Approved Project Preparation Funding Application

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<thead>
<tr>
<th>Application Title</th>
<th>Project Preparation Funding Application for the Strengthening Urban Resilience in Riverside Asuncion Program</th>
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<tr>
<td>Country/ Region</td>
<td>Paraguay</td>
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<tr>
<td>Accredited Entity</td>
<td>Inter-American Development Bank (IDB)</td>
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<td>Approval Date</td>
<td>4 October 2018</td>
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Please submit the completed form to:

ppf@gcfund.org

and use the following name convention for the file name:

“[PPF]-[Agency Short Name]-[Date]-[Serial Number]”

For more information regarding the PPF, please go to:

http://www.greenclimate.fund/partners/countries/line-print
### A. Executive Summary (in one page)

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<th>Accredited Entity</th>
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<tr>
<td>Concept Note Title (reference number)</td>
<td>Strengthening Urban Resilience in Riverside Asuncion1</td>
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### Request Summary (in 200 words)

The Ministry of Planning for Economic and Social Development of Paraguay (STP), acting as National Designated Authority with the support of the IDB has prepared the Concept Note “Strengthening Urban Resilience in Riverside Asuncion” and submitted it to the GCF Secretariat on December 2016. The Program aims to reduce flood risk and its associated losses and damages, and strengthen resilience and adaptive capacity of the riverine community of Asuncion by promoting low-carbon and climate-resilient infrastructure and risk management.

This Program is part of a two-project package for the GCF to assist Paraguay to achieve its National Determined Contribution (NDC) targets with investments in (i) resilience to climate change in depressed urban areas of Asuncion (this Proposal) and (ii) energy efficiency for the industrial sector. These actions are prioritized in Paraguay’s NDC, which commits GHG emission reductions of at least 20% compared to the business as usual scenario by 2030.

Asuncion’s downtown riverside hosts a highly vulnerable population and ecosystem at risk from flooding. This risk is increasing with climate variability and climate change, which is increasing the probability of flood events from the Paraguay river. Gaps in local drainage infrastructure and land use changes that affect the Paraguay river’s watershed are also impacting the area. At the same time, the area serves as the cultural and political hub of the City and is an important source of employment for poor riverine communities.

The Program consists of an integrated flood risk management on Asuncion’s downtown riverside, aimed at reducing flood risk, strengthening resilience of vulnerable communities in the area, and recovering the riverine ecosystem by promoting low-carbon and climate-resilient infrastructure. The proposed interventions will reduce flood risks and strengthen climate risk management and adaptive capacity of the riverine district. The Program will benefit not only the population of the intervention area but also Asuncion’s Metropolitan Area inhabitants, approximately 2 million people who either live or work in the area.

The Program will focus on four areas: (1) Ricardo Brugada Neighborhood, with highly vulnerable riverine area with a population of close to 4,000 inhabitants; (2) San Miguel Sand Banks, a natural reserve of 300 hectares; and (3) the Historical Downtown District, an area comprised mostly of cultural and public office buildings, and an important source of employment for riverine communities; and (4) the old Port of Asuncion, an area under redevelopment that should integrate the neighboring vulnerable communities and the climate component in its planning. These areas are interlinked because of their geographical location alongside the Paraguay River shore, which together with their topographic and drainage conditions, calls for an integrated flood risk management intervention that includes vulnerable riverine communities as well as the area’s wetlands and marshes3.

The Program will design an integrated package of structural and non-structural measures, including: interventions focused on reducing flooding risk, including enhancing the drainage system, rehabilitating public spaces and creating linear parks that can also serve as flood retention areas; restoring the riverine ecosystem, including the natural floodplains and wetlands, rehabilitating flora and fauna in the riverside, and cleaning-up streams; improving the social housing stock and constructing new social housing with low-carbon and climate-resilient standards; connecting the Historical Downtown District

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1 The name when submitted to the GCF Secretariat was “Riverside and Urban Development Resiliency in Asuncion’s Historical Downtown District”.
2 Throughout the document, many acronyms will be indicated as per its Spanish acronym.
3 The river is a natural ecosystem. The actions in riverside must incorporate criteria beyond structural security, drainage capacity and economic considerations. The geomorphological environment, the natural ecosystems, the urban environment, the landscape and accessibility are some of the conditions whose attention improves the final quality of the riverbank.
with its riverside communities to improve livelihoods, including by creating appropriate social and fiscal conditions to incentivize both public and private low-carbon and climate-resilient investments; as well as community awareness and capacity building for environmental management and increase in adaptive capacity in vulnerable areas of the riverside.

Based on the comments on the Concept Note from the GCF Secretariat, there is a need to (i) analyze climate risks at intervention area scale, (ii) to develop more in-depth climate change vulnerability and population studies that would lead to design the proposed interventions, and (iii) to elaborate the economic, financial and governance studies required by the Funding Proposal template. Therefore, Project Preparation Facility (PPF) resources are crucial to finance the preparation of the Funding Proposal.

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<th>Anticipated Duration</th>
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<tr>
<td>Estimated cost</td>
<td>Total Cost: USD $1,068,205</td>
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<td>Funding amount requested to GCF: USD $548,205</td>
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<td>Co-funding by the IDB: USD $520,000</td>
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B. Description of Activities

Since early 2016 the STP has lead an Ad Hoc Resiliency Working Group with members from the public sector such as the Municipality of Asuncion, Ministry of Public Works (MOPC), Ministry of Housing (SENAVITAT), Ministry of Environment (SEAM), and Ministry of Culture; and members of different NGOs such as Sobrevivencia, AVINA, Guyra Paraguay, Red Paraguaya de Ciudades Sustentables, and representatives of the ASU LAB civic group who are promoting the Historical Downtown District Master Plan. The group meets regularly, once a month or on a bi-weekly basis since March 2016 to discuss issues regarding the sustainability of the City of Asuncion and projects that should be implemented to promote climate change resiliency. Based on these meetings the Government of Paraguay has, with the technical support of the IDB acting as an Accredited Entity, presented a Concept Note to the GCF Secretariat in December 2016.

The “Strengthening Urban Resilience in Riverside Asuncion” Program is an integrated flood risk management intervention that aims at (i) reducing flood risk, strengthening resilience of a highly vulnerable population, and recovering the riverine ecosystem, by (ii) promoting low-carbon and climate-resilient infrastructure in the Ricardo Brugada Neighborhood, the San Miguel Sand Banks, the Port of Asuncion, and the Historical Downtown District, a Riverine area at risk of increasing flood events due to expected climate variability and climate change and the subsequent degradation of the urban environment and ecosystem (Figure 1 – Intervention area). In order to achieve the Program’s objectives, the Resiliency Working Group has prioritized the following interlinked interventions divided into four areas:

Component 1: Ricardo Brugada Neighborhood
- Rehabilitation of public parks and creation of new public spaces and permeable streets to mitigate runoff intensity and to promote community ownership and stewardship of the area, which increases adaptive capacity.
- Urban consolidation of irregular settlers to strengthen their adaptive capacity.
- Construction of hydraulic structures to protect areas from recurring floods.
- Construction of flood drainage infrastructure and sanitary connections to reduce flooding risk.
- Construction of low-carbon and climate-resilient social housing to reduce flood risk.
- Wetland and floodplain ecosystem restoration.
- Rehabilitation of five streams and construction of linear parks to reduce flood risk.
- Community awareness and capacity building to increase adaptive capacity and improve livelihoods.

Component 2: San Miguel Sand Banks
- Wetland restoration and habitat protection as an ecosystem-based adaptation measure to reduce vulnerability to flood events.
- Closure of dumpsites and improper land use to support wetland and habitat restoration.
- Population relocation outside the Ecological Reserve into low-carbon and climate-resilient social housing.
- Construction of an ecological park and infrastructure (trails, lookouts, shelters, etc.) to support conservation of the Ecological Reserve.
- Soil movement to restore natural soil conditions.
- Delineation and reopening of the Cara Cara Brook, which has been closed due to anthropogenic intervention, to serve as a natural drainage pathway for flash floods.
- Community awareness and capacity building to increase adaptive capacity and improve livelihoods.

Component 3: Port of Asuncion
- Construction of floodable park and extension of promenade to reduce flood risk.
- Development of hydraulic and drainage infrastructure in order to protect future development from flood events.
- Inclusion of LEED, ISO 14001, or EDGE certification strategies, operation, and technologies in buildings and public spaces to reduce energy grid vulnerability to electric outages.
- Promoting low-carbon and climate-resilient infrastructure and buildings in new coming private investments to reduce flood risk in the whole intervention area and to reduce energy grid vulnerability to electric outages.

Component 4: Historical Downtown District
- Construction of ecological and dynamic corridors to reduce rainfall runoff promoting permeable surfaces and reordering street vendors from Ricardo Brugada or San Miguel Sand Banks.
- Rehabilitation of streets, parks, and public spaces to mitigate runoff intensity.
- Retrofit of existing buildings with low-carbon technologies to reduce energy grid vulnerability to electric outages.
- Improving the transportation connectivity between the Historical Downtown District with Ricardo Brugada and the River to improve livelihoods and enhance adaptive capacity.

The above-mentioned activities will also deliver climate resilience and mitigation co-benefits to the intervention area such as diversification of the energy matrix, reduction in vector- and water-borne diseases, and urban consolidation that will promote re-densification of the Historical Downtown District, preventing future land use changes at the outskirts of the City. These actions will also strengthen the ongoing transport oriented developments in the Historical Downtown District such as the construction of the first bus rapid transit line and the extension of a bike lane system.

It is worth to mention that the IDB is also supporting the Development of a Master Plan on Drainage and Flood Management at the Metropolitan level, which is fundamental to address issues at the watershed level, including urbanization and impermeabilization. Note that the IDB elaborated a probabilistic flood risk analysis for the Metropolitan Area of Asunción in 2014. This study prioritizes the bañados the Asunción River and other settlements on the banks of the Paraguay River as the most critical areas in need of intervention. This area has important wetlands and is also prone to flooding. For further information on the involvement of the IDB in the intervention area see Annex 2, page 4.
The PPF funding will be directed towards seven activities that will provide in depth information of the intervention area, vulnerability, and exposure analysis, infrastructure designs and costs, and disaster risk management strategies for the final preparation of the Funding Proposal. The activities include:

**Activity 1 – Disaster risk and Climate Change Analysis of the intervention area.**

Given that one of the main objectives of the Program is to reduce flooding risk, strengthen resilience of the population living on the intervention area – around 1,500 families⁴ and rehabilitate around 300 hectares of natural wetlands, there is a need to quantify what are the current and future economic losses, as well as the biodiversity degradation given the current trend of climate variability.

This activity will focus on analyzing the flooding risk through the evaluation of the hazard as well as the exposure and vulnerability (physical and socio-environmental) of both the inhabitants and the infrastructure of the Ricardo Brugada Neighborhood, the San Miguel Sand Banks, the Historical Downtown District and the Port of Asuncion. The objective of this Activity is to understand the potential economic, social, and environmental costs of the no-action option under a new climate regime.

As one of the main products, this activity will elaborate hazard maps, vulnerability curves or functions, and maps of losses and damages obtained from the quantitative risk assessment conducted for population, ecosystem and infrastructure in the intervention area for extreme climatic events due to an increase in average temperature of 3 to 4°C. The risk assessment should focus on lack of wastewater collection systems or storm and stage management infrastructure, soil and fauna habitat degradation, water body contamination, improper use of the land, lack of solid waste management, population density, health risks, among other stressors. Though the main risks are flood related, the study should also consider other effects of climate related risks such as droughts and heat waves.

To perform the disaster risk and climate change analysis for the intervention area, a fully probabilistic risk assessment shall be carried out. This type of assessment has four components which are all modeled probabilistically, the hazard module, exposure module, vulnerability module, and risk module, which will be carried out through the following activities:

i) Describe and quantify the environmental, health, and social baseline indicators and future impacts given different climate change scenarios within the intervention area. The analysis should include, as minimum:
   a. Complete description of the physical environment of the Program intervention area and its zone of influence, with particular emphasis on the natural capital (biodiversity and ecosystem services). Description of the types of natural, social and anthropogenic threats to the area.
   b. Elaborate a high-quality (one meter horizontal and 10 cm vertical resolution) terrain model of the intervention area in order to understand the movement of flood waters and the areas which are affected the most.
   c. Develop a series of civil engineering and hydraulic infrastructure measures to mitigate and control floods.

ii) Hazard module: Develop and use hydrologic and 2D hydraulic models of the Paraguay river and the intervention area to create a stochastic set of flooding events, including scenarios that have not necessarily occurred yet, under different mitigation conditions (i.e. flood mitigation works and flood control mitigation measures), and for two conditions:
   a. Riverine flooding of the Paraguay River in the riverine strip of Asuncion, considering climate variability and change. Use the existing H-Q curve data to determine flow rates from 1904 to date.
   b. Urban flooding due to excess rainfall conditions due to climate variability and the subsequent flash floods created under. These stochastic scenarios should have a frequency of occurrence and should include the first two statistical moments, i.e. expected value and variance. Integrated flood hazard maps for return periods of 2, 5, 10, 25, 100, 500 and 1000 years should also be produced form the probabilistic integration of the stochastic scenarios, at a scale of 1:500 (or an appropriate scale define jointly with the PPF Project Coordinator). The return periods should also consider a new stationary regime due to climate change. Analyze the results of the model and identify critical areas, quantify the economic and environmental impacts on population and infrastructure under different return periods by numbering and monetizing ecosystem losses, population affected and infrastructure damages to extreme flood climate events.

iii) Exposure module: evaluate all the physical assets (infrastructure and buildings) and social assets (population) that are part of the intervention area, characterizing them through their physical conditions including construction types and materials, through their use sectors such as education, institutional, residential and commercial, and through their economic value. This evaluation helps determine what is exposed to natural hazards and how much they are worth.

iv) Vulnerability module: using the results from the exposure analysis, perform a classification of structure typologies found in the intervention area, in order to group similar behaving structures and develop vulnerability functions for each of these typologies. Vulnerability functions relate hazard intensity (for example water height) with a level of damage, typically expressed through a percentage of the asset’s value that is lost, and they must also express both the expected values and its variance. There should also be a set of curves for the baseline conditions, and another one which consider mitigation measures proposed for the exposed assets themselves (e.g. elevating houses, building houses with more resistant materials, etc.).

v) Risk module: integrate the hazard, exposure and vulnerability modules developed, performing the appropriate mathematical convolution among them. The result shall quantify the economic and environmental impacts and avoided losses between the no-action scenario and the proposed GCF program interventions considered in the hazard module. These shall be expressed through the Annual Average Loss (AAL) and the Loss Exceedance curve (LEC). Specify the gains from reducing flood risk and strengthening resilience and adaptive capacity of the proposed interventions, considering the relevant and applicable sub-criteria and assessment.

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⁴ Plan CHA, Volume 1, page 80 and page 97 indicates the approximate number of people living on Ricardo Brugada and San Miguel Sand Banks.
vi) Based on the current and future conditions under a flood regime identify and quantify the incidence of vector- and water-borne diseases and project their occurrence under a new climate regime.

vii) For monitoring purposes, propose socio-environmental vulnerability disaster risk reduction indicators based on the Sendai Reference Framework and quantify their current value.

viii) Based on the risk evaluation provide infrastructure and policy designs guidelines and strategies to reduce and manage the vulnerability of the area and increase their adaptive capacity. The design should include a descriptive budget for the development of an early warning system (EWS) for flood risk management within the area of intervention that can complement ongoing efforts by the central government and the IDB. The design guidelines should answer to:
   a. Description of type of measurements, analysis and computational models needed as well as the costs associated with their implementation.
   b. Identifying who should be in charge of collecting the measurements, analyzing and running the model data and alerting the appropriate authorities.
   c. Describe the appropriate actions that need to be taken by either a municipal or central government institution regarding prevention actions and include a list of civil society and private sector actors that could help in the development of a EWS.

Other activities to be addressed as complimentary to strengthen the justification of the GCF Program are:

ix) Identify and quantify the environmental stressors that urbanization has on the environment and the inhabitants of the intervention area, and study the effects on land use changes of the Historical Downtown District, the Ricardo Brugada Neighborhood and the San Miguel Sand Banks. Specifically, perform basic water and soil quality parameters analysis of the streams in the intervention area and the Bay of Asuncion, as well as the potable water that inhabitants drink. Perform a quantifiable assessment of the ecological assets and liabilities in order to understand the environmental baseline of the intervention area.

x) Estimate the Greenhouse Gas (GHG) emissions and the GHG emissions reductions or avoidance of the proposed interventions, considering as minimum:
   a. Horizontal urban expansion model of the intervention and a potential densification plan of the Historical Downtown District.
   b. Transport emissions within the intervention area and the potential reduction given the inclusion of the proposed dynamic and ecological corridors and the urban connections.
   c. GHG emissions due to lack of solid waste and wastewater management.

xi) Consider the impact of corrosion of infrastructure in the Historical Downtown District due to concentration increase of carbon dioxide in the atmosphere. Identify infrastructure vulnerability created by this phenomenon.

xii) Study and report the effects of heat waves and high temperatures on the population working, visiting, and living in the Historical Downtown District and provide an assessment of the level of adaptability of the populations to higher temperatures.

xiii) Develop an analysis of the possible effects of draught conditions in the intervention area and the adverse effects to population and ecosystem health.

xiv) Develop an analysis of the current risk reduction governance scheme for the intervention area with clear examples of how the central and municipal governments respond.

**Activity 2 – Population Study and Gender Action Plan.**

Since the last census of the area conducted in 2014, there have been several projects and programs, as well as flood events that have relocated inhabitants within the intervention area. The IDB and the GoP under loan PR-L1082 “Improving of Housing and Habitat” are also consolidating and improving the urban layout in the higher grounds of the Ricardo Brugada Neighborhood. Moreover, the GoP is investing around USD 43 million to relocate around 900 families living in the Ricardo Brugada area to a new neighborhood on higher ground. These projects have shifted in some form the demographics of the area and there is a need for a more detailed census that specifies, within the context of climate change, the gender inequalities and health problems caused by flood events and the unsatisfied housing needs.

This activity will carry out a Population Study identifying the population affected and benefited by the proposed GCF Program - disaggregated by location, gender, age, and economic status. It will be focused on identifying the demographics and analyzing the socio-economic situation of the intervention area and outlining the number of housing solutions (social housing) needed in the Ricardo Brugada Neighborhood and the San Miguel Sand Banks based on the vulnerability indicators identified in Activity 1. It will also elaborate a Gender Action Plan for the Ricardo Brugada Neighborhood, San Miguel Sand Banks, Port of Asuncion, and Historical Downtown District including: (i) gender diagnostic; (ii) action plan with recommendations on gender activities, SMART indicators, and detailed budget for each activity; and (iii) compilation of good practices on gender and climate change in urban developments.

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Activities to develop are described as follows:

Population Study
i) Developing a general cadastre of the intervention area by examining and evaluating the existing censuses and polls in order to quantify the total population living in the Ricardo Brugada Neighborhood and the San Miguel Sand Banks. The data should be disaggregated by the sex of the head of household. The data collected will be used to prepare a baseline for the project. The identification of the following indicators will be included:
   a. Property size and type.
   b. Type of material the house is made.
   c. Number of rooms.
   d. Type of electrical and sanitary connections.
   e. Solid waste disposal.
   f. Family members, gender, and age distribution.
   g. Occupation.
   h. Type of land they occupy (own, rent, irregular, etc.).
   i. Based on population perception and outputs from Activity 1, identify houses at risk of recurring floods.

ii) Conduct a house-to-house poll. The data collected will be used to prepare a baseline for the project. It should quantify the gender gap and the gender inequality index within the intervention area addressing the following topics:
   a. Workforce and economic participation (including type, sectors, formality, income, etc.).
   b. Labor conditions: formal, informal, unemployed.
   c. Economic situation (income source and location).
   d. Mobility condition towards work (walk, bus, bike, etc.).
   e. Education and literacy.
   f. Family structure roles.
   g. Head of household (household characterization: income, poverty, education, access to basic services, etc.).
   h. Health issues (and type).
   i. Violence against women, men, and/or children (analyzing its causes).
   j. Political participation.
   k. Access to technology.
   l. Access to recreational areas (parks, use of bikes, etc) and recreational activities.
   m. Vulnerability to climate change and adaptive capacity.

iii) Compare census done within this Activity with existing ones in order to derive trends and project a baseline. Additionally, compare the intervention area with the larger scale indicators produced under the Emerging and Sustainable Cities Program (ESCI)\(^6\).

iv) Create maps, identifying irregular settlements in both the Ricardo Brugada Neighborhood and the ecological reserve of San Miguel Sand Banks and differentiate them from settlements that would need to be relocated and housing/buildings that would need to be retrofitted. Specify the number and location of the housing and building solutions, and the number of people that need to be relocated within the intervention area. The maps should include:
   a. The location of the consolidated Ricardo Brugada Neighborhood and the houses/buildings that will not be removed but retrofitted.
   b. The location of the houses/buildings and families that now inhabit the ecological reserve of San Miguel Sand Banks that must be relocated.
   c. The location of informal settlements or improper uses of land that should be removed by law (i.e. dumpsites, lime kilns, shipyards, etc.).

The maps should be at an appropriate scale to make it clear the different types of buildings and spaces such as commercial buildings, public spaces, roads, and land uses that are present.

Gender Action Plan v) Gender diagnostic: it should include at least socio-economic information, legal status of women in the country, gender stereotypes, situation and participation of women and men in the city of Asuncion, gender inequalities that are exacerbated by climate change impacts in the intervention area and how these inequalities affect people’s capacity to adapt to climate change, women access to assets and resources, women and men participation in decision processes, and needs and priorities of women and men in the context of the Program. The diagnostic should include the consultation process included in Activity 4 – Master Plan Development, Environmental and Social Impact Assessment, Resettlement Plan, and Consultation and Communication Program. Additionally, this consultancy should support consultations carried out in Activity 4 to ensure quantitative and qualitative participation of women.

vi) Gender Action Plan: including (i) recommendations on specific gender activities for each proposed intervention to address gender issues on climate change and close gender gaps; (ii) SMART indicators with baselines and targets; and (iii) budget for each proposed activity.

vii) Compilation of good practices of gender and climate change in urban developments.


\(^6\) The ESCI program – financed by an IDB technical cooperation in 2014 – quantified sustainability indicators for the City of Asuncion and proposed an action plan.
Activity 3 – Low-carbon and climate-resilient alternatives for the proposed interventions.

As part of the adaptation strategy the GCF Program aims at constructing new, low-carbon and climate-resilient social housing solutions for around 1,500 families living on floodable lands (urban consolidation of 18 hectares). The Program also aims at reducing flooding risk, retrofitting existing buildings with low-carbon and climate-resilient technologies/measures/options as well as promoting low-energy consumption strategies throughout the intervention in order to build up resiliency.

This activity will provide the preliminary design and strategies for housing, public spaces, public and private buildings, and urban infrastructure in the intervention area that include ways of reducing energy dependency from one source of electricity, increasing grid resilience to electric outages and promoting climate-resilient and low-carbon infrastructure that through the identification and proposal of flood risk mitigation measures (e.g. slowing down or reducing the intensity of the rainwater runoff) can mitigate the anticipated increase in frequency and magnitude of extreme climate events, reducing heat island effects, reducing environmental pollution and improving comfort levels in public spaces, in all stages of the life cycle of the proposed interventions, i.e. design, materials, construction process, operation/use, maintenance, retrofitting, and demolition, when applicable.

Specifically, the activity will consider the designs, requirements, and technologies to incorporate into social housing and public spaces in Ricardo Brugada Neighborhood, the existing public buildings and public spaces in the Historical Downtown District, park infrastructure in the San Miguel Sand Banks, and buildings, infrastructure, and public spaces in the Port of Asuncion. This activity will address the following issues:

i) Identify and propose a list of climate-resilient and low-carbon technologies, designs, and strategies that could be implemented throughout the intervention area. The proposed alternatives may include but not be limited to:
   a. Energy efficiency and emissions reduction measures, for existing and new social housing and public buildings, public lighting and traffic signals, urban infrastructure and equipment (e.g. pumping stations, hydraulic structures, etc.). This may include new designs and materials to reduce energy consumption, retrofits to electric systems and equipment, alternative energy sources and individual production, greening strategies, among others.
   b. Rainfall runoff reduction strategies to be implemented in roads and pedestrian pathways, open and green urban spaces, as well as for new and existing social housing and public buildings. This may include green infrastructure of both small and large scale, such as green roofs, bioswales, rain gardens, detention and retention ponds, permeable pavement, rainwater harvesting and greening strategies, paying especial attention to the potential for green infrastructure systems that serves both to alleviating the pressure on grey infrastructure drainage infrastructure during extreme events and contributing to the consolidation and preservation of natural ecosystems.
   c. Additional measures aiming to increase community and ecological resiliency by reducing heat island effect in the intervention area, minimizing the impacts of heat waves on vulnerable populations, increasing comfort levels in open public spaces and pedestrian pathways, reducing environmental pollution, restoring ecological services and linkages, and providing, by design, human-scale urban spaces with the potential for community empowerment and strengthening of local networks.

ii) Propose strategies for implementation of the recommended designs and technologies defining which alternatives are best suited for:
   a. Ricardo Brugada Neighborhood, social housing and urban matrix, existing and to be constructed.
   b. Existing public buildings in Ricardo Brugada, Historical Downtown District and Port of Asuncion. Identify buildings within the intervention area that could be retrofitted, consider type of use and ownership of building (public, private, etc.), and propose retrofit interventions in selected buildings.
   c. Public parks and spaces in the Ricardo Brugada Neighborhood, Port of Asuncion and Historical Downtown District of Asuncion.
   d. Civic promenade and floodable park in the Port of Asuncion, as well as public open spaces in Ricardo Brugada Neighborhood and the Historical Downtown District.
   e. Trails and public infrastructure in the San Miguel Sand Banks ecological reserve.

iii) Estimate costs associated, to the proposed technologies and strategies (per type of building/infrastructure). Specifically:
   a. Refine and verify costs associated with the construction and retrofitting of urban dwellings with alternative energy equipment (e.g. cost-benefit analysis of implementing individual energy production systems).
   b. Refine and verify costs associated with the promotion of LEED, EDGE or ISO certification in buildings in the Port of Asuncion and the Historical Downtown District.
   c. Refine and verify costs associated with green infrastructure technologies and strategies for in-site measures (housing and buildings, new and existing) as well as for interventions in public spaces and roadways.
   d. Address installation and maintenance costs of the technologies and strategies proposed.

iv) Develop 2D and 3D plans and views of the preliminary designs for the social houses, urban spaces, public infrastructure and possible building retrofits.

v) Quantify social and economic benefits due to:
   a. Electricity savings, reliability gained, greenhouse gas emissions reductions and/or avoidance through the incorporation of new strategies and technologies.
   b. Retarding or reducing rainwater runoff, minimizing damages during extreme rainfall events through the incorporation of new strategies and technologies.
   c. Minimizing heat island effects, reducing environmental pollution and restoring ecological services through the incorporation of new strategies and technologies.
vi) Identify potential barriers for the adoption of the identified options. Differentiate between technical, social, political, legal, and financial barriers by analysing the socio-economic context of the intervention area.

vii) Provide assessment of delivery time for each type of intervention, vulnerability reduction/increasing resilience to climate change, and ancillary investments.

Activity 4 – Master Plan Development, Environmental and Social Impact Assessment, Resettlement Plan, and Consultation and Communication Program for the proposed interventions.

This activity will develop a master plan and preliminary engineering designs for the proposed interventions, its environmental and social impact assessment, a resettlement plan along with social programs needed for a successful implementation of the Program. The Master Plan will comprise land use distributions and preliminary architectural and engineering designs intended to strengthening resilience to climate change in the Program’s intervention area (1,287 hectares). The Master Plan should include cost estimates of each proposed intervention (including management, procurement and oversight), construction details (e.g. typologies, materials), and construction schedule. Moreover, the designs should specify the amount of each type of intervention (i.e. number of social housing, area of restored wetlands, km of linear parks, etc.), and the location of each intervention. The Environmental and Social Impact Assessment (ESIA) of the proposed interventions will identify direct, indirect, and cumulative social and environmental benefits of the interventions and propose mitigation measures to mitigate such impacts including baseline values and indicators to prove reestablishment or improvement of previous conditions. The Resettlement Plan: on the basis of the proposed interventions under the Program the main social impacts are those related to involuntary resettlement, basically for the need to relocate: (i) some population and activities located in San Miguel Sand Banks, which is a natural habitat of some species; and (ii) relocation of population currently living in risk areas prone to flooding. Finally, design a Consultation and Communication Plan within the community, with relevant stakeholders and external audiences.

The Program will have mainly positive results restoring environmental conditions and improving livelihoods of population in the intervention area. However, to restore sustainable conditions it will be necessary to incorporate certain practices that might result in temporary impacts, for instance during construction and long-term changes, mainly because of restrictions of some damaging practices and the need to relocate certain activities from sensitive environment areas and housing from risk-prone areas. Therefore, it is anticipated that the Program might be classified as Category “A” due to the resettlement activities.

Activities included in the Master Plan and preliminary engineering design plans:

i) Design the land use and zoning plan (i.e. areas and limits) based on current plans, interventions proposed in the GCF Program, studies of Activities 1 to 3 and interactions with the ESIA. The plans should mention topology and zoning type. The land use layout design should consider at least the following interventions:

**Urban Interventions**

a. Public parks and open spaces.
b. Streets and community infrastructure.
c. Location and type of aqueduct and wastewater services.
d. Urban consolidation.
e. Construction of social housing.
f. Linear parks in Ricardo Brugada connecting with the Historical Downtown District.
g. Urban and public space infrastructure (i.e. sidewalks, parks, bikelanes, etc.)
   i. Streets to be designated as ecological and dynamic corridors.
   ii. Extended green corridors joining the Paraguay river with the Historical Downtown District.
   iii. Delineation of the re-opening of the Cara Cara Brook.
   iv. Multi-modal transfer points with appropriate infrastructure (e.g. bike racks and protected bus waiting areas) to diversify transportation means and promote incorporation with other Transport Oriented Development activities being done in the intervention area (i.e. construction of bike lanes and the first Bus Rapid Transit system of Paraguay).
h. Restoration and improvement of the Caballero Park and public parks and spaces.
i. Any other associated facilities.

**Restoration and rehabilitation of the San Miquel Sand Banks**

j. Wetland restoration.
k. Trails, shelters, recreational hubs, lookouts, and general park installations.
l. Any other associated facilities.

**Port of Asuncion**

m. Floodable park.
n. Construction of pedestrian areas.
o. Port fill and underground parking lot.
p. Port pier.
q. Any other associated facilities.

All designs should have urban and construction specifications that define the main developments of each intervention and propose an assessment of their costs. The designs should build on the proposed alternatives identified by the “Low-carbon climate-resilient alternatives” study. All proposed designs should be accompanied with a quantitative analysis of the intervention area outlining CO₂ reduction and climate resilience improvement, water supply and wastewater infrastructure improvement, flooding risk reduction, and other co-benefits outlined and presented in the “Disaster risk and Climate Change Analysis of the intervention area” study. Based
on the previous analysis propose a multicriteria decision matrix comprised by impacts, costs, implementation, and other relevant factors.

ii) Elaborate preliminary engineering plans for all the proposed interventions:
   a. Aqueduct and wastewater connections of the Ricardo Brugada Neighborhood and the Port of Asuncion.
   b. Hydraulic structures and equipment (i.e. pumping stations) for floodwater management within all the intervention area.
   c. Cleanup of polluted streams, floodplains and streets.
   d. Drainage system, bridges, road protections and re-routing of streets if necessary.
   e. Rainfall runoff management structure and strategies for the Historical Downtown District and the Port of Asuncion.
   f. Drainage systems of the Port of Asuncion and Ricardo Brugada Neighborhood.
   g. Number and location of new social houses and the number and location of retrofitted or relocated houses within the consolidated area. Differentiate between new social houses from families that are to be relocated from outside the consolidation area, new social houses for families that are to be relocated within the same consolidation area, and houses inside the consolidated area that are to be retrofitted but not relocated.
   h. Restoration and rehabilitation workplan for the San Miguel Sand Banks including soil movement and habitat regeneration.
   i. San Miguel Sand Banks park design including trails, shelters, recreational hubs, lookouts, and general park installations.

iii) Environmental and Social Impact Assessment. The Program will have mainly positive results restoring environmental conditions and improving livelihoods of population in the intervention area. However, to restore sustainable conditions it will be necessary to incorporate certain practices that might result in temporary impacts, for instance during construction and long-term changes, mainly because of restrictions of some damaging practices and the need to relocate certain activities from sensitive environment areas and housing from risk-prone areas. The assessment of such impacts and the proposal of mitigation measures will be integrated in the Master Plan and will ensure compliance with IDB safeguards. The ESIA and its management plan should be approved by the Resilience Working Group and be consulted with the key stakeholders according to the consultation and communication program.

