



Report and Recommendation of the President to the Board of Directors

Project Number: 46495-002
September 2015

Proposed Administration of Grant Papua New Guinea: Building Resilience to Climate Change in Papua New Guinea

Distribution of this document is restricted until it has been approved by the Board of Directors. Following such approval, ADB will disclose the document to the public in accordance with ADB's Public Communications Policy 2011.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 02 September 2015)

Currency unit – kina (K)

K1.00 = \$0.36

\$1.00 = K2.80

ABBREVIATIONS

ADB	–	Asian Development Bank
CCDA	–	Climate Change and Development Authority
EIRR	–	economic internal rate of return
PISC	–	project implementation support consultant
PMU	–	project management unit
PNG	–	Papua New Guinea
SGF	–	small grants facility
SPCR	–	Strategic Program for Climate Resilience

NOTE

In this report, "\$" refers to US dollars.

Vice-President	S. Groff, Operations 2
Director General	X. Yao, Pacific Department (PARD)
Director	O. Norojono, Transport Energy and Natural Resources Division, PARD
Team leader	M. Drilon, Senior Natural Resources Economist, PARD
Team members	A. Batten, Country Economist, Papua New Guinea Resident Mission (PNRM), PARD S. Bhattacharya, Senior Infrastructure Specialist (Information Communication Technology), PARD H. Everett, Senior Country Specialist, Pacific Liaison Coordination Office, PARD G. Ismakova, Principal Procurement Specialist, Operations Services and Financial Management Department E. Kup, Project Analyst, PNRM S. Lee, Principal Social Development Specialist, PARD C. Losenno, Senior Climate Change Specialist, Sustainable Development and Climate Change Department E. Rustamova, Operations Officer, Pacific Liaison and Coordination Office, PARD A. Salvador, Operations Officer, PARD N. Sapkota, Safeguards Specialist, PARD A. Syed, Counsel, Office of the General Counsel H. Uusimaa, Climate Change Specialist, PARD J. Williams, Senior Environment Specialist, PARD
Peer reviewer	M. Ahmed, Advisor Concurrent Technical Advisor (Rural Development and Food Security), Sustainable Development and Climate Change Department

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENTS

	Page
PROJECT AT A GLANCE	
I. THE PROPOSAL	1
II. THE PROJECT	1
A. Rationale	1
B. Impact and Outcome	3
C. Outputs	3
D. Investment and Financing Plans	5
E. Implementation Arrangements	6
III. DUE DILIGENCE	7
A. Technical	7
B. Economic and Financial	7
C. Governance	8
D. Poverty and Social	8
E. Safeguards	9
F. Risks and Mitigating Measures	10
IV. ASSURANCES AND CONDITIONS	10
V. RECOMMENDATION	10
APPENDIXES	
1. Design and Monitoring Framework	11
2. List of Linked Documents	14

PROJECT AT A GLANCE

1. Basic Data		Project Number: 46495-002	
Project Name	Building Resilience to Climate Change in Papua New Guinea (formerly Strategic Program for Climate Resilience Implementation Project)	Department /Division	PARD/PATE
Country Borrower	Papua New Guinea Government of Papua New Guinea	Executing Agency	Office of Climate Change and Development
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Public sector management	Public administration		0.00
Agriculture, natural resources and rural development	Agricultural production		0.00
	Fishery		0.00
	Rural sanitation		0.00
	Rural water supply services		0.00
	Water-based natural resources management		0.00
Information and communication technology	ICT infrastructure		0.00
Transport	Transport policies and institutional development		0.00
		Total	0.00
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Adaptation (\$ million)	24.25
Environmentally sustainable growth (ESG)		Disaster risk management	Climate Change impact on the Project
	Eco-efficiency		
	Global and regional transboundary environmental concerns		
	Natural resources conservation		
Regional integration (RCI)	Pillar 4: Other regional public goods		
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Civil society participation	Effective gender mainstreaming (EGM)	✓
	Institutional development		
	Organizational development		
	Public financial governance		
Knowledge solutions (KNS)	Knowledge sharing activities		
Partnerships (PAR)	Civil society organizations		
	Implementation		
	International finance institutions (IFI)		
	Private Sector		
Private sector development (PSD)	Conducive policy and institutional environment		
5. Poverty Targeting		Location Impact	
Project directly targets poverty	Yes	Nation-wide	High
Geographic targeting (TI-G)	Yes		
6. Risk Categorization:	Low		
7. Safeguard Categorization	Environment: B Involuntary Resettlement: C Indigenous Peoples: C		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.00	
Cofinancing		24.25	
Strategic Climate Fund		24.25	
Counterpart		3.04	
Government		2.04	
Beneficiaries		1.00	
Total		27.29	

PROJECT AT A GLANCE

9. Effective Development Cooperation	
Use of country procurement systems	Yes
Use of country public financial management systems	Yes

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on the proposed administration of a grant to be provided by the Strategic Climate Fund¹ to Papua New Guinea (PNG) for Building Resilience to Climate Change in Papua New Guinea.

