



Report and Recommendation of the President to the Board of Directors

Project Number: 46351
November 2013

Proposed Administration of Grant Kingdom of Tonga: Climate Resilience Sector Project

CURRENCY EQUIVALENTS

(as of 4 November 2013)

Currency unit	–	pa'anga (T\$)
T\$1.00	=	\$0.5582
\$1.00	=	T\$1.7911

ABBREVIATIONS

ADB	–	Asian Development Bank
CCA	–	climate change adaptation
CCTF	–	Climate Change Trust Fund
DRM	–	disaster risk management
DRR	–	disaster risk reduction
EIRR	–	economic internal rate of return
IWRM	–	integrated water resources management
JNAP	–	Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management
km	–	kilometer
MAFFF	–	Ministry of Agriculture, Forestry, Food and Fisheries
MFNP	–	Ministry of Finance and National Planning
MLECCNR	–	Ministry of Land, Environment, Climate Change and Natural Resources
MOI	–	Ministry of Infrastructure
NEMO	–	National Emergency Management Office
NIIP	–	National Infrastructure Investment Plan
NPV	–	net present value
PAM	–	project administration manual
PIU	–	project implementation unit
PMU	–	project management unit
PPCR	–	Pilot Program for Climate Resilience
SCF	–	Strategic Climate Fund
SPCR	–	Strategic Program for Climate Resilience

NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 30 June. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2013 ends on 30 June 2013.
- (ii) In this report, "\$" refers to US dollars, unless otherwise stated.

Vice-President	S. Groff, Operations 2
Director General	X. Yao, Pacific Department (PARD)
Director	A. Ruthenberg, Pacific Subregional Office, PARD
Team leader	M. Paniagua, Unit Head, Project Administration, PARD
Team members	C. Damandl, Senior Counsel, Office of the General Counsel
	T. Faletau, Safeguards Officer, PARD
	M. Lolotele, Senior Economics Officer, PARD
	L. Rufo, Environment Officer, Regional and Sustainable Development Department (RSDD)
	N. Sapkota, Safeguards Specialist, PARD
	J. Williams, Senior Environment Specialist, PARD
Peer reviewer	C. Rodgers, Senior Environment Specialist, RSDD

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PROJECT AT A GLANCE

1. Project Name: Climate Resilience Sector Project		2. Project Number: 46351-002	
3. Country: Tonga		4. Department/Division: Pacific Department/Pacific Subregional Office in Suva, Fiji	
5. Sector Classification:			
	Sectors	Primary	Subsectors
	Multisector	√	Water-based natural resources management
			Agriculture and rural sector development
			Fishery
			Land-based natural resources management
			Road transport
6. Thematic Classification:			
	Themes	Primary	Subthemes
	Social development		Disaster risk management
	Environmental sustainability	√	Environmental policy and legislation
	Capacity development		Institutional development
			Organizational development
6a. Climate Change Impact		6b. Gender Mainstreaming	
Adaptation	High	Gender equity theme (GEN)	
Mitigation		Effective gender mainstreaming (EGM)	√
		Some gender elements (SGE)	
		No gender elements (NGE)	
7. Targeting Classification:		8. Location Impact:	
General Intervention	Targeted Intervention		
	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level
		√ MDG1, MDG7	
		National	High
		Rural	Medium
9. Project Risk Categorization: Low			
10. Safeguards Categorization:			
	Environment	B	
	Involuntary resettlement	C	
	Indigenous peoples	C	
11. ADB Financing:			
No ADB Financing available.			
12. Cofinancing:			
	Financier	Category	Amount (\$ Million)
	Strategic Climate Fund - PPCR	Official-Grant	19.25
	Total		19.25
13. Counterpart Financing:			
	Source	Amount (\$ Million)	
	Government		
	Total	3.9	
14. Aid Effectiveness:			
	Parallel project implementation unit	No	
	Program-based approach	No	

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on administration of a grant to be provided by the Asian Development Bank (ADB) Strategic Climate Fund (SCF)¹ to the Kingdom of Tonga for the Climate Resilience Sector Project.

2. The project is to implement the Strategic Program for Climate Resilience (SPCR) prepared by the Government of Tonga under the Pilot Program for Climate Resilience (PPCR) (Phase 2).² The project will strengthen government and community capacity to finance, develop, monitor, and implement investments to improve ecosystem resilience and climate-proof critical infrastructure.

II. THE PROJECT

A. Rationale

3. Tonga comprises five island groups—Tongatapu, 'Eua, Ha'apai, Vava'u, and Niua— with 176 islands, approximately 36 have permanent settlements. More than 75% of the population of 102,000 lives on Tongatapu. Tonga has the second highest risk globally of natural disaster based on exposure, susceptibility, coping capacity, and adaptive capacity.³ From 1991 to 2010, the global climate risk index ranked Tonga 19th of 179 countries in terms of observed average annual losses as a percentage of gross domestic product due to climate-related disasters and in terms of average climate-related deaths per 100,000 people.⁴ In the last ten years Tonga experienced higher variability of rainfall causing localized flooding, and droughts related to El Niño events. Increased ocean temperatures have caused coral bleaching and destruction of habitats for reef species. Sea level rise, estimated at 6 millimeters per year, is contributing to coastal erosion and subsequent damage to infrastructure and property.⁵ Coral bleaching destroys natural coastal barriers and together with the increase in sea level rise puts coastal community livelihoods and infrastructure at risk. The culmination of these impacts across sectors has increased exposure to climate-induced natural disasters such as tropical cyclones and storm surges. These have caused significant economic losses to Tonga's economy (e.g., tropical cyclone Waka in 2002 inflicted losses of \$60 million⁶ and Rene in 2010 \$22 million⁷). Substantive investment is required to help adapt to and manage these effects.

