ADAPTATION FUND

CONCEPT NOTE FOR REGIONAL PROJECT/PROGRAMME

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Nature-based adaptation in urban and riverine areas of Cuba and the Dominican Republic.
Countries:	Cuba and the Dominican Republic
Thematic Focal Area[1]: reduction and early warning systems	Innovation in adaptation finance, Food Security and Disaster risk
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	United Nations Environment Programme (UNEP)
Executing Entities:	Cuban National Institute of Territorial Planning and Urbanism (INOTU) and the Dominican Republic Ministry of Environment and Natural Resources
Amount of Financing Requested:	30,000,000 (in U.S Dollars Equivalent)
Project Formulation Grant Request:	Yes ☒ No ☐
Amount of Requested financing for PFG:	150,000 (in U.S Dollars Equivalent)
Letters of Endorsement (LOE) signed for all countries:	Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: https://www.adaptation-fund.org/apply-funding/designated-authorities

Stage of Submission:

☐This proposal has been submitted before including at a different stage (pre-concept, concept)

☒ This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: Click or tap to enter a date.

Please note that the Concept note proposal document should not exceed 50 pages, including annexes.

[1] Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

1. Project Background and Context

Socioeconomic context in Cuba and the Dominican Republic

The Republic of Cuba (Cuba) consists of the island of Cuba, the Isle of Youth, and more than 1,600 adjacent cays and small islands. It has a land area of 109,884 km^2 and an estimated 9.7 million inhabitants[2], of which 77.1% is urban and 22.9% is rural[3]. Cuba is one of the leading sugar producers in the Caribbean, although its main economic activity in terms of foreign exchange is tourism[4], followed by services, rum production, among others. The main crops grown are sugarcane, rice, citrus fruits, potatoes, plantains and bananas, cassava, tomatoes, corn, and tobacco. In 2018, Cuba had 2.9 million hectares of arable land (28% of the total land area), 650,000 hectares under permanent crops (6.3%) and 560,000 hectares under irrigated land (5.4%) (Cuba Research Institute, 2024). Although the Cuban government owns most of the means of production, recent reforms include labour autonomy and the transfer of land in usufruct to stimulate agricultural production. In 2021, the government legalized small and medium-sized private enterprises, together with Credit and Services Cooperatives (CCS) and Agricultural Production Cooperatives (CPA). In 2023, more than 8,300 businesses had been established in Cuba, and around 35% of the island's workforce became employed in the private sector[5]. The island is currently experiencing one of the most acute economic crises since the early 1990s. The economy fell 10.9 percent in 2020 amid the coronavirus pandemic and the collapse of the tourism industry. The country is currently experiencing hyperinflation and a rising cost of living, exacerbated by the US economic, financial, and trade embargo.

Figure 1. Map of Cuba (West) and the island of Hispaniola (East), where the Dominican Republic is located.

The Dominican Republic (DR) is an island nation in the Caribbean located on the island of Hispaniola, which it shares with the Republic of Haiti. It covers an area of 48,670 km2 (about five-eighths of Hispaniola), making it the second-largest nation in the Caribbean, with approximately 10.5 million inhabitants[6], 80 percent of whom live in urban areas and the remainder in rural areas. The main economic activities are concentrated in the service sector (tourism and commerce), manufacturing, construction, and agriculture. However, labour informality remains a challenge, with approximately 58% of workers in the informal sector[7]. The Northern Region, or Cibao, is the most productive and economically important area in the DR, after the National District and the province of Santo Domingo. Agriculture, especially rice, plantains, bananas, and cacao, is of great importance. Cibao contributes 74% of the national cacao production. Livestock farming and fishing in this area are also important sources of income for the country's economy.