**Urban interventions**

a. Objective and description of interventions: define objectives and geographical scope of the proposed interventions included in activity (i) to (i).i. to illustrate the interventions and their magnitude, as well as identify the area of influence.

b. Institutional and legal framework: description of the institutional and legislative framework relevant to the proposed interventions, including an indication of the key applicable legislation, planning processes (e.g. land use planning), standards and norms that will have to be addressed in the ESIA study.

c. Develop the environmental and social baseline for the intervention area, including a description of: biodiversity and ecosystem services, hydrological, hydraulic and geological characteristics, water, air and soil quality, prevailing winds, land use, climate, natural hazards and disasters, historical or cultural heritage sites, noise level, socio cultural context (including gender issues). Identify environmental liabilities or sites that need to be remediated or rehabilitated (sampling and analysis might be necessary). For surface water bodies that will be restored, flow and quality data should be included. Identification of any borrow areas that will be used for the urban interventions.

d. Identify the activities that could generate impacts or pose a risk during both construction and operation phases, including direct, indirect, induced and cumulative environmental and social impacts and health and safety risks. This process should cover each one of the main activities mentioned in the interventions description as well as an analysis of alternatives to reduce such impacts or increase the benefits. These should feed the design of the Master Plan, so that the final intervention designs consider the best alternative in terms of environmental restoration and reduction of social and environmental impacts.

e. Design the Environmental and Social Management Plan (ESMP) for the proposed interventions covering the prevention, mitigation, correction or compensation of all potential impacts identified above. This Plan should incorporate an implementation program conducive to optimize the implementation timetable and costs. The ESMP should also include a monitoring program and indicators to ensure adequate application of mitigation measures regarding impacts and risks.

f. Propose a Monitoring and Evaluation System incorporating reestablishment indicators to monitor de adequate implementation of impact and risk mitigation measures proposed in the management plan and propose timely remediation actions as necessary.

**Restoration and rehabilitation of the San Miguel Sand Banks**

g. Objective and description of interventions: define objectives and geographical scope of the proposed interventions of activity (i) to (i).i. including soil movement and habitat regeneration, among others, to illustrate the interventions and their magnitude, as well as identify the area of influence.

h. Institutional and Legal framework: description of the institutional and legislative framework relevant to the proposed interventions, including an indication of the key applicable legislation, planning processes (e.g. land use planning), standards and norms that will have to be addressed in the ESIA study.

i. Develop the environmental and social baseline for the intervention area, including a description of: biodiversity and ecosystem services, fauna and flora, presence of migratory species with special focus on birds. Hydrological, hydraulic and geological characteristics, water, air and soil quality, prevailing winds, land use, climate, natural hazards and disasters, socio cultural context (including gender issues). For surface water bodies that will be restored, flow and quality data should be included. Diagnostic of existent micro dumpsites, including information regarding the characteristics and volume of waste...
and location. Identify environmental liabilities or sites that need to be remediated or rehabilitated (sampling and analysis might be necessary). Identification of any borrow areas that will be used for the project.

j. Identify the activities that could generate impacts or pose a risk during both construction and operation phases, including direct, indirect, and cumulative environmental and social impacts and health and safety risks. This process should cover each one of the main activities proposed in the San Miguel Sand Banks as well as an analysis of alternatives to reduce such impacts or increase the benefits. These should feed the design of the Master Plan, so that the final intervention designs consider the best alternative in terms of environmental restoration and reduction of social and environmental impacts.

k. Design the Environmental and Social Management Plan for the proposed interventions covering the prevention, mitigation, correction or compensation of all potential impacts identified above. This Plan should incorporate an implementation program conducive to optimize the implementation timetable and costs. The ESMP should cover not only the measures to mitigate the impacts, but also the program for the Wetland restoration over the years. The ESMP should also include a monitoring program and indicators to ensure adequate application of mitigation measures regarding impacts and risks.

l. Propose a Monitoring and Evaluation System incorporating reestablishment indicators to monitor de adequate implementation of impact and risk mitigation measures proposed in the management plan and propose timely remediation actions as necessary.

Interventions of the Port of Asuncion

m. Objective and description of interventions: define objectives and geographical scope of the proposed interventions of activity (i), (m) to (i), (q) including soil movement and future land use and activities, to illustrate the interventions and their magnitude, as well as identify the area of influence other plans/projects intended for the area.

n. Institutional and Legal framework: description of the institutional and legislative framework relevant to the proposed interventions, including an indication of the key applicable legislation, planning processes (e.g. land use planning), standards and norms that will have to be addressed in the ESIA study.

o. Develop the environmental and social baseline for the intervention area, including a description of: biodiversity and ecosystem services, fauna and flora, hydrological, hydraulic and geological characteristics, water, air and soil quality, prevailing winds, land use, climate, natural hazards and disasters, currents, historical or cultural heritage sites, noise level, socio-cultural context (including gender issues). Identify environmental liabilities or sites that need to be remediated or rehabilitated (sampling and analysis might be necessary).

p. Identify the activities that could generate impacts or pose a risk during both construction and operation phases, including direct, indirect, and cumulative environmental and social impacts and health and safety risks. This process should cover each one of the main activities proposed in the Port grounds as well as an analysis of alternatives to reduce such impacts or increase the benefits. These should feed the design of the Master Plan, so that the final intervention designs consider the best alternative in terms of environmental restoration and reduction of impacts. Consider potential piers, dredging, port fill, construction, increased traffic, discharges and emissions during both construction and operation, etc.

q. Design the Environmental and Social Management Plan for the proposed interventions covering the prevention, mitigation, correction or compensation of all potential impacts identified above. This Plan should incorporate an implementation program conducive to optimize the implementation timetable and costs. The ESMP should cover not only the measures to mitigate the impacts, but also the program for the Wetland restoration over the years. The ESMP should also include a monitoring program and indicators to ensure adequate application of mitigation measures regarding impacts and risks.

r. Propose a Monitoring and Evaluation System incorporating reestablishment indicators to monitor de adequate implementation of impact and risk mitigation measures proposed in the management plan and propose timely remediation actions as necessary.

iv) Resettlement Plan will include:

a. Lessons learned: Review of previous resettlement experiences in the Greater Asuncion Area, urban plans that should be considered and the applicable national regulatory framework; identify and assess lessons learned.

b. Alternative analysis and identification of resettlement impacts: (i) alternatives’ assessment of projects to identify those that achieve its objectives while minimizing involuntary resettlement; (ii) assess resettlement impacts caused by each component/activity in the Master Plan and their zone of impacts.

c. Affected population and assets: (i) census of population affected identifying degrees of vulnerability; (ii) inventory and valuation of assets affected; (iii) legal status of affected housing, land and assets -formal and informal occupation; (iv) survey of economic activities to be affected and assessment of economic displacement -limiting access to income sources; (v) economic methodology for valuation of housing, lands and assets affected; (vi) compensation alternatives and methodology to ensure reestablishment.

d. Community relationship system: (i) identification and characterization of main stakeholders; (ii) information and communication system to engage affected population and community organizations; (iii) relationship with host communities and/or other areas within the project’s direct influence area.

e. Consultation of affected population with a gender perspective: (a) census validation and agreement on closing date; (b) agreement on eligibility and vulnerability criteria; discussion on relocation alternatives and compensation system; (iii) programs for vulnerable population and women action plan; (iv) participation in monitoring of resettlement process; (v) register of consultation process disaggregated by gender: participants, main questions and responses; agreements reached; (vi) dissemination of consultation results.

f. Methodology for resettlement execution: (i) eligibility criteria and compensation alternatives; (ii) support programs for vulnerable population; (iii) strategy for the reestablishment of economic and social networks; (iv) timeline for compensation payment and register; (v) monitoring and evaluation system including reestablishment indicators; (vi) establishing of a grievances redress mechanism for receiving, evaluating and addressing complaints related to resettlement process (eligibility criteria, compensations, relocation alternatives, etc.); (vii) reporting and assessment of grievances to promote as necessary remedies.
g. **Chronogram and budget:** (i) adequate timing of resettlement activities in coordination with Program implementation; (ii) adequate funding of resettlement activities and register process, including project management, transportation, temporary housing, and provision of basic services (water, electricity, school, health centers, etc.).

h. **Settlement completion evaluation:** (i) evaluation of reestablishment and improvement of previous conditions; (ii) assessment of livelihood restoration; (iii) potential negative impacts (poverty risk, stratification, community disruption, potential conflicts, etc.); (iv) remedial action plan as needed.

i. **Institutional arrangements:** (i) clear responsibilities of the various activities of the resettlement process and strengthening capacity as required; (ii) monitoring and evaluation arrangements; (iii) reporting.

ev. **Consultation and Communication Program**

a. Program design: Organize and conduct initial, intermediate, and final workshops with stakeholders to provide information and receive feedback about the Program. The workshops should at least include members of the Housing Secretariat (SENAVITAT), Municipality of Asuncion (MA), Vice Ministry of Energy and Mines of the Ministry of Public Works and Communications (VMME – MOPC), National Administration of Navigation and Ports (ANNP), Electricity National Administration (ANDE), National Emergency Secretariat (SENE), Environment Secretariat (SEAM), and Planning Secretariat (STP).

b. Propose a community and other stakeholders consultation program for the Master Plan, ESIA and Relocation Plan, keep records of all consultations, issues raised, and how concerns and decisions are addressed. It includes consultation process, its communication strategy and logistics, and its associated costs. The consultation program / stakeholder engagement plan should be part of the ESMP.

c. Communication program – including dissemination materials – of the Master Plan within the framework of the GCF Program implementation and based on the following objectives:
   - Increasing ownership, responsibility and know-how of governmental institutions.
   - General population acceptance of the Program and understanding of its implications.
   - Understanding from the population inside the intervention area of the GCF Program’s objectives and direct influence, local authorities, communal action boards and community leaders.
   - Clearly take into consideration national and IDB legal framework and the identification of risks and mitigation measures of the resettlement process.
   - Establish a timetable specifying the resettlement protocol and outlining the location of temporary housing for the residents of Ricardo Brugada Neighborhood and San Miguel Sand Banks.
   - Develop maps, at the appropriate scale, with the identification of potential resettlement areas and the amount of people to be relocated out and into the intervention area.

d. Develop and prioritize in consultation with the affected population, different alternatives and timelines of resettlement that take into consideration possible risks, climate events and social issues. The design should:
   - Clearly take into consideration national and IDB legal framework and the identification of risks and mitigation measures of the resettlement process.
   - Establish a timetable specifying the resettlement protocol and outlining the location of temporary housing for the residents of Ricardo Brugada Neighborhood and San Miguel Sand Banks.
   - Develop maps, at the appropriate scale, with the identification of potential resettlement areas and the amount of people to be relocated out and into the intervention area.

e. Develop social participation programs within the framework of the GCF Program implementation. The following social programs should be designed for implementation during the GCF Program:

<table>
<thead>
<tr>
<th>Program</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Community assistance</td>
<td>Receive and answer all the questions during project implementation.</td>
</tr>
<tr>
<td>2 Information dissemination strategy</td>
<td>Provide clear, truthful, timely and sufficient information to the population of the area of direct influence, local authorities, communal action boards and community leaders.</td>
</tr>
<tr>
<td>3 Gender Action Plan</td>
<td>Provide clear, truthful, timely and sufficient information to the population of the area of direct influence, local authorities, communal action boards and community leaders.</td>
</tr>
<tr>
<td></td>
<td>Develop a consultation process where women and men are equally represented.</td>
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<tr>
<td></td>
<td>Communicate to different stakeholders the diagnostic and actions included in the Gender Action Plan.</td>
</tr>
<tr>
<td>4 Community participation and awareness</td>
<td>Generate strategies for project ownership through education and awareness-raising processes that include educational workshops and community roundtables. It should include community awareness and capacity building for environmental management an increase in adaptive capacity.</td>
</tr>
<tr>
<td></td>
<td>Propose a guideline and functions for participation and social control through the formation and consolidation of the Community Participation Committee.</td>
</tr>
<tr>
<td>5 Community involvement activities</td>
<td>Reduce community conflicts by identifying jobs in the implementation of the Program.</td>
</tr>
<tr>
<td></td>
<td>Develop community ownership of the implementation by providing a place for inputs to be received and applied in the Master Plan development.</td>
</tr>
<tr>
<td>6 Reestablishment of economic activity</td>
<td>Develop a plan, in consultation with the affected population, to adapt the relocated groups to new or temporary sources of income. Identify potential sources of income in new relocated area and mitigating measures.</td>
</tr>
</tbody>
</table>
• Develop a financial design with the affected population and the government in order for housing subsidies to be paid over time.

• Propose alternative occupation/activities/business for the reestablishment of economic activities, promoting sustainability and poverty reduction.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Resettlement monitoring</td>
<td>Establish a detailed monitoring plan for each social unit that should be transferred by defining community well-being indicators and the ways to monitor them throughout the implementation. The monitoring program should be aimed at providing the project coordination with appropriate indicators to track progress and milestones.</td>
</tr>
</tbody>
</table>

The designs of these programs will specify the length, cost, protocols, and responsible parties involved.

**Activity 5 – Economic and Financial Feasibility of the Proposed Program**

The GoP with technical support of the IDB is working on a proposal to be submitted to the GCF for a total of USD $133 million to execute the Program. The GoP through different loans, grants and its own funds has pledged a co-financing of around USD $340 million with a potential addition of USD $285 million (See Table 1), inside or around the same intervention area, focused on housing solutions, road connectivity, waterworks and sanitation infrastructure, and environmental restoration. In order to strengthen the justification request to the GCF, the GoP considers that it is appropriate to explore, in more detail, the costs associated with the proposed Program, the potential savings and the revenue that it might be generated.

<table>
<thead>
<tr>
<th>Components</th>
<th>Indicative financing and co-financing for the Program (million USD $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GCF</td>
</tr>
<tr>
<td>Loan</td>
<td>Grant</td>
</tr>
<tr>
<td>1. Ricardo Brugada Neighborhood</td>
<td>20</td>
</tr>
<tr>
<td>2. San Miguel Sand Banks</td>
<td>5</td>
</tr>
<tr>
<td>3. Port of Asuncion</td>
<td>12.5</td>
</tr>
<tr>
<td>4. Historical Downtown District</td>
<td>13.5</td>
</tr>
<tr>
<td>Potential: Bañado Tambucú</td>
<td>TBD</td>
</tr>
<tr>
<td>Sub-total</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM FINANCING USD $754 million**

1 The IDB has recently received a loan request from the National Government for USD $80 million for an urban development project in Bañado Tambucú (southern part of Asuncion’s Riverside), which has similar climate related risks to Ricardo Brugada Neighborhood. This loan will begin its preparation in December 2017. Therefore, interventions proposed for the Ricardo Brugada area can be replicated in Bañado Tambucú. At Funding Proposal stage, it is foreseen to include Bañado Tambucú in the GCF Program.

2 Fiscal Budget from Itaipu Royalties.

3 Fiscal Budget, government debt.

4 Fondo para la Convergencia Estructural del Mercosur – Mercosur Fund.

**Table 1. Indicative financing and co-financing for the GCF Program (million USD $)**

Activity 5 will therefore focus on the short, medium and long-term financial exploration of the Program and will indicate with higher certainty the total amount that should be requested to the GCF, cost-benefits of the interventions, repayment methods and timeline, and the Program’s financial sustainability.

The economic and financial study will perform the following:

i) Identify and evaluate, both quantitatively and qualitatively, the macroeconomic situation of the GoP, such as investment in infrastructure, level of indebtedness, GDP growth rate, poverty levels, discount rates for social programs, analysis of the national budget, etc. Specifically addressing:

a. The size of total banking assets, debt capital markets and equity capital markets which could be tapped to finance the proposed Program.

b. Provide an overview of market rates (i.e. 1-year T-Bill, 5-year government bond, 5-year corporate bond (specify credit rating) and 5-year syndicate loan.

c. Pricing structures, price controls, subsidies available and government involvement in the intervention area and regarding the proposed interventions (i.e. social housing subsides).
ii) Identify direct and indirect costs and benefits of the proposed interventions for the population in the intervention area and the general population of the Metropolitan Area of Asuncion.

iii) Verify and refine costs associated with the proposed interventions and propose, if necessary, other alternatives to achieve economic feasibility. Specifically:
   a. Adjust (if necessary) costs associated with all interventions proposed in the Master Plan, Resettlement Plan, and low-carbon and climate-resilient alternatives reports.
   b. Justify any changes made by the original reports.
   c. Elaborate a comparative study of similar interventions done in Paraguay or other countries. Provide the information and tables to compare costs.

iv) Study and provide an analysis of the laws, licenses, and regulations that pertain to taxes, financial obligations that must be taken into account within the framework of the GCF Program.

v) Develop a feasibility analysis, based on a financial model, and compare costs and benefits generated by the proposed interventions in the short (5 years), medium (10 years) and long term (25 years). Specify the following points:
   a. Savings to families and the Government by reducing flood relocation costs. Savings should consider health costs, fatalities, overall well-being, infrastructure damage or collapse, and asset losses.
   b. Calculate the potential profits/savings through the environmental services provided by the Banco San Miguel ecological reserve, the creation of jobs in Ricardo Brugada, land valuation, tourist activities, job formalization, property tax, and the gains in rent and investment in the Port area and the Historical Downtown District.
   c. Estimate cost per co-benefit generated as a result of the GCF Program.
   d. Consider the negative effects of land valuations, such as potential gentrification and other undesired effects.

vi) Estimate costs associated with the option of no intervention by the GCF Program. Specify the expected economic and financial rate of return with and without the GCF support, based on the analysis conducted.

vii) Propose an economic mechanism through which the GoP can pay for the GCF loan. Consider the economic benefits through taxes, tourism, environmental services and the promotion of private investments that would eventually produce City and Government tariffs.

viii) Identify precise actions that would be required to develop the economic sustainability of the Program in the medium and long term. For example, what kind of private sector investments would be needed, what public policies would encourage the development and maintenance of interventions, what incentives could be developed, and so on.

ix) Evaluate the interventions describing how the proposed GCF Program addresses the following needs:
   a. Economic and social development level of the country and the affected population.
   b. Absence of alternative sources of financing (e.g. fiscal or balance of payment gap that prevents from addressing the needs of the country; and lack of depth and history in the local capital market).

Activity 6 - Design the Governance Scheme for the implementation of the GCF Program.

The proposed Program plans interventions that involve a large area that include multi-sectoral issues, multi-jurisdictional responsibilities and numerous stakeholders. Therefore, it is challenging to conceive one institution to lead the Program implementation and management. Moreover, the amount of financial resources to be invested requires a solid fiscal oversight and organization between stakeholders. Acknowledging this reality, the Resiliency Working Group, led by the STP, proposed the creation of an ad hoc Trust Fund, an Executing Entity, and a Steering Committee. Funds from the GCF, the IDB and the other sources of co-financing will be channeled to the Trust Fund which will be created specifically for this Program and administered by a suitable National Financial Institution (the Trustee). Executing Entity will be selected by the Steering Committee, through competitive process amongst organizations with suitable program management experience.

The Resiliency Working Group developed a preliminary schematic (Figure 2) of a governance scheme but there is a need to study in depth the legal and political implications of such design, compare it with other possible schemes, and develop protocols and responsibilities for an efficient Program implementation.

This Activity will focus on designing a governance scheme to ensure management sustainability and appropriate fiscal oversight.
Figure 2. Proposed governance scheme for the GCF Program.

This activity will carry out the following activities:

i) Study governance schemes developed for similar projects and programs (e.g. multi-sector climate change programs within the framework of the CIF, GEF, GCF, or similar) in Paraguay or worldwide, and analyze its possible application to the proposed GCF Program.

ii) Specify advantages and disadvantages of each governance option in the context of the proposed GCF Program.

iii) List and analyze the internal laws, regulations, and procedures of the GoP, the GCF, and the IDB that should be considered when structuring the governance scheme.

iv) Conduct a technical analysis of the GoP’s main institutions responsibilities that would participate in the governance scheme and list their capacities, strengths and weaknesses, internal barriers, and challenges to overcome for the efficient execution of the Program.

v) Analyze the socio-political situation of Paraguay that favors in one or another form the Program implementation. This activity should contextualize the justification of the governance scheme.

vi) Design a governance scheme agreed upon by the main actors and governed by the laws, regulations and standards of the GoP, IDB and GCF. Within the scheme should be defined roles and responsibilities of each actor, and how the operational processes would be performed. The scheme should consider a multi-stakeholder engagement plan that includes the private sector, and representatives of the civil society.

vii) In the case that a Trust Fund is the designed option, the fiduciary institution (the Trustee) that would manage the funds should be identified. It also shall propose the transfer of funds procedures between the GCF, the IDB, and the Program Executing Agency as well as payments to suppliers.

viii) Propose a scheme and the procedure for the governance scheme to be handed over once the Program is completed to a GoP institution to ensure sustainability in the medium and long term.

ix) Describe how the proposed governance scheme could strengthen existing institutions, create a regulatory framework, apply to other projects/programs, and support inter-institutional cooperation.

x) Develop the role of the shadow institution and how information should be shared throughout the Program lifetime. The design of the role should consider:

a. What type of operational aspects will be in charge of the shadowing institution or if the institutions will be fully engaged within the Program.

b. Number of personnel from the shadowing institution that will be involved directly and indirectly with the Program, as well as their roles.

c. The type of responsibilities that the institution will have through the Program and once the Program is finished.

d. Develop, in detail, an exit strategy (time frame and responsible parties) that the Executing Agency should follow in order to hand over responsibilities of the entire Program.
There is a need for a strong coordination between the above-mentioned activities, its different service providers, governmental stakeholders and the affected community. Therefore, Activity 7 will focus on the management and coordination of the different activities. This coordination will focus on strengthening the synergies between all service providers in order to reduce work duplication and information loss, and most importantly to keep the driving thread of climate change adaptation throughout the development of the activities. The coordination will also oversee the establishment of a clear line of communication between governmental institutions and the IDB. The role of the PPF management and coordination will also be extended to preparing the final GCF Funding Proposal (FP). Coordination activities will be divided into: i) tasks required to be performed locally in Asuncion, and ii) actions to be taken internally at the IDB. The specific responsibilities of the program coordination will be:

i) Coordinate internally at the IDB and collaborate with the Ministry of Planning (STP) and other relevant stakeholders for the procurement of services during the execution of the PPF to prepare the FP. The following points outline the basic requirements of the coordination process:
   a. Use project management tools and techniques to facilitate successful execution of all activities, ensuring that outputs/outcomes are produced corresponding to the schedule described in the terms of reference (TORs).
   b. Coordinate and facilitate the communication with different agencies of the GoP and consulting services for better collaboration to derive the good quality of products.
   c. Manage the consulting services that will deliver PPF activities.
   d. Advise in the development of all activities under the PPF by facilitating consulting services with needed information and contacts.
   e. Coordinate information sharing between different consulting services.
   f. Manage and control the project documents, logistics, procurement, outputs, and publications.
   g. Liaise and facilitate the audit exercise to be completed at the end of the PPF execution.

ii) Coordinate locally in Asuncion and collaborate with the STP, other relevant stakeholders and the IDB for technical support during the execution of the PPF to prepare the FP.
   a. Coordination alongside the internal coordinator of the IDB with the drafting of Terms of Reference, the evaluation and selection process.
   b. Support the IDB in the hiring process of services by evaluating proposals, conducting interviews and providing inputs for contracts.
   c. Assist in the development of all activities under the PPF by facilitating consulting services with needed information and contacts.
   d. Review the reports and deliverables submitted by consulting services to ensure that they are in good quality and include all contents that are mentioned in the TORs.
   e. Be responsible for conducting meetings and providing summaries of the decisions, comments, or suggestions made.
   f. Evaluate, comment and provide suggestions on the Program outputs throughout the PPF execution.
   g. Manage and promote stakeholder relationships, communications and visibility.
   h. Coordinate local meetings between contractors, stakeholders, working groups and the IDB.
   i. Serve as liaison between stakeholders and the service providers.
   j. Produce monthly monitoring reports for the IDB and STP where project progress and milestones are reported, as well as timeline adjustments are made.
   k. Draft the final Funding Proposal through the following procedure:
      - Include information in the GCF Funding Proposal template, as new information is made available.
      - Provide bi-monthly updates of the template.
      - Have meetings with the Resiliency Working Group and the IDB to discuss wording, argumentative strategies for the Funding Proposal and logistic issues regarding the submission of the Funding Proposal.

C. Rationale

C.1 Background

Latin American and the Caribbean (LAC) cities are facing a rapid urbanization rate. LAC is the second most urbanized region on the planet, it has gone from a 62% urbanization rate in 1980 to 81% in 2011 and is expected to reach 89% by 2050. Even though Paraguay is a country that has had a late urbanization, it is currently accelerating. For instance, the urban population of the Metropolitan Area of Asuncion (AMA) has increased five-fold in only 40 years, reaching almost 2.2 million inhabitants as of 2012. The AMA hosts approximately 65% of the urban population of Paraguay7. This urbanization process happened in a disorderly manner and without adequate planning causing carbon-intensive urban sprawl and placing the urban poor in marginalized and high-risk areas along Paraguay River, a highly vulnerable area to flood events. Due to the lack of appropriate land use zoning, the riverine community has informally grown along Paraguay River’s floodplain for the past half century, with poor access to potable water and sanitation, without wastewater collection system, rainwater drainage, nor waste collection. During floods, affected families are relocated for periods lasting up to 6 months at a time, due to the rise in the stage level of the Paraguay River. This relocation in turn creates lack of job security, food shortages, and social unrest. On the other hand, the population that is not relocated suffer health related issues and end up incurring other livelihood-related costs.

Flooding risk has not only increased due to land use changes, but also due to climate change. The Second National Communication of Paraguay to the United Nations Framework Convention on Climate Change indicates that precipitation over Paraguay will increase by 3 to 6% by 2050 due to climate change⁸ (Figure 3). This increase in precipitation will directly affect the intervention area (outlined in Figure 3) which will suffer more flash flood events and river stage floods. Therefore, the intervention area is highly vulnerable to recurring floods caused by river stage rise and urban flash flood events which affect the most social and economically vulnerable population of Asuncion (more than 10,000 people)⁹ living in the intervention area.

Flooding affecting the intervention area is caused by the behaviour of two different hydrological systems which makes the adaptation of the area more complex. Firstly, there is the rise and fall of the river stage of the Paraguay River that belongs to the larger La Plata basin, which has a periodic flooding season that depends on the rainfall developed on the Pantanal region and the accumulation of rain and its eventual drainage into the river at the northern part of the basin. The Paraguay River is a plain river, the variations of their flows are slow along the entire length of its journey, so the floods that affect most of the intervention area (Figure 4) last for periods of 2 to 6 months. Under a new climate regime there is an increased risk of flood due to the increase precipitation that is anticipated in the Upper La Plata basin in the coming century. Additionally, increased land use change due to deforestation and urbanization, occurring in the upper basin, have increased the runoff into the river. For reference, the current rate of deforestation rate places Paraguay as the sixth country in the world with forest reduction, with the loss of some 325,000 hectares per year, according to the Food and Agriculture Organization of the United Nations¹⁰. Finally, the floods also are aggravated during El Niño Southern Oscillation (ENSO) years which bring a second wave of flood events – the May to June floods are extended through December.

Secondly, there are flash flood events that are dependent on the small-scale urban basins within the Historical Downtown District of Asuncion. Due to the high urbanization of the area, the lack of adequate runoff containment and flood protection infrastructure, most of the population of the Ricardo Brugada Neighborhood and the settlements in the San Miguel Sand Banks suffer severe losses and damages on an annual basis. The Ricardo Brugada area is especially affected since there are 3 urban streams draining directly into it. Moreover, both Ricardo Brugada and the San Miguel Sand Banks have illegal dumpsites and trash accumulation throughout the area and the stream banks which reduce the natural drainage capacities of the area.

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⁹ IDB Emerging and Sustainable Cities Initiative (ESCI), Disaster Risk and Climate Change Vulnerability Study for the Metropolitan Area of Asuncion, 2014.
On average, every 5 years\textsuperscript{11} there is a flood event that costs affected families a total of USD $1.2 to 1.5 million\textsuperscript{12} due to relocation and job loss. The last major flood event in 2014 cost to the City of Asuncion, the central government, and several aid agencies approximately USD $7 million\textsuperscript{13} in humanitarian relief, food provisions, infrastructure arrangements and opportunity cost. The affected families in Ricardo Brugada suffered material damages averaging USD $1,000 for each family\textsuperscript{3}. Given that these families have monthly incomes below USD 500\textsuperscript{14} the economic damage is substantial. Figure 5 illustrates a map that outlines the annual costs incurred by infrastructure loss due flood events within the Program intervention area. The red dots indicate an expected loss of over USD $12,000 per event, the yellow dots indicate losses of US$ 5,000 to US$ 12,000 per event, while the green dots indicate losses below US$ 5,000. Though flood events on average happen every 5 years, ENSO events make the recurrence

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{image}
\caption{Area below the 64 masl (meters above sea level) within the Intervention area. Previous studies indicate that this area is flooded with a return period of 500 years but recurring 5 yearly floods have flooded most of the area – indicating a possible change in the hydrologic regime. More than 490 hectares are below the 64 masl stage level.}
\end{figure}

\textsuperscript{11} Flood return periods calculated in 2004 by Abt Associates indicates that on average every 5 years flood events surpass the 60 meters above mean sea level (mamsl) line. Most parts of the Ricardo Brugada Neighborhood are below the 60 mamsl.
\textsuperscript{12} ABC Color, July 13\textsuperscript{th}, 2014, newspaper article approximate estimate of costs based on interviews and data gathered from governmental agencies.
\textsuperscript{13} Data from PLAN CHA website \url{http://asuncioncentrohistorico.com/2016/06/29/el-centro-historico-de-asuncion-expulso-cerca-de-10-mil-habitantes-en-un-decenio/}
\textsuperscript{14} Plan CHA, 2014.
more frequent. In late 2015 and early 2016 there was an ENSO-driven flood event throughout Paraguay that caused several losses and damages to the already affected population that suffered the 2014 flood. Specifically, in Asuncion in one month, more than 88,000 people were affected – either through relocation or health related issues due flooding\(^\text{15}\). Currently, Paraguay’s National Emergency Secretariat (SEN) and the Municipality of Asuncion have protocols for disaster management. However, they both are focused on reaction and containment of damages and not much effort has been placed on prevention. Even the reactive measures are inadequate at times, since some families have to be relocated to public squares and streets in the Historical Downtown District (see Annex 1, Figure A4) when the river stage rises. The reality is that costs of safeguarding the area or resettling inhabitants of the intervention area surpass the Municipal budget.

The simultaneous occurrence of floods, irregular settlements, lack of proper infrastructure and an ineffective risk prevention program puts the intervention area at high risk. In fact, the National Climate Change Adaptation Plan (NCCAP) published in December 2016 indicates that Paraguay is ranked 8th out of 33 LAC countries, in a list of most vulnerable countries\(^\text{16}\) to climate change (Figure 6) – a big part of this is due to its flood risk. It also states the climate change vulnerability index of Asuncion is 2.11 out of 10 – the lower the index the higher the risk. This index assesses the risk associated with climate change and extreme events with respect to the current human sensitivity to climate variability, and the country’s ability to adapt to the potential impacts of climate change or to take advantage of the opportunities afforded by those impacts. The NCCAP outlines the need for the following actions in urban areas: (i) develop a land use plan focused on climate change adaptability, (ii) promote early warning and monitoring systems to manage flood events and reduce economic impacts, (iii) strengthen resilience of vulnerable population through educational and training programs adaptive capacity to climate change, (iv) construct social housing with low-carbon and resilient materials, energy efficient technologies, and protected from extreme events in flood prone areas, and (v) develop economic incentives for ecosystem services.

\(^\text{15}\) Ministerio de Salud Publicas y Bienestar Social. Reporte Evento de Inundación por Fenómeno del Niño-Paraguay 2015/2016, 2016,

Figure 5. Map of the proposed intervention area (dotted box) outlining the costs incurred on an annual basis due to infrastructure loss. http://www.urbandashboard.org/iadb/index_studies.html?lang=ES#?city=ASU&page=1
The floods not only affect population living on the intervention area. Asuncion has been cited amongst the highest biodiversity urban areas with 353 native bird species, or 49% of the entire bird species of the country. Moreover, the Asuncion Bay hosts around 290 bird species, the highest concentrations of bird species in Paraguay, most of them considered migratory species. The Asuncion Bay is an Important Bird Area (IBA) of relevance for aquatic species and is part of the Banco San Miguel and Bahía de Asunción Ecological Reserve (RBSMBA), which is a protected area under the National Protected Area System (SINASIP) and hosts five species of globally significant congregations with 1% of global population seasonally at site, namely Buff-breasted Sandpiper (Tryngites subruficollis); American Golden Plover (Pluvialis dominica), Lesser Yellowleg (Tringa flavipes), White-rumped Sandpiper (Calidris fuscicollis) and Pectoral Sandpiper (Calidris melanotos). Due to this unique cohabitation of an urban setting and a large number of green areas that host an unusually high level of biodiversity, Asuncion was named in 2014 the “Green Capital” of the Union of Ibero-American Capital Cities (UCCI). However, these benefits are not always recognized and valued, and can therefore diminish as a result of a disorderly and rapid urban expansion.

Although the extension of green areas remains relatively constant, the global value of this biodiversity endowment is being eroded through habitat conversion and degradation leading to fragmentation, reducing flora and fauna populations. This is largely due to the influx of people from surrounding cities (over 1.5 million on a daily basis) and the corresponding solid and liquid waste that is produced by this influx that ends up in the RBSMBA. A dramatic example of threats to these global benefits is the drop in migratory species noted following the construction of phase one of the Costanera (a waterfront parkway) that cuts through a section of the bay. Construction material extracted from sand banks within the area and dredging damaged foraging and roosting habitat critical for migratory birds. Migrant populations monitored since year 2000, show a marked decrease in species diversity and abundance, dropping almost half from the preconstruction of about 10,000 individuals that passed through the bay in 2013. Of the flagship

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17 In the 2008 inventory carried out by Guyra Paraguay/Birdlife International, it qualified under criterion A4i (>1% of global population for one species) and under criterion A4iii (>20,000 water birds). See Annex 1 for additional information.
species, in 2015 only small flocks of birds were observed, 7 Buff-breasted Sandpipers (Tryngites subruficollis); 5 American Golden Plovers (Pluvialis dominica), 2 Lesser Yellowlegs (Tringa flavipes), 37 White-rumped Sandpipers (Calidris fuscicollis) and 70 Pectoral Sandpipers Calidris melanotos). Furthermore, the RBSMBA suffers from weak management capacities at the institutional level. Lack of updated management plans, weak operational capacities due to insufficient funding for infrastructure and human resources, and almost no monitoring.

