Climate Proofing Alotau Provincial Wharf, Additional Financing to Building Resilience to Climate Change in Papua New Guinea (BRCC)

Comment Type	Commenter Name	Commenter Profile	Comment	Date
Comment 1	Colette O Neil	United Kingdom	Dear Mafalda • We understand that the funding is required in order to finish the ramps and step way accesses, as such we are unclear as to how the current lower cost option would achieve its outcomes without the further funding. Could you please clarify? • It would be helpful to understand why a broader range of long term climate resilient options were not reviewed in the consultation/options report such as vertical breakwaters (as opposed to moving platforms) which may actually increase the climate resilience from 50 Years to 100 Years, and may actually be a better fit to your climate proofing criteria. • What assessment has there been of using this more innovative design (to what extent has this been tested elsewhere) against more traditional design approaches.	Sep 05, 2017
Response 1	Cristina Santiago	ADB	Question 1: We understand that the funding is required in order to finish the ramps and step way accesses, as such we are unclear as to how the current lower cost option would achieve its outcomes without the further funding. Could you please clarify? Response: The existing concrete deck of the Alotau Provincial Wharf is currently damaged and life expired. The lower cost option achieves the primary objective which is to provide climate resilient berthing facilities for the intermediate size passenger and cargo vessels (between 10m and 20m LOA) providing essential connectivity between outer islands and Alotau; emergency vessels including coastal protection vessels (Pacific Class); emergency support vessels utilized after extreme weather events in distributing emergency supplies from Alotau Overseas Wharf for onward distribution to outer islands using passenger and cargo vessels; larger fishing vessels (not loading or unloading but changing crews through Alotau Guerney Airport) which are too big for the Alotau Jetty and the fishing wharf and too small for the coastal or international Wharfs, at which they would in any case have to give priority to larger vessels. The lower cost option also includes gender specific design features such as handrails, safety ladders, and 24-hour security lighting. Should additional funding be available in future, the lower cost option is also designed to accommodate additional facilities in future, such as ramps and steps. These could provide additional benefits of further enhancing accessibility for the mobility impaired and vulnerable users. Such facilities would also provide greater accessibility to potentially cater to future growths in day tourist passenger launches and also for cruise liner passenger launches in future, particularly when there are two cruise vessels in Alotau simultaneously. Question 2: It would be helpful to understand why a broader range of long term climate resilient options were not reviewed in the consultation/options report such as vertical breakwaters (as opposed to moving platforms) which may actually increase the climate resilience from 50 Years to 100 Years, and may actually be a better fit to your climate proofing criteria. Response: Four alternatives were considered in detail. These included a floating jetty with or without a protective breakwater which was ruled out both on initial cost and maintenance cost grounds. With reference to "vertical breakwaters or moving platforms" mentioned in the comment, we understand this to mean an option of a vertical quay face built using either sheet piling or a concrete block wall, with reclamation behind (kindly correct us if we misunderstood). This is the method of construction used for the small vessels jetty at Alotau (a separate jetty, adjacent to the Alotau Provincial Wharf), which was built by reclaiming land in shallow water behind a gabion sea wall. However, this method of construction was not viable for the Provincial Wharf for a variety of reasons:	Sep 11, 2017

