**Annex C**

*April 25, 2019*

[Redacted]

This Technical Consultation Document is in connection with the *Administrative Agreement regarding the Establishment of the UK Blue Carbon Fund*, signed on April 2, 2019 as it may be amended from time to time (the “Fund Agreement”).

Below is a description of the Valuing, protecting and enhancing coastal Natural Capital to support carbon capture, biodiversity, human well-being and build coastal resilience Project. Unless we receive a written objection from you by close of business of May 9th, 2019, communicated as per the Non-Objection Process set forth in Section 5.1 of the Fund Agreement, we will proceed to allocate $2,312,992 of the Fund to this Project, as per the provisions of Section 5.1 of the Fund Agreement.

**I. BASIC FACTS**

Type of Operation: NON-REIMBURSABLE

Country: Panama

Project name: Valuing, protecting and enhancing coastal Natural Capital to support carbon capture, biodiversity, human well-being and build coastal resilience

Borrower/Beneficiary National Audubon Society

Executing Agency: National Audubon Society

Total project cost: $3,362,964

Total financing cost: $1,049,972

Financing breakdown:

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| --- | --- | --- | --- |
| **Activity/Component** | **IDB/Fund Funding** | **Counterpart Funding** | **Total Funding** |
| Component 1. Deliver robust science to establish a blue carbon baseline in Panama’s mangroves | $1,090,000 | $40,000 | $1,130,000 |
| Component 2. Establish economic valuation of mangrove ecosystem services | $196,000 | $31,000 | $227,000 |
| Component 3. Build knowledge, awareness and engagement with key stakeholders to drive action that increases protection of coastal wetlands | $ 375,600 | $204,300 | $579,900 |
| Component 4. Support and strengthen policies that incentivize mangrove conservation and restoration | $ 195,500 | $ 37,100 | $ 232,600 |
| Project Administration | $455,892 | $462,572 | $918,464 |
| Total | $2,312,992 (69%) | $1,049,972 (31%) | $3,362,964 |

**II. PROJECT DESCRIPTION**

2.1 Panama is in the top 20 countries in the world for mangrove cover, and the country’s mangroves provide key ecosystem services to its residents. Panama’s mangroves provide important nurseries for shrimp and commercial fish, supporting a diverse industry that was valued at over $400 million/year in 2007 (Atlas Nacional de la República de Panamá, 2007). The mangroves support a range of biodiversity, and the Bay of Panama mangroves are the most important site for migratory shorebirds in the Americas, with over 2.5 million birds utilizing the area annually alongside over 200 resident bird species (8 IUCN Endangered), 177 fish species, 50 mammals, 21 amphibians and 28 reptiles. Further, Panama’s mangroves have a huge potential to sequester carbon through improved management and restoration, up to 9.8 x 107 tons CO2, helping in the global fight to mitigate climate change. Despite these benefits, unchecked development and urbanization has wreaked intense environmental damage on the mangroves, leading to degradation or outright loss of habitat, negatively impacting local communities with increased coastal flooding, loss of livelihood opportunities and more.

The objective of this project is to elevate the importance of Panama’s coastal Natural Capital (mangrove ecosystems), the carbon they sequester, and the biodiversity they support by shifting perceptions on the value and importance of the natural capital through a multi-pronged approach: 1) Delivering robust science that establishes a blue carbon baseline; 2) Establishing economic valuation of the ecosystem services provided; 3) Building knowledge, awareness and engagement with key stakeholders to drive action that increases protection of coastal wetlands; and 4) Supporting and strengthening policies that will incentivize mangrove conservation and reforestation. These efforts will be applied in two pilot sites, the Bay of Panama, and its mosaic of urban landscape and mangrove habitat, and the Bay of Parita, a site in transition, where the connection between mangroves and livelihoods is more obvious. Specifically, this project will help Panama include blue carbon associated with coastal natural capital into the country’s Nationally Determined Contributions (NDCs) under the Paris Agreement, support stronger climate adaptation efforts, reduce degradation and deforestation and build mechanisms that drive funding toward mangrove and coastal conservation.