Another issue affecting the intervention area is that Paraguay is dependent solely on one source of electricity – hydroelectric electricity from Paraguay’s major dams i.e. Itaipu, Yacyreta and Acaray. This source of energy though plentiful at the moment, is projected to become scarce by 2030. It is understood that when electricity supply starts to dwindle it is the population within the intervention area that will suffer first, given it economical condition. Figure 7 shows the projected total electrical energy availability up to 2025. Within this time horizon of the GCF Program it is expected that Paraguay will have less than the optimal required reserve (20%) of electrical energy available to distribute. This means that electrical energy will be scarce and one of the sectors that will most suffer the negative consequences are the already vulnerable population with poor or illegal connections to the electrical grid.

![Figure 7. Projections of the ratio of supply to demand of electricity given by the National Electricity Administration Master Plan. Numbers can be thought of as reflecting the hydroelectric reserve of Paraguay. The figure shows that by 2025 the supply of electrical energy will be below the required ideal reserve (20%).](image)

As mentioned before, the Historical Downtown District and the Port of Asuncion area are intricately linked to the Ricardo Brugada Neighborhood given that for the latter, the rainfall runoff produced during flash floods that affects the neighbourhood is mainly developed on the surface of the Downtown District. The lack of appropriate flood management infrastructure, and the impermeabilization of soils, within the Downtown District worsens the natural flood hazard conditions in Ricardo Brugada which lies 3 meters below most of the Downtown District (see Annex 1, Figure A1-c). Therefore, any flood prevention measure on Ricardo Brugada has to have an integral approach that includes the Historical Downtown District and the Port of Asuncion. Moreover, the Downtown District provides a source of income for most of the population of Ricardo Brugada. Unfortunately, most of these jobs are informal and provide no health insurance or social security benefits. The Ricardo Brugada population often become street vendors in the Historical Downtown District. This choice of income creates other infrastructure issues because informal street vendors end up taking up the sidewalks, public spaces and streets. For instance, the 2014 census established that some public squares had a 50% occupation by informal vendors, limiting the use of public spaces.

The Port of Asuncion grounds – which lie as bare soil today - is currently being rezoned to hold governmental and private buildings, as well as public spaces. There is a total investment by the Paraguayan government of over USD $100 million that includes the construction of a bus rapid transit system terminal, ministerial buildings and a public promenade. However, only 10% of the area will be developed. The rest will still lie below the 5-year return period flood level. The proposed floodable park at the end of the port grounds has the intention to serve as a buffer zone to soften the direct impacts of floods and would add value to the surrounding housing and commercial buildings. The interventions proposed under this Program look at the Port of Asuncion, the Historical Downtown District, the Ricardo Brugada Neighborhood, and the San Miguel Sand Banks, as an interconnected system that needs an integrated approach for flood risk management.

Regarding national policies, plans and programs, Paraguay’s National Determined Contribution (NDC) prioritizes adaptation actions in key sectors that are included in the proposed GCF Program, such as land use planning, health and sanitation, risk management of natural disasters, and the promotion of resilient infrastructure to reduce vulnerability and poverty. The NDC also prioritizes infrastructure and sanitation, as well as the industrial and energy sector, as key sectors to mobilize climate finance. Additionally, Paraguay’s NDC commits to GHG emission reductions of at least 20% compared to the business as usual scenario by 2030.

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19 Plan CHA, 2014 (pg. 69 volume 1).
With respect to disaster management strategies and infrastructure, the central government is in a more advance state compared to the Municipal Government of Asuncion. For instance, the National Emergency Secretariat (SEN) is drafting a USD 10 million loan proposal through the IDB to build a national early warning system (EWS) that would include not only infrastructure and technology, but a close monitoring and collaboration with private sector (i.e. cell phone companies and television stations). As of today, the SEN only counts with the Meteorological Service's weather forecast as an EWS and no consistent monitoring of the basins measuring precipitation and water levels is being made, nor is there any modelling done within the intervention area to understand the actual impacts of the threats.

As mentioned before, even though most of the intervention area falls within the purview of the Municipality of Asuncion (MA), as of today it has no clear prevention protocol for disaster risk management. Instead, it depends on the SEN to take action towards prevention and even evacuation efforts. Unfortunately, this lack of prevention programs is not due to budget constraints but a lack of understanding of the problem. The MA has a detailed protocol of actions (a checklist) to be taken during the first 48 hours of the disaster. This document is a reactive protocol to disasters, produced in 2014. Additionally, the central and municipal government have started a Global Environment Facility (GEF) project, which one of its activities is to design a more localized EWS at the scale of the City of Asuncion. However, it will only provide preliminary design and studies, not its implementation.

Finally, it is important to mention that the proposed Program interventions are aligned with the National Development Plan (2030). The NDP focuses most of its priorities on poverty alleviation and adaptation actions in land use planning, health and sanitation, risk management to natural disasters, and infrastructure. The interventions proposed in the GCF Program respond to both, national and local priorities and are focused on highly vulnerable population, infrastructure and ecosystems at risk of increased flooding and the socio-economical risks that these phenomena bring.

C.2 Justification on request

Given the above-mentioned situation, urgent action is needed to reduce flooding risk and strengthen resilience of the Riverine community and ecosystem before the occurrence of more extreme flood events in Asuncion. Moreover, the proposed Program provides an opportunity to deliver an urban development paradigm shift centered around climate-resilient and low-carbon social housing and public infrastructure that will foster private investments. Furthermore, the GCF Program will promote urban consolidation, risk reduction, losses and damages minimization, greenhouse gas emission avoidance, and increase grid resilience to electric outages as co-benefits. GCF funding will enable to move from planning to implementation and overcome the need of external financing to fund the economic costs of climate change and to adopt programs and actions included in Paraguay's policies and plans. It is well recognized that the national government and the Municipality of Asuncion has developed a series of policies, plans, strategies, initiatives and studies that have provided substantial input for the proposed Program as a basis of a holistic urban resilient intervention for Asuncion. This also demonstrates the political will for transformative action and coordination between national and sub-national entities to put together the proposed Program.

The proposed Program will also contribute to deliver GCF’s investment priorities i.e. climate-compatible cities, particularly delivering adaptation benefits regarding increased resilience of livelihoods of people and communities, infrastructure and built environment, and ecosystems with co-benefits on health, low-carbon social housing, public infrastructure and private investments, and energy access with a highly potential to be scaled-up city-wide and in other cities of the LAC region. Considering the need of Asuncion to act urgently, GCF’s investment priorities, the proposed Program’s contribution to a paradigm shift in an urban arena, and the few GCF urban projects approved, there is a strong case for GCF support. The PPF funding will allow the GoP to elaborate specific studies to support the design of Program interventions.

Paraguay needs the GCF support due to the convergence of critical circumstances such as: recurring flood events and their associated losses and damages, unbalanced housing market that prohibits vulnerable population to seek a better house, vulnerable population located in a high-risk area, limited social assistance, inadequate land use planning, and limited enforcement from the central and municipal government to attend these needs. Without GCF support the status quo, losses and damages in the intervention area will only increase. The following figures depicts the current situation:

- Storms occurring on average every five years displace around 1,000 families living in flood prone areas, incurring in costs and losses mentioned in the previous section. In addition, Paraguay has a limited capacity and low budget to attend flooding emergencies and tend to be reactive to extreme flood events.
- The Ricardo Brugada Neighborhood, the Port of Asuncion and the San Miguel Sand Banks form a consolidated urban area for more than half a century, though they lack proper sanitary or flood protection infrastructure.
- The effects of land use changes are being felt already because there is a registered increase in flow rates in Asuncion\(^{20}\). It is a clear trend in rising flood levels and increasing the occurrence of extreme flood events.
- There is a housing deficit, national government is only able to construct between 7,000 to 10,000 housing solutions per year, though the demand is 1.1 million housing solutions in total – at the current rate, it would take 110 years just to meet the current needs.
- Private banks aim at providing loans only for the top 8% of the population (in economic terms) at a 12% annual interest rate. This high interest rate has a spread of over 8% compared with the cost of financing for banks. Due to high discrepancy between passive and active interest rates the mortgage market is small and only high-income families can partake. Only families who earn more than 2.5 minimum salaries are able to have access to mortgage plans, leaving this out of reach for vulnerable population.

\(^{20}\) IDB Emerging and Sustainable Cities Initiative (ESCI), Disaster Risk and Climate Change Vulnerability Study for the Metropolitan Area of Asuncion, 2014.
Paraguay’s current abundant, yet finite, source of electric energy will become scarce in the next 15 years due to climate impacts and it will probably affect the most vulnerable population first. Therefore, there is a need to start implementing strategies, technologies and construction designs that can diversify the sources of energy generation or reduce their demand. Besides quantifying climate change vulnerabilities, proposing and designing interventions and their associated costs, and designing a governance scheme for the Program implementation, the PPF activities will provide a set of activities in order to strengthen risk management policies and strengthen the early warning system. The design of the programs developed in Activity 4 could be easily replicated for use in other areas, and as mentioned, all the activities will involve workshops and capacity building of the affected population as means to strengthen their adaptive capacity and consciousness.

Finally, the Program includes a number of activities that are for their nature complex and costly. In addition to the preparatory activities already developed in-house at IDB, further costs are approximately reaching US$ 1 million. The IDB will dedicate its own budget to cover the costs related to activities 1, 2, 3, 5, 6, and 7 up to a total amount of US$ 450,000 that will provide substantial inputs to design the interventions, under the Master Plan, and elaborate the Environmental and Social Impact Assessment (-ESIA), Resettlement Plan and Consultation and Communication Plan (included in activity 4). Resources to finance activity 4 are expected to be complemented by GCF PPF. This share of costs between IDB and GCF represent a good engagement of the two Institutions to finalize all details needed for the Program design. IDB is not in the position to assume in full all the preparatory activities costs.

D. Implementation Plan

D.1 Implementation approach

The IDB as accredited entity, will lead the execution of the PPF activities and will have a team comprised by specialists of different areas according to Program’s scope. During the conceptualization of the Program the following Bank’s divisions participated in the working group and will continue participating during PPF activities and Program implementation: Housing and Urban Division, Water and Sanitation Division, Disaster Risk Management specialists, Climate Change Division, Environmental and Social Safeguards specialists. In the elaboration of the studies, there will be frequent coordination with the Resiliency Working Group and other specific institutions when needed. Extensive field visits are contemplated within each activity not only for intervention designs but also for community workshops.

The overall timeframe for the execution of the proposed studies will be 12 months. All activities are needed to feed the Funding Proposal. The proposed schedule for all activities is given in Table 2. Below is the justification for their arrangement:

Activity 1 – The disaster risk and climate change analysis will be the first activity to quantify at intervention area scale the present and future, physical and socio-environmental vulnerabilities and economic losses of both inhabitants and infrastructure, in order to design the proposed interventions and further justify them. Being an activity that will provide the basis for the future activities it will be as detailed as it can. A 6-month timeframe is considered appropriate given the intervention area and the existing information.

Activity 2 – The Population and Gender study can also start immediately, in parallel with Activity 1. Given the level of detail needed a 5-month time frame is adequate. This activity will serve as inputs for Activity 3 and 4.

Activity 3 - Much like Activity 1, this activity is technical in nature and would require some deskwork to compare different low-carbon and climate-resilient strategies and technologies. This activity will be suitable to start as Activity 1 and 2 are finishing, as the families, and number of housing solutions needed have been identified. The overlap between activities is to secure proper information and know-how transfer.

Activity 4 – Besides the coordination and supervision of the PPF activities, the Master Plan development, the Environmental and Social Impact Assessment, the Resettlement Plan and the Consultation and Communication Program would be the longest and most complex of the activities. Therefore 6 months have been scheduled for its elaboration. In order to incorporate accurate designs, the Master Plan will need the inputs of the first 3 Activities.

Activity 5 – The economic and financial feasibility study will depend directly on the specifics of the interventions proposed on the Master Plan. Therefore, this activity is set to start 2 months before the end of Activity 4 in order to clarify the specifics of each intervention. It is also set to coincide with the design of the governance scheme in order to relay the specific amounts that would need to be financed and what type of financial responsibility, and obligation, each governmental institution would have.

Activity 6 – The design of governance scheme is a study that would involve working tables mainly with government institutions in order to align capacities and responsibilities among the different stakeholders. Given that the governance design might be the most political activity of the project and that it might entail the discussion of technical issues to justify certain implementation schemes, it is best to place this activity once most of the activities are done and no more technical questions regarding the implementation remain.
Activity 7 – The Coordination of the PPF activities and Funding Proposal Drafting will be the conductive thread that will set the tone of the PPF and will be responsible for strengthening the synergies between the different activities. The Coordination will manage contracting of services for the different activities, adapt the Terms of Reference as new information arises, and ensure information flow between consultancies. It will also develop a working document of the Funding Proposal that will be improved as new inputs are received from the studies/activities and the discussions to be held within the Resiliency Working Group led by the STP. The main objective of the Coordination will be to keep a transparent and effective flow of information, as well as document and address the views and comments between the different institutions, the Resiliency Working Group, and the service providers.

### D.2 Implementation schedule

<table>
<thead>
<tr>
<th>Activities</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1 – Disaster risk and climate change analysis</td>
<td></td>
</tr>
<tr>
<td>Activity 2 – Population and Gender study</td>
<td></td>
</tr>
<tr>
<td>Activity 3 – Low-carbon and climate-resilient alternatives</td>
<td></td>
</tr>
<tr>
<td>Activity 4 – Intervention area Master Plan, Environmental and Social Impact Assessment, and Resettlement Plan</td>
<td></td>
</tr>
<tr>
<td>Activity 5 – Economic and Financial Feasibility</td>
<td></td>
</tr>
<tr>
<td>Activity 6 – Governance scheme design</td>
<td></td>
</tr>
<tr>
<td>Activity 7 – PPF Coordination &amp; Funding Proposal drafting</td>
<td></td>
</tr>
</tbody>
</table>

### D.3 Procurement Plan

**Title:** PPF for the Strengthening Urban Resilience in Riverside Asuncion Program  
**Executing Agency:** IDB  
**Estimated grant amount (without management fee):** USD $ 507,150

1. **National Prior or Post Review**  
The following national prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

<table>
<thead>
<tr>
<th>Procurement Method</th>
<th>Prior or Post</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment of Consulting Firms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International consultant services (QCBS)</td>
<td>Ex post</td>
<td></td>
</tr>
<tr>
<td>National consultant services (QCBS, NCB)</td>
<td>Ex post</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recruitment of Individual Consultants</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual consultant services</td>
<td>Ex post</td>
</tr>
</tbody>
</table>

2. **Consulting Services Contracts Estimated**  
The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 12 months.

<table>
<thead>
<tr>
<th>General Description</th>
<th>Contract Values (USD)</th>
<th>Recruitment Method</th>
<th>Advertisement Date</th>
<th>International or National Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultancy services for the disaster risk and climate change analysis of the intervention area including Barriado Sur</td>
<td>120,000</td>
<td>QCBS or ICS</td>
<td>Q4, 2018</td>
<td>International and National assignment</td>
</tr>
<tr>
<td>Consultancy services for the population and gender</td>
<td>60,000</td>
<td>QCBS or ICS</td>
<td>Q4, 2018</td>
<td>International and National assignment</td>
</tr>
</tbody>
</table>
E. Financing Plan

E.1 Cost breakdown

The estimated total cost is US$ 1,068,205 including an IDB management fee of 8.5 % and a contingency of 5% of the sub-total cost funded by the GCF. The GCF will finance consultancy service 4. The IDB will finance consultancy services 1, 2, 3, 5, 6, and 7 up to a total amount of US$ 450,000. The IDB has also provided US$ 70,000 for the process of Concept Note development, as well as the PPF preparation.

The estimated cost breakdowns are as below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Costs (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPF activities costs</td>
<td></td>
</tr>
<tr>
<td>1. Disaster risk and climate change analysis</td>
<td>$120,000</td>
</tr>
<tr>
<td>2. Population and Gender Study</td>
<td>$60,000</td>
</tr>
<tr>
<td>3. Low-carbon and climate-resilient alternatives</td>
<td>$40,000</td>
</tr>
<tr>
<td>4. Master Plan, Environmental and Social Impact Assessment, and Resettlement Plan</td>
<td>$483,000</td>
</tr>
<tr>
<td>5. Economic and Financial feasibility</td>
<td>$40,000</td>
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<tr>
<td>6. Governance scheme design</td>
<td>$40,000</td>
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<tr>
<td>7. Project coordination</td>
<td>$150,000</td>
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<td><strong>PPF activities costs</strong></td>
<td><strong>$933,000</strong></td>
</tr>
<tr>
<td>Costs funded by IDB</td>
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</tr>
<tr>
<td>Concept Note and PPF preparation</td>
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<tr>
<td>Activities 1, 2, 3, 5, 6, and 7 (resources under approval process)</td>
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<td>Cost funded by GCF</td>
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<td>Activity 4</td>
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<td>Contingency (5%)</td>
<td>$24,150</td>
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<tr>
<td>AE Fee</td>
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<tr>
<td>IDB management fee (8.5%)</td>
<td>$41,055</td>
</tr>
</tbody>
</table>
F. Risk and Mitigation measures

1. **Risk:** Lack of institutional ownership of the PPF. Given that studies might involve several institutions the responsibility might be diluted among them with no institution taking the leadership role.

   **Mitigation:** Make the Ad Hoc Resiliency Working Group (RWG) an official group with a designated chairman (or co-chairman), and members that represent in an official capacity other institutions. To strengthen the RWG there should be regular meetings and the RWG will be the place where service providers present results and reports of the different activities. The RWG will be in charge of setting up the PPF agenda and providing feedback.

2. **Risk:** Weak municipal and central government coordination to supply existing information and align views. Both municipal and central government institutions should share a common vision for the intervention area, the type of interventions and coordinate resources and information sharing.

   **Mitigation:** This will in part be mitigated by the establishment of the RWG but in order to strengthen the coordination and information sharing the RWG will invite other institutions to participate as the activities are developed. The following institutions, in addition to the ones involved already in the RWG, will be invited to participate depending on the activity being conducted:
   - The Ministry of Social Action / Secretaría de Acción Social (SAS), involved in the regularization of homeownership in settlements originated by land invasions. The SAS will be responsible for coordinating social programs that are carried out to relocate people living illegally in the Ricardo Brugada Neighborhood and the Banco San Miguel. – Activity 1 & 2.
   - The National Forestry Institute / Instituto Forestal Nacional (INFONA) created by Law 3464/2008, is an autonomous and decentralized state institution. INFONA is the implementing body of Law No. 422/73 "Forest Conservation", Law No. 536/95 of "Promotion of afforestation and reforestation", and Law No. 4890/13 that sets the "Rights of Forest Surface". INFONA sets standards for afforestation and landscaping that must be met in order to classify an intervention as one that provides environmental services. – Activity 1 & 3.
   - The Paraguayan Sanitary Services Company / Empresa de Servicios Sanitarios del Paraguay (ESSAP) a state-owned company, responsible for constructing and maintaining the water treatment and distribution supply infrastructure in the City of Asuncion. ESSAP is also responsible for collecting, treating and disposing residential wastewaters. – Activity 1, 2, 3, & 4.
   - The National Administration of Navigation and Ports / Administración Nacional de Navegación y Puertos (ANNP) is a public institution dependent of the Executive Branch who currently owns the land where the historical port is built on. The ANNP will be crucial for the implementation of component 3 given that it owns the lot where the program intends to intervene. – Activity 1 & 4.
   - The National Secretariat of Culture / Secretaría Nacional de Cultura (SNC) is the public institution, dependent on the Executive Branch, who is responsible for promoting the necessary conditions for the exercise of cultural rights by citizens and communities, through the incorporation of the cultural dimension in the various public policies of the State, decentralization of cultural management and promotion of citizen participation. Within the GCF Program the SNC would be involved in the design of the ecological and dynamic corridors across downtown, as well as the design of the creative public fixtures around parks and sidewalks. – Activity 4.
   - The National Secretariat for Tourism / Secretaría Nacional de Turismo (SENATUR) oversees the Sustainable Development of Paraguay’s Tourism Sector Master Plan and it implements tourism promotion programs in Asuncion’s Historical Downtown District. Within the Program, it will be a key institution to determine the uses for the Port of Asuncion grounds, the San Miguel Sand Banks ecological reserve and the promotion of the historical landmarks of the downtown district. – Activity 4.
   - The Women’s Ministry / Ministerio de la Mujer (MM) is an executive branch institution in charge of implementing the National Equal Opportunities Plan, which focuses on mainstreaming programs in public policies and sectoral programs, which promote gender equality across the country. The MM will have a crucial role in the empowerment of women of the Ricardo Brugada area. – Activity 1 & 2.
   - The National Electricity Administration / Administración Nacional de Energía (ANDE) is a decentralized government institution responsible for supplying affordable and good quality electrical services. The participation of ANDE will be crucial for the identification of low-carbon technologies in order to build the electrical distribution lines, as well as the adequate implementation of the solar panels, solar water heaters and LED lighting fixtures that are part of the Program. – Activity 3 & 4.

3. **Risk:** Lack of engagement of population within the project area and/or potential opposition particularly regarding resettlement.

<table>
<thead>
<tr>
<th>Sub-total 2</th>
<th>$548,205</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (Sub-total 1 + Sub-total 2)</td>
<td>$1,068,205</td>
</tr>
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</table>

Reporting schedule and disbursement for this PPF application (activity 4) will be in line with the Readiness Framework Agreement to be negotiated between IDB and GCF.
Mitigation: In order to develop early engagement with the community all the activities (except Activity 5) have field visits and community communication workshops as an integral part of the work methodology. The design of the resettlement plan (Activity 4) will develop jointly with the affected population several programs to be implemented during the GCF Program such as communication and outreach to share project status and concerns, and a program to identify new economic activities for those who will be affected by the interventions or the resettlement process.
Annex 1: Photographs of the intervention area

Figure A1. Aerial view of the Ricardo Brugada Neighborhood.

a) Views showing the coexistence of high density houses made of precarious materials and low-lying areas that get flooded frequently.

b) Typical houses made of plywood and aluminium sheets with no basic public services provision.

c) Division of the Historical Downtown District and the Ricardo Brugada Neighborhood. Arrows indicate the steep descent (approximately 3 meters) from one area to the adjacent one.

d) Precarious houses crowing on the stream banks that will be relocated. All photographs from June 2017.
Figure A2. Different views of the San Miguel Sand Bank Ecological Reserve illustrating irregular uses of the land.

a) At the entrance of the Reserve it can be ships using the shore as docking stations.

b) Irregular housing units inside the park that have been flooded. Historical Downtown District in the background.

c) Irregular housing units inside the park that have been flooded. Port of Asuncion can be seen in the background.

d) Shipyard inside the park. All photographs taken June 2017.
Figure A3. Views of the historical Port of Asuncion in its current state.

a) Panoramic view of the abandoned buildings. This zone will be redeveloped (only 10%) by constructing a bus rapid transit system terminal, ministerial buildings and public promenade.

b) Aerial view of the old container yard which lies between a stream and the Paraguay river. It gets frequently flooded and rainwater runoff intensity affects Ricardo Brugada Neighborhood due to the impermeable surface and the lack of drainage infrastructure.

c) The area serves as a cultural and political hub of the City: event being held in the Port of Asuncion when it is not flooded. In the background, the Historical Downtown District.

All photographs taken in June 2017. Photograph credit of box c.) www.fotociclo.org
Figure A4. View of the Historical Downtown District, comprised mostly of cultural and public office buildings. It is an important source of employment for riverine communities.

a) and c) Public parks and plazas are currently occupied by families that have moved up from Ricardo Brugada due to flood stage levels.

b) and d) Sidewalks that are either destroyed by rain events or are invaded by irregular commercial enterprises. Photograph credit of b) and c) belongs to www.fotocilco.org
Annex 2: Draft Terms of Reference for PPF Activities

Activity 4: Master Plan Development, Environmental and Social Impact Assessment, Resettlement Plan, and Consultation and Communication Program for the proposed interventions for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”
Annex 2.1 Master Plan Development, Environmental and Social Impact Assessment, Resettlement Plan, and Consultation and Communication Program for the proposed interventions for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

DRAFT TERMS OF REFERENCE

1. Background

The Inter-American Development Bank (IDB) is executing a Technical Cooperation (RG-T2638) for Regional Support to the Green Climate Fund (GCF), whose objective is to support Latin American and Caribbean (LAC) countries in preparing for and accessing resources from the GCF, to enable and catalyze climate investments towards low-carbon development, climate-resilient technology and infrastructure (natural and physical), as well as to conserve the essential natural resources which provide key local and global services. The Government of Paraguay (GoP) through its focal point “vis a vis the GCF (the National Designated Authority – NDA, represented by the Ministry of Planning – STP) with the support of the IDB has prepared a Concept Note “Strengthening Urban Resilience in Riverside Asuncion” submitted to the GCF21.

Concept note preparation was based on the following studies, policies and initiatives:

- The IDB has been supporting the GCF Program conceptualization through several avenues. Through the Technical Cooperation PR-T1160, the IDB has supported the GoP in preparing a Master Plan for the development of the Port of Asuncion into a public and cultural hub at the edge of the Historical Downtown District. Since 2014 the Port is officially without use and its buildings and container yard stands as bare land. The Master plan contemplates constructing within it a set of public offices (ministries, convention center, museum, etc.) and private enterprises (hotel, offices, shopping center, etc.). In addition, under the IDB Emerging and Sustainable Cities Program (ESCI), a non-reimbursable technical assistance provided direct support to central and local governments in the study of the underlying urban sustainability challenges, and the development of an urban sustainability action plan. The ESCI intervention included the development of a Disaster Risk and Climate Change Vulnerability Study (2014) for the Metropolitan Area of Asuncion22, including the vulnerable riverine communities of downtown Asuncion, which provided important input for the climate vulnerability analysis and subsequent prioritized interventions included in the GCF Program proposal. The IDB and the GoP under loan PR-L1082 “Improving of Housing and Habitat” are also working in the proposed intervention area through the consolidation and improvement of the higher part of the Ricardo Brugada Neighborhood, which is the central focus of vulnerable population in the GCF Program.

- The central government through the Ministry of Culture carried out the development of the Historical Downtown District of Asuncion Master Plan (Plan CHA) in 2014, which identified specific interventions in the Historical Downtown District with the intention of enhancing its cultural and historical significance. Additionally, the Plan CHA proposed among others, the creation of ecological and dynamic corridors, the rehabilitation of the San Miguel Sand Banks, the mix-use of the Port of Asuncion and the construction of green public spaces. Furthermore, the Municipality of Asuncion has launched at the end of 2016 the ASU VIVA project that proposes updating the urban plans of the Metropolitan Area of Asuncion.

- The GoP through the GEF-6 contributions has secured USD 7.5 million to develop a project around the Metropolitan Area of Asuncion (AMA), under the name of “Asuncion Green City of the Americas – Pathways to Sustainability” which has four main components: Strengthening the regulatory framework for inter-institutional cooperation; developing sustainable mobility and transport initiatives in the AMA; improving the chemicals and waste management system in order to reduce emissions of UPOPs, GHGs and toxic chemicals, and emplacing and improving protected area management.

- At the national level, the GoP has finished in 2016 the National Climate Change Adaptation Plan and its third National Communication to the United Nations Framework Conference on Climate Change which outlines both the need to address vulnerability to flood events in urban areas and the need to enhance the adaptive capacity of the most vulnerable populations.

Following this line of work the Resiliency Working Group23 led by the Ministry of Planning (STP) drafted the Concept Note entitled “Strengthening Urban Resilience in Riverside Asuncion” which consists of an integrated flood risk management on Asuncion’s downtown riverside, aimed at reducing flood risk, strengthening resilience of vulnerable communities in the area, and recovering the riverine ecosystem by promoting low-carbon and climate-resilient infrastructure. The proposed interventions will reduce flood risks, and strengthen climate risk management and adaptive capacity of the riverine district. The Program will benefit not only the population of the intervention area but also Asuncion’s Metropolitan Area inhabitants, approximately 2 million people who either live or work in the area. The Program will focus on four areas: (1) Ricardo Brugada Neighborhood, with highly vulnerable riverine area with a population of close to 4,000 inhabitants; (2) San Miguel Sand Banks, a natural reserve of 300 hectares; and (3) the Historical Downtown District, an area comprised mostly of cultural and public office buildings, and an important source of employment for riverine communities; and (4) the old Port of Asuncion, an area under redevelopment that should integrate the neighboring vulnerable communities and the climate component in its planning. These areas are interlinked because of their

22 http://www.urbandashboard.org/idb/index_studies.html?lang=ES#city=ASU&page=1
23 Through the conceptualization of the Concept Note an Ad Hoc Resiliency Working Group was created, led and coordinated by the STP with members from the public sector such as the Municipality of Asuncion, the Ministry of Public Works, the Housing Secretary, the Environment Secretariat, and the Ministry of Culture; and members of different NGOs such as Sobrevivencia, AVINA, Guya Paraguay and representatives of the ASU LAB who are promoting the CHA Master Plan.
geographical location alongside the Paraguay River shore, which together with their topographic and drainage conditions, calls for an integrated flood risk management intervention that includes vulnerable riverine communities as well as the area’s wetlands and marshes.

The Concept Note was presented to the GCF Secretariat in late December 2016 and the Secretariat returned comments early in 2017 noting the need for some studies that would enrich the Funding Proposal. After receiving the comments on the Concept Note from the GCF Secretariat, the GoP has decided to pursue the financial support of the Project Preparation Facility (PPF) with the support of the IDB, to analyze climate risks at intervention area scale, to develop more in-depth climate change vulnerability and population studies that would lead to design the proposed interventions, and to elaborate the economic, financial and governance studies required by the Funding Proposal template.

Therefore, the following studies were identified necessary to provide valuable information for the final preparation of the Funding Proposal:

1. Disaster Risk and Climate Change Analysis of the intervention area.
2. Population and Gender Study of the intervention area.
3. Low-carbon and climate-resilient alternatives for the proposed interventions.
4. Master Plan development, Environmental and Social Impact Assessment, and a Resettlement Plan of the intervention area.
5. Economic and Financial Feasibility Analysis of the proposed interventions.
6. Governance Scheme for the Implementation of the Program.
7. PPF Coordination and Funding Proposal Drafting.

2. General Objective
The objective of this consultancy is to develop a master plan and preliminary engineering designs for the proposed interventions, its environmental and social impact assessment, a resettlement plan along with social programs needed for a successful implementation of the Program.

3. Specific Objectives
3.1 The Master Plan will comprise land use distributions and preliminary architectural and engineering designs intended to strengthen resilience to climate change in the Program’s intervention area (1,287 hectares). The Master Plan should include cost estimates of each proposed intervention (including management, procurement and oversight), construction details (e.g., typologies, materials), and construction schedule. Moreover, the designs should specify the amount of each type of intervention (i.e., number of social housing, area of restored wetlands, km of linear parks, etc.), and the location of each intervention.

3.2 Elaborate an Environmental and Social Impact Assessment (ESIA) of the proposed interventions identifying direct, indirect, and cumulative social and environmental benefits of the interventions and propose mitigation measures to mitigate such impacts including baseline values and indicators to prove reestablishment or improvement of previous conditions.

3.3 Resettlement Plan. On the basis of the proposed interventions under the Program the main social impacts are those related to involuntary resettlement, basically for the need to relocate: (i) some population and activities located in San Miguel Sand Banks, which is a natural habitat of some species; and (ii) relocation of population currently living in risk areas prone to flooding.

3.4 Design a Consultation and Communication Plan within the community, with relevant stakeholders and external audiences.

4. Methodology
The interventions indicated in the PPF template (see figure T1) are the basis for Master Plan preparation; however, if the analysis identifies other options that might seem more feasible this should be pointed out. The Master Plan should comply with the IDB’s environmental and social safeguards policies following ESIA recommendations. The preparation of the ESIA will follow guidelines of IDB’s OP 703 Environment, OP 765 Involuntary Resettlement, OP 761 Gender Inclusion, and OP 102 Dissemination of Information. The resettlement plan will build on the Population and Gender Study elaborating on vulnerability matters and complementing it with social networks and community organizations that can play a role in the process.

The methodology proposed includes:

4.1 Review and consider findings and recommendations of the other studies aimed at preparing the GCF Funding Proposal “Strengthening Urban Resilience in Riverside Asuncion” such as: (i) Disaster Risk and Climate Change Analysis of the intervention area, (ii) Population and Gender Study of the intervention area, and (iii) Low-carbon and climate-resilient alternatives for the proposed interventions to incorporate designs, costs and mitigation measures proposed in the ESIA and stakeholders’ opinion from the consultancy process.

4.2 Activities undertaken for each element of the specific objectives (i.e., 3.1 Master Plan, 3.2 ESIA, 3.3 Resettlement Plan, and 3.4 Consultation and Communication Plan) will need to take account of outputs and activities of these elements on an ongoing basis.

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24 The river is a natural ecosystem. The actions in riverside must incorporate criteria beyond structural security, drainage capacity and economic considerations. The geomorphological environment, the natural ecosystems, the urban environment, the landscape and accessibility are some of the conditions whose attention improves the final quality of the riverbank.
4.3 Conduct field visits to analyze the current situation and validate/complement previous studies and update the existing cadastral maps. During the visits, the consultancy should organize and conduct at least four workshops with the community in the intervention area, paying special attention to women participation. The workshops should focus on sharing of proposed idea and receiving input from the community. All workshops should produce a report presented to the PPF Management and Resiliency Working Group.