2. The project² will support the implementation of PNG's Strategic Program for Climate Resilience (SPCR) to (i) pilot and demonstrate approaches for integration of climate risk and resilience into development policies and planning; (ii) support the strengthening of capacities at the national levels to integrate climate resilience into development planning; (iii) scale up and leverage climate resilient investment, especially by building on other ongoing initiatives; (iv) enable learning by doing and lesson sharing at the country, regional and global levels; and (v) strengthen cooperation and capacity at the regional level to integrate climate resilience in national and appropriate regional development planning and processes. This will be achieved by mainstreaming climate resilience into development planning in vulnerable communities in 21 priority vulnerable islands and atolls in the provinces of Bougainville, East New Britain, Manus, Milne Bay, and Morobe, which have been identified through a participatory process using SPCR-identified risk factors in four sectors: infrastructure, natural resources, health, and agriculture.³

II. THE PROJECT

A. Rationale

3. PNG is a low middle-income country of approximately 6.5 million people with high vulnerability to volcanic eruptions, earthquakes, tsunamis, cyclones, droughts, and other weather-induced extreme events. Key impediments facing PNG's efforts to facilitate transformational change toward climate-resilient development include (i) inadequate human, technical, and financial resources at all levels; (ii) limited knowledge of climate change risk management; and (iii) poorly designed infrastructure that is vulnerable to climate change impacts.

4. Climate change could result in losses of up to 15.2% of PNG's gross domestic product by 2100 (under a business-as-usual scenario), with agriculture being the most affected sector.⁴ Coral reefs around the Pacific will be affected, with implications for recreational opportunities for tourism, coastal protection, habitat, nursery functions for commercial fisheries, and other goods and services. Some 4,500 kilometers of the total 17,100 kilometers of shoreline are expected to be inundated, affecting up to 30% of PNG's population. Those most vulnerable to climate change are the 2,000 coastal villages with a combined population of around 800,000. Food shortages are common in the island regions. Poverty rates are high, and increased during 2003–2008 from 37% to 54%.⁵ Ports and wharves are critical for interisland transport, but are not designed to withstand climate extremes. Upgrading such coastal infrastructure is necessary for timely delivery of perishable food products to markets, and for agricultural inputs for farming and fisheries. Given the declining productivity in agriculture due to limited arable land, unsustainable farming practices, and overexploitation of coastal resources, climate-induced

¹ Under the Pilot Program for Climate Resilience.

² The design and monitoring framework is in Appendix 1.

³ The 21 priority target islands are presented in the Project Administration Manual (accessible from the list of linked documents in Appendix 2).

⁴ ADB. 2014. *The Economics of Climate Change in the Pacific*. Manila.

⁵ Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2).

storm surges and coastal flooding are likely to worsen the situation. Public health will also be affected.¹

5. There is, therefore, a clear need to (i) build institutional, technical, and financial capacity to deal with climate change risks; and (ii) enhance resilience of island and atoll communities by increasing productivity of the natural resource base, increasing access to water supply and sanitation, improving food processing and storage, and strengthening port infrastructure. Establishment of an enabling policy environment is a prerequisite for success. Addressing these impediments will not only facilitate mainstreaming climate change in development but also ensure sustainable use of the country's natural resources and the long-term economic development of the country. The SPCR will complement climate change adaptation initiatives to build climate resilient development in PNG. These are prerequisites for effective social development, food security, and overall poverty reduction.

6. **Government plans.** PNG's Vision 2050² includes a focus area on environmental sustainability and climate change.³ PNG's Development Strategic Plan, 2010–2030 includes climate change as a crosscutting issue, with one of its goals being to “adapt to the domestic impacts of climate change and contribute to global efforts to abate greenhouse gas emissions.”⁴ The PNG Medium-Term Development Plan, 2011–2015 focuses on “developing governance and institutional capacity together with essential infrastructure and policies...to improve the quality of life.”⁵ The predecessor⁶ of the Climate Change and Development Authority (CCDA) developed the Climate Compatible Development Strategy aimed at “shaping development to be more climate resilient” and setting up a sustainable climate change financing framework, both priorities under Vision 2050.⁷ The challenges are exacerbated by limited understanding of climate risks and a lack of technical capacity. The SPCR can best help mainstream climate risk management into PNG's national climate-resilient development program by providing support to address these priority areas.

7. **ADB strategic priorities.** ADB developed the Climate Change Implementation Plan for the Pacific in 2010.⁸ It identifies the strategic program for mainstreaming climate change considerations into country programming. ADB's Interim Pacific Approach, 2010–2014;⁹ country partnership and strategy, 2016–2020;¹⁰ and country operations business plan, 2016–2018 emphasize the need for integration of climate change adaptation and disaster risk management to deal with climate-induced disasters.¹¹ Climate change resilience and disaster risk reduction are being incorporated as an integral part of all ADB-supported initiatives in PNG. The proposed project has a multisector focus incorporating transport and public sector management (country

¹ Sector Assessment (Summary): Multisector (accessible from the list of linked documents in Appendix 2).

² Government of Papua New Guinea. *Papua New Guinea Vision 2050*. National Strategic Plan Taskforce. Port Moresby.

