

| <b>Pilot Program for Climate Resilience<br/>Cover Page for Project/Program Approval Request</b>   |   |   |                                |
|---|---|---|--------------------------------|
| 1. Country/Region:  | Papua New Guinea (PNG)  | 2. CIF Project ID#:   | XPCRPG06<br>7A                 |
| 3. Project/Program Title:   | <b>Project:</b> Climate Proofing Alotau Provincial Wharf<br><b>Program:</b> Additional Financing to Building Resilience to Climate Change in Papua New Guinea (BRCC)  |   |                                |
| 4. Type of PPCR Investment:   | <input checked="" type="checkbox"/> Public  | <input type="checkbox"/> Private  | <input type="checkbox"/> Mixed |
| 5. Funding Request (in USD million total) for Project/Program:  | Grant:<br>USD 4.8 million <sup>1</sup>  | Non-Grant:<br>None  |                                |
| 6. Approved Preparation Grant:  | Amount (USD):<br>USD 0.2 million  | Date:<br>July 2015  |                                |
| 7. Implementing MDB(s):   | Asian Development Bank  |   |                                |
| 8. Other MDB Involvement:   | MDB: None   | Type of Involvement: Not Applicable   |                                |
| 9. National Project Focal Point:  | Mr. Jacob Ekinye, Director, Adaptation and Projects Division, Climate Change and Development Authority, Government of PNG/Project Director, Building Resilience to Climate Change<br><a href="mailto:jacobekinye@gmail.com">jacobekinye@gmail.com</a> |   |                                |
| 10. National Executing Agency for project:  | Climate Change Development Authority (CCDA)   |   |                                |
| 11. MDB PPCR Focal Point and Project/Program Task Team Leader (TTL):  | Headquarters- Focal Point:<br>Ancha Srinivasan<br>Principal Climate Change Specialist<br>Southeast Asia Dept., Asian Development Bank   | TTL:<br>Alexandra Pamela Chiang<br>Transport Specialist<br>Pacific Department<br>apchiang@adb.org |                                |
| 12. Project/Program Description (including objectives and expected outcomes):   |   |   |                                |
| <p><b>Project and Program Background:</b></p> <p>In July 2015, the Strategic Climate Fund (SCF) Pilot Program for Climate Resilience (PPCR) Sub-Committee endorsed 1) USD 24.25 million in PPCR grant funding for the proposal entitled <i>Building Resilience to Climate Change in Papua New Guinea</i> Project, to be administered by ADB; and 2) the concept note for the allocation of an additional USD 5.0 million in PPCR grant resources to the project <i>Additional Financing for Building Resilience to Climate Change in Papua New Guinea</i> to climate proof Alotau Provincial Wharf.</p> |   |   |                                |

<sup>1</sup> US\$ 0.2 million was approved as PPG for the project, which was not utilized for project preparation. The PPG will be combined with the project implementation funding. Accordingly, the CIF approval is sought for US\$ 4.8 million, while total project amount (including the unused PPG) is US\$ 5.0 million.

In this submission, the Government of Papua New Guinea (PNG) is seeking the approval of this additional grant financing for climate proofing Alotau Provincial Wharf, based on satisfactory completion of due diligence processes and in accordance with ADB's policies and guidelines.

The Alotau Provincial Wharf Project is a project component of the Building Resilience to Climate Change in Papua New Guinea Program (BRCC). The original BRCC program has three outputs: (1) climate change and vulnerability assessments carried out and adaptation plans developed for target communities, (2) sustainable fishery ecosystems and food security investments piloted in nine vulnerable island and atoll communities, and (3) enabling framework for climate resilient infrastructure established and early-warning communications network extended.

BRCC was approved in January 2016 and made effective February 2016. Major progress since project effectiveness include: (i) signing of MOUs with all four provincial administrations and the Autonomous Region of Bougainville; recruitment of PMU staff and secondment of CCDA staff; and (iii) establishment of office space, equipment, and project vehicle. By the end of 2017 procurement of the BRCC's three major consultancy packages, valued at over \$6 million USD, will be close to completion (Project Implementation Support Consultants, Port Enabling Framework Consultants, and NGO recruitment).