2.2 After decades of being undervalued, degraded and destroyed, mangroves and related wetlands and tidal habitat are now increasingly being recognized for the important role they play in mitigating and building resilience to climate change alongside other ecosystem services that benefit people and biodiversity. The Pacific Coast of Panama contains nearly 90% of the country’s mangroves; however, the coastline is experiencing rapid urban expansion and development which has contributed to a 68% loss of mangrove cover since 1980 (Lopez Angarita 2016). The expansion of Panama City east (population 880,000) has caused the greatest proportion of mangrove loss in the country (Kauffmann 2012). The Panamanian government has moved to protect mangroves that remain in the Bay of Panama although regulations have not been implemented. By integrating coastal Natural Capital into the country’s mitigation calculations under the Paris Agreement and building awareness around carbon and ecosystem service values the intention is to secure habitats over the long term and identify sustainable funding mechanisms to fund their management. Further west along the Pacific coast, the Bay of Parita lacks the development and urban population of Panama City, but instead faces mangrove losses due to clearing for shrimp farming and salt production. The watersheds that feed into the Bay of Parita are considered to be some of the most vulnerable to climate change in the country causing major concerns for food security, local people livelihoods and wellbeing, the economy and biodiversity.

**Description of Activities and Outputs**

2.3 **Component I: Deliver Robust Science to Establish a Blue Carbon Baseline in Panama’s Mangroves** Mangroves, alongside other coastal wetlands like salt marshes and seagrasses, store carbon at rates far greater than their terrestrial counterparts do. As a result, mangrove conservation and restoration has been identified as one of the best opportunities for climate mitigation through the long-term storage of carbon. This project will (i) *analyze current mangrove coverage* at two project sites, the Bay of Panama and Bay of Parita. This analysis will be completed using the most current Global Mangrove Watch data layers of mangrove cover and will be compared to the 2000 and 2010 coverage found by Panama’s National Environmental Authority (now the Ministry of Environment), using Google Earth Engine, a cloud-based computing analytical framework. The analysis will be used to create an online map and report that can serve as a communication tool with key stakeholders. Additionally, findings will be used to (ii) *prioritize sites for mangrove restoration* and ground truth the broad scale assessments made in the restoration potential map by Ocean Wealth ([link](http://maps.oceanwealth.org/mangrove-restoration/)). In line with assessing mangrove cover, the project will (iii) *develop a baseline on existing carbon storage* and establish a methodology to monitor carbon accumulation. Analysis will cover aboveground (biomass) and belowground (biomass and soil) carbon stocks. With the above findings in hand, the project will explore voluntary and regulatory carbon market options for Panama’s mangroves.

2.4 **Component II: Establish Economic Valuation of Coastal Natural Capital** The ecosystem services provided by coastal wetlands are rarely quantified in economic terms and are not disseminated among decision makers or the general public, resulting in lack of awareness and appreciation of wetlands and little impact on decision-making. Broad scale global assessments estimate that mangroves provide at least US$1.6 billion each year in ecosystem services that support coastal livelihoods and communities around the world. Despite this, the value of Panama’s mangroves is often reduced to conversion for commercial development. In order to highlight the importance of coastal natural capital, the project will (i) *Work with Stanford University’s Natural Capital team and tools to* *perform a Natural Capital analysis of three target ecosystem services: carbon sequestration,* fisheries, and storm protection.

2.5 The project will present the results of this analysis to local politicians to inform decision-making and integrate it into a communications campaign with public and private stakeholders. The analysis will highlight the key role that mangroves play in providing natural protection of the Tocumen International Airport, the newly developed wastewater treatment plant for Panama City, miles of roads and other industrial facilities. Dialogue has already begun with these stakeholders on the value of nature-based infrastructure.

2.6 **Component III: Build knowledge, awareness and engagement with key stakeholders to drive action that increases protection of coastal wetlands** In order to build local and national awareness on coastal natural capital and the services that it provides, the project will deliver community-based initiatives that educate, engage and empower people to value and better manage coastal wetlands to mitigate climate change, improve coastal resilience and support human well-being. Building off of proven models, the project will (i) *Execute a national communication strategy to engage and educate key stakeholders, including newly elected officials with two key goals 1) highlighting the value of coastal natural capital, and 2) raising awareness on stresses to the environment, such as plastic pollution*. Plastic pollution has been identified as a threat to Panama’s mangroves; plastic debris builds up in mangrove sites, suffocating roots and causing die-offs. The communication strategy will include infographics on mangrove value, a 3-minute video on plastic pollution, news features, radio, and more. The campaign will help efforts to gain traction and influence policy decisions with Panama’s new administration on solutions to plastic contamination. As part of the campaign, the project will work with local artists to highlight the cultural importance of mangroves and hold a mural competition, lacing the urban landscape with artistic imagery of mangrove habitat.