³ Of the seven pillars under PNG's Vision 2050, the “Environmental Sustainability and Climate Change” has six objectives detailed on page 17 of PNG's SPCR.

⁴ Government of Papua New Guinea, Department of National Planning and Monitoring. 2010. *Papua New Guinea Development Strategic Plan 2010—2030*. Port Moresby.

⁵ Pacific Disaster. 2010. *Papua New Guinea Medium Term Development Plan 2011—2015*. http://www.pacificdisaster.net/pdnadmin/data/original/PNG_2010_mediumterm_development.pdf

⁶ Office of Climate Change and Development

⁷ Government of Papua New Guinea, Office of Climate Change and Development. 2010. *Interim Action Plan for Climate-Compatible Development*. Port Moresby.

⁸ ADB. 2010. *Addressing Climate Change in Asia and the Pacific: Priorities for Action*. Manila.

⁹ ADB. 2015. Interim Pacific Approach 2015 which extends the validity of Pacific Approach 2010-2014.

¹⁰ ADB. 2015. *Country Partnership Strategy: Papua New Guinea, 2016–2020*. Manila.

¹¹ ADB. 2015. *Country Operations Business Plan: Papua New Guinea, 2016–2018*. Manila.

partnership strategy priority sectors) plus agriculture, natural resource management and rural development (water and sanitation), and information and communication technologies.

B. Impact and Outcome

8. The impact of the project will be increased resilience to the effects of climate variability and climate change. The outcome will be improved capacities of communities (in vulnerable atolls and islands), government agencies, and civil society to plan and respond to the impacts of climate change.

C. Outputs

9. **Output 1: Climate change and vulnerability assessments carried out and adaptation plans developed for target communities.** For the 21 identified vulnerable islands the project will (i) prepare local climate projections; (ii) undertake climate vulnerability assessments in consultation with local administrations and beneficiary communities, develop climate change vulnerability adaption plans and emergency response strategies in the event of extreme climate events, and provide training in actions and procedures to be followed if such extreme climate events occur; (iii) install around 190 priority water supply and storage facilities and 100 ventilation-improved pit latrines identified during the vulnerability assessments near community facilities (schools, aid posts, and churches with their large collection areas and public access) to improve village hygiene against waterborne disease; (iv) assist communities to prepare climate adaptation subprojects; and (v) incorporate the climate adaptation subprojects in local, district, and provincial development plans. Based on these plans, the project will support communities in preparing financing applications for identified climate adaptation subprojects to either the government's District Services Improvement Program¹² or, where appropriate, a small grant facility (SGF)¹³ to be established under the project. Subprojects, to be developed in consultation with local communities, are estimated to cost \$20,000–\$50,000 per subproject,¹⁴ and will be approved by the project steering committee subject to conformity with eligibility criteria, and administered by a suitably qualified financial administrator.¹⁵ The \$5 million allocated to the SGF under the project will be used to finance approved climate adaptation subprojects (requiring a 20% in-kind contribution from the beneficiary communities) and financial administrator fees.

10. **Output 2: Sustainable fishery ecosystems and food security investments piloted in nine vulnerable island and atoll communities.** The project will assist local communities in nine sites to (i) pilot techniques used in the rehabilitation of protective coral reefs and degraded mangrove forests, including delineation and operation of locally managed marine areas and the development and implementation of management plans, mapping, and environmental monitoring (including fish, coral, and seaweed species); (ii) pilot income-generating activities in the marine environment, including aquaculture of fish and crustaceans, and localized processing of marine products to extend their shelf life and improve food security; and (iii) pilot

¹² The national government allocated K10 million to each of the 89 districts in PNG to be spent on infrastructure and rehabilitation maintenance projects covering education, health law and justice, water supplies, agriculture, electrification, transport, and community infrastructure.

¹³ This facility will serve as a pilot for the Climate Change and Green Growth Trust Fund, which the government intends to establish in due course.

¹⁴ Individual subproject financing will range from \$20,000 to \$30,000. However, a maximum of \$50,000 can be considered as long it can be justified, especially in areas where the cost of construction materials is high because of importation cost and/or logistics.

¹⁵ Eligibility criteria and the process for approval is in Annex 1 of the Project Administration Manual (accessible from the list of linked documents in Appendix 2).

the stabilization of watershed catchment areas adopting a ridge-to-reef approach in island hinterlands through tree planting and other slope stabilization measures, as appropriate.¹⁶

11. To further improve food security in the same nine vulnerable islands and strengthen trading links between the islands and the mainland, the project will (i) assess the extent of food insecurity anticipated from climate change and variability, (ii) identify options and priorities to address food insecurity in consultation with local communities, (iii) demonstrate how to implement selected priority options,¹⁷ and (iv) increase the production and distribution of planting material on selected agricultural stations.