			* The existence of a barge ramp which the authorities wish to retain between the Wharf and the Jetty, which means that the section of foreshore most suitable for this form of construction (North East of the existing gate between the existing wharf and jetty) is not available * The rapidly shelving underwater profile at the site, which reaches 10m depth only just outside the line of the existing wharf face, increasing the costs of sheet piling solutions * The presence of an existing sea wall just behind the existing wharf with existing (new) developments on reclamation behind it, so that shore access and the use of existing coastal backup land to the South West of the existing gate is not possible * The inability to accommodate the proposed small passenger launch facility. Climate change projections were made over a 50 years horizon both at the request of key shareholders and on technical and economic grounds. An important component was advice to the Milne Bay Provincial Government on the vulnerability of the rest of the low lying Sanderson Bay, not only the wharf in isolation. The design life of the proposed climate proofed wharf is 50 years; the technical team has assessed that it would be cost prohibitive (and with minimal added benefit) to make it resilient beyond its design life. Moreover, beyond the 50 years horizon, much of the Bay will require redevelopment to avoid flooding and an integrated redevelopment will be required. In addition, it is likely that by then local shipping technology will have changed. Roll on roll off ferries will probably need to be accommodated and the use of small traditional vessels will reduce, as has been the case in other archipelagos. This will require new facilities at both Alotau and on the outer islands it serves, together with the construction of a new class of vessels. In circumstances such as these, attempting to build a structure with a 100 years design life will not serve the local community or its economy in the short (immediate) and medium term. Question 3: What assessment has there been of using this more innovative design (to what extent has this been tested elsewhere) against more traditional design approaches. Response: There are standard approaches for climate proofing wharves for large vessels, which are far less sensitive than small vessels to the wharf height as they are loaded using cranes and passenger gangways. However, such standard approaches are not feasible for a facility such as the provincial wharf serving small vessels with low freeboard. If a small vessel wharf was to be built high enough even for 50 years sea level rise at high tide, it would be too high for small vessels to use initially at low tide. Taking this into consideration, the proposed wharf design initially provides for as much height increase as can be made without short term accessibility problems for passengers and for loading and unloading freight manually to and from vessels which provide both passenger and freight services (i.e. about 25 years sea level rise). To address future sea-level rises beyond 25 years, the proposed climate proofed wharf has been designed to be able to accommodate future incremental wharf height increases by simply building a kerb around the edge and filling in with aggregate followed by a new topping layer. This provides a simple and easily implemented means of raising the wharf later, requiring no sophisticated design or construction techniques and which can be carried out by local contractors. Raising the wharf in this manner would not require any knowledge of the original design assumptions, details of which are often lost over a period of 25 years. Hence the design includes full climate resilience for 50 years, including full climate proofing for 25 years and a simple means of extending climate proofing for another 25 years simply without any detailed knowledge of the original design or adopting sophisticated construction techniques. A similar approach to climate proofing such vulnerable wharves was also used in the Avatiu Port Development Project, financed by the ADB and the Cook Islands government in 2008.	
Comment 2	Katharina Stepping	Germany	The project seeks to upgrade the infrastructure of the Alotau Provincial Wharf in the Milne Bay Province with "climate proofing design features" and to provide insights for the development of climate resilient building codes and design standards at the national level. Its larger goal is to increase the resilience of the Milne Bay community to the impacts of climate change, namely the expected sea-level rise and the increase in storm surges, and to improve the capacities of communities, government agencies, and civil society on how to plan and respond to the impacts of climate change. The project seeks additional financing for the Building Resilience to Climate Change in Papua New Guinea (BRCC) program funded by the Climate Investment Fund (approved in January 2016). The aim of the BRCC is to	Sep 11, 2017

			mainstream climate resilience into development planning. The BRCC is implemented by the Office of Climate Change and Development (OCCD). Germany highly appreciates the goal of the project. However, to guarantee a successful implementation, the actual project design requires major clarifications and specifications. The precise goal, the institutional and the financial arrangement underpinning the project, and the knowledge dissemination mechanisms to facilitate learning remain largely unclear. Also, in terms of presentation, too many abbreviations and information on project specifics (e.g. very detailed and partly outdated tables and figures) and unclear cross-references disturb the flow of reading. Thus, we strongly recommend better explaining the goal, rationale and details of the project. We kindly ask for a more precise and longer description of how the project seeks to achieve its intended goals, a more empirically-grounded justification of the project and its relation to other projects and programs, and more technical details on the "innovative method of integrating climate change resilience factors into the wharf design" (p. 2, Annex 10). Improvements may include: (1) short report of the shortcomings of the existing wharf infrastructure; (2) more detailed information on potential beneficiaries at the local and national level (e.g. local fishermen/ population, national authorities involved in infrastructural planning) and on their needs; (3) a brief technical outlook on the innovative climate proofing design; (4) references to complementary projects or potential synergies with other PPCRF projects in Papua New Guinea (in particular other BRCC projects).	
Response 1	Cristina Santiago	ADB	Thank you for your comments. Since the Alotau Provincial Wharf project is an additional financing component, there are strong linkages with the main BRCC project. Unfortunately, the extent of project detail allowed within the project documents was constrained by the respective guidelines and templates. Nevertheless, we seek to provide the clarifications structured in accordance with your requests. Project description and development A key output (output 3) of the main project (Building Resilience to Climate Change in PNG) was to deliver an enabling framework to mitigate the impacts of climate change on coastal infrastructure through (i) developing policies in relation to the operations and maintenance of port facilities and designs to be used in climate proofing coastal assets; (ii) upgrading engineering design standards, (iii) incorporating benefits from climate protection in feasibility studies, and (iv) recommending sustainable financing alternatives for operations and maintenance. At the time of project preparation of the main BRCC project, it was originally intended to include the climate proofing of the Alotau Provincial Wharf in the main project scope. The proposed climate proofing of the Alotau Provincial Wharf was proposed by the Milne Bay Provincial Government (MBPG) based on criteria that (i) the facility was vulnerable to climate change, (ii) the facility was a critical item of infrastructure in terms of servicing remote island communities (iii) the economic benefit from the investment would have to be significant (iv) that the site of the facility had to be accessible in order to provide a demonstration to other provincial governments (v) that the provincial government had to confirm the facility as a priority investment (vi) that the total cost of the rehabilitation had to be less than PGK13 million (to conform with available funds) and that (vi) the beneficiary provincial government would be requested to provide counterpart funding to part finance the investment. However, since the feasibility studies for Alotau Provincial Wharf project could not be completed in time, the main BRCC project was processed for funding approval without the Alotau Provincial Wharf. On 10 July 2015, the PPCR Sub-committee approved (i) grant funding of $24.25 million for the main BRCC project, (ii) the concept note proposing additional PPCR allocation of USD 5.0 million for the climate proofing of Alotau Provincial Wharf on the basis that the additional financing will complement output 3 of the main BRCC project; and (iii) project preparation grant of USD 200,000 to support the feasibility study for the Alotau Provincial Wharf. Subsequently, additional funding resources were drawn from ADB's technical assistance to complete the feasibility study for the Alotau Provincial Wharf, since the ADB project team had assessed that the allocated funds of USD 200,000 was insufficient. The feasibility study commenced in January 2017, and was completed by end-April 2017. Background 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. Using the international poverty threshold of	Sep 15, 2017