4. Tonga's national strategic framework and institutional coordination mechanism address climate change adaptation (CCA) and disaster risk management (DRM). The Tonga Strategic Development Framework, 2011–2014 articulates the government's development aims and program, which target infrastructure development up to 2020 with an explicit focus on integrating environmental sustainability and climate change into all program planning and

¹ Under the Pilot Program for Climate Resilience.

² The PPCR pilots and demonstrates the mainstreaming of climate resilience in development planning and management. The SPCR was developed with the support of ADB. 2009. *Technical Assistance for Strengthening Climate Risk and Resilience Capacity of Pacific Development Member Countries, Phase 1*. Manila. The Government of Tonga endorsed the SPCR on 9 March 2012; the PPCR subcommittee approved it on 30 April 2012.

³ Alliance Development Works. 2012. *World Risk Report 2012*. Berlin.

⁴ United Nations University, Institute for Environment and Human Security. 2012. *Global Climate Risk Index, 2012*. Berlin.

⁵ Government of Tonga, Department of Environment. 2005. *Initial Communication to the United Nations Framework Convention on Climate Change*. Nuku'alofa.

⁶ Government of Tonga, Ministry of Works. 2002. *Natural Disaster Management Report*. Nuku'alofa.

⁷ Government of Tonga, Tonga Meteorological Service. 2010. *Initial Damage Assessment Report*. Nuku'alofa.

implementation.⁸ Recognizing the cross-cutting nature of climate change, Tonga was the first Pacific island country to develop a multisector strategy—the Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management (JNAP).⁹ The National Infrastructure Investment Plan (NIIP), 2013–2023 stresses the integration of CCA and DRM in infrastructure planning and investments.¹⁰ In 2012, the government created the Ministry of Lands, Environment, Climate Change and Natural Resources (MLECCNR) and the Ministry of Infrastructure (MOI), which includes the National Emergency Management Office (NEMO), and Tonga Meteorological Services. The two ministries are at the forefront of development and implementation of key CCA and DRM initiatives, and are important members of the JNAP Technical Working Group, a new sector coordinating body drawing expertise from across ministries responsible for CCA and DRM.¹¹ These national initiatives are supported by ongoing development partner-supported climate resilience projects focusing on risk assessment studies, sector policy recommendations, community-based disaster risk and adaptation assessments, biodiversity studies, and conservation.¹²

5. The crosscutting nature of CCA work in small island states like Tonga implies the possibility of the involvement of many development partners.¹³ The current institutional and coordination framework is to avoid duplication and consolidate development partner efforts. While government commitment is strong and Tonga has a national strategy to address climate and related disaster risk challenges, efforts have been limited by severe resource constraints. During PPCR design, the government and other stakeholders identified impediments to a more effective response: (i) limited pool of qualified and trained experts to mainstream CCA; (ii) lack of information, tools, and legislative frameworks to develop and implement adaptation strategies; and (iii) challenges in accessing adequate climate change financing for priority adaptation needs. The NIIP identifies similar gaps including limited data on the effects of climate change, limited experience implementing national CCA and disaster risk reduction (DRR) projects, and limited resources to integrate CCA and DRR into development investments.¹⁴ The project will address these constraints and develop institutional capacity to identify, design, and implement climate adaptation practices. It will finance a range of least-cost, locally appropriate solutions for climate resilience. The project features strongly in engaging civil society and communities in identifying and implementing climate resilient investments. It will focus on generating valuable experience and lessons for knowledge sharing in Tonga and by other Pacific island countries as they introduce and expand CCA and DRR investment programs.

6. **ADB sector assistance program.** ADB's Pacific Approach, 2010–2014¹⁵ and country operations business plan, 2014–2016 for Tonga¹⁶ emphasize the need to integrate CCA and

⁸ Government of Tonga, Ministry of Finance and National Planning. 2011. *Tonga Strategic Development Framework, 2011–2014*. Nuku'alofa.

⁹ Government of Tonga, Ministry of Environment and Climate Change and National Emergency Management Office. 2010. *Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management, 2010–2015*. Nuku'alofa.

¹⁰ Government of Tonga, Ministry of Finance and National Planning. *National Infrastructure Investment Plan, 2013–2023*. Nuku'alofa. Developed with the assistance of the Pacific Infrastructure Advisory Center of the Pacific Regional Infrastructure Facility, it outlines the government's priorities and plans for infrastructure initiatives.

¹¹ The JNAP Technical Working Group reviews all ministry corporate plans and ensures inclusion of a strategy to commit each ministry to implement the JNAP.

¹² Development Coordination (accessible from the list of linked documents in Appendix 2).

¹³ Main development partners include the Global Environment Facility, Australian Department of Foreign Affairs and Trade, Japan International Cooperation Agency, Global Facility for Disaster Reduction and Recovery, and United Nations Development Programme.

¹⁴ The NIIP highlights the need to strengthen the JNAP Secretariat, NEMO, and the Tonga Meteorological Services in relation to climate change projections, climate and natural disaster risk analysis, and disaster response planning.