12. **Output 3: Enabling framework for climate-resilient infrastructure established and communications network extended.** The project will develop an enabling framework to mitigate the impacts of climate change on coastal infrastructure (ports, wharves, and jetties) by (i) developing policy documents, (ii) upgrading engineering design standards, (iii) incorporating benefits from climate protection in feasibility studies, and (iv) recommending sustainable financing alternatives for operations and maintenance.¹⁸ Training will be provided to enhance the capacity of national agencies,¹⁹ the PNG Ports Corporation, provincial administrations, and Coastal and Inland Fisheries Development Agency personnel to incorporate climate change considerations into design, construction, operation, and maintenance of coastal infrastructure.

13. The project will extend the radio communications network to improve communications and an early warning system through the installation of a very-high-frequency network linked to PNG's National Disaster Center. Equipment for five relay stations will be installed on existing towers (one in each province), together with receiving equipment and disaster warning sirens on the 21 target islands complemented by operation and maintenance training of communities.

14. Subject to additional funding from the Pilot Program for Climate Resilience, a change in scope to output 3 may be made to include the upgrading of Alotau provincial government wharf in Milne Bay.²⁰ This will serve as a model for climate proofing similar structures currently planned in PNG.

15. Implementation management and coordination will be provided through a project management unit (PMU) to be established in CCDA and supported by project implementation support consultants (PISCs) recruited under the project. The PISCs will provide training and support the CCDA in the management of the project, particularly in procurement and financial management. The PMU will ensure adherence to Safeguard Policy Statement (2009) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time), together with timely progress and financial management reporting to ADB and the government. Knowledge management will be a priority output as lessons from new approaches to climate adaptation measures are captured.

¹⁶ Manus (Ponam, Andra, and Ahus Islands), Milne Bay (Trobriand Islands: Kiriwina, Munuwata, and Kaeleuna Islands), and East New Britain (Duke of York Islands: Mioko, Utuan, and Kerawara Islands).

¹⁷ Demonstrations will include production techniques, drought-tolerant planting material, water management, and rehabilitation of sago areas.

¹⁸ These will include the strategic policies for operation and maintenance of port facilities and designs for climate-proofing coastal assets; upgrading national, provincial, and Coastal and Inland Fisheries Development Agency managed facilities; and the extension of infrastructure in support of the marine transport network in the islands.

¹⁹ Additionally, the Department of Finance and Treasury, Department of National Planning and Monitoring, Department of Transport, and Office of Rural Development and Implementation.

²⁰ Estimated to cost \$5 million, including feasibility study and associated social and environmental safeguards due diligence.

D. Investment and Financing Plans

16. The project is estimated to cost \$27.29 million (Table 1). Detailed cost estimates by expenditure category and financier are included in the project administration manual.²¹

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Climate change vulnerability assessment and adaptation plans	10.15
2. Sustainable fishery ecosystems and food security	7.52
3. Climate-resilient coastal infrastructure and early warning communications	7.18
Subtotal (A)	24.85
B. Contingencies^c	2.44
Total (A+B)	27.29

^a In early 2015 prices.

^b Includes taxes and duties on all items estimated at \$1.57 million to be financed by the government (through exemptions) and the Asian Development Bank.

^c Physical contingencies computed at 10% for civil works, training, surveys, and studies; and 5% for consulting services. Price contingencies computed at 1.4% on foreign exchange costs and 3.6% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

Source: Asian Development Bank estimates.

17. The financing plan is in Table 2. The Strategic Climate Fund will provide grant cofinancing equivalent to \$24.25 million, to be administered by ADB. The grant will be fully utilized for implementing the project including allocations for consulting services, civil works, training, vehicles and equipment, other management and operating expenses, and taxes and duties.²² The beneficiary contribution of 20% in-kind contribution for subprojects financed under the SGF will promote ownership and sustainability. The government will contribute an estimated \$2.04 million as counterpart funds for project implementation, comprising \$752,100 for PMU operations; \$323,200 for seconded government staff and taxes and duties on civil works, equipment, and vehicles; and national consultant fees estimated at \$966,000.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Strategic Climate Fund ^a (grant)	24.25	88.9
Beneficiaries	1.00	3.6
Government	2.04	7.5
Total	27.29	100.0

^a Under the Pilot Program for Climate Resilience financed by the Strategic Climate Fund. Administered by the Asian Development Bank.

Source: Asian Development Bank estimates.

²¹ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

²² The amount will be within the reasonable threshold identified during the country partnership strategy preparation process. The amount will not represent an excessive share of the project investment plan. The taxes and duties to be financed under the project will only apply to ADB-financed expenditures, and the financing of taxes and duties is material and relevant to the success of the project.

E. Implementation Arrangements

18. The executing agency will be CCDA under the guidance of a project steering committee that will be cochaired by a secretary-level officer or designated representative from the Department of National Planning and Monitoring and CCDA.²³ The steering committee will consist of representatives from the Department of Treasury, Department of Health, the Coastal and Inland Fisheries Development Agency, the National Disaster Centre, PNG Ports Corporation, National Agricultural Research Institute, and representatives from the five participating provinces, with ADB as an observer. The steering committee shall meet quarterly initially and then biannually once implementation stabilizes or, as required, to review project implementation performance and approve annual work plans and budgets. A PMU will be established in the CCDA, headed by a full-time project director seconded from the CCDA who will be supported by a full-time national project coordinator and PISCs. The PISCs will provide technical support to the PMU as well as financial management, procurement, and support for SGF-related activities. The PMU will be the secretariat for the project steering committee. Implementation arrangements are summarized in Table 3 and are further detailed in the project administration manual (footnote 27).