An additional activity proposed within the third output of the BRCC is to develop a climate resilient wharf in Alotau, Milne Bay Province. This will be achieved by using an innovative method of integrating climate change resilience factors into the wharf design through a dual approach of 'climate proofing' and 'climate readiness'. Small vessels using the wharf are extremely sensitive to the height difference between the deck and sea-level. Consequently, and driven by stakeholder needs, the wharf's deck level needs to be raised incrementally as sea-level rises over time. This innovation ensures that sea-level rise is phased into the structure through an adaptive design approach of including climate change factors progressively into the new wharf. This approach will ensure immediate climate-proofing of the wharf when constructed, and ensure that the wharf design includes climate-ready features that allow for incremental adaptation over the design life. This will serve as a pilot and demonstration climate adaptation model for integrating climate change into the design of similar structures and services in PNG, thereby contributing to and augmenting Output 3.

**Project Need:**

Reliable maritime infrastructure is an essential prerequisite for trade, economic development, health services, and poverty reduction in PNG. Ensuring that maritime infrastructure such as wharf, jetties, and ports and other critical coastal assets are designed and built to cope with the adverse effects of climate change is crucial to economic development and provision of essential services in PNG. The Alotau Provincial Wharf was identified as a vulnerable wharf with high demonstration value on the basis of selection criteria agreed upon between the Government of PNG and ADB. Selection criteria included: (i) vulnerability to the impacts of climate change, (ii) critical infrastructure in terms of servicing remote island communities, (iii) significant economic benefit particularly in terms of climate change adaptation, (iv) accessibility of the site in order to provide a demonstration to other provincial governments, (v) priority investment and inclusion in the provincial development plan; and (vi) counterpart assistance from the beneficiary provincial to the investment.

The Alotau Provincial Wharf (the wharf) is located in Milne Bay in a readily accessible location. As shown in the attached Climate Risk and Vulnerability Assessment (CRVA), the wharf is particularly sensitive to swell waves generated from cyclones that occur in neighboring waters and from tropical storms. The site assessment confirmed that key climate change risks at the project site are mean sea-level rise, storm surge, swell from cyclones occurring off-shore and wind-waves generated by storms in Milne Bay. Importantly, the broader context of climate change on regional drought and extreme storms in the wider Milne Bay province provide critical inputs for building climate resilience for the region. The significant uncertainties in future climate-change driven drought, storm frequencies and magnitudes necessitates flexibility and adaptability in climate proofing the Wharf to ensure continuity of maritime transport after future climate extremes. To achieve this objective, the climate proofing design must be capable of operating in all permitted wind conditions for the size of vessels served by the wharf, and be capable of withstanding all forecast extreme events so as to allow use for relief purposes following the event.

Upgrading and climate proofing the wharf will serve as an example of climate proofing, inform the enabling framework that will be developed under Output 3 of the project, and strengthen the learning about critical infrastructure climate risk management generated by the project. The wharf upgrading will demonstrate how such assets can be protected from rising sea level, storm surge, and increased wave height, providing a model that can be replicated for climate proofing similar infrastructure in PNG and in other island states. During the port facility upgrade design process, the port and Provincial Government staff will undergo on-the-job training, thereby enhancing their capacity and contributing to technology transfer for application elsewhere in the country.

The wharf is designed to be operational **after** extreme weather conditions (storm surge, high wave and wind) because it is essential connectivity infrastructure for distributing emergency supplies which are expected to be delivered to the Alotau Overseas Wharf, and transported via the coastal road to Alotau Provincial Wharf for onward distribution to outer islands using passenger and cargo vessels.

Complementing the establishment of an enabling environment for climate proofing coastal infrastructure, the inclusion of climate proofing in the wharf design aims to demonstrate adaptation measures that can be applied in the design and construction of coastal infrastructure given an enabling environment. Such an intervention is highly relevant in a country so dependent on maritime transport to sustain the socioeconomic functions of its geographically dispersed island communities. There are comprehensive plans already in place to upgrade a range of coastal assets as funding becomes available, but such upgrading will most likely follow the least-cost designs that will be unlikely to incorporate resilience to climate change impacts unless the advantages of this preparation are demonstrated. Current design practices place little emphasis on longer-term climate change projections and the government does not fully appreciate the benefits derived from the additional investment required for preemptive climate proofing. The wharf upgrading will demonstrate how such assets can be protected from rising sea level, storm surge, and increased wave height, providing a model that can be replicated for climate proofing similar infrastructure facilities in the country.