¹⁵ ADB. 2009. *ADB's Pacific Approach, 2010–2014*. Manila.

DRR to address climate-induced natural disasters. ADB's current programming under the Integrated Urban Development Sector Project,¹⁷ Nuku'alofa Urban Development Sector Project,¹⁸ and technical assistance for implementing strategic economic management,¹⁹ provide ADB with a clear understanding of the challenges Tonga faces in mainstreaming climate change considerations into government operations. This includes the need for increased technical and management capacity of line agencies, coordination and full government involvement, development partner coordination, and careful consideration of recurrent costs for the sustainability of investments. A sector financing modality is proposed to support the relevant institutions in Tonga in selecting, appraising, and implementing subprojects for ecosystem resilience and environment-sensitive investments to climate-proof infrastructure that will continue beyond the pilot phase.²⁰ The JNAP policies for developing Tonga's CCA and DRM initiatives are appropriate and supported by infrastructure investment priorities articulated in the NIIP. JNAP policies are not yet reflected in existing legislation, which needs to be reviewed and amended, particularly in relation to building codes and natural resource management. The JNAP Secretariat and its Technical Working Group provide the institutional framework for coordination and implementation; yet effective coordination and monitoring is hindered by the lack of reliable data and weak national capacity to collect and analyze information (to be addressed by project outputs 1 and 2). Through the project, the government is anticipated to legally establish and operationalize a sustainable financing mechanism to provide communities and nongovernment organizations with access to small grants to implement CCA and climate DRR projects. The financing mechanism is a first for Tonga and the region, and the project will assist in putting in place appropriate, accountable, and transparent fiduciary arrangements.

B. Impact and Outcome

7. The project impact will be increased resilience of vulnerable communities to climate variability and change, and disaster risk. The outcome will be strengthened capacity of government and communities to develop, finance, implement, and monitor investments to improve ecosystem resilience and climate-proof critical infrastructure.

C. Outputs

1. Output 1: Climate Resilience Mainstreamed into Development Planning of Vulnerable Sectors

8. **Upgrade climate resilience skills.** The project will (i) provide 20 Tongan government staff working in areas related to climate resilience with access to short-term professional training or work placements on CCA and DRM; (ii) provide up to 20 scholarships for Tongan citizens to undertake academic degrees on CCA and DRM subjects at the University of the South Pacific; and (iii) deliver about 35 short courses to Tongan government staff and private sector and nongovernment organizations on CCA of infrastructure, climate change finance and corporate

¹⁶ ADB. 2013. *Country Operations Business Plan: Tonga, 2014–2016*. Manila.

¹⁷ ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Asian Development Fund Grant and Technical Assistance Grant to the Kingdom of Tonga for the Integrated Urban Development Sector Project*. Manila.

¹⁸ ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Grant and Administration of Grant to the Kingdom of Tonga for the Nuku'alofa Urban Development Sector Project*. Manila.

¹⁹ ADB. 2011. *Technical Assistance to the Kingdom of Tonga for Implementing Strategic Economic Management*. Manila.

²⁰ Initially envisaged as a project grant, it was changed to a sector grant to support implementation of output 4 and respond to priority given by government to mainstreaming CCA and DRR in several sectors. The project meets requirements for a sector grant. ADB. 2003, Sector Lending. *Operations Manual*. OM D3/BP. Manila.

budgeting, community-based CCA and DRM assessments, environmental assessments, and climate change and coastal monitoring. A total of 300 people are expected to benefit from the training, work placements, scholarships and short courses. A project management unit (PMU) will develop scholarship selection criteria to ADB's satisfaction, and a project steering committee will select the participants with preference given to professionals with responsibilities requiring skills provided by the courses.

9. **Integrate climate resilience in legal framework.** The project will review prevailing laws relevant to CCA and DRM policy implementation and provide recommendations on integrating these policies into the prevailing laws, in particular building codes and laws relating to development planning, water, and natural resources.

10. **Strengthen coordination and monitoring of community vulnerability assessments and plans.** The project will (i) standardize the methodology for carrying out community-based plans for CCA and DRR, (ii) establish a database to disseminate, online through the MLECCNR webpage, information on community-based plans for CCA and DRR and on integrated water resources management (IWRM) plans, and (iii) strengthen MLECCNR capacity to coordinate, monitor, and evaluate CCA and DRR activities implemented by communities.

11. **Improve water resource inventories, integrated water resources management, and coastal zone monitoring.** The project will (i) develop IWRM plans in six communities to be selected based on vulnerability, (ii) develop a manual on rainwater harvesting and drought management for community-based rainwater harvesting projects, (iii) develop a geographic information system database as a knowledge depository for all activities carried out in Tonga on IWRM to be available online through the MLECCNR webpage, and (iv) conduct a study on water supply options for the island of Niuafu'ou (population 524).

2. **Output 2: Monitoring and Management of Climate Data and Information Improved**

12. **Establish a national hydro-meteorological and coastal monitoring and data dissemination system.** The project will improve early warning for cyclones, storm surges, drought, and tsunamis by (i) designing and installing hydro-meteorological and coastal monitoring and data dissemination systems; and (ii) training staff in NEMO and the Natural Resources and Meteorology Divisions of MOI to operate these systems and interpret data to enable them to provide information and develop national policies on natural resources.