$1.90 a day, about 39% of the total population are considered poor. In the case of Milne Bay Province, the most disadvantaged people in the province are those living in the atolls west of Kiriwina Island, Yanada, Alcester, and Budibudi Islands, where there are high population densities, very low incomes, and poor access to services. Access to basic services within the Milne Bay province are hampered by the lack of or poor, unreliable and unsafe transportation conditions. Transport mode in the province mostly by passenger boats, cargo boats, dinghies or outboard motor boats, and canoes, with residents from the nearest island districts require 4 to 8 hours travel to reach the nearest service center including access to health centers and hospitals, while residents from far islands require more than one day travel by boat.
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 storm surges and coastal flooding are likely to worsen the situation. Public health will also be affected.
Justification for the project
In the context of climate change, the Climate Risk and Vulnerability Assessment has confirmed the urgent need to ensure the wharf is protected from rising sea level, storm surge, and increased wave height. The wharf deck height should be sufficient to cope with projected intermediate-high sea-level rise (0.8 m) over the next 50 years.
At the operational level, the primary purpose of the project is to provide climate resilient berthing facilities for the intermediate size passenger and cargo vessels (between 10m and 20m LOA) providing essential connectivity between outer islands and Alotau; emergency vessels including coastal protection vessels (Pacific Class); emergency support vessels utilized after extreme weather events in distributing emergency supplies from Alotau Overseas Wharf for onward distribution to outer islands using passenger and cargo vessels; larger fishing vessels (not loading or unloading but changing crews through Alotau Guerney Airport) which are too big for the Alotau Jetty and the fishing wharf and too small for the coastal or international Wharfs, at which they would in any case have to give priority to larger vessels
Physical condition surveys was conducted by the consultant team as part of the feasibility studies. It was found that the existing wharf's concrete deck is damaged and design life expired. The engineer considers the existing wharf is considered to have low structural reliability. The wharf is unsuitable for its expected future needs, and the engineer advised that it should be replaced by more durable structure with lower maintenance requirements. Full details are described in the consultant team's Condition Report, please do not hesitate to let us know if you would like us to provide a copy.
During normal operations, the wharf contributes to increased economic activities to support the livelihood and social needs of the communities, particularly women and children. Without the wharf, not only would the normal operational be disrupted, more crucially, emergency response operations to distribute emergency supplies to outer-islands after extreme climate events would not be possible. The findings of the consultant team reconfirmed the urgent need for the existing wharf to be rehabilitated.
Project beneficiaries
The Alotau Provincial Wharf is the economic lifeline for populations living in the outer islands of Milne Bay Province. Based on the latest population data, an estimated 170,000 people or about 36,000 households, with 48% women, from Milne Bay Province will benefit from the project through improved wharf facilities. Considering that the residents from the province, especially from the island districts, heavily rely on maritime transport, the project will improve the connectivity between the island districts and will provide a more convenient and safer loading and unloading facility for the passengers. Following the previous annual trend on arrivals and departures of smaller passenger vessels in the provincial wharf, an estimated 7,600 passengers or visitors from various islands per year will directly benefit from the project. The improved wharf facilities will benefit an estimated 200 registered boat owners in Milne Bay Province, and about 2,500 dinghy owners or operators. Improvements in the provincial wharf will provide safer and easier facility for docking, loading, and unloading for the boat and dinghy owners/operators carrying cargo and passengers. A full analysis of the positive social impacts of the project are included in the Social Due Diligence Report. Please do not hesitate to let us know if you would like us to re-send a copy.
Technical outlook on innovative climate proofing
Regarding the range of options, five options were initially studied. These included refurbishing the existing wharf (life expired and impossible to climate proof), a

