed to cover family composition; indicators of economic status; water source(s), usage and problems encountered; drainage arrangements and flooding; sewage arrangements and problems encountered; current expenditures for water and sewer; and willingness to pay for new or improved services. Questions were included to identify women-headed households, sex-differentiated water usage patterns, and recent diarrheal and febrile infections. The key findings are summarized below:

98. **Participation and Empowering the Poor**. The project has been prepared in consultation with key sector stakeholders including communities where the project will be implemented. Consultations will continue to be conducted throughout the project cycle and this will strengthen participation of the poor and vulnerable in project implementation. Affected people will be consulted through village meetings, social surveys, and informant interviews at (i) planning phase of subprojects; (ii) during detailed feasibility studies and design; (iii) before and during construction; and (iv) during operation, maintenance, and monitoring. At each subproject site, a focal point for more detailed information sharing, and community development activities will be established, usually through an existing village committee. Poverty and socioeconomic assessments at subproject sites will also identify local civil society organizations and ensure that they are included in consultation activities. NGOs, churches, leaders, and youth groups will provide channels for communication with the affected community to ensure that they understand the subproject, delivery process, schedule, potential impacts, and opportunities. Information gathering and sharing will include consultations, collaboration with NGOs working on poverty and partnership with village communities where possible. Finally, a project level participation plan will be prepared to strengthen participation of civil society as interest holders for affected persons particularly the poor and vulnerable mostly living in squatter settlements.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

99. The net economic benefits and costs in the analysis of the overall project were derived by comparing the 'with' and 'without' project scenarios. The project benefits from the water supply investments comprise: (i) reduction in economic cost of water supply as a result of displacing higher cost supply alternatives, such as tanker trucks, in unserved areas; (ii) costs savings from a reduction in NRW. Savings in the economic costs of supply by reducing NRW, taking into account the avoided costs of producing, treating and distributing water; (iii) elimination of current and future potential suppressed demand for water supply by adding additional water supply production capacity to the system;[34]and (iv) benefits that accrue from households with illegal or unmetered connections from improved water supply services. The project benefits from the sewerage investments comprise: (i) avoided costs of septic tanks for new connections; (ii) increase in urban land values associated with allowance for higher density development; (iii) avoided decline in sewerage connections due to reduction WWTP capacity in the near future; and energy generation from production of biogas at Kinoya WWTP. The economic internal rate of return for the project is 13.8% and the sensitivity analysis confirms the project is viable under adverse conditions. A detailed economic analysis and financial analysis for the project are included as link documents to the project appraisal report. An economic analysis of only GCF contribution could not be carried out as it would not be feasible without the rest of the investments.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

100. In due course, a submission for GCF financing of the mitigation and adaptation activities under component 2: Wastewater will be submitted to the GCF Secretariat for consideration in the March 2016 Board Meeting.

E.6.3. Financial viability

101. The financial viability was carried out for the overall project. The WACC of the project exceeds the FIRR for the project which is currently negative. However the project is economically viable with an internal rate of return for the overall project of 13.8%. A detailed analysis of the financial viability of the project is included as a link document to the Project Appraisal Report.

E.6.4. Application of best practices

Please refer to project description and feasibility studies included in the supporting documents.

[34] Average willingness to pay for improved water supply among domestic customers was based on the results of a contingent valuation survey carried out as part of the Project Preparatory Technical Assistance. Average willingness to pay for improved water supply among commercial users was estimated at the cost of investing in alternative supply arrangements. There are a range of accepted methodologies to assess willingness to pay for basic services, including survey of potential customers. The avoided cost scenario was not considered appropriate in this case since the majority of households have already a piped water supply connection; the majority therefore do not invest in alternatives. The willingness to pay values were calculated to be low since household already receive a good service for which they are used to paying a very subsidized price. Any increase in willingness to pay would improve the EIRR of the project.

E.6.5. Key efficiency and effectiveness indicators	
GCF core indicators	Estimated cost per t CO_2 eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)
	Not applicable
	Expected volume of finance to be leveraged by the proposed project and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)
	Not applicable
Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project)	

F.1. Economic and Financial Analysis

102. Access to piped water supply services among the GSA's population has reached 95%. However current water supply capacity is 151 ML/day, while current peak day demand is estimated to be around 168 ML/d, resulting in a significant shortfall in bulk water supply and water treatment plant (WTP) capacity. This contributes to water shortages and low pressure in some areas during peak demand dry periods. The short fall is around 18 ML/d, which can be expected to increase to 27 ML/d by 2033. In absence of the project, the water supply gap can be expected to continue to increase with growing urbanization and climate change which might reduce production from these intakes. In addition, current water production facilities are running at full capacity for 24 hours per. The lack of redundancies in the system poses a significant risk to water supply security in the GSA, in the event of equipment failure or other event such as damage to the intakes due to flash flooding. Without investments to upgrade the system, a 30% reduction in production capacity by 2033 is expected.