3. **Output 3: Sustainable Financing Mechanism to Support Community-Based Climate Responsive Investments**

13. **Establish the Tonga Climate Change Trust Fund (CCTF).** The project will support climate change adaptation responsive investment approaches identified and implemented by vulnerable communities, particularly women, by providing initial funding for the CCTF.²¹ The CCTF was established in accordance with the Public Finance Management Act, 2002 and is managed by the Ministry of Finance and National Planning (MFNP), whose financial management and procurement capacities ADB is supporting. It will initially be endowed with \$5 million, of which \$4 million will be placed in an endowment account and \$1 million will be placed

²¹ The CCTF was established in 17 May 2013. Cabinet approved the purpose and procedures of the fund, which are included in the Project Administration Manual (accessible from the list of linked documents in Appendix 2).

in an operational account²² to finance community CCA projects of up to a maximum \$50,000 each and government CCA projects of up to a maximum of \$250,000 each.²³ The CCTF board will be chaired by the MLECCNR minister, and representatives of selected ministries and a nominated development partner representative resident in Tonga will be members. MLECCNR, with the support of consultants, will develop the CCTF operational manual satisfactory to ADB, which will include (i) eligibility and selection criteria for CCTF-financed projects; (ii) procedures and requirements for submission of applications; (iii) implementation arrangements with communities, nongovernment organizations, and government agencies; (iv) governance, technical, and financial supervision mechanisms; and (v) monitoring and reporting on the use of funds. Once approved, the operational manual will be used for a trial period of 2 years, during which time MLECCNR will clear any necessary revisions with ADB.

4. Output 4: Ecosystem Resilience and Climate-Resilient Infrastructure Investments Developed

14. Increase ability of coral reefs to recover after climate-related events. The project will establish six community-managed special marine management areas in Vava'u (identified by the Ministry of Agriculture, Forestry, Food and Fisheries [MAFFF]) to introduce sustainable fishing and management of coral reefs that will benefit 1,046 residents of outer islands.

15. Improve management of mangroves for climate adaptation. The project will (i) identify potential mangrove planting sites to provide shoreline protection, and (ii) develop best practice guidelines and support field demonstrations on the use of mangroves as natural infrastructure in areas identified for investment. The field demonstrations will raise community awareness, and include training on mangrove planning and provision of mangrove seedlings. Approximately 126 hectares of mangroves will be rehabilitated.

16. Upgrade evacuation and postdisaster access roads. The project will upgrade three roads to improve evacuation and postdisaster access in Navutoka (2.25 kilometers [km]) of upgraded roads), Talafo'ou (2.1 km), and Tufu (0.85 km).

17. Enhance coastal protection. The project will build and monitor coastline protection for five sections of coastline in eastern Tongatapu using different hard and soft engineering and bioengineering techniques²⁴ to (i) control coastline erosion, (ii) reduce the impact of flood surges in coastal communities, and (iii) identify best practices for coastline protection for replication.²⁵

18. Upgrade schools. The project will upgrade five schools by improving roofing, and building structures, road access, and drainage to reduce the number of school days lost during cyclone season; and adapt the schools to withstand other effects of climate change such as drought.²⁶

²² Initially, the project will finance the operational account, plus any interest and capital gains earned on funds placed in the endowment account and any money raised through other sources for the specific purpose of providing climate funding by the government.

²³ The procurement plan (in the Project Administration Manual) provides for the total value of community projects to be \$700,000. The CCTF operational manual will ensure that government-led medium size projects do not "crowd out" community projects.

²⁴ Such as coral rock revetment, rock gavion construction, groyne placement, and mangrove rehabilitation.

²⁵ Total length of the sections is 2.7 km of a total length of about 6.2 km of coastline.

²⁶ Kolofo'ou, Kolomotua, Tofoa, and Neiafu schools have been selected because of frequent closure due to effects of cyclones; Pangai school was selected because of limited access to potable water and its role as emergency shelter for Hapa'ai.

19. **Candidate subprojects implemented.** Due diligence is needed for identified subprojects, which will then be submitted to ADB for approval. The subprojects include (i) relocating Ha'apai Hospital from a vulnerable area to higher ground, (ii) climate-proofing additional schools in outer islands, (iii) constructing an evacuation road in Popua, Tongatapu, and (iv) climate proofing marine landings in outer islands to protect infrastructure vital to the livelihoods and to ensure access to the islands after a climate change-related disaster.

5. Output 5: Project Successfully Managed and Implemented

20. The project consulting services will provide (i) implementation support to the project management unit (PMU) and three project implementation units (PIUs) to effectively manage and coordinate the project; (ii) monitoring, reporting, and evaluation support to the PMU and PIUs; (iii) operational support to the project steering committee, the JNAP Technical Working Group and CCTF board; and (iv) knowledge management support to the PMU and PIUs.

D. Investment and Financing Plans

21. The project is estimated to cost \$23.13 million (Table 1), including taxes and duties calculated at \$1.43 million.

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Climate resilience mainstreamed in planning	2.69
2. Monitoring of climate data and information improved	2.29
3. Climate change trust fund established	5.37
4. Ecosystem resilience and climate-resilient investments developed	9.34
5. Project management	2.02
Subtotal (A)	21.71
B. Contingencies^c	1.42
Total (A+B)	23.13

^a In mid-2013 prices.

^b Includes taxes and duties of \$1.43 million to be financed from government resources through exemption.