Climatic Context

Located in the western Caribbean, Cuba and the DR have a warm tropical climate with seasonally humid conditions. In Cuba, the mean annual temperature ranges from 26°C in the plains to 24°C in coastal and mountain areas. The average maximum temperature ranges between 27°C and 32°C, and the average minimum temperature between 17°C and 23°C. The rainy period takes place between May to October, whereas the dry season extends from November to April[8]. In the DR, seasonal temperatures range from 20-25˚C in the cooler months of December to February, to 25-27˚C in the warmer months of June to November. The rainy season takes place between May and November whereas the dry season occurs between December and April[9].

In the Caribbean, Inter-annual variability is strongly influenced by El Niño Southern Oscillation (ENSO); which comprises episodes (every two to seven years) of either warmer and drier conditions (El Niño) or episodes of colder and wetter than usual conditions (La Niña). Both countries are located on the Atlantic hurricane belt, with strong winds and hurricanes occurring between August and October. These phenomena are said to be strongly linked to ENSO, with more frequent hurricane events during La Niña season, and less frequent events during El Niño period[10].

[2] According to the National Statistics and Information Office
[3] https://cri.fiu.edu/_assets/docs/cuba-country-profile.pdf
[4] https://rcc.cimh.edu.bb/files/2018/06/Country-Profile-Cuba.pdf
[5] https://cri.fiu.edu/_assets/docs/cuba-country-profile.pdf
[6] https://www.one.gob.do/datos-y-estadisticas/temas/estadisticas-demograficas/estimaciones-y-proyecciones-demograficas/
[7] https://www.bancentral.gov.do/a/d/2541-encuesta-continua-encft
[8] https://climateknowledgeportal.worldbank.org/country/cuba/climate-data-historical
[9] https://climateknowledgeportal.worldbank.org/country/dominican-republic/climate-data-historical
[10] https://climateknowledgeportal.worldbank.org/country/dominican-republic/climate-data-historical

Observed climate trends

Both Cuba and the DR have experienced an increase in temperatures since 1900. The IPCC Working Group I Interactive Atlas shows an average annual rainfall in the Caribbean of 2.4 mm/day over the past five decades[11]. However, in recent years, both above- and below-normal rainfall has been recorded in parts of Cuba and the DR (WMO, 2023; WMO, 2024). Both countries have been exposed to storms, floods, and droughts because of these trends.

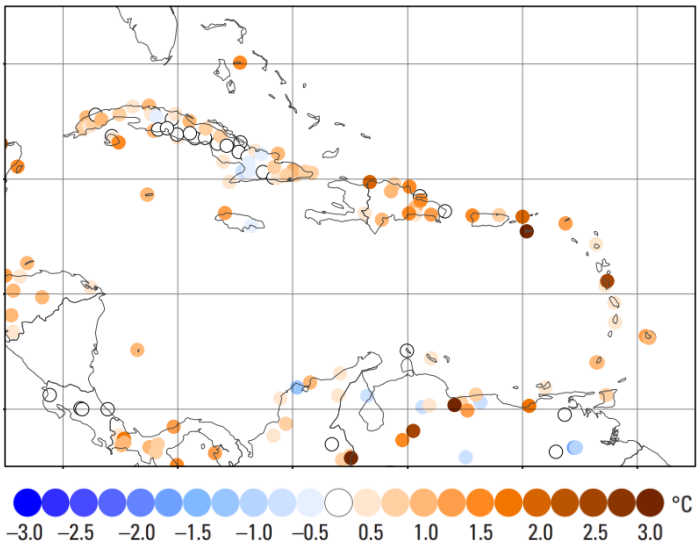


Figure 2. In situ mean air temperature anomalies for 2023 (relative to 1991–2020) in the Caribbean (WMO, 2024).

Temperature

According to the World Meteorological Organisation (WMO, 2023) the Caribbean sub-region has shown an anomaly of 0.71°C between 1991-2020. In Latin America and the Caribbean, 2023 was 0.82°C above the 1991–2020 average, the warmest year to date (WMO, 2024). Compared with previous 30-year periods, the 1991–2023 period had the highest warming trend (around 0.2°C or more per decade) since 1900 in the Latin America and the Caribbean region (WMO, 2024). In the Dominican Republic, positive temperature anomalies of +1°C to +2°C have been recorded in 2022 (WMO, 2023).