Moreover, creating a climate-proofing pilot that can be replicated in PNG and in the region will strengthen the learning on climate risk management of critical infrastructure generated by PPCR funding and further advance the objectives of the endorsed Strategic Program for Climate Resilience (SPCR). The pilot offers the opportunity to identify and test engineering

solutions that can reduce the vulnerability of the asset, as well as the opportunity for training of PNG Ports Corporation Ltd. (PPCL) and other engineering and planning departments, and contribute to knowledge and guidance on climate resilient infrastructure development that can benefit other countries.

To date, feasibility studies and due diligence for the proposed project to climate proof Alotau Provincial Wharf have been completed. Based on this analysis, it is proposed to utilize the additional grant financing to upgrade and climate-proof the Alotau Provincial Wharf with one consulting service package to provide project management & supervision support and capacity building, and three civil works packages – for surveys, demolition of existing wharf and construction of new wharf. The detailed design of the Alotau wharf, preparation of bidding documents and procurement support to MBPG is being integrated within an existing consulting service package in the main BRCC project – PNG PCL Enabling Framework Consultants (PEFC). The Project Implementation Support Consultants (PISC) under the main BRCC project would also provide support to the MBPG as Executing Agency (EA) during implementation, particularly on social and environmental safeguards aspects.

### **Status of Project:**

In January and March 2017, site visits were conducted at the Alotau Provincial Wharf during which the wharf was inspected and stakeholders were consulted. Based on information obtained during these visits and during desk research, various documents were produced, including a field mission report (January 2017 Mission), survey reports, and an adaptation options report. In March 2017, an Options Workshop was conducted to engage government agencies and other local stakeholders in selecting the best adaptation option of those identified in the Options Report. Four main options were identified in the report, including: (1) refurbishment of existing wharf, (2) construction of a new floating pontoon wharf, (3) construction of a new minimum cost but climate proofed replacement wharf structure, and (4) construction of a new climate proofed replacement piled wharf structure with a dropped rear face with steps and ramps.

The first two options were eliminated since they do not meet the climate proofing objective. The latter two options incorporates climate proofing measures to provide for 50 year design life under the forecast climate change utilizing an adaptive approach to sea level rise to maximize functionality.

During the stakeholder consultations, the **preferred option** was clearly the option with climate proofed replacement wharf with steps and ramps (option 4a - see paras 3.2.3 and 8.1.2 for benefits and cost estimates in the Feasibility Report). This option would deliver greater positive social impacts in providing accessibility for a full range of vessel sizes and tidal conditions – through use of the stepped berths at the rear. However, the project cost is estimated at \$8.36 million. During the fact-finding mission, the government committed to increase its government counterpart funding from PGK 1 million to PGK 2million (about \$0.64 million). Taking into consideration the increased government counterpart funding, \$5 million allocation from PPCR, and detailed design to be subsumed in the main BRCC project, there would still be a shortfall of \$2.68 million.

To address the funding constraint, the **alternative lower cost option** (option 3bi) was developed. The design involves demolition of the existing wharf and replacing with a climate proof wharf with provision to construct the steps and ramps at a later date when additional funding becomes available. The project cost is estimated at \$5.64 million. This includes the

increased government counterpart funding of \$0.64 million and \$5 million allocation from PPCR. The detailed design would be conducted under the main BRCC project. Pending completion of the BRCC project, the civil works cost component will be updated. There is currently \$2.4 million of unallocated funds in the main BRCC project, which is sufficient to cover additional taxes and duties, and physical contingencies that may be found to be required during the detailed design. Such funds could be reallocated if required, after approval of the proposed Additional Financing from SCF PPCR funds.

The alternative lower cost option incorporates a climate resilient design that incorporates both immediate 'climate proofing' elements as well as adaptive design (climate readiness) elements. This design approach integrates feedback from stakeholders and will ensure reliable and safe access for beneficiaries, within the financial resources available for this project.

The attached documentation includes the following:

- Feasibility design report (Attachment 1)
- Social Safeguards Due Diligence Report (including summary of consultations undertaken and a Stakeholder Participation and Communication Plan) (Attachment 2)
- Climate risk and vulnerability assessment (CRVA) (Attachment 3)
- Project Administration Manual (PAM) (Attachment 4)

To fast-track project implementation, the recruitment of the detailed design consultants under the PEFC contract has commenced, contract award is expected by end 2017.

### 13. Objective:

The objectives of this project are: 1) to upgrade the Alotau Provincial Wharf to ensure continuous and climate resilient service to small boats in the Milne Bay community, and 2) to inform the development of a national enabling framework for climate resilient infrastructure in PNG (output 3).