2.7 This project will (ii) *build a coalition of public and private sector stakeholders to advocate for coastal natural capital.* In 2015, a coalition of stakeholders united to advocate that the Bay of Panama receive official protections from the government. The project will refresh and enhance the coalition to create a roundtable with representation from government, civil society, and the private sector, and in this iteration, it will use the economic valuation data generated to engage with industry and others (ie. Shrimp, the wastewater treatment plant) to support and contribute to conservation and policy initiatives including protection of key infrastructure using mangrove restoration.

2.8 *Finally, the project will strengthen coastal wetland programming for underserved students from poor and vulnerable communities using the successful Aulas Verdes environmental education platform*. Aulas Verdes provides in-class lessons on the carbon and ecosystem services that coastal wetlands provide then programs field trips to mangrove sites to experience wetlands – currently over 3000 students participate annually.

2.9 **Component IV: Support and strengthen policies that incentivize mangrove conservation and restoration** The overarching goal of this project will be to use findings to support and build knowledge in the government to inform policymaking that promotes the conservation of mangroves at the national level. The project will work with stakeholders to (i) *support a formal recognition by the Panamanian government to include mangroves in their NDC*, which will in turn help Panama to meet its pledges under the UNFCCC. Raising the profile of mangroves at the national level will allow government officials to make better informed coastal development decisions and promote nature-based solutions. The project will also work with key partners to identify sustainable financing mechanisms that can support mangrove conservation and restoration into the future.

2.10 The project will use the studies, communication campaign, and roundtable to influence policymakers to (ii) *enact policies to ban single-use plastic and incentivize recycling*. Large-scale policy changes are needed to enable the conditions in-country to bring plastic to market and to drive funding toward much needed recycling infrastructure in Panama City. In collaboration with the Technical University and the municipality, the project will identify business opportunities with a clear value chain and mechanisms for kickstarting plastic recycling.

2.11 Lastly, the project will work with Panama’s government to (iii) *conduct a strategic environmental assessment on the Bay of Panama*, which will be used to inform the creation of a management plan for the protected area. There is a recognized need to establish the “rules of the game” for the mangroves in the protected area and beyond, and this will establish a protocol for future development decisions. As part of the study, we will perform rapid biodiversity assessments to understand the value of the mangroves in providing habitat for diverse species, in partnership with the Smithsonian Tropical Research Institute and SENACYT (Panama’s National Secretary of Science, Technology, and Innovation).

**Execution period: 36 months**

**Expected Results Framework indicators and, when available, preliminary expected results:**

4.1 *Component I: Deliver robust science to establish a blue carbon baseline in Panama’s mangroves*

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| **Indicator** | **Target** |
| ICF KPI 8: Number of hectares where deforestation and degradation have been avoided or restoration has occurred through ICF support | 68,659 ha of mangrove habitat (Upper Bay of Panama + Bay of Parita) |
| Mangrove cover maps completed, and online platform developed | Number of organizations using cover maps, Number of users for online platform |
| Baseline for carbon storage developed | To be determined |
| List of priority sites for mangrove restoration developed | Funding identified to restore at least one priority mangrove site |
| Carbon market and sustainable financing analysis | List of options for long-term sustainable financing for future mangrove conservation and restoration projects |

*Component II: Establish economic valuation of mangrove ecosystem services*

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| **Indicator** | **Target** |
| ICF KPI 10: Value of ecosystem services protected through ICF support  | TBD |
| Usefulness for government of data produced on social and economic value of mangroves in target countries | TBD |
| Natural capital analysis completed for Bay of Panama and Bay of Parita | At least three tradeoff analyses included (ie. development v. maintaining natural capital) |
| Number of community members engaged through workshops to identify priority ES | TBD |
| Participatory conservation plan developed for Bay of Parita | TBD |

*Component III: Build knowledge, awareness and engagement with key stakeholders to drive action that increases protection of coastal wetlands.*

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| **Indicator** | **Target** |
| ICF KPI 14: Level of institutional knowledge of Blue Carbon issues in partner countries | TBD |
| Number of NGOs/CBOs involved in program activities | At least 20 local NGOs/CBOs involved in program activities  |
| Number of people in national institutions trained in mangrove protection and the value of these ecosystems | TBD |
| Number of knowledge products or policy documents produced related to mangrove governance. | 4 knowledge products/policy documents produced (analysis of mangrove policy, ecosystem service valuation white paper, mangrove restoration potential document, carbon market exploration and sustainable finance report) |
| Number of community-based approaches implemented | TBD |
| Private sector participation in mangrove stakeholder coalition | TBD |
| Number of students receiving environmental education programming through Aulas Verdes program | At least 3000 students annually |
| Number of teachers receiving environmental education training through Aulas Verdes program | At least 100 teachers annually |