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	January 2016 – April 2021		
Estimated completion date	31 October 2021 (Grant closing date 30 April 2022)		
Management			
(i) Oversight body	Project steering committee Office of Climate Change and Development (cochair) Department of National Planning and Monitoring (cochair) Representatives from Department of Treasury, Department of Health, Coastal and Inland Fisheries Development Agency, National Disaster Centre, PNG Ports Corporation, National Agricultural Research Institute, and the five participating provinces (members)		
(ii) Executing agency	Climate Change and Development Authority		
(iii) Key implementing agencies	Coastal and Inland Fisheries Development Agency, National Agricultural Research Institute, Office of Climate Change and Development, PNG Ports Corporation		
(iv) Implementation unit	Project Management Unit, Port Moresby, 14 staff (6 administrative, 8 technical)		
Procurement	National competitive bidding for radio communications equipment	One contract	\$1.62 million
	Community participation–water and sanitation installation	Multiple contracts for 21 target islands	\$2.38 million
	Shopping–rehabilitate, furnish, and equip PMU, for PMU vehicle and for LMMA monitoring equipment	Four contracts	\$0.2 million
	Community participation under SGF for climate-resilient adaptation measures	Multiple contracts for qualifying subprojects	\$5.00 million
Consulting Services	Project implementation support consultants (QCBS 90:10)	247 person-months	\$3.26 million
	Enabling framework consultants (QCBS 90:10)	99 person-months	\$2.10 million
	Project implementation consultant (ICS)	6 person-months	\$0.26 million

²³ On 28 July 2015 the PNG Parliament approved the Climate Change Management Bill that authorized the CCDA (formerly Office of Climate Change and Development), as a formal institutional structure of the Government of PNG, to coordinate climate change matters within line agencies identified to implement the project.

Aspects	Arrangements		
	NGO facilitation (QCBS 90:10)	Six contracts	\$2.15 million
	Project baseline study (CQS)	One contract	\$0.05 million
	Localized climate projections	Single source selection – one contract	\$0.05 million
	Annual audit (LCS)	One contract initially	\$0.02 million
Retroactive financing and/or advance contracting	Retroactive financing has been approved to recruit a project implementation specialist. The maximum eligible expenditures are up to the equivalent of 10% of the total ADB-administered grant incurred before grant effectiveness, but not earlier than 12 months before the signing of the grant agreement. Advance recruitment of the PISCs has been approved.		
Disbursement	The grant proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, CQS = consultant's qualifications selection, ICS = individual consultant selection, LCS = least cost selection, LMMA = local managed marine area, NGO = nongovernment organization, PISC = project implementation support consultant, PMU = project management unit, PNG = Papua New Guinea QCBS = quality- and cost-based selection, SGF = small grant facility.

Source: Asian Development Bank estimates.

III. DUE DILIGENCE

A. Technical

19. Target island vulnerabilities were confirmed during project preparation using current socioeconomic and climate data together with consultative meetings attended by national and provincial agencies, civil society, and community representatives. Central to the individual island vulnerability assessment is the frequency and extent of anticipated risks against which vulnerabilities will be assessed. Climate modeling in the Pacific by Australia's Commonwealth Scientific and Industrial Research Organisation includes a downscaling service. To secure the best estimates of anticipated climate change, the project will recruit the organization to provide local climate projections for vulnerability assessments. Structures in smaller-scale subprojects to be financed from the SGF comprising civil works will be simple and within the capabilities of local contractors using design standards developed under the project.

B. Economic and Financial

20. Benefits assessed under building community capacity in addressing climate resilience evaluate the reduced damage from extreme climate events, including damage to property and life. Water and sanitation initiative benefits are based on the reduced incidence of waterborne disease, expressed in terms of increased working days (for the working-aged population) made possible by the project. For fisheries ecosystems, the benefits consider the incremental value of a coral reef under with- and without-project scenarios in pilot sites. For food security benefits, the incremental productivity in food-producing locations was estimated and adoption rates assumed to provide an overall benefit stream. The benefits from improved communication and early warning were estimated from reduced loss of lives valued at a derived value of statistical life. The analyses were carried out in accordance with ADB's Guidelines for the Economic Analysis of Projects using component costs as appropriate to generate internal rates of return.²⁴ The economic internal rate of return (EIRR) for the overall project is estimated at 12.6% and is relatively stable to analyzed risks. A 20.0% increase in costs reduces the EIRR to 9.9%. A 20.0% reduction in overall benefits reduces the EIRR to 9.3% and a delay of 1 year for project

²⁴ ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila.

benefits results in an EIRR of 10.6%. The analysis incorporates quantifiable benefits that underestimate the anticipated economic benefits from the project.²⁵

21. For financial sustainability, in the case of SGF civil works, beneficiary communities will be responsible for maintenance of works requiring mostly labor inputs for routine maintenance whereas periodic maintenance will have to be financed through the District Services Improvement Program or other local available funding sources. In the case of communication equipment installed on existing towers, maintenance of equipment will be carried out by the tower owner as part of the installation agreement or as agreed with the National Disaster Centre from central government budgetary allocations. Implementation support provided by facilitating nongovernment organizations can be replicated using budgetary resources if demonstrated to be cost effective and appropriate.