4.4 Compile and analyze previous studies around the area such as:
   a. Census and relocation issues in the Greater Asuncion Area.
   b. Historical Downtown District Master Plan (Plan CHA).
   c. Riverside Development Program (Programa de Desarrollo de la Franja Costera de Asunción).
   d. Port of Asuncion Master Plan.
   e. Sanitary Sewer and Water Treatment Master Plan.
   f. Rainwater Drainage Master Plan.
   h. ASU VIVA zoning plan.
   i. Management Plan for the San Miguel Sand Banks, developed by the Ministry of the Environment.
   j. Mobility Master Plan of the Project “Asuncion Green City of the America: Pathways to Sustainability”.

4.5 All proposed interventions will be presented as plans and overlaid in maps at the appropriate scale with all urban and technical specifications.

4.6 Propose execution program and costs of the proposed designs, specifying construction protocols (i.e. schedule of interventions), potential risks and their mitigation measures. The construction schedule should follow priorities and needs identified by the population and short, medium, and long term needs of the City of Asuncion.

4.7 The Master Plan should identify housing typologies and quantity of housing solutions an incorporate in the designs the resettlement plan recommendations considering in the process the urgency of relocation given the potential impacts of floods during the Program implementation and spaces to host provisional settlements.

4.8 Prepare an action plan clearly establishing the sequence of proposed activities including resettlement plan implementation to minimize impacts.

4.9 All steps and development should be coordinated with both the GCF focal point in the GoP (STP), the PPF Coordination and the IDB (CSD/CCS). Progress should be presented periodically (to be coordinated with the PPF Management) to the Resiliency Working Group.

4.10 For the approval of the final product provide the GoP with, verified working copies, of all digital map files (.shp, .tiff, .gdb, .mxd, etc.), architectural plans (.dwg, .dws, etc.), models, databases and other files created during the consultancy.

5. Activities

5.1 Master Plan and preliminary engineering design plans

5.1.1 Design the land use and zoning plan (i.e. areas and limits) based on current plans, interventions proposed in the GCF Program, studies mentioned in 4.1 and interactions with activity 5.2. The plans should mention topology and zoning type. The land use layout design should consider at least the following interventions:

**Urban Interventions**

   a. Public parks and open spaces.
   b. Streets and community infrastructure.
   c. Location and type of aqueduct and wastewater services.
   d. Urban consolidation.
   e. Construction of social housing.
   f. Linear parks in Ricardo Brugada connecting with the Historical Downtown District.
   g. Urban and public space infrastructure (i.e. sidewalks, parks, bikelanes, etc.)
      i. Streets to be designated as ecological and dynamic corridors.
      ii. Extended green corridors joining the Paraguay river with the Historical Downtown District.
      iii. Delineation of the re-opening of the Cara Cara Brook.
      iv. Multi-modal transfer points with appropriate infrastructure (e.g. bike racks and protected bus waiting areas) to diversify transportation means and promote incorporation with other Transport Oriented Development activities being done in the intervention area (i.e. construction of bike lanes and the first Bus Rapid Transit system of Paraguay).
   h. Restoration and improvement of the Caballero Park and public parks and spaces.
   i. Any other associated facilities.

**Restoration and rehabilitation of the San Miguel Sand Banks**

   j. Wetland restoration.
   k. Trails, shelters, recreational hubs, lookouts, and general park installations.
   l. Any other associated facilities.

**Port of Asuncion**

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25 Documents will be available for the consultancy.
5.2.6 Elaborate preliminary engineering plans for all the proposed interventions:  
   a. Aqueduct and wastewater connections of the Ricardo Brugada Neighborhood and the Port of Asuncion.
   b. Hydraulic structures and equipment (i.e. pumping stations) for floodwater management within all the intervention area.
   c. Cleanup of polluted streams, floodplains and streets.
   d. Drainage system, bridges, road protections and re-routing of streets if necessary.
   e. Rainfall runoff management structure and strategies for the Historical Downtown District and the Port of Asuncion.
   f. Drainage systems of the Port of Asuncion and Ricardo Brugada Neighborhood.
   g. Number and location of new social houses and the number and location of retrofitted or relocated houses within the consolidated area. Differentiate between new social houses from families that are to be relocated from outside the consolidation area, new social houses for families that are to be relocated within the same consolidation area, and houses inside the consolidated area that are to be retrofitted but not relocated.
   h. Restoration and rehabilitation workplan for the San Miguel Sand Banks including soil movement and habitat regeneration.
   i. San Miguel Sand Banks park design including trails, shelters, recreational hubs, lookouts, and general park installations.

5.2 Environmental and Social Impact Assessment
The Program will have mainly positive results restoring environmental conditions and improving livelihoods of population in the intervention area. However, to restore sustainable conditions it will be necessary to incorporate certain practices that might result in temporary impacts, for instance during construction and long-term changes, mainly because of restrictions of some damaging practices and the need to relocate certain activities from sensitive environment areas and housing from risk-prone areas. The assessment of such impacts and the proposal of mitigation measures will be integrated in the Master Plan and will ensure compliance with IDB safeguards. The ESIA and its management plan should be approved by the Resilience Working Group and be consulted with the key stakeholders according to activity 5.4.

Urban interventions
5.2.1 Objective and description of interventions: define objectives and geographical scope of the proposed interventions included in activity 5.1.1.a. to 5.1.1.i. to illustrate the interventions and their magnitude, as well as identify the area of influence.

5.2.2 Institutional and legal framework: description of the institutional and legislative framework relevant to the proposed interventions, including an indication of the key applicable legislation, planning processes (e.g. land use planning), standards and norms that will have to be addressed in the ESIA study.

5.2.3 Develop the environmental and social baseline for the intervention area, including a description of: biodiversity and ecosystem services, hydrological, hydraulic and geological characteristics, water, air and soil quality, prevailing winds, land use, climate, natural hazards and disasters, historical or cultural heritage sites, noise level, socio cultural context (including gender issues). Identify environmental liabilities or sites that need to be remediated or rehabilitated (sampling and analysis might be necessary). For surface water bodies that will be restored, flow and quality data should be included. Identification of any borrow areas that will be used for the urban interventions.

5.2.4 Identify the activities that could generate impacts or pose a risk during both construction and operation phases, including direct, indirect, induced and cumulative environmental and social impacts and health and safety risks. This process should cover each one of the main activities mentioned in the interventions description as well as an analysis of alternatives to reduce such impacts or increase the benefits. These should feed the design of the Master Plan, so that the final intervention designs consider the best alternative in terms of environmental restoration and reduction of social and environmental impacts.

5.2.5 Design the Environmental and Social Management Plan (ESMP) for the proposed interventions covering the prevention, mitigation, correction or compensation of all potential impacts identified above. This Plan should incorporate an implementation program conducive to optimize the implementation timetable and costs. The ESMP should also include a monitoring program and indicators to ensure adequate application of mitigation measures regarding impacts and risks.

5.2.6 Propose a Monitoring and Evaluation System incorporating reestablishment indicators to monitor de adequate implementation of impact and risk mitigation measures proposed in the management plan and propose timely remediation actions as necessary.

Restoration and rehabilitation of the San Miguel Sand Banks
m. Floodable park.
   n. Construction of pedestrian areas.
   o. Port fill and underground parking lot.
   p. Port pier.
   q. Any other associated facilities.

All designs should have urban and construction specifications that define the main developments of each intervention and propose an assessment of their costs. The designs should build on the proposed alternatives identified by the “Low-carbon climate-resilient alternatives” study. All proposed designs should be accompanied with a quantitative analysis of the intervention area outlining CO₂ reduction and climate resilience improvement, water supply and waste water infrastructure improvement, flooding risk reduction, and other co-benefits outlined and presented in the “Disaster risk and Climate Change Analysis of the intervention area” study. Based on the previous analysis propose a multicriteria decision matrix comprised by impacts, costs, implementation, and other relevant factors.
5.2.7 Objective and description of interventions: define objectives and geographical scope of the proposed interventions of activity 5.1.1.j. to 5.1.1.l. including soil movement and habitat regeneration, among others, to illustrate the interventions and their magnitude, as well as identify the area of influence.

5.2.8 Institutional and Legal framework: description of the institutional and legislative framework relevant to the proposed interventions, including an indication of the key applicable legislation, planning processes (e.g. land use planning), standards and norms that will have to be addressed in the ESIA study.

5.2.9 Develop the environmental and social baseline for the intervention area, including a description of: biodiversity and ecosystem services, fauna and flora, presence of migratory species with special focus on birds. Hydrological, hydraulic and geological characteristics, water, air and soil quality, prevailing winds, land use, climate, natural hazards and disasters, socio cultural context (including gender issues). For surface water bodies that will be restored, flow and quality data should be included. Diagnostic of existing micro dumpsites, including information regarding the characteristics and volume of waste and location. Identify environmental liabilities or sites that need to be remediated or rehabilitated (sampling and analysis might be necessary). Identification of any borrow areas that will be used for the project.

5.2.10 Identify the activities that could generate impacts or pose a risk during both construction and operation phases, including direct, indirect, and cumulative environmental and social impacts and health and safety risks. This process should cover each one of the main activities proposed in the San Miguel Sand Banks as well as an analysis of alternatives to reduce such impacts or increase the benefits. These should feed the design of the Master Plan, so that the final intervention designs consider the best alternative in terms of environmental restoration and reduction of social and environmental impacts.

5.2.11 Design the Environmental and Social Management Plan for the proposed interventions covering the prevention, mitigation, correction or compensation of all potential impacts identified above. This Plan should incorporate an implementation program conducive to optimize the implementation timetable and costs. The ESMP should cover not only the measures to mitigate the impacts, but also the program for the Wetland restoration over the years. The ESMP should also include a monitoring program and indicators to ensure adequate application of mitigation measures regarding impacts and risks.

5.2.12 Propose a Monitoring and Evaluation System incorporating reestablishment indicators to monitor de adequate implementation of impact and risk mitigation measures proposed in the management plan and propose timely remediation actions as necessary.

Interventions of the Port of Asuncion

5.2.13 Objective and description of interventions: define objectives and geographical scope of the proposed interventions of activity 5.1.1.m. to 5.1.1.q. including soil movement and future land use and activities, to illustrate the interventions and their magnitude, as well as identify the area of influence other plans/projects intended for the area.

5.2.14 Institutional and Legal framework: description of the institutional and legislative framework relevant to the proposed interventions, including an indication of the key applicable legislation, planning processes (e.g. land use planning), standards and norms that will have to be addressed in the ESIA study.

5.2.15 Develop the environmental and social baseline for the intervention area, including a description of: biodiversity and ecosystem services, fauna and flora, hydrological, hydraulic and geological characteristics, water, air and soil quality, prevailing winds, land use, climate, natural hazards and disasters, currents, historical or cultural heritage sites, noise level, socio-cultural context (including gender issues). Identify environmental liabilities or sites that need to be remediated or rehabilitated (sampling and analysis might be necessary).

5.2.16 Identify the activities that could generate impacts or pose a risk during both construction and operation phases, including direct, indirect, and cumulative environmental and social impacts and health and safety risks. This process should cover each one of the main activities proposed in the Port grounds as well as an analysis of alternatives to reduce such impacts or increase the benefits. These should feed the design of the Master Plan, so that the final intervention designs consider the best alternative in terms of environmental restoration and reduction of impacts. Consider potential piers, dredging, port fill, construction, increased traffic, discharges and emissions during both construction and operation, etc.

5.2.17 Design the Environmental and Social Management Plan for the proposed interventions covering the prevention, mitigation, correction or compensation of all potential impacts identified above. This Plan should incorporate an implementation program conducive to optimize the implementation timetable and costs. The ESMP should also include a monitoring program and indicators to ensure adequate application of mitigation measures regarding impacts and risks.

5.2.18 Propose a Monitoring and Evaluation System incorporating reestablishment indicators to monitor de adequate implementation of impact and risk mitigation measures proposed in the management plan and propose timely remediation actions as necessary.

5.3 Resettlement Plan

5.3.1 Lessons learned: Review of previous resettlement experiences in the Greater Asuncion Area, urban plans that should be considered and the applicable national regulatory framework; identify and assess lessons learned.

5.3.2 Alternative analysis and identification of resettlement impacts: (i) alternatives’ assessment of projects to identify those that achieve its objectives while minimizing involuntary resettlement; (ii) assess resettlement impacts caused by each component/activity in the Master Plan and their zone of impacts.

5.3.3 Affected population and assets: (i) census of population affected identifying degrees of vulnerability; (ii) inventory and valuation of assets affected; (iii) legal status of affected housing, land and assets -formal and informal occupation-; (iv) survey of economic activities to be affected and assessment of economic displacement -limiting access to income sources-; (v) economic methodology for valuation of housing, lands and assets affected; (vi) compensation alternatives and methodology to ensure reestablishment.
5.3.4 Community relationship system: (i) identification and characterization of main stakeholders; (ii) information and communication system to engage affected population and community organizations; (iii) relationship with host communities and/or other areas within the Program’s direct influence area.

5.3.5 Consultation of affected population with a gender perspective: (i) census validation and agreement on closing date; (ii) agreement on eligibility and vulnerability criteria; (iii) discussion on relocation alternatives and compensation system; (iv) programs for vulnerable population and women action plan; (v) participation in monitoring of resettlement process; (vi) register of consultation process disaggregated by gender: participants, main questions and responses; agreements reached; (vii) dissemination of consultation results.

5.3.6 Methodology for resettlement execution: (i) eligibility criteria and compensation alternatives; (ii) support programs for vulnerable population; (iii) strategy for the reestablishment of economic and social networks; (iv) timeline for compensation payment and register; (v) monitoring and evaluation system including reestablishment indicators; (vi) establishing of a grievances redress mechanism for receiving, evaluating, and addressing complaints related to resettlement process (eligibility criteria, compensations, relocation alternatives, etc.); (vii) reporting and assessment of grievances to promote as necessary remedies.

5.3.7 Chronogram and budget: (i) adequate timing of resettlement activities in coordination with Program implementation; (ii) adequate funding of resettlement activities and register process, including project management, transportation, temporary housing, and provision of basic services (water, electricity, school, health centers, etc.).

5.3.8 Resettlement completion evaluation: (i) evaluation of reestablishment and improvement of previous conditions; (ii) assessment of livelihood restauration; (iii) potential negative impacts (impoverishment risk, stratification, community-disruption, potential conflicts, etc.); (iv) remedial action plan as needed.

5.3.9 Institutional arrangements: (i) clear responsibilities of the various activities of the resettlement process and strengthening capacity as required; (ii) monitoring and evaluation arrangements; (iii) reporting.

5.4 Consultation and Communication Program

5.4.1 Program design: Organize and conduct initial, intermediate, and final workshops with stakeholders to provide information and receive feedback about the Program. The workshops should at least include members of the Housing Secretariat (SENAVITAT), Municipality of Asuncion (MA), Viceministry of Energy and Mines of the Ministry of Public Works and Communications (VMME – MOPC), National Administration of Navigation and Ports (ANNP), Electricity National Administration (ANDE), National Emergency Secretariat (SEN), Environment Secretariat (SEAM), and Planning Secretariat (STP).

5.4.2 Propose a community and other relevant stakeholders consultation program for the Master Plan, ESIA, and Relocation Plan, keep records of all consultations, issues raised, and how concerns and decisions are addressed. It includes consultation process, its communication strategy and logistics, and its associated costs. The consultation program / stakeholder engagement plan should be part of the ESMP.

5.4.3 Communication program – including dissemination materials – of the Master Plan within the framework of the GCF Program implementation and based on the following objectives:
   a. Increasing ownership, responsibility and know-how of governmental institutions.
   b. General population acceptance of the Program and understanding of its implications.
   c. Understanding from the population inside the intervention area of the GCF Program’s objectives and process and the promotion of community ownership.

5.4.4 Develop and prioritize in consultation with the affected population, different alternatives and timelines of relocation that take into consideration possible risks, climate events and social issues. The design should:
   a. Clearly take into consideration national and IDB legal framework and the identification of risks and mitigation measures of the resettlement process.
   b. Establish a timetable specifying the resettlement protocol and outlining the location of temporary housing for the residents of Ricardo Brugada Neighborhood and San Miguel Sand Banks.
   c. Develop maps, at the appropriate scale, with the identification of potential resettlement areas and the amount of people to be relocated out and into the intervention area.

5.4.5 Develop social participation programs within the framework of the GCF Program implementation. The following social programs should be designed for implementation during the GCF Program:

<table>
<thead>
<tr>
<th>Program</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community assistance</td>
</tr>
<tr>
<td>2</td>
<td>Information dissemination strategy</td>
</tr>
<tr>
<td>3</td>
<td>Gender Action Plan</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Community participation and awareness</td>
</tr>
</tbody>
</table>
Program | Objective
---|---
Community involvement activities | • Reduce community conflicts by identifying jobs in the implementation of the Program.
• Develop community ownership of the implementation by providing a place for inputs to be received and applied in the Master Plan development.
Reestablishment of economic activity | • Develop a plan, in consultation with the affected population, to adapt the relocated groups to new or temporary sources of income. Identify potential sources of income in new relocated area and mitigating measures.
• Develop a financial design with the affected population and the government in order for housing subsidies to be paid over time.
• Propose alternative occupation/activities/business for the reestablishment of economic activities, promoting sustainability and poverty reduction.
Resettlement monitoring | • Establish a detailed monitoring plan for each social unit that should be transferred by defining community well-being indicators and the ways to monitor them throughout the implementation. The monitoring program should be aimed at providing the project coordination with appropriate indicators to track progress and milestones.

The designs of these programs will specify the timetable, cost, protocols, and responsible parties involved.

6. Deliverables
The consultancy must submit the following reports:
- Report 1: including the work plan, detailed methodology, and timetable including interactions between the four elements of the consultancy (3.1, 3.2, 3.3, and 3.4), within 15 calendar days after the signature of the contract.
- Report 2: including initial diagnosis of the environmental and social baseline, preliminary land use plan and discussions and inputs from the Resiliency Working Group, within 70 calendar days after the signature of the contract.
- Report 3: including preliminary design, progress of the ESIA and Resettlement Plan, and discussions and inputs from the Resiliency Working Group, within 100 calendar days after the signature of the contract.
- Report 4: including comments on the Report 3 to be presented to the GCF as an interim progress report, within 120 calendar days after the signature of the contract.
- Report 5: including the final Master Plan and engineering plans, ESIA, ESMP, Resettlement Plan, community and other relevant stakeholders consultation outputs, and communication products, within 160 calendar days after the signature of the contract.
- Report 6: Final report including comments on the Report 5 to be presented to the GCF as a completion report, within 180 calendar days after the signature of the contract.

7. Payment Schedule
- 10% upon delivery an approval by the IDB of Report 1.
- 20% upon delivery an approval by the IDB of Report 2.
- 20% upon delivery an approval by the IDB of Report 3.
- 20% upon delivery an approval by the IDB of Report 4.
- 20% upon delivery an approval by the IDB of Report 5.
- 10% upon delivery an approval by the IDB of Report 6.

8. Characteristics of the consultancy
Dedication and deadline: The activities under these terms of reference should be completed within six months.
Qualifications: The consultant team should have knowledge of the social situation of the intervention area, and part of the team must do field work at least once a month.
The consultant team can be composed by any number of specialists as soon as they combine at least the following experience:

Project Leader:
- Education: Master’s degree in Civil Engineering, Architecture, Urban planning, Environmental Science or similar fields.
- Specific Experience: At least 20 years of experience leading groups of architects, engineers, urban planners, and from environmental and social disciplines in LAC. Solid knowledge of sustainable city planning, state-of-the-art approaches and best relevant international practices in urban planning, and climate change resilience.

²⁶ Reporting schedule for this PPF application will be in line with the Readiness Framework Agreement.
- Safeguards experience: Project team leader in at least 2 urban master plans in the last 5 years developed according to Safeguard Policies of either IFC, World Bank or IDB.

Architectural Specialist:
- Education: Master’s degree in Architecture, Urban Planning or related field.
- Specific experience: Housing, land use and public infrastructure design specialist in at least 2 urban designs or construction projects.
- General working experience in his/her field: 15 years minimum.
- Experience in Paraguay/LAC: Having participated in at least 1 urban design or construction project in Paraguay/LAC in the last 5 years.

Flood Prevention Specialist:
- Education: Master’s degree in Civil Engineering or related field.
- Specific experience: Drainage, hydraulic and flood management infrastructure design specialist in at least 15 urban designs or construction projects.
- Safeguards experience: Water Resources specialist in at least 3 urban design or construction projects in the last 5 years, developed according to Safeguard Policies of either IFC, World Bank or IDB.
- General working experience in his/her field: 3 years minimum.
- Experience in Paraguay/LAC: Having participated in at least 1 urban design or construction project in Paraguay/LAC in the last 5 years.

Environmental Assessment Specialist:
- Education: Master´s degree in Environmental Studies or Engineering.
- Specific experience: 10 years’ experience participating/leading environmental assessment studies of urban design or construction projects.
- Safeguards experience: At least 5 years’ experience working in safeguards application of multilateral organizations such as IFC, Work Bank or IDB in preparation of environmental assessment studies of urban design or construction projects.
- General working experience in his/her field: 5 years minimum.
- Experience in Paraguay/LAC: Having participated in at least 1 environmental assessment study of urban design or construction projects in Paraguay/LAC in the last 5 years.

Climate Change Adaptation Specialist:
- Education: Master’s degree in Environmental Studies, Atmospheric Science, Engineering or similar.
- Specific experience: Specialist with at least 5 years urban adaptation projects involving social housing and wetland restoration.
- Experience in LAC: Having participated in at least 1 disaster risk and climate change vulnerability of urban design or construction projects in Paraguay/LAC in the last 5 years.

Social specialist:
- Education: Graduate degree in social sciences, anthropology, sociology, economics, geography or related disciplines.
- Specific experience: At least 10 years of professional experience in conducting social analysis, social research, community outreach in vulnerable communities with a gender focus. Proven experience developing, directing or participating in resettlement process.
- Experience in LAC: Work experience in the intervention area or proven experience in an area of similar characteristics will be considered a plus.

Sanitation Specialist:
- Education: University Degree in Civil Engineering or related field.
- Specific experience: Sanitation and water collection infrastructure specialist in at least 1 urban designs or construction projects.
- Safeguards experience: Water Resources specialist in at least 1 urban design or construction projects in the last 5 years, developed according to Safeguard Policies of either IFC, World Bank or IDB.
- General working experience in his/her field: 5 years minimum.
- Experience in Paraguay/LAC: Having participated in at least 1 urban design or construction project in Paraguay/LAC in the last 5 years.

Environmental Restoration Specialist:
- Education: Engineering, biologist, environmental scientist or related field.
- Specific experience: Development of Restoration plans for floodplain, wetlands and sand banks in at least 2 different areas in the last 10 years.
- General working experience in his/her field: 10 years minimum field experience in Paraguay/LAC.

Geographical Information Systems Specialist:
- Education: University Degree in Geography, Computer Science or related field.
- Specific experience: GIS mapping of biodiversity, urban planning and ecosystems studies for public infrastructure in the last 5 years.
- Safeguards experience: Specialist in at least 1 GIS mapping of biodiversity and ecosystems study for public infrastructure in the last 5 years, developed according to Safeguard Policies of either IFC, World Bank or IDB.
- General working experience in his/her field: 5 years minimum.
- Experience in Paraguay/LAC: Having participated in at least one GIS mapping experience of biodiversity and ecosystems study for public infrastructure in Paraguay/LAC in the last 5 years.

Figure T8. Map outlining the area of the proposed GCF Program and its interventions presented in the Concept Note. Besides the GCF Program intervention, the map outlines projects being undertaken by the GoP that serve as co-financing.
### Estimated Budget

<table>
<thead>
<tr>
<th>Outputs and Activities</th>
<th>Quantity</th>
<th>Unit cost (e.g. rate)</th>
<th>Duration (e.g. days)</th>
<th>Total cost (USD)</th>
<th>Amount requested from GCF (USD)</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td><strong>Activity 4: Master Plan, Environmental and Social Impact Assessment and Relocation Plan</strong></td>
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<td>4.1 Master Plan (MP)</td>
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<td>$ 18,000</td>
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<tr>
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<td>$ 228,000</td>
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<tr>
<td>Environmental Assessment Specialist - coordinator</td>
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<td>$ 1,000</td>
<td>50</td>
<td>$ 50,000</td>
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<td>Health and safety specialist</td>
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<td>$ 15,000</td>
<td>It includes information on the MP and EIA</td>
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<td><strong>Sub-total EIA</strong></td>
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<td>4.3 Social Impact Assessment and Relocation Plan (SIA &amp; RP)</td>
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<td></td>
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</tr>
<tr>
<td>Social specialist - coordinator</td>
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<td>$ 50,000</td>
<td>$ 50,000</td>
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<tr>
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<td>Social researchers</td>
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<td>$ 6,000</td>
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<td>$ 9,000</td>
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<td></td>
<td>$ 12,000</td>
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<td></td>
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<tr>
<td><strong>Sub-total SIA &amp; RP</strong></td>
<td></td>
<td></td>
<td></td>
<td>$ 107,000</td>
<td>$ 107,000</td>
<td></td>
</tr>
</tbody>
</table>

\(^{27}\) This specialist provides support to Master Plan and ESIA activities.

\(^{28}\) Assuming to cover 2 trips, including hotel and per diem, for 2 international consultants at the beginning and end of the consultancy.

\(^{29}\) Assuming to cover 2 trips, including hotel and per diem, for 1 international consultant at the beginning and end of the consultancy.

\(^{30}\) Two workshops for each group of interventions (urban interventions, restoration and rehabilitation of the San Miguel San Banks, and Port of Asuncion). The 1st workshop will introduce the consultancy’s purpose and show its chronogram. The 2nd workshop will present consultancy’s deliverables and announce the consultation process.
### 4.4 Stakeholder engagement and consultation for the Master Plan and Environmental Impact Assessment

<table>
<thead>
<tr>
<th>General Assembly: an informative meeting of the consultation process</th>
<th>1</th>
<th>$8,000</th>
<th>$8,000</th>
<th>$8,000</th>
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<tr>
<td>General Assembly to evaluate proposals from the participants</td>
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<td>$9,000</td>
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<td>$9,000</td>
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<tr>
<td>General Assembly to present agreements, listen to objections (if any) and to sign an agreement</td>
<td>1</td>
<td>$9,000</td>
<td>$9,000</td>
<td>$9,000</td>
</tr>
</tbody>
</table>

It includes a communication strategy for an inclusive invitation to 22,000 inhabitants of the whole intervention area and other civil society including NGOs, professional association groups, etc.; renting the meeting space; audiovisual equipment; and logistics. It will be divided in 3 working groups according to intervention types (urban interventions, restoration and rehabilitation of the San Miguel San Banks, and Port of Asuncion).

### 4.5 Stakeholder engagement and consultation for the Social Impact Assessment and Relocation Plan

<table>
<thead>
<tr>
<th>General Assembly: an informative meeting of the consultation process</th>
<th>1</th>
<th>$6,000</th>
<th>$6,000</th>
<th>$6,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective: to designate one representative per 100 families</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings with 15 representatives (1 representative for 100 families) to evaluate community proposals based on consultancy deliverables</td>
<td>2</td>
<td>$1,000</td>
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<td>$2,000</td>
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<tr>
<td>General Assembly to present agreements, listen to objections (if any) and to sign an agreement</td>
<td>1</td>
<td>$6,000</td>
<td>$6,000</td>
<td>$6,000</td>
</tr>
</tbody>
</table>

It includes a communication strategy for an inclusive invitation to 1,500 families from Ricardo Brugada and San Miguel, renting the meeting space, audiovisual equipment, and logistics.

Two 2 meetings the 15 representatives will be conducted. This meeting requires less logistics and it is invited only families’ representative.

Sub-total Consultations $40,000

Sub-total Operation costs $483,000

Contingency (up to 5%) $24,150 $24,150

AE fee (8.5%) $41,055 $41,055

Grand total $548,205 $548,205

**Disbursement and Reporting Schedule:**
Included in TORs Annex 2.1 Chapter 6 and 7.
Disbursement will be in line with the Readiness Framework Agreement to be negotiated between IDB and GCF.
Annex 3: Draft Terms of Reference for Activities to be funded by the IDB

Annex 3.1
Activity 1: Disaster risk and Climate Change Analysis of the intervention area for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

Annex 3.2
Activity 2: Population Study and Gender Action Plan for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

Annex 3.3
Activity 3: Low-carbon and Climate-resilient Alternatives for the proposed interventions for the Green Climate Fund funding proposal, “Strengthening Urban Resilience in Riverside Asuncion”

Annex 3.4
Activity 5: Economic and Financial Feasibility study for the proposed interventions for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

Annex 3.5
Activity 6: Design of Governance Framework for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

Annex 3.6
Activity 7: Project Coordination and Funding Proposal Drafting for the Green Climate Fund “Strengthening Urban Resilience in Riverside Asuncion” Program
Annex 3.1: Disaster risk and Climate Change Analysis of the intervention area for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

DRAFT TERMS OF REFERENCE

1. Objective
The objective of the present consultancy is to analyze the flooding risk through the evaluation of the hazard as well as the exposure and vulnerability (physical and socio-environmental) of both the inhabitants and the infrastructure of the Ricardo Brugada Neighborhood, the San Miguel Sand Banks, the Historical Downtown District and the Port of Asuncion, to understand the potential economic, social and environmental costs of the no-action option under a new climate regime. This analysis will provide inputs, suggestions and design guidelines that would reduce the vulnerability and manage disaster risks within the area, leading to design the proposed interventions under the Master Plan development. As one of the main products, this activity will elaborate hazard maps, vulnerability curves or functions, and maps of losses and damages obtained from the quantitative risk assessment conducted for population, ecosystem and infrastructure in the intervention area for extreme climatic events due to an increase in average temperature of 3 to 4°C. The risk assessment should focus on lack of wastewater collection systems or storm and stage hazards, and the effects that climate change could have on the hydrologic regime. As part of the study, the adaptive capacity of the intervention area’s population and ecosystem should be quantified. The maps produced should include land use changes occurring throughout the hydrologic basin, informal settlements growth, the monetary losses due to flood events and the lack of urban infrastructure. To conduct the flood recurrence and projection analysis, the study should use the historical records of river stage levels, information on the number of recurrent flash floods, and on the impacts to the most vulnerable population caused by these events, and should identify information gaps that need to be filled in to carry out deeper analyses in the future.

2. Methodology
The methodology to be implemented should contemplate the following issues:

For the analysis of the socio-environmental and climate risk context of the intervention area and its population:

i) Conduct a localized vulnerability assessment for the riverine stripe of Asuncion including the Ricardo Brugada Neighborhood, the San Miguel Sand Banks, and the Port of Asuncion. The study should use the definition of vulnerability as a function of the magnitude and rate of climate variability to which the system (intervention area) is exposed, its sensitivity to these changes and its adaptive capacity. The analysis should include environmental and social vulnerability, and the effects that climate change could have on the hydrologic regime. As part of the study, the adaptive capacity of the intervention area’s population and ecosystem should be quantified. The maps produced should identify land use changes occurring throughout the hydrologic basin, informal settlements growth, the monetary losses due to flood events and the lack of urban infrastructure. To conduct the flood recurrence and projection analysis, the study should use the historical records of river stage levels, information on the number of recurrent flash floods, and on the impacts to the most vulnerable population caused by these events, and should identify information gaps that need to be filled in to carry out deeper analyses in the future.

ii) Define projections for extreme river stage levels and precipitation events under a new climate regime. The future events should be drawn from similar conditions as Intergovernmental Panel on Climate Change (IPCC) scenarios (i.e. 3 to 4°C change in temperature).

iii) Using the information gathered and developed before had the develop a hydraulic model to understand the effects of the future stage levels and rain events. The hydraulic model should be of high resolution (minimum vertical resolution 0.5 meters) and applicable to the intervention area specifically. Besides the projection of flood levels of the River Paraguay the model should incorporate precipitation and runoff events given a changing climate regime over Asuncion. The runoff events should be projected within the same hydraulic model as the river stage levels in order to quantify the accumulated events.

iv) Carryout at least four field visits to study the current situation and validate previous studies. The field visits should include consultative workshops with the population of the intervention area in order to include their viewpoint on the vulnerabilities and risks. The consultancy should propose contents and methodology of the workshops in the work plan.

v) As part of the workshops the consultancy team should explain to participants climate change related risks and vulnerability concepts, as well as adaptive capacity and the objectives of the GCF Program.