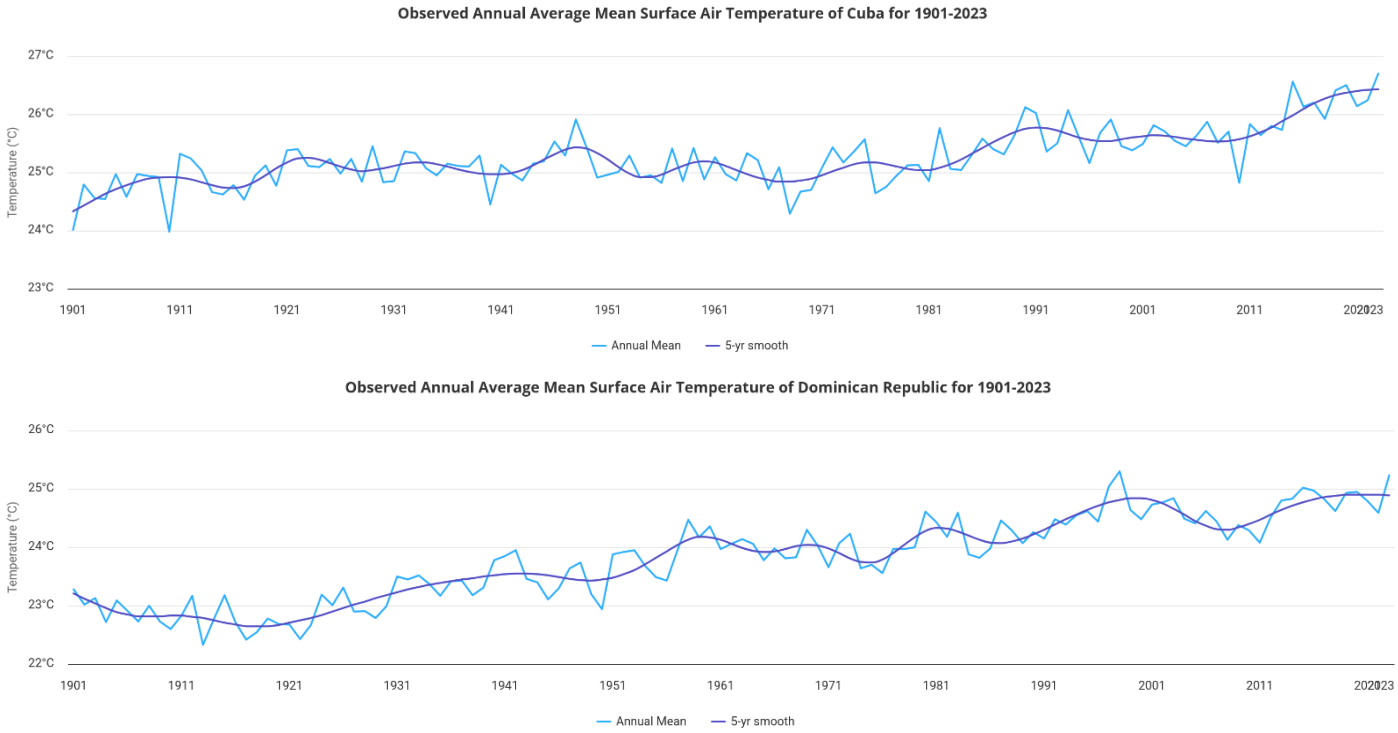


Figure 3. Average annual temperature (1901-2023) in Cuba and the DR. Source: World Bank (2023).