coastal reclamation behind a vertical wharf face (impossible due to existing committed land uses and the steeply shelving underwater profile) a floating jetty with and without a breakwater high construction and maintenance costs) and the two options (one being an optional, higher cost improvement of the other) which were the subject of detailed preliminary design.

Regarding innovative design methods, we draw your attention to the responses we made to the UK comments. There are standard approaches for climate proofing wharves for large vessels, which are far less sensitive than small vessels to the wharf height as they are loaded using cranes and passenger gangways. However, such standard approaches are not feasible for a facility such as the provincial wharf serving small vessels with low freeboard. If a small vessel wharf was to be built high enough even for 50 years sea level rise at high tide, it would be too high for small vessels to use initially at low tide.

Taking this into consideration, the proposed wharf design initially provides for as much height increase as can be made without short term accessibility problems for passengers and for loading and unloading freight manually to and from vessels which provide both passenger and freight services (i.e. about 25 years sea level rise). To address future sea-level rises beyond 25 years, the proposed climate proofed wharf has been designed to be able to accommodate future incremental wharf height increases by simply building a kerb around the edge and filling in with aggregate followed by a new topping layer. This provides a simple and easily implemented means of raising the wharf later, requiring no sophisticated design or construction techniques and which can be carried out by local contractors. Raising the wharf in this manner would not require any knowledge of the original design assumptions, details of which are often lost over a period of 25 years.

Hence the design includes full climate resilience for 50 years, including full climate proofing for 25 years and a simple means of extending climate proofing for another 25 years simply without any detailed knowledge of the original design or adopting sophisticated construction techniques.

Complementary project or potential synergies with other BRCC projects

Augmenting the outcomes for the main BRCC project – Additional financing is considered appropriate because the additional component will augment the outputs of the original BRCC, and outcome statement by delivering immediately tangible benefits to Milne Bay Province. The proposed project will serve as a pilot and demonstration climate adaptation model for climate proofing similar structures in PNG, and contribute to development of a climate-resilient framework for similar vulnerable structures in PNG. Through implementation of the Alotau Provincial Wharf project, the capacities of MBPG, CCDA and related agencies would be strengthened to implement similar innovative climate change projects in the future. There is also high demonstration potential in replicating the climate proofing design at Alotau Provincial Wharf to other vulnerable coastal maritime infrastructure in PNG. The proposed project contributes to sustained access of outer island communities to basic needs post-disaster and extreme climate events.

The main BRCC is funding a consulting package on PPCL Enabling Framework Consultants (PEFC). The PEFC would also undertake the detailed design for the Alotau Provincial Wharf. The design concept for the climate proofing design concept will be incorporated in the design manuals to mainstream climate proofing into the future design for similar vulnerable maritime structures.

Further, as mentioned in Annex 10 (Cover Page for Project/Program Approval Request), 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 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.