The following aspects should be considered:


ii) The consultancy should use the GCF investment framework guidelines to report to assess vulnerabilities, specifically the degree to which the proposed Program can achieve sustainable development impact beyond a one-off investment through replicability and scalability.

iii) Compile census studies already done in the intervention area.

iv) Use both, qualitative and quantitative methods to present the analysis results.

v) Follow the institutional requirements of the GoP, the IDB, and the GCF.

vi) Include civil society within the framework of discussions on vulnerabilities and risks.

vii) Promote citizen participation through dialogue tables.

viii) Include the socio-political context of Paraguay for the development of the Program.

ix) Present the results periodically to the Resiliency Working Group.

x) Maps shall be developed for the intervention area, all of which are necessary to produce high resolution topographic information. The consultancy will gather all the data necessary to produce a Digital Terrain Model (DTM) using best available, cost-effective technological tools, according to the following technical specifications:

- DTM vertical resolution of at least 0.5 meters;
- Contour lines at a minimum of 0.5 meters;
- Horizontal accuracy of at least 2.5 meters.

xi) Provide the GoP with, verified working copies, of all digital map files (.shp, .tif, .gdb, .mxd, etc.), models, databases and other files created during the consultancy.
3. Activities
To perform the disaster risk and climate change analysis for the intervention area, a fully probabilistic risk assessment shall be carried out. This type of assessment has four components which are all modeled probabilistically, the hazard module, exposure module, vulnerability module, and risk module, which will be carried out through the following activities:

i) Describe and quantify the environmental, health, and social baseline indicators and future impacts given different climate change scenarios within the intervention area. The analysis should include, as minimum:
   a. Complete description of the physical environment of the Program intervention area and its zone of influence, with particular emphasis on the natural capital (biodiversity and ecosystem services). Description of the types of natural, social and anthropogenic threats to the area.
   b. Elaborate a high-quality (one meter horizontal and 10 cm vertical resolution) terrain model of the intervention area in order to understand the movement of flood waters and the areas which are affected the most.
   c. Develop a series of civil engineering and hydraulic infrastructure measures to mitigate and control floods.

ii) Hazard module: Develop and use hydrologic and 2D hydraulic models of the Paraguay river and the intervention area to create a stochastic set of flooding events, including scenarios that have not necessarily occurred yet, under different mitigation conditions (i.e. flood mitigation works and flood control mitigation measures), and for two conditions:
   a. Riverine flooding of the Paraguay River in the riverine strip of Asuncion, considering climate variability and change.
      Use the existing H-Q curve data to determine flow rates from 1904 to date.
   b. Urban flooding due to excess rainfall conditions due to climate variability and the subsequent flash floods created under.

   These stochastic scenarios should have a frequency of occurrence and should include the first two statistical moments, i.e. expected value and variance. Integrated flood hazard maps for return periods of 2, 5, 10, 25, 100, 500 and 1000 years should also be produced form the probabilistic integration of the stochastic scenarios at a scale of 1:500 (or an appropriate scale define jointly with the PPF Project Coordinator). The return periods should also consider a new stationary regime due to climate change. Analyze the results of the model and identify critical areas. quantify the economic and environmental impacts on population and infrastructure under different return periods by numbering and monetizing ecosystem losses, population affected and infrastructure damages to extreme flood climate events.

iii) Exposure module: evaluate all the physical assets (infrastructure and buildings) and social assets (population) that are part of the intervention area, characterizing them through their physical conditions including construction types and materials, through their use sectors such as education, institutional, residential and commercial, and through their economic value. This evaluation helps determine what is exposed to natural hazards and how much they are worth.

iv) Vulnerability module: using the results from the exposure analysis, perform a classification of structure typologies found in the intervention area, in order to group similar behaving structures and develop vulnerability functions for each of these typologies. Vulnerability functions relate hazard intensity (for example water height) with a level of damage, typically expressed through a percentage of the asset’s value that is lost, and they must also express both the expected values and its variance. There should also be a set of curves for the baseline conditions, and another one which consider mitigation measures proposed for the exposed assets themselves (e.g. elevating houses, building houses with more resistant materials, etc.).

v) Risk module: integrate the hazard, exposure and vulnerability modules developed, performing the appropriate mathematical convolution among them. The result shall quantify the economic and environmental impacts and avoided losses between the no-action scenario and the proposed GCF program interventions considered in the hazard module. These shall be expressed through the Annual Average Loss (AAL) and the Loss Exceedance curve (LEC). Specify the gains from reducing flood risk and strengthening resilience and adaptive capacity of the proposed interventions, considering the relevant and applicable sub-criteria and assessment factors specified in the GCF investment framework. When applicable, indicate the degree to which the Program avoids lock-in of long-lived, climate-vulnerable infrastructure. Risk maps should also be developed, showing the AAL or Probable Maximum Losses for different return periods, and these should be compared to the broader maps developed for the whole Metropolitan Area of Asuncion under the IDB Emerging and Sustainable Cities Program (ESCI)31.

vi) Based on the current and future conditions under a flood regime identify and quantify the incidence of vector- and water-borne diseases and project their occurrence under a new climate regime.

vii) For monitoring purposes, propose socio-environmental vulnerability disaster risk reduction indicators based on the Sendai Reference Framework and quantify their current value.

viii) Based on the risk evaluation provide infrastructure and policy designs guidelines and strategies to reduce and manage the vulnerability of the area and increase their adaptive capacity. The design should include a descriptive budget for the development of an early warning system (EWS) for flood risk management within the area of intervention that can complement ongoing efforts by the central government and the IDB. The design guidelines should answer to:
   a. Description of type of measurements, analysis and computational models needed as well as the costs associated with their implementation.
   b. Identifying who should be in charge of collecting the measurements, analyzing and running the model data and alerting the appropriate authorities.
   c. Describe the appropriate actions that need to be taken by either a municipal or central government institution regarding prevention actions and include a list of civil society and private sector actors that could help in the development of a EWS.

Other activities to be addressed as complimentary to strengthen the justification of the GCF Program are:

ix) Identify and quantify the environmental stressors that urbanization has on the environment and the inhabitants of the intervention area, and study the negative effects on land use changes of the Historical Downtown District, the Ricardo Brugada Neighborhood and the San Miguel Sand Banks. Specifically, perform basic water and soil quality parameters analysis of the streams in the intervention area and the Bay of Asuncion, as well as the potable water that inhabitants drink. Perform a quantifiable assessment of the ecological assets and liabilities in order to understand the environmental baseline of the intervention area.

x) Estimate the Greenhouse Gas (GHG) emissions and the GHG emissions reductions or avoidance of the proposed interventions, considering as minimum:
   a. Horizontal urban expansion model of the intervention and a potential densification plan of the Historical Downtown District.
   b. Transport emissions within the intervention area and the potential reduction given the inclusion of the proposed dynamic and ecological corridors and the urban connections.
   c. GHG emissions due to lack of solid waste and wastewater management.

xi) Consider the impact of corrosion of infrastructure in the Historical Downtown District due to concentration increase of carbon dioxide in the atmosphere. Identify infrastructure vulnerability created by this phenomenon.

xii) Study and report the effects of heat waves and high temperatures on the population working, visiting, and living in the Historical Downtown District and provide an assessment of the level of adaptability of the populations to higher temperatures.

xiii) Develop an analysis of the possible effects of draught conditions in the intervention area and the adverse effects to population and ecosystem health.

xiv) Develop an analysis of the current risk reduction governance scheme for the intervention area with clear examples of how the central and municipal governments respond.

4. Deliverables
The consultancy must submit the following reports:
- Initial report: containing the work plan and detailed study methodology, within 10 calendar days after the signature of the contract.
- Interim report 1: with the result of the activities (i) to (iii) defined in the previous chapter, within 60 calendar days after the signature of the contract.
- Interim report 2: with the result of the activities (iv) and (v) defined in the previous chapter, within 90 calendar days after the signature of the contract.
- Interim report 3: with the result of the activities (vi) to (viii) defined in the previous chapter, within 120 calendar days after the signature of the contract.
- Interim report 4: with the result of the activities (ix) to (xiv) defined in the previous chapter, within 150 calendar days after the signature of the contract.
- Final report: with the result of all activities defined in the previous chapter, and the inclusion of comments, within 180 calendar days after the signature of the contract.

5. Characteristics of the consultancy

Time frame: The activities under these terms of reference should be completed within six months.

Qualifications: The consultant team should have experience in climate change vulnerability assessments, urban planning issues, environmental impact assessments, climate modeling and statistical analysis. Having a local team member is a plus. At least one member of the team should have proved know-how of the intervention area and local social issues.

The consultant team can be composed by any number of specialists as soon as they combine at least the following experience:

Project leader:
- At least 10 years of demonstrated professional experience in leading interdisciplinary consulting groups in environmental impact assessments due climate change. Proven knowledge of social, legal and environmental issues in urban planning. Project leader should have experience in conducting adaptive capacity and vulnerability analysis and the preparation of resilience measures in urban areas in the last 5 years.

Climate change and disaster risk specialist:
- At least 10 years of demonstrated professional experience in conducting vulnerability and disaster risk analysis due to climate change, preferably in urban areas. Proven experience in developing hydrologic models, and conducting return period and flood stage analysis. Proven knowledge of estimation of GHG emissions and emissions reductions. At least 5 years of demonstrated professional experience in developing cadaster or census maps. Proven knowledge of using ArcMap, QGIS, and AutoDesk software or similar in order to develop high quality maps.

Local specialist:
- University professional with at least 10 years of proven working experience in the intervention area. Specialist should have experience working with local population through workshops.

32 Illustrative. The IDB team is evaluating whether there is a need for hiring a firm or an individual consultant.
Annex 3.2: Population Study and Gender Action Plan for the Green Climate Fund funding proposal
“Strengthening Urban Resilience in Riverside Asuncion”

DRAFT TERMS OF REFERENCE

1. Objective
The objective of the present consultancy is to elaborate a Population Study that identifies the population affected and benefited by the proposed GCF Program - disaggregated by gender, age, and economic status. Specifically, the study should focus on identifying on the number of housing solutions (social housing) needed in the Ricardo Brugada Neighborhood and the population to be relocated outside the ecological reserve of the San Miguel Sand Banks. The study will consolidate, analyse and report residents’ demographics of the Ricardo Brugada Neighborhood and San Miguel Sand Banks ecological reserve with special attention to gender issues.

Furthermore, the consultancy will prepare a Gender Action Plan for the Ricardo Brugada Neighborhood, San Miguel Sand Banks, Port of Asuncion, and Historical Downtown District including: (i) gender diagnostic; (ii) action plan with recommendations on gender activities, SMART indicators, and detailed budget for each activity; and (iii) compilation of good practices on gender and climate change in urban developments.

2. Methodology
For the Population Study
The consultancy will identify the population benefited by the proposed GCF Program - disaggregated by location, gender, age, and economic status and their exposure to risks. Specifically, it will be focused on identifying the demographics of the intervention area through house-to-house poll of the area and a cadastral analysis, which will outline the number of housing solutions (social housing) needed in the Ricardo Brugada Neighborhood and the San Miguel Sand Banks. The analysis will include a gender and generational perspective that highlights the direct impacts of climate change on women and children. The proposed methodology should entail at least the following actions:

i) Compile census studies already done in the intervention area and use as basis any previous studies that have been considered relocation issues in the Greater Asuncion Area.

ii) Develop a questionnaire and house-to-house poll in the intervention area.

iii) Organize and conduct initial, intermediate and final workshops with government stakeholders. The workshops should specifically include members of the Housing Secretariat (SENAVITAT), Municipality of Asuncion (MA), Social Action Secretary (SAS), Ministry of Public Works and Communication (MOPC), Electricity National Administration (ANDE), National Emergency Secretariat (SEN), Environment Secretariat (SEAM), and Planning Secretariat (STP).

iv) Analyze the available cadasters by the different municipal institutions and the central government. The analysis should include a gender perspective that highlights the direct impacts of climate change on women, and children, in the intervention area.

v) Develop maps at the appropriate scale (to be defined jointly with the PPF Project Coordinator) and technical reports specifying details of the population.

vi) Take into consideration findings and recommendations of the studies performed under the consultancy “Disaster Risk and Climate Change Analysis of the intervention area for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”.

vii) Conduct field visits to study the current situation and validate previous studies and update the existing cadastral maps.

During the visits, the consultancy should organize and conduct at least four workshops with the community in the intervention area, paying special attention to women participation. Workshops should explain the purpose of the poll and the objectives of the GCF Program, as well as climate change related risks and vulnerability concepts and adaptive capacity measures. The consultancy should propose contents and methodology of the workshops in the work plan.

viii) Consider all the interventions proposed in the concept note presented to the GCF in order to conduct the population and housing poll without neglecting other studies already carried out or underway.

For the Gender Action Plan
The consultancy will prepare a Gender Action Plan for the Ricardo Brugada Neighborhood, San Miguel Sand Banks, Port of Asuncion, and Historical Downtown District including: (i) gender diagnostic; (ii) action plan with recommendations on gender activities, SMART indicators, and detailed budget for each activity; and (iii) compilation of good practices on gender and climate change in urban developments. The proposed methodology should entail at least the following actions:

i) Review general documentation (census, cadastre, statistics, policies, laws, gender studies, etc.) and specific documentation elaborated for this Program (maps, questionnaires, poll, etc.).

ii) Interview relevant stakeholders.

iii) Conduct field visits to study the current situation and validate previous studies.

iv) Support the consultations carried out in Activity 4 to ensure quantitative and qualitative participation of women in the Program.

The following aspects should be considered:

The consultancy should use the GCF investment framework guidelines to assess vulnerabilities, specifically the degree to which the proposed Program can achieve sustainable development and impact beyond a one-off investment through replicability and scalability.

iii) All work should be closely coordinated with both the GCF focal point in the GoP (STP) and in the IDB (CSD/CCS).

iv) For the approval of the final product provide the GoP with, verified working copies, of all digital map files (.shp, .tif, .gdb, .mxd, etc.), architectural plans (.dwg, .dws, etc.), models, databases and other files created during the consultancy.

3. Activities

3.1 Population Study

i) Developing a general cadastre of the intervention area by examining and evaluating the existing censuses and polls in order to quantify the total population living in the Ricardo Brugada Neighborhood and the San Miguel Sand Banks. The data should be disaggregated by the sex of the head of household. The data collected will be used to prepare a baseline for the project. The identification of the following indicators will be included:

b. Property size and type.
c. Type of material the house is made.
d. Number of rooms.
e. Type of electrical and sanitary connections.
f. Solid waste disposal.
g. Family members, gender, and age distribution.
h. Occupation.
i. Type of land they occupy (own, rent, irregular, etc.).
j. Based on population perception and outputs from the Disaster risk and Climate Change Analysis identify houses at risk of recurring floods.

ii) Conduct a house-to-house poll. The data collected will be used to prepare a baseline for the project. It should quantify the gender gap and the gender inequality index within the intervention area addressing the following topics:

n. Workforce and economic participation (including type, sectors, formality, income, etc.).
o. Labor conditions: formal, informal, unemployed.
p. Economic situation (income source and location).
q. Mobility condition towards work (walk, bus, bike, etc.)
r. Education and literacy.
s. Family structure roles.
t. Head of household (household characterization: income, poverty, education, access to basic services, etc.).
u. Health issues (and type).
v. Violence against women, men, and/or children (analyzing its causes).
w. Political participation.
x. Access to technology.
y. Access to recreational areas (parks, use of bikes, etc).
z. Vulnerability to climate change and adaptive capacity.

iii) Compare census done within this Activity with previous ones in order to derive trends and project a baseline. Additionally, compare the intervention area with the larger scale indicators produced under the Emerging and Sustainable Cities Program (ESCI)33.

iv) Create maps, identifying irregular settlements in both the Ricardo Brugada Neighborhood and the ecological reserve of San Miguel Sand Banks and differentiate them from settlements that would need to be relocated and buildings that would need to be retrofitted. Specify the number and location of the housing and building solutions, and the number of people that need to be relocated within the intervention area. The maps should include:

a. The location of the consolidated Ricardo Brugada Neighborhood and the houses/buildings that will not be removed but retrofitted.
b. The location of the houses/buildings and families that now inhabit the ecological reserve of San Miguel Sand Banks that must be relocated.
c. The location of informal settlements or improper uses of land that should be removed by law (i.e. dumpsites, lime kilns, shipyards, etc.).

The maps should be at an appropriate scale to make it clear the different types of buildings and spaces such as commercial buildings, public spaces, roads, and land uses that are present.

3.2 Gender Action Plan

v) Gender diagnostic: it should include at least socio-economic information, legal status of women in the country, gender stereotypes, situation and participation of women and men in the city of Asuncion, gender inequalities that are exacerbated by climate change impacts in the intervention area and how these inequalities affect people's capacity to adapt to climate change, women access to assets and resources, women and men participation in decision processes, and needs and priorities of women and men in the context of the Program. The diagnostic should include the consultation process included in Activity 4 – Master Plan Development, Environmental and Social Impact Assessment, Resettlement Plan, and Consultation and Communication Program. Additionally, this consultancy should support consultations carried out in Activity 4 to ensure quantitative and qualitative participation of women.

33 The ESCI program – financed by an IDB technical cooperation in 2014 – quantified sustainability indicators for the City of Asuncion and proposed an action plan.
vi) Gender Action Plan: including (i) recommendations on specific gender activities for each proposed intervention to address gender issues on climate change and close gender gaps; (ii) SMART indicators with baselines and targets; and (iii) budget for each proposed activity.

vii) Compilation of good practices of gender and climate change in urban developments.


4. Deliverables
The consultancy must submit the following reports:
- Initial report: containing the work plan and detailed study methodology, within 10 calendar days after the signature of the contract.
- Interim report 1: with the result of the activities (i) and (ii) defined in the previous chapter, within 70 calendar days after the signature of the contract.
- Interim report 2: with the result of the activities (iii) and (iv) defined in the previous chapter, within 100 calendar days after the signature of the contract.
- Interim report 3: with the result of the activities (v) to (vii) defined in the previous chapter, within 120 calendar days after the signature of the contract.
- Final report: with the result of all activities defined in the previous chapter, and the inclusion of comments, within 150 calendar days after the signature of the contract.

5. Characteristics of the consultancy

Time frame: The activities under these terms of reference should be completed within five months.

Place of work: Home-based with missions needed to conduct as mentioned in the Methodology chapter.

Qualifications: The consultant team should have experience in social and gender issues, statistics development and analysis, and urban planning. Local team member is a plus. Finally, knowledge of climate change and its effects on vulnerable population is highly desirable.

The consultant team can be composed by any number of specialists as soon as they combine at least the following experience:

Project leader:
- At least 15 years of demonstrated professional experience in leading consulting groups in urban relocation processes. Proven knowledge of social, legal, and environmental issues in urban planning and relocations. Knowledge of climate change mitigation and adaptation, and/or urban planning is a plus.

Census Specialist:
- University professional with background in sociology, geography, engineering or similar degrees with proven experience in the development and execution of census questionnaires. Proven ability to work on field and in delicate social conditions. Minimum of 5 years conducting house-to-house polls in vulnerable areas.

Architectural Specialist:
- At least 2 years of demonstrated professional experience in land use and public infrastructure design. Specialist in at least 1 urban design or construction projects. Master’s degree in Architecture, urban planning or related field.

Social and gender specialist:
- At least 10 years of demonstrated professional experience in conducting community outreach in vulnerable communities with special care to gender issues. Proven experience developing social inclusion programs is a must. Professional degree in social sciences, anthropology, engineering, geography or related disciplines. Work experience in the intervention area or proven experience in an area of similar characteristics will be considered a plus.

Map Specialist:
- At least 5 years of demonstrated professional experience in developing maps. University professionals with graduate degree in engineering, geography, architecture, sociology or similar degrees with proven experience in the creation of cadastral maps, population censuses, and statistics development and analysis. Must have proven experience in using ArcGIS (or similar), AutoCAD (or similar), and digital editing programs (MS Office).

34 Illustrative. The IDB team is evaluating whether there is a need for hiring a firm or an individual consultant.
Annex 3.3: Low-carbon and Climate-resilient Alternatives for the proposed interventions for the Green Climate Fund funding proposal, “Strengthening Urban Resilience in Riverside Asuncion”

DRAFT TERMS OF REFERENCE

1. Objective
Provide the preliminary design and strategies for housing, public spaces, and urban infrastructure in the intervention area that include ways of reducing energy dependency from one source of electricity, increasing grid resilience to electric outages and promoting climate-resilient and low-carbon infrastructure that through the identification and proposal of flooding risk mitigation measures (e.g., slowing down or reducing the intensity of the rainwater runoff) can mitigate the anticipated increase in frequency and magnitude of extreme climate events, reducing heat island effects, reducing environmental pollution and improving comfort levels in public spaces, in all stages of the life cycle of the proposed interventions, i.e., design, materials, construction process, operation/use, maintenance, retrofitting, and demolition, when applicable. Specifically consider the designs, requirements, and technologies to incorporate into social housing and public spaces in Ricardo Brugada Neighborhood, the existing public buildings and public spaces in the Historical Downtown District, park infrastructure in the San Miguel Sand Banks, and buildings, infrastructure, and public spaces in the Port of Asuncion.

2. Methodology
The methodology to be implemented contemplates the following phases:

i) Compile and analyze existing construction regulations, energy regulations, housing regulations, zoning norms, public buildings norms, public spaces standards and regulations, and environmental laws that provide the legal framework for the application of the designs and technologies to be proposed.

ii) Describe implementation costs associated with the designs and technologies as well as the environmental and economic benefits.

iii) Provide a comparative assessment from the technical, economic, environmental and financial perspective of the different technologies, including its operation and maintenance. If a specific technological solution has been proposed, describe why it is the most appropriate for the GCF Program.

iv) Incorporate aspects of gender equity and inclusion into the identification and assessment of the low-carbon and climate-resilient alternatives – designs and technologies recommended should take special consideration to gender issues.

v) Use the information gathered in the population census, the cadastre study, and the vulnerability analysis to justify the designs and technologies proposed.

The following aspects should be considered:

i) The interventions indicated in the PPF template should be taken as the baseline when choosing the strategies and technologies for the intervention area. However, if the analysis identifies other options that might seem more feasible this should be pointed out.

ii) For interventions in the Port of Asuncion, the current buildings being constructed under the IDB loan PR-L1044 and the topology identified in the Port of Asuncion Master Plan should be considered.

iii) All steps and development should be coordinated with both the GCF focal point in the GoP (STP) and in the IDB (CSD/CCS).

iv) Progress should be presented periodically to the Resiliency Working Group.

3. Activities
The consultancy must carry out at least the following activities:

i) Identify and propose a list of climate-resilient and low-carbon technologies, designs and strategies that could be implemented throughout the intervention area. The proposed alternatives may include but not be limited to:

a. Energy efficiency and emissions reduction measures, for existing and new social housing and public buildings, public lighting and traffic signals, urban infrastructure and equipment (e.g., pumping stations, hydraulic structures, etc.). This may include new designs and materials to reduce energy consumption, retrofits to electric systems and equipment, alternative energy sources and individual production, greening strategies, among others.

b. Rainfall runoff reduction strategies to be implemented in roads and pedestrian pathways, open and green urban spaces, as well as for new and existing social housing and public buildings. This may include green infrastructure of both small and large scale, such as green roofs, bioswales, rain gardens, detention and retention ponds, permeable pavement, rainwater harvesting and greening strategies, paying especial attention to the potential for green infrastructure systems that serve both to alleviating the pressure on grey infrastructure drainage infrastructure during extreme events and contributing to the consolidation and preservation of natural ecosystems.

c. Additional measures aiming to increase community and ecological resiliency by reducing heat island effect in the intervention area, minimizing the impacts of heat waves on vulnerable populations, increasing comfort levels in open public spaces and pedestrian pathways, reducing environmental pollution, restoring ecological services and linkages, and providing, by design, human-scale urban spaces with the potential for community empowerment and strengthening of local networks.

ii) Propose strategies for implementation of the recommended designs and technologies defining which alternatives are best suited for:

a. Ricardo Brugada Neighborhood, social housing and urban matrix, existing and to be constructed.
b. Existing public buildings in Ricardo Brugada, Historical Downtown District and Port of Asuncion. Identify buildings within the intervention area that could be retrofitted, consider type of use and ownership of building (public, private, etc.), and propose retrofit interventions in selected buildings.

c. Public parks and spaces in the Ricardo Brugada Neighborhood, Port of Asuncion and Historical Downtown District.

d. Civic promenade and floodable park in the Port of Asuncion, as well as public open spaces in Ricardo Brugada Neighborhood and the Historical Downtown District of Asuncion.

e. Trails and public infrastructure in the San Miguel Sand Banks ecological reserve.

iii) Estimate costs associated to the proposed technologies and strategies (per type of building/infrastructure). Specifically:
   a. Refine and verify costs associated with the construction and retrofitting of urban dwellings with alternative energy equipment (e.g. cost-benefit analysis of implementing individual energy production systems).
   a. Refine and verify costs associated with the promotion of LEED, EDGE or ISO certification in buildings in the Port of Asuncion and the Historical Downtown District.
   b. Refine and verify costs associated with green infrastructure technologies and strategies for in-site measures (housing and buildings, new and existing) as well as for interventions in public spaces and roadways.
   c. Refine and verify costs associated with any other types of recommended retrofits to urban infrastructure such as pumping stations, public lighting, roads, pedestrian pathways, public spaces, among others.
   d. Address installation and maintenance costs of the technologies and strategies proposed.

iv) Develop 2D and 3D plans and views of the preliminary designs for the social houses, urban spaces, public infrastructure and possible building retrofits.

v) Quantify social and economic benefits due to:
   a. Electricity savings, reliability gained, greenhouse gas emissions reductions and/or avoidance through the incorporation of new strategies and technologies.
   b. Retarding or reducing rainwater runoff, minimizing damages during extreme rainfall events through the incorporation of new strategies and technologies.
   c. Minimizing heat island effects, reducing environmental pollution and restoring ecological services through the incorporation of new strategies and technologies.

vi) Identify potential barriers for the adoption of the identified options. Differentiate between technical, social, political, legal, and financial barriers by analyzing the socio-economic context of the intervention area.

vii) Provide assessment of delivery time for each type of intervention, vulnerability reduction/increasing resilience to climate change, and ancillary investments.

4. Deliverables
The consultancy must submit the following reports:
   - Initial report: containing the work plan and detailed study methodology, within 10 calendar days after the signature of the contract.
   - Interim report 1: with the result of the activities (i) defined in the previous chapter, within 30 calendar days after the signature of the contract.
   - Interim report 2: with the result of activities (ii) and (iii) defined in the previous chapter, 60 calendar days after the signature of the contract.
   - Interim report 3: with the result of activities (iv) defined in the previous chapter, 90 calendar days after the signature of the contract.
   - Final report: with the result of the activities (v) to (vii) defined in the previous chapter, within 120 calendar days after the signature of the contract. The final report should include all activities and incorporate comments provided.

6. Characteristics of the consultancy
Dedication and deadline: The activities under these terms of reference should be completed within four months.
Qualifications: The consultant team should have experience in energy efficient, specifically housing design with energy efficient technologies/options, low-carbon and climate-resilient technologies, green infrastructure technologies and strategies, housing design and urban infrastructure.

The consultant team can be composed by any number of specialists as soon as they combine at least the following experience:

Project coordinator:
   - At least 15 years of experience leading groups of architects and urban planners in developing countries. Knowledge of climate change mitigation and adaptation measures in urban environment is highly recommended.

Local Architect:
   - Local architect, with 10 years of experience that understands the housing situation of the intervention area who is able to adjust current building plans with appropriate technologies and measures that would reduce the dependence on one source of electricity and increase climate resilience.

Climate Change Specialist (or equivalent):
   - Professional with at least 5 years of experience designing and calculating the costs and savings of small-scale energy production systems at the scale of housing and buildings. Knowledge of low-carbon and climate-resilient measures for housing and public infrastructure is required.

Urban Planner:

35 Illustrative. The IDB team is evaluating whether there is a need for hiring a firm or an individual consultant.
- Professional with a least 10 years of experience designing urban interventions with focus on technologies and measures that increase climate resilience of neighborhoods and communities.

Landscape Architect (or equivalent):
- Professional with at least 5 years of experience designing public open and/or green spaces in urban contexts that incorporates sustainability, climate change and human scale approaches.
Annex 3.4: Economic and Financial Feasibility study for the proposed interventions for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

DRAFT TERMS OF REFERENCE

1. Objective
The objective of the present consultancy is to develop a financial model and economic analysis of the proposed interventions in the PPF template. Specifically, to detail costs associated with the proposed interventions, savings based on the reduction of environmental risks (e.g. flooding and displacements, contamination, loss of biodiversity, etc.), the improvement of quality of life (intangible and tangible aspects), and economic earnings due to monetary valuations of environmental and land services, job creation, private investments, and social development of the area.

The specific objectives of the area:

a. Develop a method for the Economic Appraisal and Financial Model, specifying input requirements as determined by the interventions designs specified in the “Master Plan Development” consultancy.

b. Develop a detailed Economic Appraisal (EA) for each intervention, and for the Program as a whole, drawing on the cost and benefit information collected by the technical feasibility studies. This will require close integration and working with the consultancies of the Master Plan development and low-carbon and climate-resilient technology options. The appraisal should also identify the distributional costs and benefits of the Program.

c. Prepare a detailed Financial model (FM) for each intervention, and the Program as a whole, drawing on the cost and programming information from the feasibility studies, and collating the information on project and external finance and funding modalities.

2. Methodology
The methodology to be implemented should contemplate the following:

i) Compile and analyze existing information and parameters, such as financial laws, regulations, micro and macro-economic parameters, economic and social studies done in the area to determine the existing costs, obligations and duties by the central and municipal government that could affect repayment of operations.

ii) Organize and conduct initial, intermediate and final workshops with government stakeholders. The workshops should specifically include members of the Ministry of Finance, Housing Secretariat (SENAVITAT), Municipality of Asuncion (MA), Social Action Secretary (SAS), Ministry of Public Works and Communication (MOPC), Electricity National Administration (ANDE), National Emergency Secretariat (SEN), Environment Secretariat (SEAM), and Planning Secretariat (STP). Workshops should be aimed at creating consensus on the appropriate distribution of funds between loans and grants and identifying co-financing opportunities. The consultancy should propose contents and methodology of the workshops in the work plan.

iii) Develop an integrated financial model that includes a projection covering the period from financial closing through final maturity of the proposed GCF financing with detailed assumptions and rationale; and a sensitivity analysis of critical elements of the proposed Program.

iv) Describe how the financial structure (grants, loans and co-financing) is adequate and reasonable in order to achieve the proposed Program objectives, including addressing existing bottlenecks and/or barriers; providing the least concessionality; and without crowding out private and public investment.

v) Carry-out interviews with the members of the Resiliency Working Group, and other public and private sector actors to deepen the understanding of costs associated with interventions.

vi) The proposed analysis should focus on creating a justification for the need of the financial assistance of the GCF.

vii) Consider all the interventions proposed in Master Plan of the intervention area.

The following aspects should be considered:


ii) The consultancy should use the GCF investment framework guidelines to assess vulnerabilities, specifically the degree to which the proposed Program can achieve sustainable development impact beyond a one-off investment through replicability and scalability.

iii) All work should be closely coordinated with both the GCF focal point in the GoP (STP), the PPF Coordination and the IDB (CSD/CCS).

iv) For the approval of the final product provide the GoP with, verified working copies, of all models, databases and other files created during the consultancy.

3. Activities
The consultancy must carry out at least the following activities:

i) Identify and evaluate, both quantitatively and qualitatively, the macroeconomic situation of the GoP, such as investment in infrastructure, level of indebtedness, GDP growth rate, poverty levels, discount rates for social programs, analysis of the national budget, etc. Specifically addressing:

a. The size of total banking assets, debt capital markets and equity capital markets which could be tapped to finance the proposed Program.
b. Provide an overview of market rates (i.e. 1-year T-Bill, 5-year government bond, 5-year corporate bond (specify credit rating) and 5-year syndicate loan.

c. Pricing structures, price controls, subsidies available and government involvement in the intervention area and regarding the proposed interventions (i.e. social housing subsidies).

ii) Identify direct and indirect costs and benefits of the proposed interventions for the population in the intervention area and the general population of the Metropolitan Area of Asuncion.

iii) Verify and refine costs associated with the proposed interventions and propose, if necessary, other alternatives to achieve economic feasibility. Specifically:

a. Adjust (if necessary) costs associated with all interventions proposed in the Master Plan, Resettlement Plan, and low-carbon and climate-resilient alternatives reports.

b. Justify any changes made by the original reports.

c. Elaborate a comparative study of similar interventions done in Paraguay or other countries. Provide the information and tables to compare costs.

iv) Study and provide an analysis of the laws, licenses, and regulations that pertain to taxes, financial obligations that must be taken into account within the framework of the GCF program.

v) Develop a feasibility analysis, based on a financial model, and compare costs and benefits generated by the proposed interventions in the short (5 years), medium (10 years) and long term (25 years). Specify the following points:

a. Savings to families and the Government by reducing flood relocation costs. Savings should consider health costs, fatalities, overall well-being, infrastructure damage or collapse, and asset losses.

b. Calculate the potential profits/savings through the environmental services provided by the Banco San Miguel ecological reserve, the creation of jobs in Ricardo Brugada, land valuation, tourist activities, job formalization, property tax, and the gains in rent and investment in the Port area and the Historical Downtown District.

c. Estimate cost per co-benefit generated as a result of the GCF Program.

d. Consider the negative effects of land valuations, such as potential gentrification and other undesired effects.

vi) Estimate costs associated with the option of no intervention by the GCF Program. Specify the expected economic and financial rate of return with and without the GCF support, based on the analysis conducted.

vii) Propose an economic mechanism through which the GoP can pay for the GCF loan. Consider the economic benefits through taxes, tourism, environmental services and the promotion of private investments that would eventually produce City and Government tariffs.

viii) Identify precise actions that would be required to develop the economic sustainability of the Program in the medium and long term. For example, what kind of private sector investments would be needed, what public policies would encourage the development and maintenance of interventions, what incentives could be developed, and so on.

ix) Evaluate the interventions describing how the proposed GCF Program addresses the following needs:

a. Economic and social development level of the country and the affected population.

b. Absence of alternative sources of financing (e.g. fiscal or balance of payment gap that prevents from addressing the needs of the country; and lack of depth and history in the local capital market).