Dry spells:

Increasing trends in drought are evident in the Caribbean (Mycoo et al., 2022). Both countries have experienced a reduction in total precipitation with increased dry spells in recent years. The drought that occurred between 2013-2016 was the most severe event (Mycoo et al., 2022) since 1950 until that point in the Caribbean region (Mycoo et al., 2022). In addition, the La Niña and El Niño events that occurred during 2023 contributed to above average temperatures, dry spells, and heatwaves affecting several countries in the Caribbean, moderate droughts in Cuba, Dominican Republic and Haiti (WMO,

[11] https://interactive-atlas.ipcc.ch/

2023). For example, in the Dominican Republic, abnormal droughts with serious agricultural losses have occurred in the years 1938, 1939, 1941, 1944, 1947, 1949, 1957, 1959, 1967, 1975 and 1977 (UNDP,2016). The figure below shows the extent of the 2023 droughts in the Caribbean, the Integrated Drought Index (IDI) monitoring categories.

Precipitation:

The IPCC WGI interactive Atlas shows a median annual precipitation in the Caribbean of 2.4mm/day for the last five decades[12]. However, above normal and below normal rainfall has been recorded in areas of Cuba and the Dominican Republic in recent years (WMO, 2023; WMO, 2024). Figure 4 shows annual rainfall anomalies in 2023 (relative to the 1991–2020 climatological standard normal). In 2024, the Atlantic hurricane season showed above-average activity, with eighteen named storms 2024 (winds greater than 62km/h). Eleven of those were hurricanes (winds greater than 120km/h) and five intensified into major hurricanes (winds greater than 178km/h) (NOAA, 2024)[13].

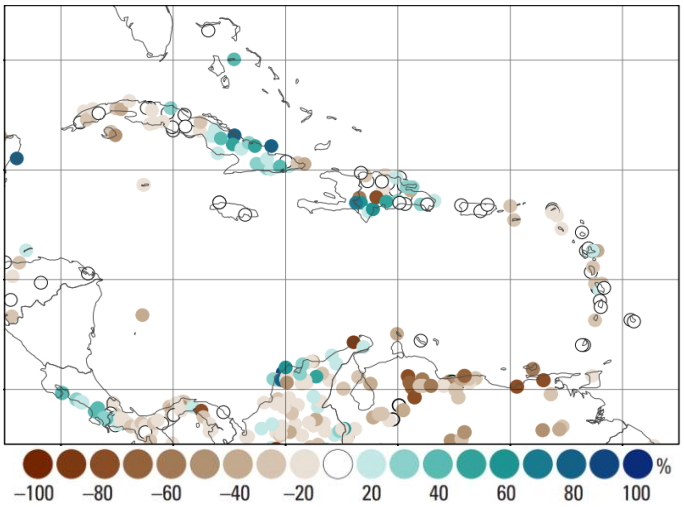


Figure 4. Precipitation anomalies for 2023 (percentage relative to the 1991–2020 reference period) in the Caribbean. (WMO, 2024).

Storms, Hurricanes, and Extreme Precipitation:

In Cuba, between October and November 2024, and amid a nationwide power emergency, two hurricanes hit the country: Oscar and Rafael. Hurricane Oscar impacted mostly the eastern part of the island on October 20, with winds above 130 km/h and severe rainfall, causing flooding in areas usually affected by drought. This event affected nearly half a million people, of whom some 150,000 suffered critical damage. Eight deaths were reported. Another hurricane, Category 3, hit the western part of the island on November 6, affecting more than 800,000 people[14]. Also, in March 2024, Cuba suffered intense rains and thunderstorms that caused damage to homes, crops and infrastructures with blackouts affecting more than 270,000 people[15]. No fewer than four hurricanes occur in the DR every decade (UNDP, 2016), affecting infrastructure, agricultural production, and water quality. The number of events impacting the DR has steadily increased over the past 50 years. Between 1961 and 2014, 93% of the events impacting the DR were of hydrometeorological origin; storms were responsible for 96% of the economic damage[16].