Synergy with development partners – The PNG government intends to develop the tourism industry on Alotau. MBPG is currently drafting an urban development plan for the Alotau town area, which will separate retail and tourism activities from wholesale and industrial activities, which will be confined to the eastern side, near the Alotau international wharf. In March 2017, JICA approved grant assistance in Rehabilitation of Alotau Town Market and Fisheries Facilities. MBPG also informed the ADB project team that the World Bank was potentially interested to assist in beautification of the coastal strip between Alotau International Hotel and the main

			market. Complementarity with provincial government's plans – The feasibility study for the Alotau Provincial Wharf with proposed wharf layout and design of the wharf, and the proposed integration with the land-side facilities (including integration with the road access and adjacent jetty) has been handed over to MBPG to ensure 1) integration with the design and implementation of the upgrade of market access road, and 2) integration of the climate proofed wharf within the Urban Development Plan – which is currently being developed by MBPG.	
Comment 3	Katharina Stepping	Germany	According to the documents provided, a successful implementation of the proposed project seems doubtful. The status of the overarching BRCC programme is considered as an "actual problem" (see ADB Memo, Paragraph 6, p.2). The project rating is expected to change to "potential problem" or "satisfactory" by December 2017 only when at least one of the two major consultancy contracts will have been awarded. Against this background, we recommend to link the approval of additional funds worth US$ 5 million to expand the BRCC program to major progress of BRCC and amendments to the project design and the successful recruitment of the needed consultancies. Moreover, the procurement risk assessment estimates that the project risks are high, mainly due to lack of experience in procuring and supervising projects of this scale and complexity, and lack of prior experience in implementing donor funded projects. Some risk mitigation measures have been identified (e.g. hiring of experienced staff) but do not seem sufficient. Also the financial management assessment concludes the financial management risk as high. The risk mitigation measures outlined for these categories should be further specified and expanded in the proposal in order to provide an acceptable justification for funding. We advise to seek detailed feedback as well as support from technical agencies or BRCC Project Implementation Support Consultants in order to develop the project further.	Sep 11, 2017
Response 1	Cristina Santiago	ADB	The ADB project preparation guidelines for additional financing requests require indication of the current project performance rating of the ongoing and main BRCC project in the ADB memo seeking approval to additional financing. In this case, the ADB's performance monitoring system is automatically picking this project up as "actual problem" because its performance has been linked to the award of the major contracts – the Project Implementation Support Consultants (PISC) and the PPCL Enabling Framework Consultants (PEFC). However, the performance rating systems is unable to capture the ADB project team's efforts in conducting several missions to PNG this year to support the government in expediting progress. To date, the PISC package is on-track to be awarded by December 2017, and the PEFC Package is expected to be awarded by January 2018. As the Executing Agency for main BRCC project, the CCDA shall be responsible for overall management and coordination involved in preparing and implementing the additional financing component to upgrade the Alotau Provincial Wharf. The MBPG would be the implementing agency for the Alotau Provincial Wharf. To ensure smooth implementation, a new Project Implementation Unit will be established within MBPG. PNG Ports Corporation Limited (PPCL) will provide technical advisory support to the MBPG, particularly in reviewing detailed engineering design, procurement documents, and construction of the new wharf. The financial management assessment and procurement risk assessment was conducted on MBPG (the Implementing Agency) in accordance with the relevant ADB guidelines. Indeed the project risks are high, and this is attributed to lack of experience in procuring and supervising projects of this scale and complexity, and lack of prior experience in implementing donor funded projects. However, it is inevitable that such developing member countries, particularly such provincial government agencies, face challenges from its inherently weaker procurement and financial management systems due to lack of exposure to working with international donor agencies on such large scale projects. The MBPG has put up a strong show of commitment to implementing the Alotau Provincial Wharf project by establishing and staffing a Project Implementation Unit, doubling their government counterpart funding contributions to PGK 2 million, and committing to appoint a Project Accountant Accountant to manage the project finances of the proposed additional financing project when it is approved. This position shall be mandatory, and put in place at the start of project implementation. The Project Accountant shall ensure timely preparation of financial statements, budget preparation, reporting, and support for audit. Under the main BRCC project, one procurement consultant and two financial	Sep 15, 2017