These objectives support the objectives of the overall program, Building Resilience to Climate Change in Papua New Guinea (BRCC), which aims to contribute to the achievement of transformational change in development planning in support of the country's Climate Compatible Development Strategy's goal to make PNG's development investments climate resilient.

### 14. Expected Outcomes:

The expected outcome of this project is increased resilience of the Milne Bay community to the impacts of climate variability and change. This outcome will contribute to the expected outcomes of the BRCC program, which are increased resilience of PNG to the impacts of climate variability and change and improved capacities of communities (particularly in vulnerable atolls and islands), government agencies, and civil society to plan and respond to the impacts of climate change.

| 15. Indicators and Targets (consistent with PPCR core indicators):  |   |
|---|---|
| Indicator   | Target  |
| <p>INDICATOR 1 (PPCR Core Indicator #5: <i>Number of people supported by the PPCR to cope with the effects of climate changes.</i>)</p> <p>(a) Number of people living in outer islands served by the Alotau Provincial Wharf.</p>  | <ul style="list-style-type: none"> <li>• Estimated 176,973 of people (48% women) in 36,036 households living in the outer islands of Milne Bay Province served by climate-proofed Alotau Provincial Wharf including after extreme climate events.</li> <li>• Estimated 7,600 passengers per year from outer islands and tourist visitors who will benefit from improved services of the climate-resilient Alotau Provincial Wharf.</li> </ul> |
| <p>INDICATOR 2 (PPCR Core Indicator #3: <i>Quality and extent to which climate responsive instruments/investment models are developed and tested</i>)</p> <p>(a) Improved climate resilient building codes and design standards used in upgrading the Alotau Provincial Wharf to climate proofing standards supported by enabling policies and procedures for enhanced resilience of coastal infrastructure developed under BRCC.</p>   | <ul style="list-style-type: none"> <li>• Climate resilient Alotau Provincial Wharf completed by December 2019.</li> <li>• Model methodology produced for: (1) assessing climate risk; (2) designing, constructing; and (3) operating climate resilience coastal maritime infrastructure.</li> </ul>   |
| <p>INDICATOR 3(PPCR Core Indicator #2: <i>Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience</i>)</p> <p>(a) Participation of Milne Bay provincial government staff in Climate Change Development Authority (CCDA) training on mainstreaming climate change resilience into government policy, planning, and programming</p> <p>(b) Capacity building of Milne Bay provincial government staff to support effective management of climate resilient infrastructure projects</p> | <ul style="list-style-type: none"> <li>• <i>At least 2 provincial staff (at least half are women) trained in the incorporation of risks from climate change in coastal port and jetty operations</i></li> </ul>   |
| 16. Budget:   |   |
| Expenditures  | Amount (USD)  |
| Surveys   | \$126,000   |
| Civil Works, including demolition of existing wharf   | \$342,000   |

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|--|---------------------------------|--|
| Civil Works (construction of wharf)  |                                 | \$4,599,000  |
| Project Management, supervision and capacity building  |                                 | \$250,000  |
| Contingencies  |                                 | \$193,720  |
| Taxes and duties   |                                 | \$129,280  |
| <b>Co-Financing:</b>   | <b>Amount (in USD million):</b> | <b>Type of Contribution:</b>   |
| Government   | \$0.64                          | Budgetary allocations for demolition of existing wharf, project implementation support |
| Private Sector (please specify)  | -                               |  |
| Bilateral (please specify)   | -                               |  |
| Others (please specify)  | -                               |  |
| <b>Co-Financing Total:</b>   | <b>\$0.64million</b>            |  |
| <b>17. Project/Program Timeframe:</b>  |                                 |  |
| <p>Approved by ADB within three months of all financing confirmed<br/> Mobilization of detailed design engineer (under PEFC): Q4 2017<br/> Completion of detailed engineering design and bidding documents: Q1 2018<br/> Commencement of construction: Q4 2018<br/> Project Completion: Q4 2019</p>  |                                 |  |
| <b>18. Implementation Arrangements (incl. procurement of goods and services)</b>   |                                 |  |
| <p>The implementing agency is Milne Bay Provincial Government and the executing agency is the Climate Change and Development Authority (CCDA). The project's National Steering Committee, chaired by CCDA, was established to review and approve the outputs of the study. Milne Bay Provincial Government and CCDA assist in facilitating the necessary approvals required for the implementation of this study and the construction of the proposed project(s). A detailed description of implementation arrangements, including procurement processes is provided in the Project Administration Manual (PAM), attached to this request.</p> |                                 |  |