4. Deliverables

The consultancy must submit the following reports:

- Initial report: containing the work plan and detailed study methodology, within 5 calendar days after the signature of the contract.

- Interim report 1: with the result of the activities (i) to (iii) defined in the previous chapter, within 30 calendar days after the signature of the contract.

- Interim report 2: with the result of activities (iv) to (vi) defined in the previous chapter, 60 calendar days after the signature of the contract.

- Interim report 3: with the result of the activities (vii) to (ix) defined in the previous chapter, within 80 calendar days after the signature of the contract.

- Final report: with the result of all activities defined in the previous chapter, and the inclusion of comments, within 90 calendar days after the signature of the contract.

5. Characteristics of the consultancy

Dedication and deadline: The activities under these terms of reference should be completed within three months.

Qualifications: University professional with a graduate degree in engineering, economics, or similar degrees with proven experience in project feasibility analysis. The consultant should have at least 10 years of experience in economic project analysis, knowledge of the country, and proficiency in projecting present value and return on investment calculations. The consultant should have time to attend meetings in public sector offices. The consultant should preferably have proven experience of climate change issues and be proficient in English and Spanish.
Annex 3.5: Design of Governance Framework for the Green Climate Fund funding proposal “Strengthening Urban Resilience in Riverside Asuncion”

DRAFT TERMS OF REFERENCE

1. Objective
The objective of the present consultancy is to design a governance scheme for the efficient management of the GCF Program, taking into account the proposal presented in the Concept Note (see Figure 2, section B above). Specifically, it is necessary to design an organizational chart outlining responsibilities of the different actors of the program, propose procedures and functions for the transferring of funds, and implementation of the program as well as to define the roles and responsibilities of the different actors.

2. Methodology
The methodology to be implemented contemplates the following phases:

   i) Organize and conduct one workshop with government stakeholders. The workshop should specifically include members of the Ministry of Finance, Housing Secretariat (SENAVITAT), Municipality of Asuncion (MA), Social Action Secretariat (SAS), Ministry of Public Works and Communication (MOPC), Electricity National Administration (ANDE), National Emergency Secretariat (SEN), Environment Secretariat (SEAM), and Planning Secretariat (STP). Workshops should be aimed at creating consensus on the governance scheme, organizational charts and responsibilities.

   ii) Conduct at least one workshop with the community in the intervention area, in order to share proposed governance schemes, gather information from the community and incorporate viewpoints on how the governance scheme should be designed.

   iii) The governance scheme should pay special attention to women participation in the implementation of the project.

   iv) Compile and compare other governance schemes placed in similar programs applied to climate change adaptation.

   v) Identification of risks of the governance scheme and possible actions to mitigate them.

   vi) Include interviews and workshops with actors from the Development Finance Agency (AFD), the Central Bank (BC), the National Development Bank (BNF) and other public and private institutions as potential Trustee.

   vii) The consultancy should propose contents and methodology of the workshops in the work plan.

   viii) Follow as a design guideline the proposed governance scheme pointed out in Figure 1.

The following aspects should be considered:


   ii) All work should be closely coordinated with both the GCF focal point in the GoP (STP), the PPF Coordination and the IDB (CSD/CCS).

   iii) The institutional requirements of the GCF, the IDB and the GoP.

   iv) The inclusion of civil society within the framework of governance.

   v) Promote citizen participation through dialogue tables.

   vi) Include the socio-political context of Paraguay for the development of the Program.

   vii) To present periodically to the Resiliency Working Group the progress of the analysis and the design of the governance scheme.

   viii) Consider throughout the design of the governance scheme that a local institution, either from the central government, local government or civil society will have to shadow the executing agency in order to learn the processes involved since this institution will take over the stewardship of the area once the Program is over.

   ix) For the approval of the final product provide the GoP with verified working copies of all models, databases and other files created during the consultancy.

3. Activities
The consultant must carry out at least the following activities:

   i) Study governance schemes developed for similar projects and programs (e.g. multi-sector climate change programs within the framework of the CIF, GEF, GCF, or similar) in Paraguay or worldwide, and analyze its possible application to the proposed GCF Program.

   ii) Specify advantages and disadvantages of each governance option in the context of the proposed GCF Program.

   iii) List and analyze the internal laws, regulations, and procedures of the GoP, the GCF, and the IDB that should be considered when structuring the governance scheme.

   iv) Conduct a technical analysis of the GoP’s main institutions responsibilities that would participate in the governance scheme and list their capacities, strengths and weaknesses, internal barriers, and challenges to overcome for the efficient execution of the Program.

   v) Analyze the socio-political situation of Paraguay that favors in one or another form the Program implementation. This activity should contextualize the justification of the governance scheme.
vi) Design a governance scheme agreed upon by the main actors and governed by the laws, regulations and standards of the GoP, IDB and GCF. Within the scheme should be defined roles and responsibilities of each actor, and how the operational processes would be performed. The scheme should consider a multi-stakeholder engagement plan that includes the private sector, and representatives of the civil society.

vii) In the case that a Trust Fund is the designed option, the fiduciary institution (the Trustee) that would manage the funds should be identified. It also shall propose the transfer of funds procedures between the GCF, the IDB, and the Program Executing Agency as well as payments to suppliers.

viii) Propose a scheme and the procedure for the governance scheme to be handed over once the Program is completed to a GoP institution to ensure sustainability in the medium and long term.

ix) Describe how the proposed governance scheme could strengthen existing institutions, create a regulatory framework, apply to other projects/programs, and support inter-institutional cooperation.

x) Develop the role of the shadow institution and how information should be shared throughout the Program lifetime. The design of the role should consider:
   a. What type of operational aspects will be in charge of the shadowing institution or if the institutions will be fully engaged within the Program.
   b. Number of personnel from the shadowing institution that will be involved directly and indirectly with the Program, as well as their roles.
   c. The type of responsibilities that the institution will have through the Program and once the Program is finished.
   d. Develop, in detail, an exit strategy (time frame and responsible parties) that the Executing Agency should follow in order to hand over responsibilities of the entire Program.

5. Deliverables
The consultant must submit the following reports:
- Initial report: containing the work plan and detailed study methodology, within 5 calendar days after the signature of the contract.
- Interim report 1: with the result of activities (ii) and (iv) defined in the previous chapter, within 30 calendar days after the signature of the contract.
- Interim report 2: with the result of activities (v) to (vii) defined in the previous chapter, 60 calendar days after the signature of the contract.
- Interim report 3: with the result of activities (viii) and (x) defined in the previous chapter, within 75 calendar days after the signature of the contract.
- Final report: Final, complete report, with the result of all the activities defined in the previous chapter, and the inclusion of comments done throughout the consultancy, within 90 calendar days after the signature of the contract.

6. Characteristics of the consultancy

**Dedication and deadline:** The activities under these terms of reference should be completed within three months.
**Qualifications:** University professional with graduate degree in law, political science, public policy or similar degrees, with at least 10 years of proven experience in the development of governance activities and knowledgeable of Paraguayan Financial Law. The consultant should have proven experience leading inter-institutional working groups. Proficiency in English and in the use of digital editing tools (MS Office).
Annex 3.6: Project Coordination and Funding Proposal Drafting for the Green Climate Fund
“Strengthening Urban Resilience in Riverside Asuncion” Program

DRAFT TERMS OF REFERENCE

1. Objective
The objective of the present consultancy is to coordinate the execution of activities under the Project Preparation Facility for the “Strengthening Urban Resilience in Riverside Asuncion” Program with the STP, IDB, consultant firms and local consultants (consulting services). The coordination will also oversee the establishment of a clear line of communication between different governmental institutions already involved or new identified agencies to be involved in the Program and other consultancies. Finally, coordination will be drafting the Funding Proposal (FP), as new information is made available.

2. Methodology
The methodology to be implemented should contemplate the following points:
   i) Produce monthly reports to the IDB and the STP outlining the different PPF activities and a summary of the meetings between consultants, stakeholders and the civil society.
   ii) Participate in all Resiliency Working Group meetings and draft meeting minutes.
   iii) Develop close coordination with IDB internal administration for contracts and procurement process.
   iv) Develop close coordination between consultants, consultant firms, the GoP, and different stakeholders throughout the PPF execution.

The following aspects should be considered:
   i) Use both, qualitative and quantitative methods to present project status and analysis.
   ii) Follow the institutional requirements of the GoP, the IDB, and the GCF.
   iii) Include civil society within the framework of discussions on vulnerabilities and risks.
   iv) Include the socio-political context of Paraguay for the development of the Program.
   v) Present the results periodically to the Resiliency Working Group.

3. Activities
Coordination activities will be divided into: i) tasks required to be performed locally in Asuncion, and ii) actions to be taken internally at the IDB.

   i) Coordinate internally at the IDB and collaborate with the Planning Secretariat (STP) and other relevant stakeholders for the procurement of services during the execution of the PPF to prepare the FP. The following points outline the basic requirements of the coordination process:
      a. Use project management tools and techniques to facilitate successful execution of all activities, ensuring that outputs/outcomes are produced corresponding to the schedule described in the terms of reference (TORs).
      b. Coordinate and facilitate the communication with different agencies of the GoP and consulting services for better collaboration to derive the good quality of products.
      c. Manage the consulting services that will deliver PPF activities.
      d. Advise in the development of all activities under the PPF by facilitating consulting services with needed information and contacts.
      e. Coordinate information sharing between different consulting services.
      f. Manage and control the project documents, logistics, procurement, outputs, and publications.
      g. Liaise and facilitate the audit exercise to be completed at the end of the PPF execution.

   ii) Coordinate locally in Asuncion and collaborate with the STP, other relevant stakeholders and the IDB for technical support during the execution of the PPF to prepare the FP.
      a. Coordination alongside the internal coordinator of the IDB with the drafting of Terms of Reference, the evaluation and selection process.
      b. Support the IDB in the hiring process of services by evaluating proposals, conducting interviews and providing inputs for contracts.
      c. Assist in the development of all activities under the PPF by facilitating consulting services with needed information and contacts.
      d. Review the reports and deliverables submitted by consulting services to ensure that they are in good quality and include all contents that are mentioned in the TORs.
      e. Be responsible for conducting meetings and providing summaries of the decisions, comments, or suggestions made.
      f. Evaluate, comment and provide suggestions on the Program outputs throughout the PPF execution.
      g. Manage and promote stakeholder relationships, communications and visibility.
      h. Coordinate local meetings between contractors, stakeholders, working groups and the IDB.
      i. Serve as liaison between stakeholders and the service providers.
      j. Produce monthly monitoring reports for the IDB and STP where project progress and milestones are reported, as well as timeline adjustments are made.
      k. Draft the final Funding Proposal through the following procedure:
         • Include information in the GCF Funding Proposal template, as new information is made available.
         • Provide bi-monthly updates of the template.
         • Have meetings with the Resiliency Working Group and the IDB to discuss wording, argumentative
strategies for the Funding Proposal and logistic issues regarding the submission of the Funding Proposal.

4. Deliverables
The consultancy must submit the following reports written in English:

- Initial report: containing the work plan and detailed study methodology, within 5 calendar days of signing the contract.
- Monthly reports: Outlining the activities performed under the description of Activity i) and ii) in the last chapter. The reports should include updates on the Gantt Chart of the GCF template, state the progress of the service providers, detail and document any meetings that occurred with stakeholders, service providers and the community at large, as well as any concerns and subsequent actions that might require action from the IDB or the GoP.
- Bi-monthly reports: Progress in the GCF Funding Proposal template should be submitted for comments and suggestions by the Local Coordinator.
- Final report: Final draft of GCF Funding Proposal and a report analyzing the Project Preparation Facility management and the lessons learned.

5. Characteristics of the consultancy

Time frame: 12 months.

Qualifications: The consultants must have the following experience:

Local Coordinator in Asuncion:
Master’s degree or equivalent and a minimum of five years of relevant professional experience or the equivalent combination of education and experience in architecture, engineering, urban and regional planning, environmental sciences or a related discipline. Experience in climate change research and proposal preparation, as well as leading an interdisciplinary team of consultants. Proven knowledge of the intervention area and experience working in an interdisciplinary team with many stakeholders. Local coordinator must have excellent writing skills and be fluent in both English and Spanish. The consultant should have knowledge of the intervention area.

Internal Coordinator at the IDB:
Master of Business Administration, Finance, Environmental or Sustainable Development or a related discipline. Ten years of general experience working in Project Management - preparation and implementation. Minimum five years of professional specific experience in executing and managing operations related to development and climate change. Must have an advanced understanding of IDB Operations and Policies; experience in executing specific grants and other technical cooperation instruments. Experience working with multilateral institutions on projects for both the public and private sector, ideally with international sources of climate finance is required. Work experience in Latin America and the Caribbean region is required. The consultant should be fluent in English and Spanish.
Concept Note

The Green Climate Fund (GCF) is seeking high-quality projects or programmes.

Accredited entities may choose to submit a concept note, in consultation with the relevant national designated authority, to present the proposed project or programme idea in order to receive early feedback and recommendation.

Project/Programme Title: Strengthening Urban Resilience in Riverside Asuncion

Country/Region: Paraguay / South America

Accredited Entity: Inter-American Development Bank

National Designated Authority: Secretaría Técnica de Planificación (Ministry of Planning for Economic and Social Development)

1 The name when submitted to the GCF Secretariat in December 2016 was: “Riverside and Urban Development Resiliency in Asuncion’s Historical Downtown District“.
## A. Project / Programme Information

<table>
<thead>
<tr>
<th>A.1. Project / programme title</th>
<th>Strengthening Urban Resilience in Riverside Asuncion³</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.2. Project or programme</td>
<td>Programme</td>
</tr>
<tr>
<td>A.3. Country (ies) / region</td>
<td>Paraguay</td>
</tr>
<tr>
<td>A.4. National designated authority(ies)</td>
<td>Secretaría Técnica de Planificación (STP)</td>
</tr>
<tr>
<td>A.5. Accredited entity</td>
<td>Inter-American Development Bank (IDB)</td>
</tr>
<tr>
<td>A.6. Executing entity / beneficiary</td>
<td>Executing Entity: Historical Center of Asuncion Trust Fund</td>
</tr>
<tr>
<td></td>
<td>Beneficiary: Population of Asuncion's Metropolitan Area (~2.2 million)</td>
</tr>
<tr>
<td>A.7. Access modality</td>
<td>Direct ☐ International ☒</td>
</tr>
<tr>
<td>A.8. Project size category (total investment, million USD)</td>
<td>Micro (≤10) ☐ Small (10&lt;x≤50) ☐ Medium (50&lt;x≤250) ☒ Large (&gt;250) ☐</td>
</tr>
<tr>
<td>A.9. Mitigation / adaptation focus</td>
<td>Mitigation ☐ Adaptation ☒ Cross-cutting ☒</td>
</tr>
</tbody>
</table>
| A.11. Results areas (mark all that apply) |-*Which of the following targeted results areas does the proposed project/programme address?*-

**Reduced emissions from:**
- ☐ Energy access and power generation
  - (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
- ☐ Low emission transport
  - (E.g. high-speed rail, rapid bus system, etc.)
- ☐ Buildings, cities, industries and appliances
  - (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
- ☐ Forestry and land use
  - (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

**Increased resilience of:**
- ☒ Most vulnerable people and communities
  - (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
- ☒ Health and well-being, and food and water security
  - (E.g. climate-resilient crops, efficient irrigation systems, etc.)
- ☒ Infrastructure and built environment
  - (E.g. sea walls, resilient road networks, etc.)
- ☒ Ecosystems and ecosystem services
  - (E.g. ecosystem conservation and management, ecotourism, etc.)

<table>
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<tr>
<th>A.12. Project / programme life span</th>
<th>10 years</th>
</tr>
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</table>
| 13. Estimated implementation start and end date | Start: March 2019  
End: March 2029 |

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² Please use the following naming convention for the file name: "[CN]-[Agency short name]-[Date]-[Serial number]" (e.g. CN-ABC-20150101-1).

³ The name when submitted to the GCF Secretariat in December 2016 was: "Riverside and Urban Development Resiliency in Asuncion’s Historical Downtown District". Program title has been modified during the PPF preparation to: "Strengthening Urban Resilience in Riverside Asuncion".
B. Project/Programme Details

The Fund requires the following preliminary information in order to promptly assess the eligibility of project/programme investment. These requirements may vary depending on the nature of the project/programme.

The IDB is preparing a two-project package for the GCF to assist Paraguay to achieve its National Determined Contribution (NDC) targets with investments in (i) energy efficiency for the industrial sector and (ii) resilience to climate change in depressed urban areas of Asuncion. These actions are prioritized in Paraguay’s NDC, which commits GHG emission reductions of at least 20% compared to the business as usual scenario by 2030.

As far as adaptation is concerned, Paraguay includes it as a priority in the National Development Plan 2014-2030, that will inform the design of the National Plan on Adaptation expected to be finalized by 2017. The NDC prioritizes adaptation actions in key sectors that are included in the proposed GCF package, such as land use planning, health and sanitation, risk management and natural disasters, and infrastructure. The NDC also prioritizes the industrial and energy sector, as well as infrastructure and sanitation, as key sectors to mobilize climate finance.

According to the above approach, this present Concept Note follows and complements the previous submission of the Concept Note for the project titled “Promoting private sector investments in energy efficiency in the industrial sector and reduction of non-renewable biomass demand in Paraguay”.

Asuncion’s downtown riverside hosts a highly vulnerable population and ecosystem at risk from flooding. This risk is increasing with climate variability and climate change, which is increasing the probability of flood events from the Paraguay river. Gaps in local drainage infrastructure and land use changes that affect the Paraguay river’s watershed are also impacting the area. At the same time, the area serves as the cultural and political hub of the City, and is an important source of employment for poor riverine communities.

The “Strengthening Urban Resilience in Riverside Asuncion” Program consists of an integrated flood risk management on Asuncion’s downtown riverside, aimed at reducing flood risk, strengthening resilience of vulnerable communities in the area, and recovering the riverine ecosystem by promoting low-carbon and climate-resilient infrastructure. The proposed interventions will reduce flood risks, and strengthen climate risk management and adaptive capacity of the riverine district. The Program will benefit not only the population of the intervention area but also Asuncion’s Metropolitan Area inhabitants, approximately 2 million people who either live or work in the area.

The Program will focus on four areas: (1) Ricardo Brugada Neighborhood, with highly vulnerable riverine area with a population of close to 4,000 inhabitants; (2) San Miguel Sand Banks, a natural reserve of 300 hectares; and (3) the Historical Downtown District, an area comprised mostly of cultural and public office buildings, and an important source of employment for riverine communities; and (4) the old Port of Asuncion, an area under redevelopment that should integrate the neighboring vulnerable communities and the climate component in its planning. These areas are interlinked because of their geographical location alongside the Paraguay River shore, which together with their topographic and drainage conditions, calls for an integrated flood risk management intervention that includes vulnerable riverine communities as well as the area’s wetlands and marshes.

The Program will design an integrated package of structural and non-structural measures, including: interventions focused on reducing flooding risk, including enhancing the drainage system, rehabilitating public spaces and creating linear parks that can also serve as flood retention areas; restoring the riverine ecosystem, including the natural floodplains and wetlands, rehabilitating flora and fauna in the riverside, and cleaning-up streams; improving the social housing stock and constructing new social housing with low-carbon and climate-resilient standards; connecting the Historical Downtown District with its riverside communities to improve livelihoods, including by creating appropriate social and fiscal conditions to incentivize both public and private low-carbon and climate-resilient investments; as well as community awareness and capacity building for environmental management and increase in adaptive capacity in vulnerable areas of the riverside.

The Program will be divided into 4 main components proposing different interventions to achieve Program’s objectives (Figure A1 and A2):

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4 The river is a natural ecosystem. The actions in riverside must incorporate criteria beyond structural security, drainage capacity and economic considerations. The geomorphological environment, the natural ecosystems, the urban environment, the landscape and accessibility are some of the conditions whose attention improves the final quality of the riverbank.
Component 1: Ricardo Brugada Neighborhood
This component will be focused on 1,200 hectares alongside the Paraguay River. This area currently hosts more than 20,000 people\textsuperscript{5} many of them, irregular settlers (Figure A3); 4,000 of them are living in highly vulnerable conditions, in precarious housing\textsuperscript{5} on a flood prone area of Ricardo Brugada Neighborhood, known as Chacarita (Figure A4).

- Rehabilitation of public parks and creation of new public spaces and permeable streets to mitigate runoff intensity and to promote community ownership and stewardship of the area, which increases adaptive capacity.
- Urban consolidation of irregular settlers to strengthen their adaptive capacity.
- Construction of hydraulic structures to protect areas from recurring floods.
- Construction of flood drainage infrastructure and sanitary connections to reduce flooding risk.
- Construction of low-carbon and climate-resilient social housing to reduce flood risk.
- Wetland and floodplain ecosystem restoration.
- Rehabilitation of five streams and construction of linear parks to reduce flood risk.
- Community awareness and capacity building to increase adaptive capacity and improve livelihoods.

Component 2: San Miguel Sand Banks
This component will recover riverine ecosystem, around 700 hectares of a natural ecosystem that make up the Asuncion Bay and the adjacent ecological reserve, Banco San Miguel\textsuperscript{6} (Figure A5 and A6).

- Wetland restoration and habitat protection as an ecosystem-based adaptation measure to reduce vulnerability to flood events.
- Closure of dumpsites and improper land use to support wetland and habitat restoration.
- Population relocation outside the Ecological Reserve into low-carbon and climate-resilient social housing.
- Construction of an ecological park and infrastructure (trails, lookouts, shelters, etc.) to support conservation of the Ecological Reserve.
- Soil movement to restore natural soil conditions.
- Delineation and reopening of the Cara Cara Brook, which has been closed due to anthropogenic intervention, to serve as a natural drainage pathway for flash floods.
- Community awareness and capacity building to increase adaptive capacity and improve livelihoods.

Component 3: Port of Asuncion
Interventions of this component aim at reducing flood risk, and increasing resilience of the vulnerable communities of Ricardo Brugada and the San Miguel Sand Banks’ ecosystem (Figure A7 and A8).

- Construction of floodable park and extension of promenade to reduce flood risk.
- Development of hydraulic and drainage infrastructure in order to protect future development from flood events.
- Inclusion of LEED, ISO 14001, or EDGE certification strategies, operation, and technologies in buildings and public spaces to reduce energy grid vulnerability to electric outages.
- Promoting low-carbon and climate-resilient infrastructure and buildings in new coming private investments to reduce flood risk in the whole intervention area and to reduce energy grid vulnerability to electric outages.

Component 4: Historical Downtown District
Interventions of this component aim at reducing flood risk, increasing resilience and improving livelihoods of the vulnerable communities of Ricardo Brugada, and recovering the San Miguel Sand Banks’ ecosystem (Figure A9 and A10).

- Construction of ecological and dynamic corridors to reduce rainfall runoff promoting permeable surfaces and reordering street vendors from Ricardo Brugada or San Miguel Sand Banks.
- Rehabilitation of streets, parks, and public spaces to mitigate runoff intensity.
- Retrofit of existing buildings with low-carbon technologies to reduce energy grid vulnerability to electric outages.
- Improving the transportation connectivity between the Historical Downtown District with Ricardo Brugada and the River to improve livelihoods and enhance adaptive capacity.

\textsuperscript{5} Plan Maestro del Centro Histórico de Asunción (Plan CHA), 2014.
\textsuperscript{6} Law 2715 of 2005. The area is also under consideration to name the sand banks a protected RAMSAR (The Convention on Wetlands) site.
The direct beneficiaries will be the people that today have urbanized, in an informal manner, the floodplains of the Bay of Asuncion (around 1,000 families\(^7\)). 42% of this families are considered to be under the poverty line, who have illegal or irregular access to water and sanitation, and no rainwater drainage or waste collection; making them the most vulnerable citizens of Asuncion\(^2\).

The population of the adjacent historical downtown district has around 7,000 inhabitants\(^7\), but it hosts more people since during day time people from outside Asuncion converge onto the downtown district for work reasons. Therefore, this daytime population will also benefit directly from the new and improved urban services and infrastructures that this program will enable and support. Lastly, Asuncion’s greater metropolitan area (around 2.2 million people\(^6\)), that strives for a sense of identity and pride, will benefit from the resilience gained in revitalizing and protecting the historical riverine district.

The anticipated outcomes are indicated as follows:

1) Increased resilience of Riverside Asuncion (Ricardo Brugada Neighborhood, San Miguel Sand Banks, Port of Asuncion, and Historical Downtown District) to flood events by improving climate risk management and increasing adaptive capacity.

2) Improved quality of life (health and social inclusion) of more than 1,000 families living in flood prone areas through the construction of proper urban infrastructure, access to water and sanitation services, inclusion of alternative sources of energy, and promotion of sustainable and resilient income sources in a changing urbanized area – through community programs.

3) Reduction of costs associated with flood events due to relocation of affected population. Approximately, every 5 years\(^9\) there is a flood event that costs affected families (which are the most economically vulnerable ones) a total of USD 1.2 million\(^8\); without considering governmental expenses.

4) Diversification of the energy matrix through installation of solar cells and solar heaters in mix-use buildings in the historical Port of Asuncion\(^11\) and promotion of energy efficient architectural design.

5) Strengthened sense of community by embracing the cultural and historical value of the historical downtown district of Asuncion improving public areas, constructing riverside parks, a network of connected bike lanes and walkways, and developing organized street commerce.

6) Restoration of more than 700 hectares of protected ecological areas and water bodies, which compromise a natural ecological reserve that hosts a vast number of migratory birds that use it as a nesting ground.

7) A significant boost in the medium-term city goal of reverting the horizontal expansion model of urban development in Asuncion by providing adequate conditions to repopulate downtown Asuncion. These conditions will include organizing streets and sidewalks, relocating street vendors into formal booths and spaces, installing appropriate lighting, and empowering the general public to use and visit the downtown district by promoting cultural activities.

8) Increased tourism and cultural activities in the historical downtown and the restored ecological reserve of Banco San Miguel.

9) Increased the use of the historical Port of Asuncion, not only as an office buildings space but as a major multi-modal transfer point with vehicle parking lot, Bus Rapid Transit (BRT) station, public promenade, and a pier to promote the use of a future riverine ferry.

10) Around 10,000 citizens trained and educated on how to adapt to the adverse effects of climate change by adapting to the changing urban conditions, diversifying income sources, and becoming formal members of the economy.

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\(7\) Data from PLAN CHA website [http://asuncioncentrohistorico.com/2016/06/29/el-centro-historico-de-asuncion-expulso-cerca-de-10-mil-habitantes-en-un-decenio/](http://asuncioncentrohistorico.com/2016/06/29/el-centro-historico-de-asuncion-expulso-cerca-de-10-mil-habitantes-en-un-decenio/)

\(8\) Emerging and Sustainable Cities Initiative, Action Plan, Metropolitan Area of Asuncion, 2014.

\(9\) Flood return periods calculated in 2004 by Abt Associates indicates that on average every 5 years flood events surpass the 60 meters above mean sea level (mamsl) line. Most of Ricardo Brugada is below the 60 mamsl.

\(10\) ABC Color, July 13\(^{rd}\), 2014, newspaper article approximate estimate of costs based on interviews and data gathered from governmental agencies.

\(11\) Potential energy savings and costs associated will be determined during the development of the full funding proposal.
The Ministry of Housing / Secretaría Nacional de la Vivienda y el Hábitat (SENAVITAT) is responsible for urban planning and coordination of public development projects for poverty reduction and social development, and overall coordination of an inclusive economic growth. Within the context of sustainable development, the STP is responsible guiding municipal governments to select appropriate indicators for land use development such as population density, number of roads, its type of use, and the inclusion of citizens through various means of participation.

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The last major flood event in 2014 cost to the City of Asuncion, the central government, and several aid agencies approximately USD 7 Million in humanitarian relief, food provisions, infrastructure arrangements and opportunity cost. The affected families in the Ricardo Brugada neighborhood had two direct negative effects. First, the land value of the Ricardo Brugada neighborhood has decreased significantly.

The low densification of the downtown area in Asuncion has pushed the urban footprint to develop horizontally, creating extensive land use changes and transportation problems in the Greater Asuncion Area. In the last 14 years Asuncion historical downtown district has lost around 10,000 residents who have moved away. This has had two direct negative effects. First, land previously destined to agricultural activities, or occupied by native forest, had to be converted into urbanized areas to host the expanding population. Second, the land value of the downtown district has decreased significantly.

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The population exodus is not only taking place in the downtown historic district, but also in Asuncion as a whole. In fact, Asuncion population has stagnated with a negative growth rate (-0.23% as reported in 2012). Currently, Asuncion has a population of approximately 515,000,
Though it receives approximately 1.7 million people per day from neighboring commuter cities - which do not pay any type of taxation\(^\text{14}\) - creating an overcrowding situation in an area with limited urban services.

Paraguay is projected to have 1.3 million housing deficit in 2016, which affects more than half of the population\(^\text{1}\). The National Housing Plan estimates that it will cost USD 5 billion through 2020 to simply reduce this deficit by 297,000 housing solutions.

Private banks aim at providing house mortgages only for the top 8% of the population (in economic terms) at 12% annual interest rate\(^\text{15}\). This high interest rate has a spread of over 8% compared with cost of financing for banks. This high discrepancy between passive and active interest rates makes mortgage market only available to high-income families.

Currently, the government is planning a USD 45 million\(^\text{16}\) construction of a social neighborhood in an area previously used by the military. This housing development will host around 800 families (around 3,000 people) that currently inhabit the Ricardo Brugada informal settlement area.

The natural ecological reserve of Banco San Miguel could be a source of income for the city of Asuncion by certifying environmental services it can provide, and be sold in the local environmental services market framed under Law 3001. The San Miguel sand banks could also generate incomes through Park entrance fees and by hosting public or private events. As a reference, the nearby Botanical Garden of Asuncion charges an entrance fee of approximately USD 1 and has on average 1,200 visitors per week\(^\text{17}\).

The area framed in this GCF Program has the largest amount of crimes reported amongst Asuncion’s neighborhoods, amounting to a 19% of the total reported crimes in the capital\(^\text{18}\). The downtown district also experiences a large amount of informal vendors – mostly from Ricardo Brugada - who take up the sidewalks and streets. The 2014 census established that some public squares had a 50% occupation by informal vendors, limiting the use of public spaces\(^\text{19}\). If these vendors were organized into booths and relocated into certain areas, they could improve their income, become formal members of the economy, and give back public spaces\(^\text{20}\). Therefore, infrastructure improvement and living conditions enhancement in the downtown will increase land value\(^\text{21}\).

The 1992 Paraguayan Constitution declares the right to live in a healthy environment, with preservation and conservation of the environment as a human right. Following this declaration, in 1993, Law 294 was created establishing the “Environmental Impact Assessment” (EIA) regulation. The Law serves as a guarantee against any action that may directly or indirectly affect life in general, biodiversity, the quality of natural and environmental resources, and their exploitation. Law 294/93 provides the legal basis for a mandatory evaluation for any work or action by humans to generate a modification to the environment. The law also has a provision for mandatory public audiences if the licensing entity decides the project affects indigenous communities or if it has been requested by an affected group.

In July 2000 Law No. 1561 creates the environmental authority, the Ministry of Environment (SEAM), within the public sector management, empowered as enforcement authority, promulgating all standards related to the protection and conservation of natural resources and environmental health. One of the attributes of the SEAM is to establish the process by which Law 294 is articulated.

Law 3001 of 2006, of “Valuation and Remuneration for Environmental Services”, establishes economic incentives and requirements for the management of natural resources and arises as a hybrid system of voluntary and mandatory production, and acquisition of environmental services. Moreover, the law also established that a 1% of the total investment in any large-scale project has to be directed towards the acquisition of environmental services.

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\(^{14}\) Plan Estratégico Metropolitano de Asunción (PEMA), 2014.
\(^{15}\) Insfran, J.A. (2012). Opciones de Política para el Financiamiento de la Vivienda Caso de Paraguay. RG-K1255-BID.
\(^{16}\) Early estimates from Itaipu Binacional that will finance the Project. https://www.itaipu.gov.br/es/sala-de-prensa/noticia/barrio-san-francisco-nuevo-modelo-de-desarrollo
\(^{17}\) Rough estimate based on interview with clerk of the Environmental Management Division of the Municipality of Asunción
\(^{18}\) Fundación País Seguro 2009, “Encuesta sobre la situación actual de la delincuencia en los barrios de Asunción”, de la Fundación País Seguro, realizada en Abril de 2009
\(^{19}\) Plan CHA, 2014 (pg. 69 volume 1).
\(^{20}\) Potential earnings by organizing informal vendors will be estimated during the formulation of full funding proposal.
\(^{21}\) Potential increase in land valuations will be estimated during development of full funding proposal.
Article 11 of Law 3001 establishes that projects and activities defined as being of high environmental impact, such as construction and maintenance of roads, waterworks, power stations, among others, listed in the regulations, should include in its investment scheme environmental compensation through the acquisition of Certificates of Environmental Services. The law states that investments in environmental services shall not be less than 1% of the cost of the project or the annual operating budget for the activity.

The National Fund for Social Housing – Fondo Nacional de la Vivienda Social (FONAVIS) – is a social housing program that focuses on providing 4 levels of subsidies for the construction of houses for low-income families, subsidies range from 15% to 95% of the cost of a house depending on the household income. The Ministry of Housing (SENAVITAT) leads this program. FONAVIS program has a budget of USD 53 million of which only 14% has been allocated.

Through a special funding program, SENAVITAT will relocate 800 families from Ricardo Brugada to a new social neighborhood that will be built with funding from Itaipu – one of the country’s hydroelectric power plants.