103. Around 36% of the GSA population is connected to the reticulated sewerage system. There are five wastewater treatment plants (WWTP) servicing the GSA. The major plant at Kinoya has a capacity of 105,000 equivalent persons (EP) and serves over 90% of connected customers. However, the current capacity of Kinoya WWTP is overloaded, and the asset is deteriorating. This is compounded by increasing sea water intrusion in the sewerage system and lack off a trade waste program. The limited capacity of the sewerage network and the high reliance on septic tank can result in overflows to nearby creeks particularly during wet weather. The limited coverage of the sewerage network also contributes to urban sprawl in the GSA. This is because the Local Authority Act restricts high density development in unsewered areas. In absence of the investments, it is projected that WWTP capacity will decline and service connections will decline by 10%.

104. **Economic analysis.** The economic analysis was carried out for the water and sewerage components and for the project as a whole[35] and in accordance with the Asian Development Bank's Guidelines for the Economic Analysis of Projects[36] and Guidelines for the Economic Analysis of Water Supply Projects.[37] All prices are expressed in the domestic price numeraire at constant 2015 prices. Transfers such as taxes and duties, are excluded from the analysis. Traded components are converted into economic prices using a shadow exchange rate factor (SERF) of 1.014. A shadow wage rate factor (SWRF) of 0.86 is used to convert financial into economic wage rates for unskilled labor. The period covered by the analysis is 40 years.

105. A least-cost analysis of water supply and sewerage options for the GSA was carried out to determine whether the project investments represent the least cost means of addressing the water supply and sewerage needs of the GSA over the period of analysis. Proposed project investments described above were compared with technically feasible alternatives. The alternative water supply investment considered was the development of an intake on the Rewa River with an expansion in the treatment capacity of the existing Waila WTP. Alternative sewerage investments considered include the implementation of a 'decentralized' sewerage strategy with new WWTPs located in growth areas at the extremities of the sewerage network in Waila and Lami. The present value of life-cycle costs of each option was compared, including capital investment, operation and maintenance costs, over the period of the analysis. In the case of sewerage investments, only alternative treatment options were considered, since in both cases wastewater trunk mains would need to be upgraded and expanded. The present values of the costs associated with each option were compared, and the project investments are estimated to be the least-cost option compared with the feasible alternatives, even when a discount rate of 16% is applied.

106. The net economic benefits and costs in the analysis were derived by comparing the 'with' and 'without'

[35] Although the economic analysis was carried out for the overall project, separate EIRRs were calculated for the water supply and sewerage investments. The Project Appraisal Report Link Document 2 provides the detailed economic analysis.

[36] ADB. 1997. *Guidelines for the Economic Analysis of Projects,* Manila.

[37] ADB. 1998. *Guidelines for the Economic Analysis of Water Supply Projects,* Manila.

project scenarios. The project benefits from the water supply investments comprise: (i) Reduction in economic cost of water supply as a result of displacing higher cost supply alternatives, such as tanker trucks, in unserved areas. This benefit is valued at F$30.00[38] per cubic meter, which is the cost of supplying water by tanker truck; (ii) costs savings from a reduction in NRW. Savings in the economic costs of supply by reducing NRW, taking into account the avoided costs of producing, treating and distributing water. The average cost of producing water is F$1.81 per cubic meter; (iii) Elimination of current and future potential suppressed demand for water supply by adding additional water supply production capacity to the system, and by avoiding decline in service levels. Suppressed demand is valued at average willingness to pay (WTP) of F$0.41 per cubic meter for domestic customers, and F$10.00 per cubic meter for non-domestic users;[39] and (iv) Non-technical NRW. The benefits that accrue to households with illegal or unmetered connections from improved water supply services. The value of non-technical NRW is valued at average willingness to pay for domestic users.

107. The project benefits from the sewerage investments comprise: (i) avoided costs of septic tanks for new connections. In absence of an expansion in the sewerage network, and increased wastewater treatment capacity, it is assumed that households would instead need to investment constructing and operating septic tanks. The annualized cost of onsite treatment and pump out is estimated to be F$487.(ii) Increase in urban land values associated with allowance for higher density development. Once a land plot is connected to the sewerage network, it can be fully developed without the restrictions that apply to unsewered plots. Holding other factors constant, land values are estimated to increase by F$16,000 for a 800 cubic meter plot in a new subdivision developments, and by 50% in developed areas once connected to the sewerage network based on average land values of $40,000;[40] (iii) Avoided decline in sewerage connections due to reduction in WWTP capacity. In absence of investments to substantially upgrade WWTP capacity, it is projected that capacity will continue to decline resulting in 10% decrease in service connections. It is assumed that this would require some existing sewerage users to invest in onsite sanitation alternatives to collect and treat wastewater; (iv) Biogas production. In absence of the investment, methane gas produced at Kinoya will be burned. Production of biogas at Kinoya WWTP is estimated to save 50 percent of the electricity costs at the plant. This avoided cost is valued at the estimated cost of diesel generated electricity production for the power utility[41], on the assumption that incremental demand is met from this source; and (v) CO2 abatement. Biogas production replacing diesel generated electricity production by the power utility is associated with CO2 abatement, which is valued at international market rates[42].