Historically, the project region in the DR (the Yaque del Norte basin) has faced various hazards stemming from anthropic alterations of its basins. The greatest risk is related to the location of homes, crops, and infrastructure in floodplains. For example, during the November 2016 events, most of the damage occurred in the natural expansion zones of the Yaque River or in meandering areas (UNDP, 2016). The following table presents a chronology of the most significant climatic events that have occurred in the Yaque del Norte River basin: floods, droughts, and landslides.

Table 1Most significant climatic events in the Yaque del Norte River basin in recent years

Year	Type of event	Summary of impacts	Impacted area	Impacted sector
1988	Flooding	Hurricane Gilbert generated intense rainfall that caused the river to overflow its banks, causing damage to agricultural and urban areas throughout its basin[17].	Santiago, Monte Cristi, Valverde	Agriculture, Housing, Infrastructure
1998	Flooding	Hurricane Georges caused torrential rains that caused the Yaque del Norte River to overflow its banks, severely affecting Santiago and other towns[18].	Santiago, Mao, Monte Cristi	Agriculture, Housing, Infrastructure
2003	Drought	A prolonged drought significantly reduced the river's flow, affecting the supply of water for irrigation and human consumption in the region[19].	Santiago, La Vega, Valverde	Agriculture, Water supply
2003	Flooding	Heavy rainfall event lasting 24 hours at the Santiago-Isa station with 228.8 mm and Jarabacoa with 181.4 mm, causing flooding with a high socioeconomic and environmental impact[20].		Agriculture, Housing, Infrastructure

[12] https://interactive-atlas.ipcc.ch/
[13] https://www.noaa.gov/news-release/atlantic-hurricane-season-races-to-finish-within-range-of-predicted-number-of-named-storms
[14]https://reliefweb.int/report/cuba/plan-action-united-nations-system-cuba-disaster-response-hurricanes-oscar-rafael-earthquakes-november-2024
[15] https://reliefweb.int/report/cuba/cuba-floods-dref-operation-mdrcu009
[16] More info at: https://mepyd.gob.do/wp-content/uploads/drive/Banco%20Mundial/Documento%20Gestion%20Financiera.pdf
[17] https://listindiario.com/clima/2007/05/29/13012/historial-de-huracanes-en-rd.html
[18] https://listindiario.com/la-republica/ciudad/20230918/huracan-georges-dejo-muerte-destruccion-paso-pais-25-anos_773469.html
[19] https://listindiario.com/la-republica/2017/08/11/477812/el-yaque-del-norte-agoniza.html
[20] Mas información en: https://repositorio.cepal.org/server/api/core/bitstreams/9885011f-3929-4a80-bc8b-ddc52eae0249/content

2004	Flooding	Tropical storms caused the river to overflow its banks, causing flooding in riverside communities and losses in agricultural crops[21].	Santiago, Monte Cristi, Valverde	Agriculture, Housing, Infrastructure
2007	Flooding	The flooding of the Yaque del Norte River interrupted traffic between Dajabón and Monte Cristi, affecting more than twenty towns[22].	Valverde, Monte Cristi Dajabón,	Transport, Housing, Commerce
2016	Storm	In October and November 2016, heavy rains affected over 30,100 residents, causing damage to public and private property and services totalling more than 4.39 billion Dominican pesos. Nearly 50,000 people were evacuated. An estimated 1,322 homes, 12 educational institutions, 25 road infrastructure projects, and nearly 40 waterworks were damaged (UNDP, 2016).		Agriculture, Housing, Infrastructure, Water supply
2017	Flooding	Flooding of the Yaque del Norte and Yuna rivers displaced thousands of families in the Northwest and Northeast regions[23].	Noroeste, Nordeste	Agriculture, Water supply, Housing
2019	Drought	Prolonged drought reduced the flow of the Yaque del Norte River from 37 to 3 cubic meters per second, affecting agricultural producers in the region[24].	Santiago, Monte Cristi, Valverde.	Agriculture, Water supply, Industry.