Law 5102 of 2013 of Public Private Partnerships (APP, in Spanish) intends to include private entities in government projects that deal with construction, provision of services, management, and intends to invest more than USD 5 million. The partnerships could be established for up to 30 years. This law provides the legal instrument that could be crucial for the management and maintenance of the public spaces and investments being proposed in this GCF program.

There exist extensive laws, public policies, studies, and master plans that support the interventions proposed in this concept note.

**Central Government Laws:**

- 2005 – Law 2715: Declares the San Miguel Banks as a protected ecological reserve.
- 2014 – Law 5211: Establishes the need for Air Quality standards. SEAM is responsible for setting standards of air quality that cities have to follow.
- 2015 – Law 5430: Creates a national network for bike lanes, their protection, and functions.

**Municipal Laws:**

- 2009 – Municipal bylaw No. 287: Declares the Historical Downtown District of public and historical interest.
- 2015 – Municipal bylaw No. 607/15: Declares the construction of bike lanes a Municipal policy allocating 1% to 5% of the Municipal tax collection to construction and maintenance of bike lanes. This amount currently sums to about USD 250,000 per year.

**Policy Plans:**

- 2011 – National Climate Change Policy Plan stating the importance of climate change mitigation and adaptation in Paraguay.
- 2013 – National Development Plan (NDP) that proposes actions to be taken through 2030 to: reduce poverty, economic growth, and the inclusion of Paraguay in the globalized world. The NDP establishes the management of climate change and variability as crucial for economic development and inequality reduction, as well as the promotion and valuation of the natural environment as cultural heritage, and the reduction of costs associated with climate extreme events.
- 2014 – National Strategy for Climate Change Mitigation promoting the inclusion of alternative energy sources, diversification of energy matrix, and the reduction of land use changes and deforestation. In cities the main concern is reduction of fossil fuel use.
- 2015 – National Adaptation Strategy states that flooding in urban areas in Paraguay is one of the most damaging events as a result of climate change impacts.
- 2015 – Biannual Report to the UNFCCC specifying the level of emissions of GHG and actions planned. The report states that 72% of all the emissions from Paraguay come from Land Use and Land Use Change and Forestry (LULUCF) sector, with cities increasing their percentage in emissions based on fossil fuel consumption.

The following chart presents a schematic representation of the implementation arrangements:
The Program will be implemented in line with the Accredited Master Agreement (AMA) between the GCF and the IDB. The IDB acting as Accredited Entity will ensure that GCF resources are transferred and executed in accordance with the principles and procedures established in the AMA.

The organizational structure of the Program will be composed of an ad hoc Trust Fund, an Executing Entity (EA), and a Steering Committee (SC). This structure is designed to facilitate the integration of the interests of different national and sub-national stakeholders in the decision-making process, while ensuring efficient and expedite execution, productive coordination between stakeholders, transparency and compliance with rules and procedures for the procurement of goods and services required for program implementation.

Funds from the GCF, the IDB and the other sources of co-financing will be channeled to the Historical Center of Asuncion Trust Fund (CHA Trust Fund) which will be created specifically for this Program and administered by a suitable National Financial Institution22 (the Trustee). The roles and responsibilities of the different actors involved will be as follows:

1. The Trustee will administer and distribute the CHA Trust Fund resources according to the Trust Agreement, the annual work plan, and the instructions of the EA.
2. The EA will be responsible for the operational aspects of the Program, including programming and Program execution and evaluation. The EA will also be responsible for the financial planning, all contracting services, the preparation of the Annual or Biannual Implementation Plan, and of the technical progress reports, as well as for incorporating the inputs of the SC in the program implementation. The EA will be selected by the SC, through competitive process amongst organizations with suitable program management experience.
3. The SC will be responsible for establishing Program priorities and providing high level inputs into its implementation, as well as for the approval of the Annual or Biannual Implementation Plan and of the progress reports provided by the Executing Agency. The Steering Committee will also have responsibility over the political coordination among all institutions that are involved in the Program. The SC will be comprised by the Ministry of Planning (STP), Ministry of Public Works (MOPC), Ministry of Housing (SENAVITAT), Ministry of Environment (SEAM), Municipality of Asuncion, Ministry of National Emergency (SEN), and Ministry of Finance.
4. Besides these official members from the public sector the Steering Committee will invite members from the Civil Society and the Private Sector in order to provide input and a social perspective to the program implementation. The IDB will also be represented inside the Steering Committee in order to offer technical guidance regarding the AMA and the program itself.

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22 Trustee could be either the AFD (Financial Development Agency) or the BNF (the National Development Bank), or any National Commercial Bank. Specifications will be analyzed during the full funding proposal formulation.
Considering future replication and sustainability of the Program, it is envisioned that the Executing Agency will provide known-how and knowledge transfer to an Existing National or Local Agency – the specific Agency will be defined during the drafting of the Full Funding Proposal. This National/Local Agency will necessarily have a technical body with competences in urban planning, climate change, and institutional and policy development. The purpose of empowering this Agency will be to supply it with resources to enable designing and implementing similar projects in the Historical Center of Asuncion.

### C. Financing / Cost Information

#### C.1. Description of financial elements of the project / programme

**Component 1 - Ricardo Brugada Neighborhood:** rehabilitation of public parks and creation of new public spaces and permeable streets; urban consolidation or irregular settlers; construction of hydraulic structures, flood drainage infrastructure and sanitary connection, and low-carbon and climate-resilient social housing; wetland and floodplain ecosystem restoration; and rehabilitation of five streams and construction of linear parks to reduce flood risks, increase adaptive capacity and improve livelihoods.

**Component 2 - San Miguel Sand Banks:** Wetland restoration and habitat protection; closure of dumpsites and improper land use; population relocation outside the Ecological Reserve into low-carbon and climate-resilient social housing; soil movement to restore natural soil conditions; Delineation and reopening of the Cara Cara Brook; and construction of an ecological park and infrastructure to support conservation of the Ecological Reserve as an ecosystem-based adaptation measure to reduce vulnerability to flood events.

**Component 3 - Port of Asuncion:** construction of floodable park and extension of promenade; development of hydraulic and drainage infrastructure aiming at reducing flood risk, and increasing resilience of the vulnerable communities of Ricardo Brugada and the San Miguel Sand Banks’ ecosystem. Inclusion of LEED, ISO 14001, or EDGE certification strategies, operation, and technologies in buildings and public spaces to reduce energy grid vulnerability to electric outages. Promoting low-carbon and climate-resilient infrastructure and buildings in new coming private investments to reduce flood risk in the whole intervention area and to reduce energy grid vulnerability to electric outages.

**Component 4 - Historical Downtown District:** construction of ecological and dynamic corridors, rehabilitation of streets, parks and public spaces to reduce rainfall runoff promoting permeable surfaces, improving transportation connectivity between the Historical Downtown District with the River and reordering street vendors from Ricardo Brugada or San Miguel Sand Banks to increase resilience and improve livelihoods of the vulnerable communities of Ricardo Brugada and San Miguel Sand Banks. Retrofit of existing buildings with low-carbon technologies to reduce energy grid vulnerability to electric outages.

Annex 1, Figure A1 and Annex 3 represents a breakdown of cost estimates for each component and its associated sources of finance.

#### C.2. Project financing information

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<td>( ) years</td>
<td>( ) %</td>
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* Please provide detailed economic and financial justification in the case of grants.
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Lead financing institution: Inter-American Development Bank

D. Expected Performance against Investment Criteria

Please explain the potential of the Project/Programme to achieve the Fund’s six investment criteria as listed below.

D.1. Climate impact potential [Potential to achieve the GCF’s objectives and results]

The program seeks to reduce flood risk, strengthen resilience of a highly vulnerable population, and recover the riverine ecosystem, and promoting low-carbon and climate-resilient infrastructure by achieving:

Component 1 – Ricardo Brugada Neighborhood (Figure A3)

- Safety and flood protection for more than 1,000 families in flood prone area. The intervention will focus on consolidating 18 hectares of inhabited land in the flood banks of the Bay of Asuncion. The consolidation will build streets, sidewalks, public lighting with solar panel charging stations, community centers for training programs and gender equity assistance, neighborhood squares, connection of houses to water and sanitation services, and drainage systems.

- Increased resiliency to extreme weather events for another 500 families who currently reside on lower grounds of the floodplain in low quality shacks (Figure A4) by relocating them onto

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23 See footnote #24.
24 Fondo para la Convergencia Estructural del Mercosur – Mercosur Fund.
25 The IDB has recently received a loan request from the National Government for USD $80 million for an urban development project in Bañado Tambucú, which has similar problems to Ricardo Brugada Neighborhood. This loan will begin its preparation in December 2017. Therefore, interventions proposed for the Ricardo Brugada area can be replicated in Bañado Tambucú. At Funding Proposal stage, it is foreseen to include Bañado Tambucú in the Program.
26 This amount is allocated to the studies needed to prepare the above-mentioned loan.
27 Fiscal Budget from Itaipu Royalties.
28 Fiscal Budget, government debt.
the new urban consolidated area (previous intervention). Families will be set in flood-secure social houses with connections to water and sanitation services. The intervention will specifically focus on women head of families which compromise 42% of the total households in the area\(^{30}\).

- Diversification of the energy matrix by equipping more than 1,000 households with solar water heaters, LED lighting fixtures and passive energy-efficient architectural designs. This would represent climate change mitigation co-benefits.

- Restoration of 20 hectares of natural floodplains and transformation into a floodable public park and retention ponds with landscaping, promotion of native species, construction of trails, lookouts and park equipment.

- Construction of levees, drainage network for rainwater diversion and pumping stations (i.e. polder system) for 1,000 houses that lie on the consolidated flood prone area.

- Construction of 5 linear parks (a total of 2,700 meters) along existing streams in Ricardo Brugada to promote physical and mental well-being, a sense of community and recreational and leisure activities. The linear parks will serve as a social purpose, but also as a protection to flood events. Implied in the construction of linear parks are the relocation of families who currently live on the flood banks and the structural strengthening of the streams (i.e. placement of gabions).

- Improved health and well-being for 1,000 families in the consolidated area by eliminating direct drainage of wastewaters into the bay, by directing household sewage to a wastewater collection system, as well as providing connection to potable water distribution system. This sanitation involves the connection of more than 1,000 houses to sewage collection system, which implies 4,000 people connected to clean water supply in residential zones. The connection to water and wastewater services will reduce the concentration of refuse liquid and improve health through reducing problems with vermin and conditions for reproduction of *Aedes aegypti* mosquitoes (dengue/yellow fever mosquito).

- Creation of an educational and training program in order to establish a roadmap for the vulnerable community to become sustainable and resilient to climate change. The program will focus on providing tools for underemployed members\(^{30}\) for the community to diversify their income sources by fishing, recycling, tourist activities, and urban agriculture.

- Developing and managing a program for land title certification of the more than 900 families\(^{31}\) who live on the flood banks, pay no city taxes, and have no city services due to their illegal settlement.

Component 2 –San Miguel Sand Banks (Figure A5)

- Restoration of 300 hectares of a protected ecological reserve on the bay of Asuncion and renovation infrastructure for public use. Restoration will focus on soil movement in order to remove clandestine landfills, re-introduce native vegetation, remove inconsistent activities (i.e. quicklime factory, shipyard), relocate illegal settlers, construct trails, lookouts and directed roadways, and well-delimited roads within the park (Figure A6).

- Improved habitat and nesting grounds for 353 native bird species, or 49% of the entire bird species of the country\(^{32}\). The Asuncion Bay is an Important Bird Area (IBA) of relevance for aquatic species\(^{33}\). It is part of the *Banco San Miguel and Bahía de Asunción* Ecological Reserve (RBBSMB), which is a protected area under the National Protected Area System (SINASIP) hosting five species of globally significant congregations with 1% of global population seasonally at site. Namely, Buff-breasted Sandpiper (*Tryngites subruficollis*); American Golden Plover (*Pluvialis dominica*); Lesser Yellowleg (*Tringa flavipes*), White-rumped Sandpiper (*Calidris fuscicollis*), and Pectoral Sandpiper (*Calidris melanotos*).

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29 Censo Poblacional, Dirección de la Franja Costera, 2014 – referenced in Plan CHA.
30 The Historical Downtown Master Plan (Plan CHA) has identified that more than 42% of the population in Ricardo Brugada are underemployed, do not form part of the formal economy, and do not have health benefits.
31 2014 Census found that more than 92% of the families do not have a land title for the place they inhabit.
33 In the 2008 inventory carried out by Guyra Paraguay/BirdLife International, it qualified under criterion A4i (>1% of global population for one species) and under criterion A4ii (20,000–100,000 water birds). See Annex I for additional information.
• Relocation (or compensation) of 200 families currently living in the ecological reserve of Banco San Miguel, in an informal manner and in low quality housing into new social houses.

• Rehabilitation of the Cara Cara brook and restoration of the original ecosystem by opening branches, providing crossing, and connecting natural lagoons that connected the brook with the Paraguay River.

• Strengthened awareness of climate threats for both the community at large and park visitors through educational and awareness programs that emphasize the importance of the Banco San Miguel as environmental buffer zone, which reduces the negative effects of human influences onto the river biodiversity and the northern banks of the river.

Component 3 – Port of Asuncion (Figure A7)

• Providing incentives for the construction of flood protected buildings by raising the current ground elevation of the Port of Asuncion. The private sector investment in these buildings will bring an income of 15 million USD in rental revenue.

• Integrating and enabling downtown community to take over public space by the construction of a new floodable park equipped with benches, trails, and lighting fixtures, as well as the extension of a civic promenade that would circumvent the new Port of Asuncion development.

• Extension of the public promenade by 600 meters will circumvent the new Port Area and provide a public space for recreation and leisure activities (Figure A8).

• Providing architectural design and technological equipment to diversify energy matrix and lower its consumption in the new port area buildings by supplying technology transfer such as solar panels, solar heaters, passive architectural design, and incorporation of computerized technology to help save energy. This would represent climate change mitigation co-benefits.

• Providing technology and knowledge transfer to adapt urban constructive regulations to resilient and climate-friendly practices.

Component 4 – Historical Downtown District (Figure A9)

• Enhanced livelihood and enriched conditions for cultural activities in the historical downtown district by constructing 49 km corridors network, which include bike and pedestrian lanes connected through parks, public offices, and cultural and historical landmarks. Besides a network of non-traditional transportation lanes, the intervention will focus on creation of urban green areas, improved design and construction of sidewalks equipped with parklets, creative lighting and painting fixtures, and multimodal transfer points for people to park their bikes and use public transportation.

• Increased densification of downtown by providing adequate living conditions and touristic value through provision of diverse uses to the downtown area.

• Reduction of 445,000 tons of CO$_2$eq emissions throughout the program implementation lifespan based on the displacement of fossil fuel by bicycles and pedestrians. The 2013 emissions inventory calculated that the transport sector emissions in Asuncion Metropolitan area were 2.1 MtCO$_2$eq per year. This would represent climate change mitigation co-benefits.

• Increased opportunity for private and public economic growth in the downtown district by rehabilitating 5 existing parks through landscaping, and the addition of lighting fixtures and public furniture (e.g. parklets and creative furniture). Current parks are occupied either by

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34 2011, Programa de Preinversion BID 1143/OC-PR.

35 The filling of the brook along with the high level sedimentation caused by urbanization of the City has disconnected the brook from the Paraguay River. During full funding proposal a study should focus on the hydrodynamic consequences of re-opening the brook in order to prevent unintended consequences.

36 The 2015 Port of Asuncion Master Plan indicates the construction of mix-use buildings, including a hotel, commercial offices and residences would be built on the Port of Asuncion once the grounds are protected against flood events. The rent of these offices would create earnings of 15 million USD within a 30 year rental span.

37 Calculations for bike lane emission reductions were done using the GEF’s TEEMP Model methodology.

38 Emerging and Sustainable Cities Initiative, 2014.
people affected by floods who have relocated from the Ricardo Brugada to higher ground, informal vendors who use the public space for commercial activities, or by picketers who camp for weeks to months.

- Organization and formalization of street vendors who will be moved and relocated into constructed booths managed by the City of Asuncion within the historical downtown district of Asuncion.

- Reverting the current status quo of letting poor families locate themselves in flood prone areas and live in low-quality energy-inefficient housing with no sanitation. These same conditions are seen in two other areas of the City of Asuncion where people have settled and suffer the same afflictions from extreme weather events and lack of social inclusion. Knowledge and experience gained from the GCF program will be vital in order to replicate the interventions in this two other areas.

- Generation of appropriate conditions, through training and educational programs, for social and economic inclusion of families who live in under social stigmatization due to group affiliation, personal qualities, and economic situation.

- Strengthen the concept within political institutions that restoring natural ecosystems in highly urbanized areas is not only possible, but brings tangible economic and social benefits. Currently the status quo promotes the devaluation of natural ecosystems and the promotion of urbanization along the river. This status quo does not consider the effects of a changing hydrological cycle that will render this area as one of high risk of flooding, nor does it consider the environmental damage that is causing to the riverine biota. The GCF Program will promote the restoration of part of the floodplain, as well as the relocation and densification of the irregular settlements onto higher laying areas. This restoration will also serve as an example of economic valuation of environmental services within the city.

- The GCF Program will also return the floodplain (Banco San Miguel) to the river and promote the public use of it in times of low water levels by promoting the construction of linear parks along streams, urban gardening in the floodplain and the public use of the floodplain by equipping it with trails and public infrastructure (i.e. benches, lookouts, information panels).

- Paraguay lacks experience in revitalizing historical zones and providing appropriate flood protection for its inhabitants. The major populated areas in Paraguay live on rivers but these cities have grown away from the river due to the fear or the inability to deal with the extreme climatic events. The GCF Program will work on making the historical downtown district more resilient, densifying the downtown areas, promoting the use of bicycles and public transportation, improving pedestrian corridors, as well as providing shade, public space, and a sense of community. Today’s downtown is seen as a place of work and of old buildings with nothing else to offer.

- The objective of the Program will be to incorporate one of the least visible areas of Asuncion, the Ricardo Brugada neighborhood and its vulnerable population, into the general urban matrix by creating appropriate living conditions, promoting the public use of the surrounding areas (i.e. recreation use of the floodplain), cleaning the area of debris and waste, connecting to sanitary and drainage systems, and training its population in different ways in order to create a sustainable subsistence.

This GCF Program will be the first urban-scale climate change adaptation program in Paraguay and will be able to influence, through information and education about climate change, the political decision-making process.

<table>
<thead>
<tr>
<th>D.3. Sustainable development potential</th>
<th>Economic co-benefits</th>
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<tbody>
<tr>
<td>[Potential to provide wider development co-benefits]</td>
<td>- 4,000 people with resilient houses in flood prone areas. Reduction of direct costs to families that have relocated each time an extreme flood event occurs. - Reduction in electricity bills and resiliency against power outages by diversification of the energy matrix through the introduction of decentralized alternative energy production technologies and passive architecture.</td>
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</tbody>
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39 The Bañado Norte consists of Ricardo Brugada and a northern area called Tablada. There is a third area, south of downtown district called Bañado Sur, where even more people have settled.
40 The 2014 Census established that in the Ricardo Brugada neighborhood more than 42% of the population lived under the poverty line and 76% of the population has no social security or health benefits.
41 Law No. 3001 of 2006 is set to create an internal market for Environmental Services. As of today there are no environmental services values within a City.
42 Plan Cha, 2014 indicates that there are 3.6 people per household in the Ricardo Brugada area.
- Reduction in flood damage costs for the central and municipal governments. As stated before, the government and aid agencies spend on average around USD 7 million in each flood event that push families out of the area and seek some form of relocation.
- Improvement and diversification of job sources for more than 40% of the working population in Ricardo Brugada who are underemployed.
- Reduction in health costs given the construction and connection of houses to potable water and wastewater collection system.
- Training programs to diversify sources of income of highly vulnerable population living on flood prone areas.
- Increase in City income by charging entrance fee to the restored ecological reserve of Banco San Miguel.
- Increase in commercial and tourist activities in downtown area due to the promotion of its occupation and use by citizens.
- Increase city property taxes by promoting and managing the land titles for more than 92% of the population in the Ricardo Brugada area that does not have an official property title.
- Increase in land valuation of the historical downtown district.

- Social co-benefits
  - Social integration between the inhabitants of the flood-protected city and those ones living in flood prone areas through urbanization and connection through streets, green corridors and social programs.
  - Promotion of the use of floodable areas as public places for recreation and leisure activities.
  - Renovation of public parks and construction of new one around the historic downtown district to promote the sense of community.
  - Improved health and safety by urbanizing degraded areas.
  - Improved health and well-being through the promotion of bike lanes and pedestrian walkways.

- Environmental co-benefits
  - Improved air quality given the reduction of motor vehicle use in the historical downtown district.
  - Improved soil and water quality in the ecological reserve by removing and relocating clandestine landfill and irregular land uses (i.e. industrial processes).
  - Improved biodiversity by restoring natural parks and protecting fisheries in Asuncion Bay and migrating birds in the Banco San Miguel.
  - Improved nesting ground for migratory birds that make up 1% of worldwide endangered species.
  - Improved water quality of the Asuncion Bay by connecting houses to wastewater collection network.

- Gender-sensitive development impact
  - Job and gender-specific educational programs for the socio-economic vulnerable areas in Ricardo Brugada where women and single mothers comprise more than 58% of heads of families.
  - Construction of safe bus stops in downtown district, along with safer and more lighted streets in order to reduce gender crimes.

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### D.4. Needs of recipient

[Vulnerability to climate change and financing needs of the recipients]

- Storms occurring on average every four years displace around 1,000 families living in flood prone areas. This population is economically and socially vulnerable with clear lack of adaptability.
- There is a clear trend in the upward movement of maximum flood levels in Asuncion - extreme flood events occur more frequently (Figure A13 shows the trend). This change could be a consequence of land use changes and the adverse effects of climate change, particularly, more frequent and intense precipitations.
- Paraguay has a Secretariat of Emergency that deals with relocation of people affected by floods, however they tend to be a reactive institution with a low operating budget that lack the appropriate means to reduce the effects of extreme climate events.
- SENAVITAT is able to construct between 7,000 to 10,000 housing solutions per year, though the demand is 1.1 million housing solutions in total – at the current rate, it would take SENAVITAT 110 years just to meet the current needs.

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43 Plan CHA, 2014
- Private banks aim at providing loans only for the top 8% of the population (in economic terms) at a 12% annual interest rate. This high interest rate has a spread of over 8% compared with the cost of financing for banks. Due to high discrepancy between passive and active interest rates the mortgage market is small and only high-income families can partake. Families who earn more than 2.5 minimum salaries are the ones who have access to mortgage plans.

- Paraguay’s National Determined Contribution (NDC) submitted in October 2015, prioritizes adaptation actions in key sectors that are included in the GCF Program such as land use planning, health and sanitation, risk management and natural disasters, and infrastructure.

- Since 2011 there exists a National Climate Change Policy Plan stating the importance of mitigation and adaptation to climate change in Paraguay. The Nation Plan focuses on the social inequality gap through adaptation and mitigation programs, focuses on land use planning, deforestation, and energy matrix diversification. There also exists both a National Strategy for Mitigation and a National Adaptation Plan that strengthen the need for mitigation and adaptation projects, policies, actions and measures.

- Since 2013 Paraguay has a well-established National Development Plan which aims at reducing extreme poverty to lower 3% of the population by 2030\(^44\) by generating job creation, social integration, gender equality, and educational programs. One of its strategic areas focuses on improving residential precarious conditions through a process of land use planning and urban improvement.

- An original Master Plan for the riverine strip development exists since 1993. This Riverine Master Plan has been approved by the Municipal government and updated three times (the last one in 2005).

- A specific Master Plan exists for the historical downtown district, which was developed in 2014. The Master Plan calls for promoting the re-population of the downtown district, the promotion of the cultural heritage associated with downtown, and the restoration of the natural floodplain of the Paraguay River.

- In 2015 a specific master plan for the Port of Asuncion was developed to establish the type of building development that could be done in order to promote commercial and private investments. The aim of the Master Plan is to convert the current largely underutilized and degraded old port area into a thriving touristic area that can hold mixed-use residential buildings, the central station for the first BRT system of Paraguay, a museum, and public and private offices.

- The Metropolitan Area of Asuncion counts with a new wastewater collection system master plan that proposes the construction of two new wastewater treatment plants and the renovation of collection systems.

Following is a list of institutions that will have some impact on the technical and political level of the Program. These are not part of the Steering Committee described in section B.5 and Figure A14 of implementation arrangements, but will serve as technical counterparts.

- The Ministry of Social Action / Secretaría de Acción Social (SAS), involved in the regularization of homeownership in settlements originated by land invasions. The SAS will be responsible for coordinating social programs that are carried out to relocate people living illegally in the Ricardo Brugada neighborhood and the Banco San Miguel.

- The National Forestry Institute / Instituto Forestal Nacional (INFONA) created by Law 3464/2008, is an autonomous and decentralized state institution. INFONA is the implementing body of Law No. 422/73 "Forest Conservation", Law No. 536/95 of "Promotion of afforestation and reforestation", and Law No. 4890/13 that sets the "Rights of Forest Surface". INFONA sets standards for afforestation and landscaping that have to be met in order to classify an intervention as one that provides environmental services.

- The Paraguayan Sanitary Services Company / Empresa de Servicios Sanitarios del Paraguay (ESSAP) a state owned company, responsible for constructing and maintaining the water treatment and distribution supply infrastructure in the City of Asuncion. ESSAP is also responsible for collecting, treating and disposing residential wastewaters.

\(^{44}\) The National Development Plan stated that in 2013 10% of the population lived under extreme poverty conditions.
The National Administration of Navigation and Ports / Administración Nacional de Navegación y Puertos (ANNP) is a public institution dependent of the Executive Branch who currently owns the land where the historical port is built on. The ANNP will be crucial for the implementation of component 3 given that it owns the lot where the program intends to intervene.

The National Secretariat of Culture / Secretaría Nacional de Cultura (SNC) is the public institution, dependent on the Executive Branch, who is responsible for promoting the necessary conditions for the exercise of cultural rights by citizens and communities, through the incorporation of the cultural dimension in the various public policies of the State, decentralization of cultural management and promotion of citizen participation. Within the GCF program the SNC would be involved in the design of the ecological and dynamic corridors across downtown, as well as the design of the creative public fixtures around parks and sidewalks.

The National Secretariat for Tourism / Secretaría Nacional de Turismo (SENATUR) is in charge of the Sustainable Development of Paraguay’s Tourism Sector Master Plan and it implements tourism promotion programs in Asuncion’s historical downtown district. Within the program it will be a key institution to determine the uses for the Port of Asuncion grounds, the Banco San Miguel ecological reserve and the promotion of the historical landmarks of the downtown district.

The Women’s Ministry / Ministerio de la Mujer (MM) is an executive branch institution in charge of implementing the National Equal Opportunities Plan, which focuses on mainstreaming programs in public policies and sectoral programs, which promote gender equality across the country. The MM will have a crucial role in the empowerment of women of the Ricardo Brugada area.

The National Electricity Administration / Administración Nacional de Energía (ANDE) is a decentralized government institution responsible for supplying affordable and good quality electrical services. The participation of ANDÉ will be crucial in component 1 in order to build the electrical distribution lines, as well as the adequate implementation of the solar panels, solar water heaters and LED lighting fixtures that are part of the Program.

The GCF Program will finance 28% of the total amount being invested in the intervention area.

The total amount of financing saved by protecting the most vulnerable population, protecting infrastructure, the influx of commercial benefits, city taxation and environmental benefits will be around USD 30 to 50 million per year.

By raising the ground level of the Asuncion Port area, the Master Plan estimates that there will be at least USD 15 million in rental agreements from private institutions that would be directed into this area to build mix-use residential and commercial buildings. Besides this direct effect the Port is expected to become an open area widely used by the general public, which will also create indirect commercial activities.

### D.6. Effectiveness and efficiency

<table>
<thead>
<tr>
<th>Economic and financial soundness and effectiveness of the proposed activities</th>
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<tbody>
<tr>
<td>By raising the ground level of the Asuncion Port area, the Master Plan estimates that there will be at least USD 15 million in rental agreements from private institutions that would be directed into this area to build mix-use residential and commercial buildings. Besides this direct effect the Port is expected to become an open area widely used by the general public, which will also create indirect commercial activities.</td>
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### E. Brief Rationale for GCF Involvement and Exit Strategy

Urban population in Paraguay, which represented 37% of the total population in 1974, has increased currently to 59%. The rural-urban migration flows of the 90s, most of it directed to the capital city Asuncion, contributed to this significant increase. In 40 years, the population of Asuncion and its Metropolitan Area (AMA) increased almost fivefold. Currently AMA has 2.3 million inhabitants, representing 35% of the population of Paraguay (6.6 million people).

The City of Asuncion doubled its population in 40 years (from 250,000 in 1962 to around 512,000 in 2002) but has remained stable in the past 10 years, with a population growth rate of only 0.6% between 2002 and 2012 (latest numbers give a negative growth rate for Asuncion). The growth has instead moved to the neighboring municipalities, leading to a larger urban footprint increasing from 652 km² in 2002 to 809 km² in 2012 (corresponding population density of 2,400 inhabitants/km² and 2,800 inhabitants/km²). Thus, although the population has grown by 43% in the last 10 years, the urban density has only increased by 16%, confirming that the current urban growth of the AMA is based on a horizontal expansion model. Despite this expansion, the main economic activity and provision of services are still located in the City of Asuncion. The neighboring cities serve as commuter towns that depend on Asuncion for economic activities, creating a significant daily influx into the City and an increasing demand for services. Most people that work in Asuncion do not reside within its borders creating an unsustainable environmental weight on the City.

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45 Dirección General de Estadística Encuestas y Censos, 2014
Asuncion is vulnerable to extreme events due to its location on the shores of the Paraguay River and related cyclical floods, which poses additional challenges for transport and waste management. The timing and degree of floods varies in part caused by El Niño phenomenon but increasingly due to climate change and land use change. As long as city planning does not consider flooding risks adequately, the repercussions will worsen with time. Over 30,000 families live in the so-called barriados (lowlands), which are part of the river’s flood plain, are affected by each flooding event.

Rationale for intervening the Ricardo Brugada Neighborhood – Component 1: The area of intervention currently hosts one of the most vulnerable populations in Asuncion. These families live below the recurrent flood level in precarious housing made of cardboard, aluminum sheets or plywood. They have no formal connection to potable water pipelines or wastewater collection systems and solid waste management services do not reach most of the houses within this area. The low coverage of waste collection services contributes to aggravate runoffs and flooding during intense rains since garbage obstructs the storm drains. Moreover, these families are completely vulnerable to climatic events that have been worsening due to climate change. They currently have to move out in flood events, leaving their way of life and incurring in more costs associated with relocating and moving back once the flood has gone down. Without the GCF intervention their vulnerability will only increase due to the lack of resources that the government has in order to offer appropriate housing. Furthermore, without the appropriate consolidation and urbanization of certain parts (Figure A2), this area will still be treated as a settling ground for poor and vulnerable families. The status quo will lead to increasing densification in the flood zone, moreover the health and environmental liabilities associated with illegal and irregular settlements will become worse. People have occupied a public space on the margins of the river and choose not to move. The government on the other hand, challenged with more other pressing issues and a lack of resources is unable to act effectively and efficiently on its own in order to change this reality.

Rationale for intervening San Miguel Sand Banks – Component 2: Currently this ecosystem lacks a management plan and appropriate financial resources for its clean up and relocation of illegal settlers (i.e. shipyards, lime kilns) and clandestine landfills. Indiscriminate dumping of solid waste pollutes soil and water resources from leachates. Open burning of solid waste releases unintentionally produced Persistent Organic Pollutants (UPOPs) and generates air pollution. If no intervention is done through the GCF Program, illegal settlers and illegal landfills will continue to use the ecosystem as a dumpsite. This ecosystem is of extreme ecological importance: The Asuncion Bay and the Banco San Miguel is considered an Important Bird Area (IBA) of relevance for aquatic species46 and is part of the Banco San Miguel and Bahía de Asunción Ecological Reserve (RBSMBA), which is a protected area under the National Protected Area System (SINASIP) and hosts five species of globally significant congregations with 1% of global population seasonally at site, namely Buff-breasted Sandpiper (Tringa subruficollis); American Golden Plover (Pluvialis dominica), Lesser Yellowleg (Tringa flavipes), White-rumped Sandpiper (Calidris fuscicollis) and Pectoral Sandpiper (Calidris melanotos). Given the status quo of occupation by default in barren grounds, as has happened in similar areas the San Miguel Banks are in danger of disappearing or becoming invaded by illegal settlers. If this situation occurs the urbanization of the area might be the only alternative to organize the grounds. The lack of intervention will also set precedence for what is done with protected ecological reserves in urban areas. The environmental value of this area is only one of the reasons why the Banco San Miguel is valuable. If this zone is properly restored, the City of Asuncion could be potentially also extract an economic value out of the area’s environmental services, for instance charging an entrance fee or making the grounds available for different activities through public-private partnerships such as camping, concerts, and general recreational activities.

Rationale for intervening the Port of Asuncion – Component 3: As of now, the Port of Asuncion stands as a deserted lot of asphalt and concrete that used to host the container park and machine yard from the days the port functioned commercially. However, it is located on the water line of the Paraguay River, at the west end of the historical downtown district and holds important landmarks. Besides, the Port area also holds a cultural value to Paraguay, having been through the years the main place of import and export to the world. The Port of Asuncion Master Plan aims at restructuring the area as a hub of residential, commercial and public use. The adequacy of the grounds to resist flood events will attract private sector investments in new buildings and public infrastructure. The GCF Program will enable this transformation by raising the ground level and protecting the new infrastructure from flood events. Moreover, the GCF Program will promote the use of the Port as a transportation multi-modal transfer point, where bike lanes, pedestrian walkways, public buses and private vehicles will meet. The Port grounds are already being prepared for the construction of the BRT bus terminal and a subterranean parking lot is being planned. The GCF Program will extend the green public promenade, and connect with the pedestrian walkways and bike lanes being proposed in Component 4.