108. The proposed investments are also expected to result in reduction of CO2 emissions from septic tanks and increase resilience to climate change, particularly flooding and draught. Substantial public health and environmental benefits will also be achieved by reducing the incidence of water-borne disease and abating pollution. Due to the difficulty in estimating and quantifying the values in monetary terms, these benefits were excluded from the analysis.

109. **Economic internal rate of return (EIRR)** was estimated by calculating the discount rate at which the total present value of benefits and the total present value of costs are equalized. The EIRR was calculated for: (i) water

[38] 1 Fiji dollar (F$) = 0.489 US$

[39] Average willingness to pay for improved water supply among domestic customers was based on the results of a contingent valuation survey carried out as part of the Project Preparatory Technical Assistance. Average willingness to pay for improved water supply among commercial users was estimated at the cost of investing in alternative supply arrangements.

[40] Land value estimates were derived from expert advice provided by real-estate agencies and property value assessors operating in the GSA. The Housing Authority of Fiji provided expert advice on land values for new subdivision developments.

[41] Refer Table 1 in Dornan, Matthew and Jotzo, Frank, *Electricity Generation in Fiji: Assessing the Impact of Renewable Technologies on Costs and Financial Risks*, Resource Management in Asia-Pacific Program, Crawford School of Economics and Government, The Australian National University, February 2011, for estimates of electricity generation costs in Fiji for different technologies.

[42] Using the rate for carbon emissions futures in the European market, which stood at just over €8 per tonne in late July 2015.

supply investments, (ii) wastewater investments, and (iii) water supply and wastewater investments combined. The results presented in Table A4 indicate that in all three cases, the EIRR is 12% or higher.

110. **Sensitivity Analysis**. Analysis was undertaken to test the sensitivity of the estimated EIRRs of the proposed investments are to adverse changes in key variables and to confirm their economic viability under unfavorable conditions. Major risks considered are: (i) an increase of 10% in capital costs; (ii) an increase of 10% in operating and maintenance (O&M) costs; and (iii) a 10% decrease in benefits. A summary of the results of sensitivity analysis due to changes in the major parameters is included in Table A3.

Table A3: Sensitivity Analysis of Economic Internal Rate of Return

Sensitivity Case Scenario	EIRR		
	Water Supply	Sewerage	Water Supply and Sewerage
Base Case	12.0%	14.6%	12.8%
1. Increase in capital cost by 10%	11.0%	12.0%	11.3%
2. Increase in operating costs by 10%	11.8%	14.6%	12.6%
3. Decrease in benefits by 10%	10.7%	11.7%	11.0%

EIRR=economic internal rate of return.

111. **Financial analysis** has been prepared in accordance with Asian Development Bank (ADB) *Financial Management and Analysis of Projects.*[43] The financial analysis was conducted to determine the financial viability and sustainability of the overall project consisting of; (i) Output 1: Increasing water supply and reliability of services within the Greater Suva Area (GSA) by reducing non-revenue water by meter replacement, improved leak detection and pressure management, building a new intake and water treatment plant by the Rewa river and increasing production by 30m3/day; (ii) Output 2: increasing sewerage coverage in the GSA and improving the treatment of wastewater through upgrading of the capacity of the Kinoya wastewater treatment plant by 100,000 E.P (iii) Output 3: institutional strengthening of WAF through the demand management program and liquid waste program (iv) Output 4: effective project management during implementation. The implementation of these activities is expected to be carried out by the state-owned water utility, Water Authority of Fiji (WAF).

112. The last WAF audited financial statements are available only up to 31/12/2011. A team at WAF is looking into account reconciliation and other issues highlighted by the auditor - hence the delay in submission of financial statements for audit. WAF expects to finalize audited financial statements for period of 2012-2014 by end of 2015, at that time, after the financing plan of the project is confirmed the project financial analysis will be finalized. As regards DSCR, liquidity management etc. at WAF, these are not applicable to WAF since at present cash and debt management is entirely by the government and not the institution. The government advances funds from the national budget for WAF as an operational grant for salaries and operational costs and a capital grant for capital expenses. In turn, the government retains all WAF tariff revenues which it shows as national budget income.