^c Physical contingencies computed at 15% for civil works, price contingencies computed at 5.7% on foreign exchange costs and 11% on local currency costs. Contingencies were calculated excluding the Climate Change Trust Fund.

Source: Asian Development Bank.

22. The ADB SCF will provide a grant equivalent to \$19.25 million, to be administered by ADB. The government will provide \$2.45 million for recurrent costs comprising government staff time, and associated subsistence and equipment costs; and \$1.43 million equivalent for taxes and duties. The financing plan is in Table 2.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank Strategic Climate Fund (grant) ^a	19.25	83.0
Government	3.88	17.0
Total	23.13	100.0

^a Under the Pilot Program for Climate Resilience financed by the Asian Development Bank Strategic Climate Fund, which is administered by the Asian Development Bank.

Source: Asian Development Bank.

E. Implementation Arrangements

23. MFNP will be the executing agency and MLECCNR the coordinating implementing agency (Table 3). A PMU will be established under MLECCNR, with the head of the Climate Change Division as project director, to assist in coordinating and overseeing project implementation. To mainstream CCA and DRM into line ministries and ensure implementation capacity, MLECCNR, MOI, MAFFF and Ministry of Education and Training will be implementing agencies for those activities relevant to their mandates. PIUs will be established in MOI, MAFF, and environment and natural resources divisions of MLECCNR. A project steering committee comprising the executive of these ministries, a representative from Ministry of Internal Affairs²⁷ and a representative of the Civil Society Forum of Tonga will provide policy guidance. A procurement project committee will oversee procurement activities.²⁸

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	January 2014–December 2018		
Estimated Completion Date	December 2018		
Management			
(i) Oversight body	Project Steering Committee for the Climate Resilience Sector Project MLECCNR minister (chair); MFNP minister (cochair); MOI, MAFFF, MOH, MET, MIA, Tonga Civil Society Forum (members)		
(ii) Executing agency	MFNP		
(iii) Implementing agencies	MLECCNR (coordinating implementing agency), MOI, MAFFF, and MET		
(iv) Implementation units	MLECCNR, MOI, MAFFF		
Procurement	International competitive bidding	2 contracts	\$3.47 million
	National competitive bidding	4 contracts	\$1.88 million
	Shopping	16 contracts	\$1.12 million
	Limited international bidding	2 contracts	\$1.91 million
	Direct contracting USP	Various	\$0.20 million
	Community participation in procurement and CQS	Various	\$0.50 million
Consulting services	QCBS (90:10)	936 person-months	\$4.79 million
	Individual selection	5 person-months	\$0.09 million
Advance contracting	Advance contracting will be undertaken to recruit the PMU and PIU consultants and to procure services for design, procurement, and installation of meteorology and coastal monitoring systems.		
Disbursement	The grant proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank; CQS = cost quality selection; MAFFF = Ministry of Agriculture, Forestry, Food and Fisheries; MET = Ministry of Education and Training; MFNP = Ministry of Finance and National Planning; MIA = Ministry of Internal Affairs; MOH = Ministry of Health; MOI = Ministry of Infrastructure; MLECCNR = Ministry of Lands, Environment, Climate Change and Natural Resources; PMU = project management unit; PIU = project implementation unit; QCBS = quality- and cost-based selection; USP = University of the South Pacific.
Source: Asian Development Bank.

III. DUE DILIGENCE

A. Technical

24. Technical due diligence during project preparation focused on (i) the country's most critical concerns for implementing its CCA and DRM strategy to make tangible progress with sector policy and institutional strengthening; (ii) locally appropriate investment activities with

²⁷ Ministry of Internal Affairs supports and oversees activities by community groups, NGOs and women groups.

²⁸ The implementation arrangements are described in detail in the Project Administration Manual.

community involvement in design and implementation; (iii) implementation of activities and investment subprojects supporting active learning through monitoring and evaluation; and (iv) coordination of development partner-funded activities. Initial subproject selection was based on the JNAP and the NIIP with extensive stakeholder participation.

B. Economic Analysis

25. The project is based on a set of principles including degree of vulnerability, cost effectiveness, and locally appropriate solutions. While many project benefits are not easily quantified, the economic analysis endeavors to identify them for the purpose of benefit and cost monitoring and evaluation during implementation. An economic analysis of three proposed subprojects was carried out in accordance with ADB guidelines.²⁹ All economic costs and benefits are expressed at constant 2013 prices. The net present value (NPV) of the three subprojects as a whole is estimated at \$(0.106) million with an overall economic internal rate of return (EIRR) of 11.7% and a benefit–cost ratio of 0.98.³⁰ The analysis includes only benefits that are quantifiable given the available information³¹ and as a result it likely underestimates the true economic benefits of each subproject. For purpose of the economic analysis, no estimate of economic benefits was imputed to the early warning system investments under output two as it was not possible to provide reliable estimates of avoided casualties (injuries and fatalities) which may result from this system.