*Component IV: Support and strengthen policies that incentivize mangrove conservation and restoration.*

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| **Indicator** | **Target** |
| ICF KPI 11: Volume of public/private finance mobilized for climate change purposes as a result of ICF funding | $1m counterpart + TBD |
| Number of policy and regulatory assessments undertaken through the program | 2 assessments completed (analysis of mangrove policy, carbon market/sustainable finance report) |
| Embedding of mangrove protection and/or restoration in national mangrove frameworks and/or global commitments.  | Inclusion of mangroves in Panama’s NDC accounting |
| Strategic environmental assessment completed | Assessment accepted by local government officials |

**III. PROJECT AGENCIES**

3.1 The project will be executed by the National Audubon Society (Audubon), a USA-based NGO dedicated to protecting birds and the habitat that supports them. Audubon will hire individual consultants and/or firms in accordance with the Bank’s procurement policies and procedures for the implementation of activities under the project. A project management unit will be established to help manage the program. In addition, Audubon will actively collaborate with local partner the Panama Audubon Society for implementation of project activities. Audubon has been working with local conservation NGOs, government agencies and community groups in Panama for over a decade.

3.2 The project will leverage and complement IDB Group activities in Panama, including the NDC Accelerator, which seeks to help countries with their NDC commitments, PN-L1150 the ongoing loan in Panama City on, and will build on the work of the Network of Mayors of HUD in Panama City.

**IV. STRATEGIC ALIGNMENT**

4.1 Alignment with UK Blue Carbon eligibility criteria and Fund thesis:

4.2 The project is aligned with existing IDB loan PN-L1150, which seeks to improve the resilience of coastal urban areas. This project will value and strengthen the consideration of nature-based solutions as sustainable infrastructure, adding to the rationale of preserving mangroves for their carbon stock. In addition, the project is aligned with the IDB’s Natural Capital Lab programming, which seeks to develop projects that value the range of ecosystem services of a resource and use that valuation to change government policy and public and private investment.

4.3 Theory of Change: Between the Bay of Panama and Bay of Parita in Panama, there are over 68,000 ha of mangroves with the potential to store 9.8 x 107 tons CO2. If the project can generate robust data establishing a baseline for carbon, alongside a valuation of the ecosystem services provided by the mangroves, and describe and quantify the human wellbeing and livelihood benefits provided by coastal ecosystems, then the project will have the necessary information to inform and work with government institutions, NGOs and CBOs to formally include mangroves in Panama’s NDC commitments under the Paris climate agreements. By doing this, the project will increase the perceived value of the mangrove ecosystems by government institutions, NGOs, CBOs and the private sector which will drive policy shifts, increase mangrove protection and help finance restoration efforts for mangrove habitat.

4.4 Improved national policies, increased investment in protection and restoration of mangroves = increasing mangrove cover supporting carbon mitigation, coastal resilience, livelihoods and biodiversity.

**V. IDENTIFICATION OF POTENTIAL RISKS**

5.1 One main risk for this project is the change in Panama’s government – in May 2019, Panamanians will elect a new government at both the national and municipal levels. While we are confident that Panama Bay will remain protected, the level of support for coastal wetlands beyond the protected area remains an important question. To mitigate this risk, the program will engage with the newly appointed authorities to ensure their inclusion and to allow for knowledge exchange.

5.2 Another potential risk is lack of key stakeholder buy-in for the shifts in policy and local perception that we hope to drive; to mitigate this risk, the program will actively work with local communities and maintain open and transparent lines of communication between members of the conservation coalition we hope to unite.

5.3 A final risk is that of Panama becoming ineligible for Official Development Assistance as defined in the Program’s Agreement. It is expected that this may occur in 2020. For this reason, under Agreement language, the project would be approved and funded in 2019. Should the project approval pass beyond the date of Panama’s eligibility for ODA, the project will be withdrawn and not approved using UK funding.

**VI. Environmental and Social Classification**

6.1 The team will classify the project under ESG once UK pre-screening is completed.

For an operation with reimbursable and non-reimbursable components, one TCD will be submitted including the applicable elements above.

Sincerely,

[Redacted]