113. The financial analysis was conducted separately for the water and wastewater components and the project as a whole. The analysis was carried out using a cashflow analysis by projecting future revenue and cost streams from the project based on certain assumptions. Two streams of cashflows were developed, “with” and “without” project and the incremental cashflow determined. This stream of incremental cashflow is then discounted to its present value and financial indicators such as the Financial Internal Rate of Return (FIRR) and Financial Net Present Value (FNPV) calculated.

114. The WACC has been calculated in real terms for the project. The funding sources would be the ADB, EIB,

[43] ADB. 2005. Financial Management and Analysis of Projects. Manila.

GCF and Government / WAF Funds. Funding from the ADB will be from its commercial lending window, Ordinary Capital Resources (OCR). The OCR loan will be at the 15-year LIBOR USD swap rate, currently at 2.51%[44] to which the ADB will add a spread of 0.5% and a maturity based premium of 0.2%[45], and the resultant cost to the borrower will be 3.21%. The loan funds will not be on-lent to WAF. ADB forecasts a long term annual local inflation rate of 2.7% and foreign inflation of 1.8%. The EIB loan will be on broadly similar terms to the ADB loan. The GoF funding is based on the cost of long term government borrowing of 5%[46] funding. The GCF funds are assumed to have an opportunity cost equivalent to government funding.

115. The FIRR of the water component (Output 1) is a negative 3.8% and the FNPV is a negative F$ 383.5 m. The WACC is 1.8%. The Average Incremental Financial Cost (AIFC) of Output 1, discounted at the WACC is F$ 0.76/m^3. The AIFC represents the incremental capital and recurrent cost in the production of a unit of water and is compared to the average tariff to demonstrate the extent the customer is subsidized and the basis for any potential future tariff increase. The FIRR of the wastewater component (Output 2) is a heavily negative and the FNPV is a negative F$ 645 million. The WACC is 1.4%. The Average Incremental Financial Cost (AIFC) of Output 2, discounted at the WACC is F$ 1.11/m^3. The AIFC represents the incremental capital and recurrent cost in treatment of wastewater and is compared to the average tariff to demonstrate the extent the customer is subsidized and the basis for any potential future tariff increase. The FIRR of the overall project is the summation of the water and wastewater FIRR/FNPV. The FIRR of the overall project is negative and the FNPV a negative F$ 1039 million.

116. Project Risks and Sensitivity: One major project risk is that customer will not be willing to connect to the system, especially for wastewater. The average cost for a water connection is about F$ 500 and the cost of connecting to the sewer maybe in the region of F$1,000-2,000 depending on the location of the premises. This is a very significant cost and although the law requires connection to the sewer if it is within 30m of the premises, it is difficult to implement this for customers with septic tanks who are required to make a substantial investment for connection. The availability of output-based aid[47] (OBA) to finance the cost of service connections must be investigated. Under OBA, the subsidy is given to the service provider, i.e. WAF, based on independently verified performance who is expected to pre-finance connections.

117. At the request of the GCF, the project has included a provision of 7% for physical contingencies. This contingency is considered low given the difficulty to estimate pricing by contractors for complex civil works which have not been undertaken recently in Fiji. This contingency also accounts for unpredicted cost overruns during construction. However, a reduction in cost does not have a major impact in the financial viability of the project which would remain to be negative. Only with a very substantial increase in water and sewerage tariffs would WAF revenues increase sufficiently for the investment to have a positive FIRR.

Project FIRR and FNPV Base Case and Sensitivity Analysis

Scenario	FIRR (%)	FNPV ($mn)
Base Case	-7.5	-1,048.5
10% reduction in costs	-7.4	-981.0
Increase in WAF revenues through tariff increase	0.3	-358

Source: ADB Estimates

[44] As at 25 May 2015, ADB Treasury Department
[45] Based on the tenor of the loan
[46] Based on Fiji 10 year Viti Bond rate
[47] OBA is a strategy for using subsidies to deliver basic service to poor households and is used for water and sanitation, electricity, transport, telecommunications, education and health care.

F.2. Technical Evaluation

118. The technical evaluation has been prepared for the overall project. The project will utilize the biogas produced in the digesters for the production of electric and/or thermal energy, in their combined form also called combined heat and power (CHP) production. Prior to its utilization, the gas is balanced in a gas holder and purified, as required. A flare is typically used to burn gas that cannot be utilized and for emergency situations.

119. Cost efficiency in the operation and maintenance (O&M) of treatment plants is essential. One important aspect to achieve this is by selecting appropriate treatment technologies that are generally low-energy consumers. If these technologies are properly chosen and designed they do not have higher investment costs than straight forward technologies such as conventional activated sludge processes but are characterized by significantly lower needs for operational expenditure, which have a big impact on the long term economic sustainability of the investments. At Kinoya WWTP it is foreseen that WAF reinstates the existing but currently nonoperational conventional activated sludge technology and it remains to be seen which technology will be proposed for the extension of the plant. However, above described aspects will be brought to their attention and followed up during project implementation. With WAF being aware of these possibilities they will be able to consider them in case of new WWTP are implemented in Fiji in future.