C. Governance

26. The 2010 Public Expenditure and Accountability Report concluded that the Tongan public finance management system is well developed, and that the legal and regulatory framework for public finance management provides a solid basis for budgeting, spending, and accountability.³² The Government of Australia's assessment of national systems identified only moderate fiduciary and corruption risk associated with using partner government systems and recommended their use in aid programming.³³ ADB's policy and institutional assessment indicates that Tonga is performing better than the regional average under the criteria for "economic management" and "public sector management and institutions," and better than most other Asian Development Fund Pacific³⁴ countries for "quality of budgetary and financial management." Weaknesses in areas related to budget credibility, external scrutiny and audit, and quality and timeliness of annual financial statements are addressed through the government's public financial management reform road map, supported by ADB technical assistance (footnote 19). Development partners including ADB and the World Bank have been providing general and sector budget support since 2010. These factors all bode well for the government's capacity to establish and prudently manage the CCTF. Overall governance risks associated with project management, including procurement and disbursement, will be mitigated by (i) providing consultants to advise and assist in procuring goods and services, (ii) requiring civil works contracts to include a condition for contractors to adhere to ADB's Anticorruption

²⁹ ADB. 1993. *Guidelines for the Economic Analysis of Projects*. Manila.

³⁰ Coastal protection and evacuation roads: NPV \$1,315,994, EIRR 18.05%, benefit–cost ratio 1.41; mangrove rehabilitation: NPV \$386,254, EIRR 26.53%, benefit–cost ratio 2.99. The early warning system costs were included but no benefits computed.

³¹ A least-cost analysis was used for the climate-proofing of schools subproject; the relocation option was considered to be more expensive and not feasible.

³² Government of Tonga. 2010. *Public Financial Management Performance Report*. Nuku'alofa.

³³ Government of Australia. 2011. *Tonga–Assessment of National Systems*. Canberra.

³⁴ Asian Development Fund Pacific countries comprise Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tuvalu, Tonga, and Vanuatu.

Policy (1998, as amended to date), (iii) the PMU periodically inspecting contractor fund withdrawals and settlements, and (iv) reporting on the project on MLECCNR's website.

D. Poverty and Social

27. The project will contribute to social development and reduction of hardship by providing better conditions for school children; protecting lives and assets from erosion, floods, and storm surges and enhancing livelihood options in outer islands (particularly in fishing communities benefiting from the establishment of SMAs, coastal communities participating in mangrove planting and community groups implementing CCA related to food security projects). Communities benefiting from the CCTF and those in outer islands benefiting from output 4 investments will have increased employment opportunities. Approximately 2,900 households will be directly impacted by the project and nationwide benefits will accrue from increased capacity to monitor climate change, provision of early warning monitoring systems, access to finance by communities, and development of national databases and knowledge management systems. All activities will promote the inclusion of poor and vulnerable groups through the implementation of a participation and communication strategy and consultation plan. The project is categorized as effective gender mainstreaming. A gender action plan was prepared to support gender-equal participation in decision making for climate change-related resource allocation and community-based project designs. A focal point on gender and development will be established in the PMU.

E. Safeguards

28. **Environment.** The project is classified as category B for environment. An environmental assessment and review framework and initial environmental examinations for core subprojects were prepared and disclosed.³⁵ The initial environmental examinations found that the planned subprojects will have only small and localized adverse impacts on the environment, which can be readily managed by proposed mitigation measures in the environmental assessment and review framework and initial environmental examinations. The PMU includes a full-time environment specialist to oversee framework implementation and be supported by the international specialist.³⁶

29. **Involuntary resettlement.** The project is classified as category C for involuntary resettlement. Screening during project preparatory technical assistance confirmed that core subprojects under output 4 do not require involuntary land acquisition and resettlement. The government is expected to allocate crown or state land for candidate subprojects prior to project implementation. If any candidate subproject has unanticipated land acquisition and resettlement impacts during implementation, a resettlement plan will be prepared following the resettlement framework which was prepared for the project to address unanticipated impacts and disclosed to the public (footnote 35).

30. **Indigenous peoples.** The project is classified as category C for indigenous peoples. It is not expected to impact any distinct or vulnerable group of indigenous peoples as defined under the Safeguard Policy Statement (2009). The project beneficiaries are part of mainstream Polynesian society and are not discriminated upon due to their language, skin color, or traditional practices.

³⁵ The Environmental Assessment and Review Framework and the Resettlement Framework were disclosed on September 2013 in MFNP and ADB web page and are accessible from the list of linked documents in Appendix 2.

³⁶ The international specialist in the design and supervision consultancy team is expected to be engaged for 41 person-months and will provide training to national specialists, PMU and PIU staff, and contractors.

F. Risks and Mitigating Measures

31. The project involves some risks, which are manageable and will be largely mitigated during implementation (Table 4).³⁷ The benefits and impacts are expected to outweigh the costs.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Implementation delays	The PMU housed in MLECCNR will oversee overall project implementation. Any potential delays are to be reported in a timely manner with recommended remedial actions. The PMU reports directly to the project director in MLECCNR and each PIU will appoint a senior staff member to be responsible for project management.
The CCTF is not managed consistent with fiduciary responsibilities	CCTF is managed by MFNP, whose financial management and procurement capacities ADB is supporting. CCTF accounts will be audited and posted, with other CCTF information on the project web page to increase transparency and stakeholder participation. The CCTF board includes a resident development partner representative.
MOI and MLECCNR do not maintain and operate the technical equipment	Budget allocations for operation and maintenance of equipment are included in the covenants. Regional organizations will continue to provide assistance for operation and maintenance of core meteorology stations.

ADB = Asian Development Bank, CCTF = Climate Change Trust Fund, MFNP = Ministry of Finance and National Planning, MLECCNR = Ministry of Lands, Environment, Climate Change and Natural Resources, MOI = Ministry of Infrastructure.

Source: Asian Development Bank.