19. Other Information



**Selection Criteria**

Selection criteria for climate proofing coastal infrastructure include the level of the infrastructure's vulnerability to extreme climate events, and the socioeconomic significance of disruption in service of the facility, including consequent risks to the regional economy (passenger utilization and transport of traded goods). The Alotau Provincial Wharf was selected as the most appropriate port facility because of its (i) vulnerability to the impacts of climate change with moderate to high level of risk; (ii) economic significance in the outer island trade, (iii) the volume of passenger traffic and traded goods handled through the facility, (iv) ease of access and inspection to monitor progress and performance of the upgraded facility after extreme climate events, and (v) willingness of the Provincial Government to participate in upgrading the wharf.

**Stakeholder Consultation**

Consultative meetings, interviews, focus group discussions, and workshops were undertaken from January to March 2017 with the key national, provincial, and district government agencies, as well as with the project beneficiaries and NGO representatives. Through these consultations, information on the issues and concerns regarding the existing condition and use of the Alotau Provincial Wharf, and feedback on design recommendations, were gathered and incorporated in the preferred design option. Endorsement for climate proofing the wharf was provided by PNG Ports Corporation Ltd., the MBPG, and Alotau District Administration. Representatives from the Alotau District Women Office, market vendors and occupants of the transit hotel near the wharf, boat owners or operators, and NGOs (i.e., PNG Women in Maritime and Eco Custodian Advocates) were also consulted to gather feedback and obtain support. The participatory and inclusive consultation process, which created a sense of ownership among the stakeholders, will be continued as an approach throughout project implementation. Annex 1 presents the summary details of the consultative activities conducted. A Stakeholder Participation and Communication Plan (Annex 2) has been prepared to ensure continuous engagement with key stakeholders during project implementation and to facilitate community engagement during wharf operations and maintenance.

**Gender Dimensions**

Gender-specific design features were incorporated in the preliminary engineering design of the provincial wharf, given the allowable project budget. The proposed design, option 3b(i), for the wharf will include handrails, safety ladders, and 24-hour security lighting. Option 4a will further include steps and access ramps that are compliant for assisted wheelchair access. The handrails and access ramps, in particular, will assist in the safety and mobility of pregnant women, elderly, children, and persons with limited mobility. The project will also facilitate women's participation especially during public consultations and capacity building activities. The specific gender targets identified in the Stakeholder Participation and Communication Plan include (a) at least 30% women participation during regular consultations from project preparation, detailed engineering design, construction, and operations and maintenance; (b) at least 30% female attendees in capacity building activities for PMU, other key government agencies, NGOs, and other local partners; and (c) at least 30% female participants in awareness raising activities during project implementation. Short term employment is envisaged during construction and operations of the wharf for skilled and unskilled local workers, and priority will be given to women for these positions whenever feasible.

**Knowledge Dissemination**

Knowledge sharing of this project will occur through a range of mechanisms. Project updates

presented during regular National Steering Committee meetings. The committee includes representatives from all five political jurisdictions and three implementing agencies. In addition, research on the climate change factors integrated into the project will form part of the knowledge base of the PNG Climate Change And Development Authority (CCDA), being supported through the BRCC, and is responsible for disseminating general longer term climate related advice. Dissemination of details about the project itself will be the responsibility of the Milne Bay Provincial Government (MBPG) as the Executing Agency for the project. This will contribute to ensuring that climate change is integrated into future maritime infrastructure investments in the Province, funded both by the Province itself, the Government of PNG and through the support of its development partners.

Attachments:

|                     |  |
|---------------------|--|
| <b>Attachment 1</b> | <b>Feasibility design report</b>   |
| <b>Attachment 2</b> | <b>Social Safeguards Due Diligence Report (including summary of consultations undertaken and a Stakeholder Participation and Communication Plan) – See Memorandum, Supplementary Appendix 4.</b> |
| <b>Attachment 3</b> | <b>Climate risk and vulnerability assessment (CRVA) – See Memorandum, Supplementary Appendix 5.</b>  |
| <b>Attachment 4</b> | <b>Project Administration Manual (PAM) – See Memorandum, Appendix 3.</b>   |