120. The project will introduce to WAF the use of Design, Build and Operate contracts for major infrastructural investments.. One of the objectives of opting for this type of contract is to ensure that the O&M cost is factored in the proposed technology which should encourage the use of more energy efficient technologies.

121. The wastewater system in the GSA consists of 86 sewage pump stations, 44km of sewer rising main and trunk gravity mains, and over 330km of sewerage reticulation. In addition, there are 5 WWTP servicing the area. However, in fact only Kinoya WWTP is of real importance as it services about 97% of connected customers. Currently, Kinoya is foreseen to be further extended and be the central WWTP for GSA, since the other 4 small WWTP have limited scope for extension. This wastewater system, however, may have potential for being optimized. The number of 86 sewage pump stations seems to be high for a catchment area of the size of GSA, even though it is recognized that the topography is rather hilly and varied. The aim of an optimization would be to reduce the number of pump stations, and, eventually, increase the capacity of the remaining ones, which would improve the overall efficiency of sewage pumping. At the same time the need for sewage pumping may be reduced by introducing one or more additional WWTP in other parts of GSA area rather than centrally treat the vast majority of wastewater in the Kinoya WWTP only. Apart from other considerations, the preparation of a hydraulic model, which needs to be calibrated by using real flow and pressure measurements taken in the field, will contribute to define an optimized sewage reticulation system. A comprehensive evaluation of pros and cons including a cost benefit analysis should define whether a central or decentralized approach for wastewater treatment will be the preferred one. In this context it needs to be noted that independently of the outcome of the latter analysis the envisaged treatment capacity in Kinoya will not be below the 277,000 EP envisaged under the project, if the backlog areas continue to be connected and the sewer connection rate reaches 90% as targeted by WAF.

F.3. Environmental, Social Assessment, including Gender Considerations

122. **Environment and Social Impact Assessment**. ADB's Safeguard Policy Statement 2009 is aligned to the GCF's ESS and is generally understood to be operational policies that seek to avoid, minimize, or mitigate adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalized by the development process. It provides guidelines for conducting an environmental and social impact assessment and some of these features include guidance on the environmental assessment process such as (i) project screening and categorization; (ii) scoping for environmental assessment; (iii) analysis of alternatives; (iv) applicable policy, legal and administrative framework and standards; (v) baseline environment (vi) impact and risk analysis; (vii) mitigation measures and residual impacts; and an (viii) environmental management plan (EMP).

123. The EMP prescribes actions to be taken to implement the mitigation measures, monitoring and reporting,

institutional arrangements, and EMP implementation schedule and cost estimates. Supporting these critical assessments are (i) consultation and participation requirements for information disclosure, meaningful consultation and participation; (ii) a grievance redress mechanism; (iii) occupational and community health and safety requirements – which includes impacts on workers and communities involved in both construction and operation; and (iv) pre identification of physical cultural resources – protection through environmental assessment and management via screening, consultation, management, chance find and removal (Refer to supporting documents and link documents of the Project Appraisal Report for detailed assessment).

124. **Gender**. The project is classified as 'effective gender mainstreaming'. (i) *Key issues identified*: In the labor force, the incidence of poverty is higher among women (40%) than men (32%). This figure rises to 75% if unpaid household workers are included. Rural women with little education have the highest incidence of poverty. Fiji is ranked 120 out of 136 countries for women's economic participation by the Global Gender Gap Index, reflecting women's low rates in formal employment, although they play significant roles on smallholder farms and in marketing of fresh produce. Women are concentrated in informal employment, unpaid domestic work, and in low-paying and less secure occupations that have been hit hard by declines in tourism and the garment industry but where they constitute the majority of workers. Women have full legal ownership rights in access to land and property, but limited knowledge of these rights, and in practice they are often not recorded as co-owners of family assets or allowed to decide on the use of communal land. In village organizations, men dominate. Women are also poorly represented in provincial and local governments and institutions. According to the 2010 Committee on the Elimination of Discrimination again Women report, gender-based violence against women is widespread in Fiji, and cultural attitudes make it difficult for women to gain justice in cases of rape or sexual assault.