C. Governance

22. **Financial management.** Ongoing challenges are (i) late submission of audited project financial statements by executing agencies, (ii) lengthy government procurement processes, (iii) limited capacity of executing agencies to manage social and environmental safeguards, and (iv) limited capacity of executing agencies to monitor performance against sector results.²⁶ The review also recognizes the significant challenges associated with governance issues that continue to cause delays in project implementation, particularly in the area of recruitment and procurement. The government agrees that, in view of the potential governance issues, a separate PMU should be established that will subsequently become an operational unit of CCDA to manage future climate change projects. A financial management assessment has been carried out for CCDA.²⁷

23. **Small grant facility.** The SGF will be disbursed through an independent financial administrator with the necessary fiduciary controls to ensure funds are applied for their intended purpose under the scrutiny of an independent monitoring mechanism to guard against misappropriation.

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

D. Poverty and Social

25. The populations on small isolated islands are among the poorest in PNG. More than 85% of the country's population relies on subsistence or semi-subsistence agriculture and fishing, supplemented with wild food gathered from forests and shorelines. Climate change is already impacting these activities. Opportunities to earn cash income in coastal areas are constrained by a declining resource base and a lack of transport infrastructure limiting market accessibility, while cash income is increasingly required to meet basic needs and food security. The project will positively affect social capital and livelihoods in the target islands by building cooperation, social cohesion, and resilience to threats from climate change.²⁸

²⁵ Economic Analysis (accessible from the list of linked documents in Appendix 2).

²⁶ ADB. 2014. *Country Portfolio Review for PNG*. Manila.

²⁷ Financial Management Assessment of the Climate Change and Development Authority (accessible from the list of supplementary documents in Appendix 2).

²⁸ Summary Poverty Review and Social Strategy (accessible from the list of linked documents in Appendix 2).

26. No land acquisition is needed as communication equipment will be located on existing towers and resettlement requirements relating to subprojects will render them ineligible for SGF financing. Community participation is part of the design and involves women in community decision making. Interventions will be identified by target communities involving representation from the socioeconomic spectrum following the vulnerability and food security assessment. A gender action plan has been prepared to support women's participation in decision making for climate-change-related resource allocation and community-based project investments.²⁹

27. Approximately 13,000 inhabitants of the 21 vulnerable islands will directly benefit from the project while nationwide benefits will accrue from increased capacity to manage climate change risks, establishment of early warning systems, access to finance by communities, and development of national databases and knowledge management systems. Preparation of vulnerability maps and adaptation plans will help improve awareness and build capacity to address risks of climate change impacts and disasters among target communities. This will help avoid loss of life, assets, and livelihoods. Employment will be created during project works and maintenance (especially for unemployed youth, who can be trained in construction of protective island infrastructure such as coastal stabilization). Improved community health will result from water and sanitation activities, reducing health risks from water- and vector-borne diseases.

E. Safeguards

28. **Environment.** The project is categorized B for environmental impact. Impacts may occur during installation of water supply and latrine facilities, together with subproject investments identified during vulnerability assessments such as coastal stabilization. The environmental impact from these activities can be addressed by following the environmental assessment and review framework.³⁰ The PISC environmental specialist will ensure environmental management plans are adhered to, particularly the SGF initiatives, and will be responsible for ensuring the environmental assessment and review framework is applied in assessing proposed subprojects.

29. **Involuntary resettlement.** The project is categorized C for involuntary resettlement. The project is not expected to require land acquisition or resettlement. The majority of project activities under outputs 1 and 2, such as water tanks and latrines, will be at a household or community level; communication equipment will be installed on existing towers. The identification of subprojects will involve exhaustive community consultation. Each community will identify its adaptation priorities and a few may require small-scale construction works. Candidate subprojects requiring involuntary land acquisition will not be financed. If a subproject requires additional land that communities are willing to provide voluntarily in consideration of project benefits, the land use rights for the subproject will be arranged through a voluntary land use agreement or negotiated settlement, for which a framework has been prepared.³¹

30. **Indigenous peoples.** The project is categorized C for indigenous peoples. The project is not expected to affect any vulnerable group of indigenous peoples as defined under ADB's Safeguard Policy Statement (2009). Project beneficiaries are part of mainstream Melanesian society and their institutions are not separate from mainstream society. They are not discriminated against (either in practice or law) based on ethnicity and are not vulnerable because they are the dominant groups locally and the main beneficiaries in the project context.

²⁹ Gender Action Plan (accessible from the list of linked documents in Appendix 2).

³⁰ Environmental Assessment and Review Framework (accessible from the list of linked documents in Appendix 2).

³¹ Voluntary Land Use and Negotiated Settlement Framework (accessible from the supplementary documents in Appendix 2).