			management consultants have been mobilized. These consultants have started to provide on-the-job training to the Project Accountant at CCDA to ensure the necessary internal controls and financial management systems are in place to account for project expenditures in accordance with ADB's requirements. The first financial statement has been produced and submitted to the Auditor General's Officer for audit. For the subproject for Alotau Provincial Wharf, the Financial Management Consultant will support the Project Accountant at MBPG to establish a financial management system for use by the PMU. This financial management system will be compatible with the CCDA accounting software to ensure delivery of consistent and timely reports. The financial management systems and procedures shall also be appropriately documented. Both formal and on-the job training will be provided by the Financial Management Consultant to the appointed Project Accountant to discharge his/her duties. If required, further support and training can also be provided through ADB's Project Improvement Action Plan (PIAP) on financial management aspects. The scope of the BRCC-funded Procurement Consultant's is to assist in actual procurement activities under the BRCC project. Currently the Procurement consultant is working closely with CCDA, and under close supervision of the ADB project team to mobilize the PISC and PEFC consultancy packages – which are progressing well. In terms of project management, the PISC would develop the necessary capacity development plans – including formal training and on-the-job training – to national agencies such as MBPG to improve their project management and implementation skills and capacity for future management and implementation of such similar innovative climate change projects. Further, it is proposed to provide a dedicated Project Management, supervision and capacity building consultant (funded by the additional $5 million grant) to support the MBPG in the implementation of the Alotau Provincial Wharf project. This Project Manager shall support MBPG on procurement and implementation activities, provide training, and establish project control systems. This will also enable the MBPG to provide regular progress updates to the overall Project Steering Committee set up for the main BRCC project. On the technical aspect, the PEFC would undertake the detailed design of the proposed Alotau Provincial Wharf, prepare bidding documents for the civil works package, and provide procurement support to MBPG in the tendering process. The PEFC would also incorporate the design concept for the climate proofing of Alotau Provincial Wharf within the broader framework of strengthening PNG Port's capacity in design, construction, operation and maintenance of such vulnerable ports/jetties/wharves and associated infrastructure to enhance resilience of such economically critical maritime assets to climate change impacts. Overall, significant consultant resources have been invested not only to support the successful implementation of the main BRCC project, but also to prepare the Alotau Provincial Wharf project for successful implementation. The ADB team has been closely monitoring and supervising the project through field missions, and maintaining regular communications with the CCDA, relevant government agencies, and the MBPG for the Alotau Provincial Wharf. The recruitment of PISC and PEFC consultants is well underway with contract awards expected by December 2017 for PISC and January 2018 for PEFC. Delays in funding approval will also delay the ADB approval of the project. This will also mean delays of the preparatory activities (demolition of existing wharf) to be done by the government. We therefore request the PPCR Subcommittee to consider approving the funding, provided the proposal is technically accepted, without linking it with the consultants contract award.	
Comment 4	Katharina Stepping	Germany	We would like to thank the ADB for the comprehensive clarification. We appreciate the efforts undertaken to mitigate project-related risks (comment 3). The mentioned measures, e.g. of providing training to responsible project staff, establishing a new Project Implementation Unit, and appointing a project accountant in order to ensure a smooth project implementation, seem reasonable. We recommend the ADB team shall continue to closely monitor and supervise the project.	Sep 19, 2017
Comment 5	Colette O Neil	United Kingdom	Dear Mafalda The UK supports the approval of this project. We would still like to understand what the 25 year breakpoint means and the conditions required to climate proof the project up to 50 years. Regards Colette	Sep 20, 2017

Response 1	Cristina Santiago	ADB	Thank you for your support. As mentioned in the earlier comment, the proposed wharf is designed to address the climate change projections over a 50 years horizon. However, the wharf cannot be raised to the full height required for full climate proofing up to 50 years immediately, since the small vessels for which it is required have low freeboard and cannot be loaded from above due to the canopy design required to allow joint passenger and cargo use. Raising to the full height (600 – 800mm MSL increase) at this time to meet the 50 year sea-level rise would seriously restrict loading and unloading operations, particularly between low tide and mean sea level. Hence, for this project, a two stage adaptive approach is recommended. In the first stage, the new wharf will accommodate an initial 300mm of future sea level rise (which is approximately the 25 year sea level rise), with in-built structural capacity to accommodate a further elevation (500mm) of the main deck level at a later date if and when further sea level rise impacts functionality and operability beyond acceptable limits. A monitoring system would be put in place to trigger this second stage of raising the deck height beyond the 25 year sea-level rise scenario. This second stage of raising the deck height is designed to be a simple and easily implemented means of raising the wharf later, requiring no sophisticated design or construction techniques and which can be carried out by local contractors. This involves simply building a kerb around the edge and filling in with aggregate followed by a new topping layer. To enable this simple and low cost method in raising the deck height up to 50 years, the new wharf (in first stage) will be constructed with built-in structural capacity to carry the full deadweight of the incremental wharf height increase in the second stage. For further details, we kindly refer you to the Feasibility Report, sections 6.2.1-Adaptive approach to sea level rise, and section 8.1.1 - Enhanced structural capacity. Please do not hesitate to let us know should you wish for a copy of the Feasibility Report to be resent. Thank you.	Sep 22, 2017