125. A gender action plan (GAP) has been prepared to ensure that women are consulted, and that their priorities are reflected when planning activities for construction of the upgraded and expanded infrastructure. The designs will factor in women's needs for regular and clean water and safe sewage disposal. Sewerage coverage encourages indoor sanitation facilities, as opposed to outdoor facilities which in peri-urban areas in the GSA can be unsafe for women. Whenever possible, pipes are to be laid, the designs will reflect women's needs including stairs to the water and concrete laundry tubs. The GAP will encourage women's participation in labor and maintenance, provide equal pay for equal work to men and women, and ensure income restoration measures to assist those who have lost assets or access to land. There will be representation of women and men in any community consultations, on decision-making committees, and in awareness training to mitigate the potential spread of sexually transmitted infections and HIV by encouraging contractor to hire local labor during construction work. At least 20-30 % of the workers should be women (Refer to the GAP included as a linked document of the Project Appraisal Report for more details).

F.4. Financial Management and Procurement

126. A financial management assessment (FMA) for the proposed project was carried out in accordance with ADB's Financial Management Guidelines [48] and Financial Due Diligence Methodology Note, under a project preparatory technical assistance. The FMA considered the MOF as the proposed executing agency (EA) and the Water Authority of Fiji (WAF) as the proposed implementing agency (IA). The FMA consisted of (i) completing the FMA Questionnaire; (ii) assessing the FM Internal Control and Risk; and (iii) evaluating the implementing agency's FM personnel, accounting policies and procedures, internal and external audit, and information systems for financial reporting. Interviews were conducted with WAF's finance division and senior management, officers of MOF's Debt and Cash Flow Management Unit, and staff of the Office of the Auditor General (OAG).

127. All advance contracting and retroactive financing will be undertaken in conformity with ADB's *Procurement Guidelines* (February 2007, as amended from time to time) (ADB's *Procurement Guidelines)*[49] and ADB's *Guidelines*

[48] ADB. 2005. 2010. *Guidelines for the Financial Management and Analysis of Projects*. Manila.

[49] Available at: http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf.

on the Use of Consultants (2007, as amended from time to time) (ADB's *Guidelines on the Use of Consultants).*[50] The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower, MOF and WAF have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project. International competitive bidding procedures will be used for civil works contracts estimated to cost $5 million or more, and supply contracts valued at $400,000 or higher. Shopping will be used for contracts for procurement of works and equipment worth less than $100,000 Before the start of any procurement ADB and the Government will review the public procurement laws of the central and state governments to ensure consistency with ADB's *Procurement Guidelines.*

128. See Section V and VI of the **Project Administration Manual** for the detailed financial management assessment and procurement plan

[50] Available at: http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf.

G.1. Risk Assessment Summary

Risks	Mitigating Measures
Insufficient funding is allocated to WAF for operation and maintenance	WAF, with support from the Pacific Regional Infrastructure Facility is carrying out a water and sewerage tariff study to support a tariff review. ADB will provide assistance to establish an independent multisector regulator who will be responsible for setting water and sewerage tariffs. (to be confirmed) ADB is providing assistance to MOIT to strengthen its capacity to assess and support proper asset management plans in the water sector.
Households not willing to connect to the water supply system and/or the sewerage system	WAF has agreed to review its connection fee policy to introduce payment schemes and a flat rate. A technical working group has been established to coordinate with the activities under the informal upgrade program lead by the MLGHE and assistance provided by the Department of Social Welfare to vulnerable groups.
Government does not support the implementation of the National Liquid Waste Trade Program	The project includes technical assistance to support WAF with its implementation. The commitment to approve the policy and regulations has been covenanted

MLCHE = Ministry of Local Government, Housing and Environment; WAF = Water Authority of Fiji

Source: ADB

129. For more details, refer to Risk Assessment and Risk Management Plan included as a linked document of the Project Appraisal Report.

G.2. Risk Factors and Mitigation Measures

130. *Project* risks and assumptions are included in the Design and Monitoring Framework – Annex I of the Project Appraisal Report. Financial management risks are detailed Section V of the Project Administration Manual. Details on the social and environmental risks and mitigation measures are included in the social and environmental assessments attached to Section I.

H.1. Logic Framework.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level[51]

Paradigm shift objectives	
Shift to low-emission sustainable development pathways	Not applicable in this submission
Increased climate-resilient sustainable development	Climate change adaptation measures promoted in the project support scaling up of adaptation measures in the urban water sector. This is accomplished through climate proofing of existing and proposed infrastructure investments and through building the necessary capacity to strengthen adaptation knowledge, skills and practices of government and relevant sector agencies. The objective is to effectively integrate and replicate climate change adaptation considerations into national development initiatives.

Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**		**Assumptions**
				Mid-term	Final	
Fund-level impacts (Submitted for GCF Funding)						
A2.0 Increased resilience of health and well-being, and food and water security	2.3 Number of males and females with year round access to reliable and safe water supply despite climate shocks and stresses	WAF annual reports, project monitoring reports	174,512		290,854	Households willing to connect to the water supply system

[51] Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement): http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

H.1.2. Outcomes, Outputs, Activities and Inputs at Project level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project outcomes	**Outcomes that contribute to Fund-level impacts (Submitted for GCF Funding)**					
M5.0 Strengthened institutional and regulatory systems	5.1 Institutional and regulatory systems that improve incentives for low emissions planning and development and their effective implementation.	Government Gazette and WAF annual reports	0	NA	3	Recommendations are accepted by policy makers
A5.0 Strengthened institutional and regulatory systems for climate-responsive planning and development	5.1 Institutional and regulatory systems that improve incentives for climate resilience and their effective implementation.	Government Gazette and WAF annual reports	0	NA	2	Political will to enforce the plans and regulations
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	7.1: Use by vulnerable public-sector services of Fund-supported tools, instruments, strategies and activities to respond to climate change and variability	Project progress reports	0	NA	1	

Project outputs	**Outputs that contribute to outcomes (Submitted for GCF Funding)**				
Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**	**Assumptions**
1. WAF increases access to reliable and safe water supply in the GSA	1a. Quantity of water production and treatment capacity of GSA water supply system increased	1a.WAF and MoIT Reporting	150 Ml/day in 2014	180 Ml/day by 2019	WAF allocates sufficient budget to carry out proper asset management
	1b. % of NRW in GSA reduced	1b.WAF and MoIT Reporting	from 50% in 2014	36% by 2022	
	1c. Number of new connections in GSA peri-urban areas and informal settlements increased	1c.WAF and Department of Social Services Reports and Department of Town and Country Planning Reports	0	1000 of which 10% benefit women headed HH by 2020	HH willing to connect to the water supply system
3.1.a. WAF management and sustainable service delivery capacity for water supply improved	3.1.a. Percentage of uncollected tariff in GSA reduced	3a. WAF Annual Reports	12% in 2014	6% by 2022	WAF management supports Customer Team in their initiatives to reduce uncollected tariff
	3.1.b. Water demand management program implemented	3c. WAF Annual Reports and Department of Environment Reports	0	1 by 2020	Sufficient political willingness to enforce water demand program
	3.1.c. Percentage of new WAF technical recruits that are women	3c. WAF Annual Reports	3%2014	10% by 2022	WAF leadership supportive of increasing women's opportunities in WAF – women interested in working for WAF
	3.1.d Percentage of female WAF staff participating in training opportunities	3d. WAF Annual Reports	10% in 2014	20% in 2022	WAF leadership supportive of increasing women's opportunities in WAF

Climate change related activities to be considered for funding by GCF in November 2015 Board Meeting*			
Activity	**Description**	**Inputs**	**Description**
Design and construction of Rewa river intake, water treatment plant, pumping station and water reservoir	This adaptation activity will address the existing shortfall in bulk water supply and water treatment during peak dry weather periods, therefore improving water supply reliability and continuity across the GSA water supply system. This will allow WAF to meet growing GSA population demand. In addition the siting of the proposed site on the river ensures its sustainability in the long term due to projected rising sea levels and salinity migration concerns in the Rewa river.	$74.6 million of which $31.04 million to be financed from GCF	GCF financing will cover the additional costs associated with moving the facility from 29 km to 49km from the river mouth to avoid projected climate change impacts: (i) 19.6 km of DN750 mm transmission mains; (ii) 50% of site access costs; (iii) costs of bringing electricity to the site and (iv) 50% of land acquisition and resettlement costs.

Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**		**Assumptions**
				Mid-term (if applicable)	Final	
Project outcomes	**Outcomes that contribute to Fund-level impacts (not submitted for funding by GCF in November 2015 Board Meeting)**					
M5.0 Strengthened institutional and regulatory systems	5.1 Institutional and regulatory systems that improve incentives for low emissions planning and development and their effective implementation.	Government Gazette and WAF annual reports	0		3	Recommendations are accepted by policy makers
M7.0 Lower energy intensity of buildings, cities, industries and appliances	7.1 Energy intensity/improved efficiency of buildings, cities, industries and appliances as a result of Fund support.	WAF annual reports (progress on NRW reduction and energy production at Kinoya WWTP)	0 kWh		5,088.4 MWh	Sufficient funding is allocated to WAF for operation and maintenance