IV. ASSURANCES AND CONDITIONS

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

33. The government has agreed with ADB on certain covenants for the project, which are set forth in the grant agreement. Conditions for withdrawal of funds for the CCTF will be that (i) the government shall have (i) established the endowment and operational accounts for the CCTF and (ii) finalized the operational manual for the CCTF in agreement with ADB. A condition for withdrawal for civil work contracts will be the recruitment of all consultants required for the PMU and MOI PIU. A condition for withdrawal of funds for training will be the development of scholarship selection criteria in agreement with ADB.

V. RECOMMENDATION

34. I am satisfied that the proposed grant would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the administration by ADB of the grant not exceeding the equivalent of \$19,250,000 to the Kingdom of Tonga for the Climate Resilience Sector Project, to be provided by the ADB Strategic Climate Fund.

Takehiko Nakao
President

15 November 2013

³⁷ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>Impact Increased resilience of vulnerable communities to climate variability and change, and disaster risk in Tonga</p>	<p>By 2028–2033, baseline: 2012 Integration of climate change into national and community planning demonstrated by:</p> <p>increased coordination and knowledge management capacity of JNAP Secretariat to improve implementation of the JNAP CCA and DRM policies, and increased coordination of NIIP implementation with institutional responsibilities for vulnerable sectors assigned</p> <p>30% of Tonga population (men and women) supported by the project to cope with effects of climate change (baseline 0)</p>	<p>National communications with UNFCCC MDG, post disaster assessment reports and international disaster database United National Office for Disaster Risk Reduction Hyogo framework for action JNAP and NEMO stocktaking PPCR monitoring and reporting scorecards</p>	<p>Assumptions Climate change is mainstreamed in planning and budgeting, and receives political support Impacts of climate change and natural events can be measured</p> <p>Risk Economic and environmental shocks reverse Tonga's capacity to deal with CCA.</p>
<p>Outcome Strengthened capacity of government and communities to finance, develop, implement, and monitor investments to improve ecosystem resilience and climate proof critical infrastructure</p>	<p>By the end of the project (2018); baseline: 2012 Quality and extent to which climate responsive instruments and/or investment approaches are developed and tested (baseline 0) as indicated by:</p> <p>20 investment projects apply climate-proofing and resilience principles Evidence of strengthened government capacity and coordination mechanism to mainstream CCA (baseline 0) as indicated by 5 sector policies or plans integrate CCA and DRM 5% increase of dedicated allocations for climate-proofing through sector planning and budgeting (% of overall budget)</p>	<p>National budget and sector plans Monitoring and reporting by PMU and PIUs PPCR monitoring and reporting scorecards Climate public expenditure and institutional reviews</p>	<p>Assumption All communities and sectors are committed to cope with and adapt to climate and disaster risks</p> <p>Risks CCA and DRM efforts are not coordinated and the support for DRM is not shared at all levels Financial resources for CCA and DRM unavailable</p>
<p>Outputs 1. Climate resilience mainstreamed into development planning of vulnerable sectors</p>	<p>By 2018 (baseline year 2012): At least 300 professionals, of which at least 50% are women from government, private sector, and nongovernment organizations trained on CCA and DRM (baseline 0) At least 15 staff in sector ministries qualified to integrate climate resilience in their sector of expertise and at least 15 people working in Tonga have an academic degree in an area related to CCA and DRM, of which at least 30% are women (baseline 0) At least two policies or sector-specific legislation adopted integrating climate resilience and disaster risk (baseline 0) Six communities have IWRM and/or integrated coastal zone management plans incorporating CCA and DRM (baseline 0)</p>	<p>PMU and PIUs monitoring reports PMU and PIUs monitoring reports Government gazette PMU and PIUs monitoring reports</p>	<p>Assumption High level officials in IAs support integrating CCA and DRM into their corporate planning and policies</p> <p>Risk Professionals are not interested in taking study courses in addition to current workload</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	<p>Three GIS databases established and available online on IWRM, community-based CCA, and DRM plans; and mangrove inventory (baseline 0)</p> <p>A publication on lessons and best practices on mangrove rehabilitation and a manual on draught management and rainfall water harvesting published and available online (baseline 0)</p>	<p>MLECCNR web page</p> <p>PMU and PIUs monitoring reports and web page</p>	
2. Monitoring and management of climate data and information improved	<p>Meteorological monitoring system covering seven island groups and meeting WMO requirements (as stipulated in WMO Guide to Meteorological Instruments and Methods of Observation) installed and operating by 2017 (baseline 0)</p> <p>Real time sea level monitoring system covering at least seven island groups installed and operating by 2017 (baseline 0)</p> <p>MET operates and maintains meteorological and coastal monitoring systems (baseline 0)</p> <p>Meteorological and coastal observations available and used to improve forecasting, provide early warning, and monitor climate change (baseline 0)</p>	<p>PMU and PIUs monitoring reports</p> <p>PMU and PIUs monitoring reports</p> <p>Reports of the PMU and PIUs</p> <p>Pacific Islands Global Climate Observing System</p>	<p>Assumption MOI and MLECCNR allocate budget for operation and maintenance</p> <p>Risk MOI and MLECCNR do not maintain and operate the technical equipment</p>
3. Sustainable financing mechanism to support community-based climate responsive investments	<p>CCTF legally established and operating</p> <p>Increased capacity of government to identify, select, administer, and monitor CCA and DRR community-based projects</p> <p>At least 15 communities successfully complete CCA and DRR investments financed by the CCTF, of which at least 30% are awarded to women's groups (baseline 0)</p> <p>50% of projects financed by the CCTF directly benefit women or other vulnerable groups (baseline 0)</p>	<p>MLECCNR reports</p> <p>PMU and PIUs monitoring reports</p> <p>PMU and PIUs monitoring reports and CCTF annual audit reports</p> <p>PMU and PIUs monitoring reports</p>	<p>Assumption No political intervention in the decisions of the CCTF Board</p> <p>Risk The CCTF is not managed consistently with fiduciary responsibilities</p>
4. Ecosystem resilience and climate-resilient infrastructure investments developed	<p>126 hectares of mangrove ecosystems rehabilitated to provide protection to coastal communities (baseline 0)</p> <p>1,000 people in six communities benefit from increased ability of coral reefs to recover after climate-related events (baseline 0)</p> <p>90% reduction in number of school days lost due to climate change-related events in five schools (baseline 0)</p> <p>2,000 people have access to evacuation roads (baseline 0)</p> <p>370 households in Hahake are better protected from flooding during storm surges and 8 kilometers of road developed to protect from coastal erosion (baseline 0)</p>	<p>PMU and PIU monitoring reports</p> <p>MAFFF reports</p> <p>PMU and PIUs monitoring reports</p> <p>PMU and PIUs monitoring reports</p> <p>PMU and PIUs monitoring reports</p>	<p>Assumptions IAs have sufficient capacity to implement the project</p> <p>No extreme climatic and/or natural events occurring during execution of the works</p> <p>Risk Difficulties in transport, skilled labor, and materials availability limit contractors interested in bidding for works</p>
5. Project successfully managed and implemented	The project is fully implemented by 31 December 2018 within budget	PMU and PIU monitoring reports	Assumption The PMU and PIUs are sufficiently staffed and budgeted