Rationale for intervening the Historical Downtown District – Component 4: Downtown Asuncion holds the largest amount of historical buildings in the nation. These buildings tell the story of an entire nation from its establishment, independence, its years under a dictatorship, and the fight to gain a democracy all the way up to these current days. It also holds most governmental buildings such as the Presidential Palace, the Congress, most ministries, numerous performing art venues and private offices. In the last 10 years, downtown has become a hub for night outings with important restaurants and nightclubs. However, besides serving as a working hub or nocturnal focus the historical downtown district is poorly perceived by the overall citizenship and it has been losing its historical buildings and current infrastructure as a hub of residential, commercial and public use. In the last 14 years more than 10,000 people have moved away47. As it stands today, the Downtown district is invaded by day and abandoned by night and during the weekends. The traffic pattern and current infrastructure give more rights to motor vehicles than to pedestrian, the few exiting bus stops being placed in narrow sidewalks with little comfort or security. In addition to the lack of promotion of arts and the poor citizen participation in everyday activities, has made living in downtown less desirable. The GCF Program aims at promoting the reoccupation of the downtown district by restoring and constructing public areas, giving the citizens of Asuncion the opportunity to enjoy the value of the historical downtown district through ecological and dynamic corridors.

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46 In the 2008 inventory carried out by Guyra Paraguay/Birdlife International, it qualified under criterion A4i (>1% of global population for one species) and under criterion A4ii (>20,000 water birds). See Annex I for additional information.
47 Information from Plan CHA website based on 2002 and 2014 census information.
Exit Strategy

Please explain how the project/programme sustainability will be ensured in the long run, after the project/programme is implemented with support from the GCF and other sources.

Ricardo Brugada Neighborhood - Component 1: Once the project finishes the Ricardo Brugada will be fully integrated with the “formal” city by means of new infrastructure and social programs that will strengthen resiliency of the community. Through social training programs the inhabitants of Ricardo Brugada will become empowered and conscious of the benefits of better environmental awareness. This knowledge should feel them with pride and strengthen their sense of belonging and community. The Ricardo Brugada neighborhood will hold a diverse population from low and middle class families to families on the higher end of the economic pyramid. This will be possible given that the GCF Program aims at constructing social houses while the City of Asuncion is also considering real estate developments in its adjacent area. The restored wetlands and the linear parks will serve as the backbone of community integration where people from Ricardo Brugada as well from other areas will be able to enjoy nature.

Component 2: The clean-up and restoration of the Banco San Miguel will be done in order to provide Asuncion inhabitants a place for recreational and leisure activities. The maintenance plan will be financed by the valuation of environmental services as well as entrance fees charged for visiting the park. The National Secretariat for Tourism (SENATUR), the Municipality of Asuncion (MA), and the Ministry of Environment (SEAM) will also have to coordinate to create revenue-producing activities.

Component 3: The Port of Asuncion will be retrofitted by filling the current ground elevation above a prescribed flood in order to adapt it to the changing hydro-climatic regime and in doing so attracting private investment for residential, commercial and mix-use constructions. The National Administration of Navigation and Ports (ANNP), which is the owner of the land, will collect rent from the potential real estate investments in order to maintain the civic promenade and the floodable parks. The ANNP will be able to reinvest the earnings into the property in order to supply other services (such as a riverine ferry).

Component 4: The revitalization of the Downtown District through a network of ecological and dynamic corridors, the organization of streets vendors, and the restoration of public parks will provide incentives for Asuncion inhabitants to take over the area and repopulate the district. This promotion of downtown will help revitalize the arts, community activities, and the historical significance of the Downtown District.

F. Risk Analysis

Please describe the financial and operational risks and discuss mitigating measures.

Please briefly specify the substantial environmental and social risks that the project/programme may face and the proposed risk mitigating measures.

Implementation risk in Ricardo Brugada Neighborhood - Component 1:

- The population that has settled in the area refuses to relocate to new social housing.
- The area restored as a natural wetland is re-invaded by new settlers once the program implementation is finished, creating the same problem as before.
- Training program for diversification of income is not able to help the community in Ricardo Brugada and they go back on relying on informal ways of making a living.
- Implementation agency does not have the political power to carry out the logic frame.

Mitigation:

- The social program that complements this intervention should focus from the beginning of the project in empowering Ricardo Brugada population in order for them to become active participants of the stewardship of the restored area.
- The training program should focus on gender equality and jobs types that are currently being done by the population of Ricardo Brugada such as recycling, fishing, and construction activities. Therefore, the program should focus on perfecting these abilities rather than completely shifting their job source.
- In order to avoid any political stagnation the Program Board will be compromised by the main institutions involved in Program interventions, promoting coordination and dialogue at the political level. The participating institutions will sign inter-institutional agreements for coordination and implementation of Program interventions.
- The Municipality of Asuncion along with other central government institutions, such as the SENATUR and the National Secretariat of Culture (SNC), will have to create community-engaging activities to promote the use of the park and open spaces in order to avoid them to become desolated or occupied. The Municipality of Asuncion has been able to manage this type of risks before, namely since the construction of the riverine parkway (Costanera) the Municipality has been closing vehicle access on weekends so people can use it as a place for leisure and recreational activities. This approach has created a communal sense of proprietary over the riverine parkway, therefore, has prevented occupation by illegal settlers and misuse of the area.

Implementation risk in the Banco San Miguel - Component 2:

- The population is not willing to relocate.
- The irregular uses of land such as landfills reappear once the program completes its restoration.
- The Municipality of Asuncion is unable to adequately train park rangers to keep the reserve in good standings.
- The citizens of Asuncion do not use the reserve as intended and the financial model used to preserve it fails.

Mitigation:
• Affected population will be consulted and engaged to actively participate in their relocation process, from initial discussions to the relocation itself.
• The GCF Program should complement the current work being done by a GEF project that plans to create a Park Management Plan, train rangers and develop a financial scheme for the sustainability of the park.
• The population from the area could be trained as park rangers and stewards of the park.
• Similar to the previous component, municipal and central governments will have to develop activities to promote the use of the park. Given the size of the park, a public-private partnership might be an option in order to reduce the operational burden on governmental institutions.

Implementation risk in the Port of Asuncion - Component 3:
• The central government and the municipal government do not come to an agreement about the rezoning of the Port of Asuncion.
• Private investment takes longer than expected, leaving the port area empty.

Mitigation
• If private investments for buildings do not materialize inside the Port grounds, the fill and the civic promenade that the GCF Program proposes to finance will simply equate to a larger area for public use (i.e. walkways, benches and bike lanes).
• The Municipality of Asuncion as well as the ANNP should be part of the technical team that develops the interventions in the Port of Asuncion. Early dialogue should be focused on defining priorities and setting the cooperative arrangement for a sustainable approach of the project. The awareness raised by the other components of the project as well as the potential earnings should benefit both, the Municipality of Asuncion which will charge property taxes and the ANNP who will charge rent.

Implementation risks in the Historical Downtown District - Component 4:
• Actions taken are not enough to increase the population density of the historical downtown district.
• The municipal government does not have the political power to change streets into pedestrian streets or the ability to construct bike lanes.
• The municipal government cannot sustain the maintenance of the parks and they gradually deteriorate to their initial state.
• The construction of bike lanes, pedestrian walkways and multi-modal transfer points are not sufficient to promote a significant change in people’s choice of transportation mode.
• Oversight of design creates unintended consequences of road safety between bikes and motor vehicles.

Mitigation
• Throughout the implementation, the program should foster through roundtables the development of business plans, community activities, and joint ventures from private and public sector, which could be focused on reenergizing the historical district and promoting public spaces. These activities will help soften the change from a motor vehicle dominated environment to a more equally distributed transportation environment. Moreover, activities along with the formalization of street vendors should produce sufficient city taxes to maintain the new infrastructure.
• The Municipality of Asuncion, SENATUR, Secretariat of Culture and other civic organization will be part of the technical team that will be in charge of developing an awareness program and the promotion of the historical downtown district.

G. Multi-Stakeholder Engagement
Through the conceptualization of the Concept Note an Ad Hoc Resiliency Group was created, led and coordinated by the Ministry of Planning with members from the public sector such as the Municipality of Asuncion, Ministry of Public Works, Ministry of Housing, Ministry of Environment and Ministry of Culture; and members of different NGOs such as Sobrevivencia, AVINA, Guyra Paraguay and representatives of the ASU LAB who are promoting the Plan CHA Master Plan. The group meets on bi-weekly basis since March 2016 to discuss issues regarding the sustainability of the City of Asuncion and projects that should be implemented to promote resiliency towards climatic events.

During the full funding proposal preparation, consultations will be held with the affected population in the Ricardo Brugada, Banco San Miguel and the Downtown area in order to incorporate their concerns and opinions. As counterpart to the affected population different government and private sector stakeholders will be consulted, including inter alia, the Ministry for Industry and Commerce, National Electricity Administration (ANDE), Ministry of Finance, Ministry of Agriculture and Livestock (MAG), United National Development Program (UNDP), industry chambers, financial institutions (local financial institutions and cooperatives), environmental non-governmental organizations, and research institutions. The list of other potential stakeholders who will be consulted includes the following:

• Ministry of Education and Culture – Ministerio de Educación y Cultura.
• National Committee for Energy Efficiency – Comité Nacional de Eficiencia Energética (CNEE).
• Central Bank of Paraguay – Banco Central del Paraguay.
• Standards, Norms and Meteorology National Institute – Instituto Nacional de Tecnología, Normalización y Metrología.
• Binacional Hydroelectric Entity Itaipú – Itaipú Binacional.
• National Science and Technology Council – Consejo Nacional de Ciencia y Tecnología.
• National University of Asuncion – Universidad Nacional de Asunción.
• Moises Bertoni Foundation – Fundación Moises Bertoni48.

48 This foundation has sustainable development objectives.
Representatives from other institutions may be added as applicable. Stakeholder consultations will include workshops at the drafting phase of the full funding proposal. The purpose of these workshops will be to share information and seek views from relevant stakeholders on the proposed objectives, activities and means of implementation. In addition, workshops will serve to share information on the outputs of the Program, as well as of its achievements, lessons learned, potential replication, and scale-up opportunities.

## H. Status of Project/Programme

1) A pre-feasibility study is expected to be completed at this stage. Please provide the report in section J.

2) Please indicate whether a feasibility study and/or environmental and social impact assessment has been conducted for the proposed project/programme: Yes ☐ No ☒
   *(If ‘Yes’, please provide them in section J.)*

3) Will the proposed project/programme be developed as an extension of a previous project (e.g. subsequent phase), or based on a previous project/programme (e.g. scale up or replication)? Yes ☐ No ☒
   *(If yes, please provide an evaluation report of the previous project in section J, if available.)*

## I. Remarks

## J. Supporting Documents for Concept Note

- ☒ Map indicating the location of the project/programme
- ☐ Financial Model
- ☒ Pre-feasibility Study
- ☐ Feasibility Study (if applicable)
- ☐ Environmental and Social Impact Assessment (if applicable)
- ☐ Evaluation Report (if applicable)
An ex 1. Figures and Maps

Figure A1. Matrix representation of the intervention scheme proposed in the Program. Each row represents a different component of the Riverine district along the downtown area and the rectangles briefly describe the proposed interventions.
Figure A2. Intervention area broken into 4 sub-areas that correspond to components of the program. 1) Ricardo Brugada is inhabited by highly vulnerable families, which live on the flood banks of the river. 2) San Miguel Sand Bank is a natural reserve which is highly contaminated due to the presence of clandestine landfills and other improper land uses such as wharfs and shipyards. 3) The Port of Asuncion that is going through a rezoning with mix-use buildings. It requires permeable surfaces and energy efficiency measures to reduce flooding risk and energy grid vulnerability. 4) The Historical Downtown District rainfall runoff ends into Ricardo Brugada and it is an important source of employment for poor Riverine Communities.
Figure A3. Component 1: Ricardo Brugada Neighborhood. The city of Asuncion is currently planning to fill certain areas and an IDB project is working on consolidating a historical neighborhood by providing appropriate connection to water and sanitation systems. The GCF program will focus on constructing low-carbon and climate-resilient social housing among, rehabilitating existing parks, constructing linear parks along the streams, restoring the natural floodplain to reduce flood risk and strengthen their adaptive capacity.
Figure A4. Panoramic view of the Ricardo Brugada Neighborhood located on the floodplain of Paraguay River. The housing structures inhabited by the most vulnerable population can be clearly seen in the foreground. In the background is the Historical Downtown District. Picture taken September 2016.
Figure A5. Component 2: San Miguel Sand Bank is currently invaded by illegal settlers, has clandestine landfills and irregular land uses (shipyards, wharfs, and quicklime factories). The intervention will focus on cleaning and restoring the natural habitat and landscape through soil removal, construction of ecological park infrastructure, reopening of the historical Cara Cara Brook, and relocation of informal settlements to provide ecosystem-based adaptation measures to reduce vulnerability to flood events, strengthening their adaptive capacity, and protecting ecosystems.
Figure A6. Component 2 – San Miguel Sand Bank: Rendered representations of trails and lookouts on the San Miguel Ecological Reserve Park once it is restored.
Figure A7. Component 3: The Port of Asuncion stands without any use with an empty 20-hectares asphalt lot. It will be used for a new urbanized mix-use zone with public and private offices, residential buildings, public parks, and recreational areas. The GCF program will contribute to reduce rainfall runoff ending into Ricardo Brugada by constructing floodable parks and hydraulic and drainage infrastructure. It will also reduce energy grid vulnerability to electric outages by promoting energy efficiency in the new building area.
Figure A8. Component 3 – Port of Asuncion: Rendered representation of the design of the new Port of Asuncion rezoning showing the BRT terminal, the floodable park, the civic promenade, the government buildings and the new mix-use buildings.
Figure A9. Component 4: The Historical Downtown District of Asuncion which holds the most important governmental buildings and several cultural landmarks is losing population and the few people that live there have poor public services. Streets give preferences to motor vehicles, public parks are deteriorated, sidewalks are in poor shape and the cultural landmarks are not properly maintained. The GCF program will focus on constructing ecological and dynamic corridors, rehabilitating streets, parks and public spaces and reordering street vendors to mitigate runoff intensity towards Ricardo Brugada and to improve livelihoods and enhance adaptive capacity.
Figure A10. Component 4 - The Historical Downtown District of Asuncion: Rendered representations of the ecological and dynamic corridors in the downtown area. Figures are from the Plan CHA Master Plan developed in 2014.
Figure A13. Historical Annual Maximum stage levels of the Paraguay River measured at the Port of Asuncion. A simple statistical analysis of the data shows the positive trend of the maximum levels. Further analysis would be needed to clarify the trend is statistically significant. Data from the ANNP website (www.annp.gov.py).

$y = 0.0097x + 4.6004$
Figure A14. Implementation arrangements for the GCF Program.
ANNEX 2 – Existing Feasibility Studies and Master Plans

1. 1993 – Master Plan for the Development of the Riverine Strip, which states the type of urban development that should occur along the river and the downtown area.

2. 2000 – Urban Development Plan of Asuncion (PDUA) which proposes that the transport and urban development of Asuncion be designed in such a way to recover the view towards the river.


4. 2012 – The Green Commodities and UN-REDD+ program is providing technical support to complete the current provisions of law 3001/2006 of Environmental Services. The project will help prepare provisions for the certification of other ecosystems, such as grasslands and wetlands under this product also contemplating those for urban areas,


6. 2014 – ICES – Emerging and Sustainable Cities Initiative that gave a diagnostic overview of the sustainability of Asuncion and its metropolitan area. It found that the major issues affecting the city’s sustainability were land use planning, transportation and sanitary and drainage systems.

7. 2014 – Plan CHA proposes a new development scheme following closely what was proposed in 1993 in the Riverine Strip Master Plan. Plan CHA advocates for the promotion of the downtown area as a cultural and social hub through transport oriented initiatives.


9. 2015 – Master Plan of the Port of Asuncion that focuses on restructuring the area as a mix-use urban development. The Plan specifies the topology and use of each type of building.
### Table A1. Indicative amount of financial resources needed for the GCF Program

<table>
<thead>
<tr>
<th>Component</th>
<th>Sub-component</th>
<th>Description</th>
<th>Amount (USD Millions)</th>
<th>Type of Financing</th>
<th>Reference for Amount proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1: Development of resilient urbanization in Ricardo Brugada</td>
<td>Rehabilitation of five Streams and construction of linear parks</td>
<td>Clearing of debris, construction of gabions and linear parks on the Antequera (1000 m), Tacuary (240 m), Mexico (150 m), Peru (500 m) and Las Mercedes (780 m) Streams.</td>
<td>9</td>
<td>Grant</td>
<td>IDB PR-L1082 Mejoramiento de Vivienda y del Hábitat</td>
</tr>
<tr>
<td></td>
<td>Urban consolidation in flood prone area</td>
<td>Construction of streets, sidewalks, public lighting fixtures, parks and community centers.</td>
<td>15</td>
<td>Loan</td>
<td>IDB PR-L1082 Mejoramiento de Vivienda y del Hábitat</td>
</tr>
<tr>
<td></td>
<td>Social housing and land title adjudication</td>
<td>Construction of new housing development for around 500 families dwelling on the floodplain in precarious conditions.</td>
<td>4</td>
<td>Grant</td>
<td>Abt Associates (2005) Actualización y Ajustes Complementarios del Estudio de Factibilidad de la Costanera</td>
</tr>
<tr>
<td></td>
<td>Construction of Sanitary connection in consolidated urban area</td>
<td>Connection to potable water and sewage lines for all houses in the intervened area.</td>
<td>5</td>
<td>Loan</td>
<td>Approximation based on IDB PR-L1082 Mejoramiento de Vivienda y del Hábitat. Costs estimated by ESSAP</td>
</tr>
<tr>
<td></td>
<td>Diversifying and improving the efficiency of the energy matrix</td>
<td>Complement urban layout and subsidized housing with solar panels, solar heaters, and other technologies that promote efficient use of energy.</td>
<td>2</td>
<td>Grant</td>
<td>Approximation based on conversation with the MOPC</td>
</tr>
<tr>
<td></td>
<td>Rehabilitation natural of floodplains</td>
<td>Rehabilitate and protect 20 hectares of floodplain by removing debris, soil movement, promoting recreational uses through appropriate landscaping and the inclusion of urban gardens.</td>
<td>9</td>
<td>Grant</td>
<td>Approximation based on conversation with the MOPC</td>
</tr>
<tr>
<td></td>
<td>Flood protection</td>
<td>Implement a pumping stations, retentions ponds and levees in low lying areas of Ricardo Brugada</td>
<td>10</td>
<td>Grant</td>
<td>Approximation based on conversation with MOPC</td>
</tr>
<tr>
<td></td>
<td>Rehabilitate existing green areas and construction of new ones</td>
<td>Restore and expand the existing Caballero Park and connect it with new and existing parks through a network of green walkways</td>
<td>2.5</td>
<td>Grant</td>
<td>Plan CHA, 2014</td>
</tr>
<tr>
<td>Component</td>
<td>Sub-component</td>
<td>Description</td>
<td>Amount (USD Millions)</td>
<td>Type of Financing</td>
<td>Reference for Amount proposed</td>
</tr>
<tr>
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<td>------------------------------</td>
</tr>
<tr>
<td>Technical training program</td>
<td>Community educational program on how to gain resiliency through work diversification and food security - Urban Gardening, fishing activities Recycling, and ecological sustainability.</td>
<td>4</td>
<td>Grant</td>
<td>Approximation based on activities described in IDB PR-L1082 Mejoramiento de Vivienda y del Hábitat</td>
<td></td>
</tr>
<tr>
<td>Subtotal component 1</td>
<td></td>
<td></td>
<td>60.5</td>
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</tr>
<tr>
<td>Subtotal component 1</td>
<td></td>
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<td>20</td>
<td>Loan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40.5</td>
<td>Grant</td>
<td></td>
</tr>
<tr>
<td>Rehabilitation of the sand banks</td>
<td>Clearing the ecological reserve from clandestine landfills and management of degraded areas through landscaping and soil removal. Relocation of incompatible activities (i.e. shipyard and quicklime kiln)</td>
<td>14</td>
<td>Grant</td>
<td>Approximations based on IDB document 1143/OC-PR Programa de Preinvesion (2011) &quot;Plan Maestro de Saneamiento Ambiental del Parque Nacional Banco San Miguel&quot;</td>
<td></td>
</tr>
<tr>
<td>Relocation of informal/illeg al settlers</td>
<td>Remove incompatible activities (i.e. shipyards) and informal settlers from the reserve and providing them with new and improved housing options.</td>
<td>14</td>
<td>Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relocation of informal/illeg al settlers</td>
<td>Remove incompatible activities (i.e. shipyards) and informal settlers from the reserve and providing them with new and improved housing options.</td>
<td>14</td>
<td>Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component 2: Environmental Restoration of the Asuncion Bay and the San Miguel Sand Banks</td>
<td>Communication improvement s</td>
<td>Construction of appropriate roads and park offices.</td>
<td>3</td>
<td>Loan</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
</tr>
<tr>
<td>Restoration of the historic Cara Cara brook</td>
<td>Reopening of the Cara Cara river branch and the connection of the lagoons.</td>
<td>3</td>
<td>Grant</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
<td></td>
</tr>
<tr>
<td>Trails and lookouts</td>
<td>Construction of elevated trails and improvement of walkway and the construction of new lookouts along the reserve.</td>
<td>2</td>
<td>Loan</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
<td></td>
</tr>
<tr>
<td>Technical training program</td>
<td>Program to train and educate irregular settler of the benefits of becoming stewards of the ecological reserve.</td>
<td>0.5</td>
<td>Grant</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
<td></td>
</tr>
<tr>
<td>Subtotal component 2</td>
<td></td>
<td></td>
<td>22.5</td>
<td></td>
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</tr>
<tr>
<td>Subtotal component 2</td>
<td></td>
<td></td>
<td>5</td>
<td>Loan</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>17.5</td>
<td>Grant</td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>Sub-component</td>
<td>Description</td>
<td>Amount (USD Millions)</td>
<td>Type of Financing</td>
<td>Reference for Amount proposed</td>
</tr>
<tr>
<td>-----------</td>
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</tr>
<tr>
<td>Component 3: Building the resiliency of the Port of Asuncion’s new rezoning Plan</td>
<td>Flood protection</td>
<td>Filling the current ground elevation of the port above a predetermined flood return period to protect new mix-use building structures.</td>
<td>1</td>
<td>Loan</td>
<td>City of Asuncion estimate on current projects</td>
</tr>
<tr>
<td></td>
<td>Riverine walkway and pier</td>
<td>Construction of the riverine walkway and pier to couple with the recreational and commercial boats</td>
<td>0.5</td>
<td>Loan</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
</tr>
<tr>
<td></td>
<td>Creation of a floodable park</td>
<td>Landscaping and equipping current flood area with floodable equipment and the construction of trails.</td>
<td>1</td>
<td>Loan</td>
<td>Approximated estimate based on Plan CHA, 2014 interventions</td>
</tr>
<tr>
<td></td>
<td>Diversifying energy consumption matrix and the promotion of Leed Certification of buildings</td>
<td>Outfitting current and future buildings with energy efficient technology and implementing energy saving policies in building management.</td>
<td>10</td>
<td>Loan</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
</tr>
<tr>
<td></td>
<td>Green Promenade and second phase of subsurface parking lot</td>
<td>Technical assistance, acquiring environmental efficient technology (i.e. solar panels, computer-based control systems), and implementing passive constructive designs that would reduce water and energy consumption and waste production.</td>
<td>7.5</td>
<td>Grant</td>
<td>Approximated estimate based on Plan CHA, 2014 interventions</td>
</tr>
<tr>
<td>Subtotal component 3</td>
<td></td>
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<td>20</td>
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<td></td>
</tr>
<tr>
<td>Subtotal component 3</td>
<td></td>
<td></td>
<td>12.5</td>
<td>Loan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7.5</td>
<td>Grant</td>
<td></td>
</tr>
<tr>
<td>Component 4: Ecological Corridors and Promotion of the Historical Downtown District</td>
<td>Dynamic Corridors</td>
<td>Construction of 14 km of pedestrian walkways, bike lanes and mix-use streets, with appropriate lighting and public equipment.</td>
<td>13.5</td>
<td>Loan</td>
<td>Plan CHA, 2014</td>
</tr>
<tr>
<td></td>
<td>Ecological corridors</td>
<td>Construction of 35 km streets with texturized pavement, forestation, creative lighting, solid waste disposal points, improved sidewalks, public and commercial parklets, and landscaping</td>
<td>14</td>
<td>Grant</td>
<td>Plan CHA, 2014</td>
</tr>
<tr>
<td></td>
<td>Rehabilitation of public parks</td>
<td>Restoring of 5 parks through landscaping, creative design of lighting fixtures and paintings, and new equipment (benches, tables, etc.)</td>
<td>2</td>
<td>Grant</td>
<td>Approximation based on conversations with Resiliency workgroup</td>
</tr>
<tr>
<td>Component</td>
<td>Sub-component</td>
<td>Description</td>
<td>Amount (USD Millions)</td>
<td>Type of Financing</td>
<td>Reference for Amount proposed</td>
</tr>
<tr>
<td>-----------</td>
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<td>-----------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Construction of 20 multi-modal transfer infrastructure</td>
<td></td>
<td>Complement BRT bus lanes and conventional buses with the construction of 26 bus stops with appropriate energy efficient equipment, parking stations for bikes that will be accessorize to promote road safety.</td>
<td>0.5</td>
<td>Grant</td>
<td>Approximation based on conversations with Resiliency working group and based on GEF project being developed for Asuncion.</td>
</tr>
<tr>
<td>Subtotal component 4</td>
<td></td>
<td></td>
<td>30</td>
<td></td>
<td></td>
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<tr>
<td>Subtotal component 4</td>
<td></td>
<td></td>
<td>13.5</td>
<td>Loan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16.5</td>
<td>Grant</td>
<td></td>
</tr>
<tr>
<td>Total GCF program</td>
<td>Total</td>
<td></td>
<td>133</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loan</td>
<td></td>
<td>51</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grant</td>
<td></td>
<td>82</td>
<td>62%</td>
<td></td>
</tr>
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</table>
Table A2. Indicative amount of co-financing for complementary projects in the intervening area by the Government and other institutions

<table>
<thead>
<tr>
<th>Description of Co-financed activity</th>
<th>Co-financed by</th>
<th>Amount of co-financing (millions)</th>
<th>GCF Program Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal and administrative assistance to legalize property titles.</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Rehabilitation of streets and construction of community centers.</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Construction of drainage system and connection to houses. Construction of connection to potable water and sewage lines for around 715 houses (17 ha.)</td>
<td>IDB + Government</td>
<td>USD 15</td>
<td>1</td>
</tr>
<tr>
<td>Clearing of the entire Mexico and Tacuary streams and 500 meters of the Antequera stream; and retrofitting them with protective gabions.</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>General environmental education to the neighborhood population and capacity building for technical jobs (i.e. recycling)</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Filling of 48 hectares to 64 meters above sea level for development of linear parks and private urbanization.</td>
<td>Municipality of Asuncion</td>
<td>USD 4</td>
<td>1</td>
</tr>
<tr>
<td>PR-T1169 Strengthening of Management and Evaluation of Projects in SENAVITAT</td>
<td>IDB</td>
<td>USD 0.31</td>
<td>1</td>
</tr>
<tr>
<td>PR-M1032 (FOMIN) Comprehensive Transformation of the La Chacarita Alta Neighborhood in the Asuncion</td>
<td>IDB</td>
<td>USD 0.975</td>
<td>1</td>
</tr>
<tr>
<td>Construction of second phase of parkway (12 km) along river (Costanera) edge which entails environmental restoration and landscaping</td>
<td>FOCEM + Government</td>
<td>USD 116</td>
<td>1 &amp; 2</td>
</tr>
<tr>
<td>Construction of social housing for 1000 families in land granted by the military, at the outskirts of Asuncion.</td>
<td>Itaipu</td>
<td>USD 42</td>
<td>1 &amp; 2</td>
</tr>
<tr>
<td>Rehabilitation and extension of 56 km of sewage collection system.</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Technical assistance to ESSAP on restructuring and monitoring the wastewater collection system.</td>
<td>IDB + Government</td>
<td>USD 62</td>
<td>1</td>
</tr>
<tr>
<td>Construction of 2 wastewater treatment plants</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Implementation of a solid waste collection system around the neighborhoods of the Asuncion Bay.</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Development of a Management Plan for the Biological Reserve</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Development of a strategy and implementation of a pilot to clean up the reserve</td>
<td>GEF + Government</td>
<td>USD 3.2</td>
<td>2</td>
</tr>
<tr>
<td>Development of financial strategy to sustain reserve through ecosystem services and recreational and cultural activities</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Construction of the government offices</td>
<td>USD 92</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

49 Fondo para la Convergencia Estructural del Mercosur – Mercosur Fund.
## Description of Co-financed Activity

<table>
<thead>
<tr>
<th>Description of Co-financed activity</th>
<th>Co-financed by</th>
<th>Amount of co-financing (millions)</th>
<th>GCF Program Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raising the elevation of 11 hectares in the Port of Asuncion 64 m.a.s.l to protect new building structures from floods.</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Construction of a promenade and retrofitting of historical buildings in the Port grounds</td>
<td>IDB + Government</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Construction of the BRT terminal building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction of first phase of underground parking spaces and green promenade</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Design and development of construction protocol of 100 km of bike lanes in Asuncion</td>
<td>GEF + Government</td>
<td>USD 3.4</td>
<td>1, 2, 3 &amp; 4</td>
</tr>
<tr>
<td>Implementation of pilot project to understand the best practices for traffic management</td>
<td></td>
<td></td>
<td>1, 2 &amp; 4</td>
</tr>
<tr>
<td>Design of safe bus stops in Asuncion and the implementation of a pilot along one of the main roads of Asuncion</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>PR-T1229 Improving Public Transportation in the Metropolitan Area of Asuncion</td>
<td>IDB</td>
<td>USD 0.5</td>
<td>4</td>
</tr>
<tr>
<td>PR-T1150 Studies, Action Plan and Pre-investment in Asuncion (ICES Sustainable Cities Initiative)</td>
<td>IDB</td>
<td>USD 1.1</td>
<td>1, 2, 3 &amp; 4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>USD 340.5</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table only indicates on-going operations. It does not consider the upcoming IDB operation that will expand this Program.
Table A3. Summary of the indicative financing and co-financing for the GCF Program. Analysis by component in million dollars

<table>
<thead>
<tr>
<th>Components</th>
<th>Indicative financing and co-financing for the Program (million USD $)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GCF Loan</td>
</tr>
<tr>
<td>1. Ricardo Brugada Neighborhood</td>
<td>20</td>
</tr>
<tr>
<td>2. San Miguel Sand Banks</td>
<td>5</td>
</tr>
<tr>
<td>3. Port of Asuncion</td>
<td>12.5</td>
</tr>
<tr>
<td>4. Historical Downtown District</td>
<td>13.5</td>
</tr>
<tr>
<td>Potential: Bañado Tambucú(^1)</td>
<td>TBD</td>
</tr>
<tr>
<td>Sub-total</td>
<td>51</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>133</strong></td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM FINANCING USD $754 million**

1. The IDB has recently received a loan request from the National Government for USD $80 million for an urban development project in Bañado Tambucú (southern part of Asuncion’s Riverside), which has similar climate related risks to Ricardo Brugada Neighborhood. This loan will begin its preparation in December 2017. Therefore, interventions proposed for the Ricardo Brugada area can be replicated in Bañado Tambucú. At Funding Proposal stage, it is foreseen to include Bañado Tambucú in the GCF Program.

2. Fiscal Budget from Itaipu Royalties.

3. Fiscal Budget, government debt.

Mr. Howard Bamsey  
Executive Director  
Green Climate Fund  
Songdo International Business District  
175, Art Centre-Daero, Yeonsu-gu  
406840 Incheon - Republic of Korea

Subject: Project Preparation Facility for the GCF by the Secretary of Planning for Economic and Social Development of Paraguay regarding “Strengthening Urban Resilience in Riverside Asunción Program”.

Dear Mr. Bamsey

We refer to the Project “Strengthening Urban Resilience in Riverside Asunción Program” included in the proposal submitted to us on August 18, 2017 by the Inter-American Development Bank (IDB) as Accredited Entity.

The undersigned is the duly authorized representative of the Secretary of Planning for Economic and Social Development, the National Designated Authority/Focal Point of Paraguay.

Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the Project as included in the funding proposal.

By communicating our no-objection, it is implied that:

a) The government of Paraguay has no-objection to the Project as included in the Project Preparation Facility;

b) The Project as included in the Project Preparation Facility is in conformity with Paraguay’s national priorities, strategies and plans;

c) In accordance with the GCF’s environmental and social safeguards, the Project as included in the Project Preparation Facility is in conformity with relevant national laws and regulations.

We also confirm that our national process for ascertaining no-objection to the Project as included in the Project Preparation Facility has been duly followed.

We also confirm that our no-objection applies to all projects or activities to be implemented within the scope of the Project.

We acknowledge that this letter will be made publicly available on the GCF website.

Kind regards,

José R. Molinas Vega, Ph.D.  
Minister, Executive Secretary  
Secretary of Planning for Economic and Social Development  
GCF National Designated Authority