Project outputs	Outputs that contribute to outcomes (Not submitted for GCF Funding)				
Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**	**Assumptions**
2. WAF increases sewer coverage, capacity and reliability of WWT processes in the GSA	2a. Treatment capacity of Kinoya WWTP increased	2a. WAF and MoIT reporting	128,000 in 2014	277,000 EP by 2022	
	2b. Number of HH connect to the sewerage network in GSA	2b. WAF and Town and Country Planning Reports	29,000 HH in 2014	39,000 HH by 2022	HH willing to connect to the sewerage system and connection is affordable
	2c. WAF capacity to pre-treat industrial waste increased	2c. WAF and MoIT reporting, Department of Environment Reports	0 ML/yr in 2014	37 Ml/yr by 2022	
	2d. Compliance with Kinoya Environmental Permit discharge standards of effluent flows discharged from Kinoya WWTP during dry weather	2d. WAF and Department of Environment reports	Generally not compliant	80% compliance by 2022	Government supports implementation of the waste trade program
	2e. Number of women that participate in WASH programs delivered in peri-urban and informal settlements under the project	2e. Project Reports	0 in 2015	1,500 women by 2022	
3.2. WAF management and sustainable service delivery capacity for wastewater management improved	3.2.a Percentage of customers meeting BOD discharge standards approved under trade waste program increased	3.2.a. WAF Annual Reports Department of Environment Reports	0	80% of commercial customer by 2022	Sufficient political willingness to enforce waste trade program and technical capacity to monitor discharges
	3.2.b Environmental regulatory framework for municipal wastewater treatment discharge standards is reviewed and enforced	3.2.b Department of Environment and MoIT reports	0	1 by 2020	Sufficient technical capacity to monitor discharges

Climate change related activities **(not submitted for funding by GCF in November 2015 Board Meeting)**			
Activities	**Description**	**Inputs**	**Description**
2.2. Sewer Extension into GSA backlog areas	This mitigation activity will reduce GHG emissions from GSA households that currently operate with septic tanks and will reduce pollutions levels in Laucala Bay negatively impacting the coral reef ecosystem.	$31.7 million from ADB, EIB and Government, of which $18.5 million contribute to mitigation.	Cost of extension of the sewerage reticulation network (not including pump stations or trunk mains for future growth)
2.3. Kinoya Wastewater treatment plant biogas initiative	This mitigation activity will refine current biogas production in Kinoya to reduce energy consumption of the plant.	$3.4 million from ADB, EIB and Government.	Cost of retrofitting Kinoya WWTP with technology to allow it to produce energy from biogas production
3.1 Wastewater treatment optimization/ decentralization study	This mitigation activity will explore options and long term alternatives to reduce energy consumption of the GSA wastewater treatment system	$1.32 million from Government	Cost of technical assistance to WAF to undertake this study

*Only includes activities related to climate change mitigation and adaptation; please refer to the Project Design and Monitoring Framework in the Project Appraisal Report for overall project outcome, outputs and activities.

H.2. Arrangements for Monitoring, Reporting and Evaluation

3. ADB will undertake 2 project reviews a year to assess progress of project implementation activities, compliance with covenants and project agreements, monitor progress in achieving project outputs and agree on any required. ADB will undertake a mid-term review within 3 years of project being effective or at any time that ADB and Government consider it necessary. The midterm review mission will (i) review institutional, administrative, organizational, technical, environmental, social, economic, and financial aspects of the project based on the assumptions and risks included in the design and monitoring framework and updated PPR; (ii) review covenants to assess whether they are still relevant or need to be changed, or waived due to changing circumstances; (iii) assess the need to restructure or reformulate the project and the effects of this on the immediate objectives (purpose) and long-term goals of the project; and (iv) update the project's design and monitoring framework if restructuring or reformulation is necessary or its immediate objectives will change. Within 6 months of physical completion of the Project the MOF will submit a project completion report to ADB.[52]

4. The MOF will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency AFSs, together with the associated auditor's report, will be adequately reviewed.

5. See Project Administration Manual for further details on reporting, monitoring and evaluation.

[52] Project completion report format is available at: http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar

I. Supporting Documents for Funding Proposal

- ☒ 1 - NDA No-objection Letter
- ☒ 2 - Feasibility Study
- ☒ 3 - Integrated Financial Model that provides sensitivity analysis of critical elements (xls format)
- ☐ 4 - Confirmation letter or letter of commitment for co-financing commitment
- ☐ 5 - Term Sheet
- ☒ 6 - Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan
- ☒ 7 - Appraisal Report or Due Diligence Report with recommendations
- ☐ 8 - Evaluation Report of the baseline project
- ☒ 9 - Map indicating the location of the project
- ☒ 10 - Timetable of project implementation
- ☒ 11 - Project confirmation (see the template in Annex I to the Accreditation Master Agreement)
- ☒ 12 - Results of AWARE Assessment of the Project
- ☒ 13 - Map indicating the location of the proposed Namosi Mine and location of Intake
- ☒ 14 - WAF Non-Revenue Water Reduction strategy and on-going technical assistance on NRW and water Demand Management
- ☒ 15 - Water and Sewage Tariff Review Studies and Government Commitments to Tariff Reform
- ☒ 16 - Aquarating Assessment

** Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*