The subprojects will benefit local communities, without any disproportionate risks against particular groups, and they will be implemented in a participatory manner.

F. Risks and Mitigating Measures

31. Mitigating measures have been designed to address major risks with an inexperienced executing agency in project implementation and governance. These measures will effectively reduce the risks to manageable levels (Table 4). The benefits and impacts are expected to outweigh the costs. The details are in the risk assessment and risk management plan.³²

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Design complexity (involving multiple line agencies and participation of facilitating NGOs) requires interagency cooperation and has the potential to slow implementation progress.	Inclusion of quarterly meetings of the national steering committee until implementation is running smoothly. Provincial advisory committees to enhance cooperation at the lower levels of government and to coordinate agency inputs from the provincial and district authorities.
The technical and management skills of staff from the CCDA and other implementing agencies may prove inadequate, which would adversely affect implementation performance.	Consultants will be recruited to provide training and support the CCDA in its management of the project, particularly in areas concerning procurement and financial management.
Multiple packaging in procurement may result in delays.	Procurement specialist to be recruited in PISC contract to provide training to PMU appointees
Weak financial management capacities and experience within executing agency	Financial management specialist to be recruited under PISC contract to establish systems and procedures and provide training

CCDA = Climate Change and Development Authority, NGO = nongovernment organization, PISC = project implementation support consultant, PMU = project management unit.

Source: Asian Development Bank consultations with government.

IV. ASSURANCES AND CONDITIONS

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

33. The government and the CCDA have agreed with ADB on certain covenants for the project, which are set forth in the grant agreement. No disbursements will be made under the project until the CCDA has appointed a full-time financial management officer for the project management unit and the PISC financial management specialists, and such specialists have commenced their work at CCDA.

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 \$24,250,000 to Papua New Guinea for the Building Resilience to Climate Change in Papua New Guinea project, to be provided by the Strategic Climate Fund.

18 September 2015

Takehiko Nakao
President

³² Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

<p>Impact is aligned with PNG's Medium-Term Development Plan, 2011-2015;^a PNG Development Strategic Plan 2010-2030, and the CCDA's Climate Compatible Development Strategy.^b</p> <p>The project impact is increased resilience to the impacts of climate variability and climate change.^c</p>			
Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
<p>Outcome Improved capacities of communities (in vulnerable atolls and islands), government agencies, and civil society to plan and respond to the impacts of climate change</p>	<p>By 2021</p> <p>a. Gender-responsive CCVAPs prepared under the project used in formulating LLG, district, and provincial development plans for climate change adaptation</p> <p>b. 50% reduction in the incidence of waterborne and water-related diseases in target communities.</p> <p>c. Fish populations increased by 20% in target LMMAs and food insecurity reduced by 20% from baseline figures</p> <p>d. Pilot marine ecosystem and food security approaches developed under the project applied in locations outside the immediate project area</p> <p>e. Increased from 0 to 10 early warning messages broadcasted and coordinated 100 emergency responses per year in the coverage area by 2021</p>	<p>a. KAP surveys of planning staff at respective levels compared to baseline</p> <p>b. Gender-disaggregated DOH database reports</p> <p>c. LMMA monitoring reports</p> <p>d. CIFDA annual work plans and budget requests</p> <p>e. DAL annual work plans and budget requests</p> <p>f. National Disaster Centre annual reports</p>	<p>Resources under the SGF will not be applied to the intended purpose.</p> <p>Capacity building proposed in the design will not be extended to all intended beneficiaries or recipients.</p>
<p>Outputs 1. Climate change and vulnerability assessments carried out and adaptation plans developed for target communities</p>	<p>By 2021</p> <p>1a. Twenty one vulnerable island communities with CCVAP, climate-resilient development plans incorporated into LLG, district, and provincial plans</p> <p>1b. Gender-responsive disaster response strategies developed in 21 vulnerable island communities</p> <p>1c. Provincial (50) and NGO (50) staff (30% being women) trained in adaptation to climate change</p>	<p>1a. Provincial development plans in provincial administrator's office</p> <p>1b. NDC disaster reports</p> <p>1c. PMR and training evaluation reports</p>	<p>Capacities of provincial staff prevent the program from being properly implemented.</p> <p>Sanitation facilities are not a priority for local communities.</p> <p>Motivation of provincial staff is low because resources are channeled through NGOs.</p>
<p>2. Sustainable fishery ecosystems and food security investments piloted in nine vulnerable island and atoll communities</p>	<p>By 2021</p> <p>2a. Nine LMMAs established, registered, and operational with approved management plans being implemented</p>	<p>2a – 2e. PMR</p>	<p>Insufficient awareness and understanding of villagers to participate in marketing and food processing initiatives.</p>

Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	2b. Adaptation measures against climate change in home gardens demonstrated in nine target communities 2c. Nine mangrove forest rehabilitations demonstrated 2d. Three watershed rehabilitations demonstrated in communities adjoining target vulnerable islands 2e. Food processing and preservation initiatives piloted in nine island communities (50% women)		
3. Enabling framework for climate-resilient infrastructure established and communications network extended	By 2021 3a. Upgraded engineering design standards for coastal structures used in port, wharf, and jetty design. 3b. Building codes and design standards upgraded to incorporate climate change considerations 3c. Climate risk management policy developed and adopted by PPCL 3d. PPCL, national, and provincial staff (30% being women) trained in the incorporation of risks from climate change in coastal port and jetty operations 3e. By 2018, five VHF repeater stations established on existing towers and receiving substations established in 21 target islands 3f. By 2016, PMU established, staffed, and equipped and monitoring systems developed 3g. By 2016, project activities and performance posted on project website	3a. KAP surveys of design engineers (both government and private) compared with baseline 3b. Confirmation by professional institution 3c. National policy statement prepared 3d. PMR and training evaluation reports 3e.–3f. PMR 3g. Website inspection	Tower owners will not allow the project to access the towers for installation of equipment. Counterpart funding will not be allocated to allow the PMU to operate efficiently.
Key Activities with Milestones 1. Climate change vulnerability assessments carried out and adaptation plans developed for target communities 1.1. Prepare localized projections of climate change in 21 target islands by Q2 2016 1.2. Undertake CCVAP mapping in 21 vulnerable islands by Q3 2016 1.3. Develop CCVAP for endorsement of the community and integration into the district development plans by Q1 2017 1.4. Establish SGF to finance investments identified during CCVAP by Q3 2016 1.5. Supply and install 190 water supply and 100 sanitation facilities in target islands by Q4 2017 1.6. Develop emergency response strategies and train inhabitants of target islands by Q4 2017			

Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
<p>2. Sustainable fishery ecosystems and food security investments piloted in nine vulnerable island and atoll communities</p> <p>2.1. Sustain the integrity of fishery ecosystems by piloting a ridge-to-reef approach in target communities by Q4 2019</p> <p>2.2. Pilot food security initiatives (production, processing, and storage) in target locations by Q4 2019</p> <p>2.3. Provide NGO support to facilitate delivery of fisheries ecosystems and food security initiatives and build capacities of communities and provincial and district staff by Q1 2016</p>			
<p>3. Enabling framework for climate-resilient infrastructure established and communications network extended</p> <p>3.1. Support policy dialogue for the design and maintenance of port infrastructure by the end of 2018</p> <p>3.2. Revise appropriate engineering standards to accommodate the impact of climate change in infrastructure design by the end of 2017</p> <p>3.3. Build capacities of national and provincial port and wharf design specialists to incorporate economic returns achieved from incorporating climate resilience in feasibility studies by the end of 2019</p> <p>3.4. Develop options for the sustainable financing of port rehabilitation and upgrading taking into account climate change by the end of 2018</p> <p>3.5. Expand communications network in five provinces through radio repeater stations and island receivers by Q4 2017</p> <p>3.6. Train CCDA staff in procurement, financial management, and implementation coordination</p> <p>3.7. Maintain the project performance and management systems designed by the PISC throughout implementation</p>			
<p>Project Management Activities</p> <p>1. Establish PMU, appoint incremental staff, and second government employees to the PMU by the end of 2015</p> <p>2. Train CCDA staff in procurement, financial management, and implementation coordination, among others</p> <p>3. Recruit implementation support consultants by Q1 2016</p> <p>4. Establish project performance and financial management systems for project and SGF with gender disaggregation by Q2 2016</p> <p>5. Complete monthly, quarterly, and annual progress and financial reporting to the government and ADB (ongoing)</p> <p>6. Participate in midterm review by the end of 2018 and project completion reviews by the end of 2021</p>			
<p>Inputs</p> <p>Strategic Climate Fund: \$24.25 million</p> <p>Government: \$2.04 million</p> <p>Beneficiaries: \$1.00 million</p>			
<p>Assumptions for Partner Financing</p> <p>Not applicable</p>			

ADB = Asian Development Bank; CCDA = Climate Change and Development Authority; CCVAP = climate change vulnerability adaptation plan; CIFDA = Coastal and Inland Fisheries Development Agency; DAL = Department of Agriculture and Livestock; DOH = Department of Health; KAP = knowledge, attitude, and practice; LLG = local level government; LMMA = local marine management area; NDC = National Disaster Centre; NGO = nongovernment organization; PISC = project implementation support consultant; PMR = project monitoring report; PMU = project management unit; PNG – Papua New Guinea PPCL = PNG Ports Corporation; PPCR = Pilot Program for Climate Resilience; SGF = small grant facility; VHF = very high frequency.

^a Government of Papua New Guinea, Department of National Planning and Monitoring. 2010. Medium Term Development Plan, 2011-2015. Port Moresby.

^b Government of Papua New Guinea, Office of Climate Change and Development. 2010. Interim Action Plan for Climate-Compatible Development. Port Moresby.

^c Defined by the project.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://adb.org/Documents/RRPs/?id=46495-002-2>

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

Supplementary Documents

13. Financial Management Assessment of the Climate Change and Development Authority
14. Detailed Economic Analysis
15. Voluntary Land Use/Negotiated Settlement Framework