Activities with Milestones	Inputs
<p>1. Climate resilience mainstreamed into development planning of vulnerable sectors</p> <p>1.1 Climate change trainings and scholarship program for government departments and nongovernment entities implemented by December 2018.</p> <p>1.2 An appropriate enabling legal framework for CCA and DRM through consultation developed and prepared by December 2016.</p> <p>1.3 A clearinghouse for community plans and capacity of JNAP TWG to identify, develop, and process vulnerable community initiatives for funding developed by December 2018.</p> <p>1.4 A water resources inventory and knowledge management system for IWRM develop by December 2017.</p> <p>1.5 IWRM community plans developed by June 2016.</p> <p>2. Monitoring and management of climate data and information improved</p> <p>2.1. National system of hydro-meteorological and coastal monitoring systems designed and installed by December 2015.</p> <p>2.2. Training of MOI and MLECCNR staff to operate and maintain systems conducted by June 2016.</p> <p>3. Sustainable financing mechanism to support community-based climate responsive investments</p> <p>3.1 CCTF detailed operational manual approved and made into regulations by June 2017.</p> <p>3.2 Community climate change adaptation projects for a value of \$1 million funded and implemented under CCTF by December 2018.</p> <p>4. Ecosystem resilience and climate-resilient infrastructure investments developed</p> <p>4.1 Six new special marine management areas (fisheries) established by MAFFF through community engagement processes and linked to the national system by June 2017.</p> <p>4.2 A mangrove inventory for Tonga established and lessons learned and trial mangrove planting implemented by June 2017.</p> <p>4.3 Evacuation and post disaster access roads implemented by June 2016.</p> <p>4.4 Coastal protection measures in Hahake implemented and coastal monitoring system in place by December 2015.</p> <p>4.5 Climate-proofing of five schools completed by June 2015.</p> <p>4.6 Climate-proofing candidate subprojects identified and completed by December 2018.</p> <p>5. Project successfully managed and implemented</p> <p>5.1 Project management unit and project implementation unit consultants fielded by June 2014.</p> <p>5.2 Technical capacity of JNAP Technical Working Group to support CCTF Board enhanced by December 2018.</p>	<p>Asian Development Bank Strategic Climate Fund: \$19.25 million</p> <p>Government: \$3.88 million</p>

ADB = Asian Development Bank; CCA = climate change adaptation; CCTF = Climate Change Trust Fund; DRM = disaster risk management; DRR = disaster risk reduction; GIS = geographic information system; IA = implementing agency; IWRM = integrated water resources management; JNAP = Joint National Action Plan; MAFFF = Ministry of Agriculture, Forests, Food and Fisheries; MDG = Millennium Development Goal; MET = Ministry of Education and Training; MLECCNR = Ministry of Lands, Environment, Climate Change and Natural Resources; MOI = Ministry of Infrastructure; NEMO = National Emergency Management Office; NIIP = National Infrastructure Investment Plan; PIU = project implementation unit; PMU = project management unit; PPCR = Pilot Program for Climate Resilience; TWG = technical working group; UNFCC = United Nations Framework Convention on Climate Change; WMO = World Meteorological Organization.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://adb.org/Documents/RRPs/?id=46351-002-2>

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

Supplementary Documents

15. Cabinet Submission on Climate Change Trust Fund
16. Tonga Joint National Action Plan (2010–2015)
17. Tonga National Infrastructure Investment Plan (2013–2023)
18. Tonga Public Financial Management Report (May 2010)
19. Participation and Communication Strategy and Consultation Plan