Projected climate trends and impacts

The IPCC predicts high confidence in increases in mean surface temperature and extreme heat in the Caribbean region, with an upward trend. There is also high confidence in a decrease in mean precipitation in the future, with an increase in agricultural and ecological drought. There is high confidence in an increase in coastal flooding and erosion in the region[25].

Temperature

Across the Caribbean, the IPCC predicts an increase in the mean annual temperature from 27°C to 27.6°C in the medium term reaching 28.1°C in the long term, under an SSP2-4.5 scenario. However, under an SSP5-8.5 scenario, the IPCC predicts that the mean annual temperature will reach 27.9°C in the medium term and 29.6°C in the long term (2100)[26].
More specifically, in Cuba and the Dominican Republic, the annual mean temperature is expected to increase by 2°C in the medium term (2041-2070). While the RCP4.5 scenario predicts a stabilisation at 2°C in the long term (2071-2100), the RCP8.5 scenario predicts an increase to 4°C in the same period.[27]

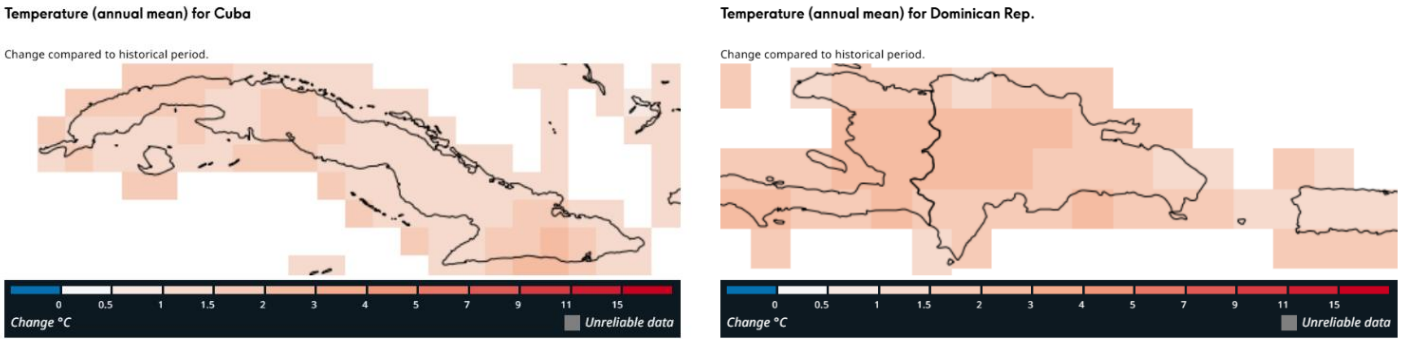


Figure 5. Temperature (annual mean), Time period: 2041–2070, Historical period: 1981–2010, Model: CORDEX Central America Ensemble Mean, Model results for Cuba and the Dominican Republic. Retrieved from: https://climateinformation.org (2025-02-11)

Dry spells:

The figures below show the number of dry periods for more than 5 days for a 30 year-period. This index is given as a relative change to the reported 1981–2010 historical period. The figures demonstrate that both countries are projected to be vastly affected by dry spells to 2070, with a considerable number of areas experiencing more than 10 dry spells annually.

[21] https://www.diariolibre.com/actualidad/jeanne-ser-recordada-como-la-tormenta-ms-daina-HCDL54696
[22] https://listindiario.com/la-republica/2007/12/17/41064/aguas-del-yaque-del-norte-siguen-inundando-pueblos.html
[23] https://listindiario.com/la-republica/2017/09/25/483833/rio-yaque-del-norte-y-yuna-ocasionan-desastre.html
[24] https://www.diariolibre.com/actualidad/medioambiente/baja-caudal-rio-yaque-norte-a-3-metros-por-segundo-XD757550
[25] https://interactive-atlas.ipcc.ch/regional-synthesis
[26] https://interactive-atlas.ipcc.ch/regional-information
[27] https://climateinformation.org/

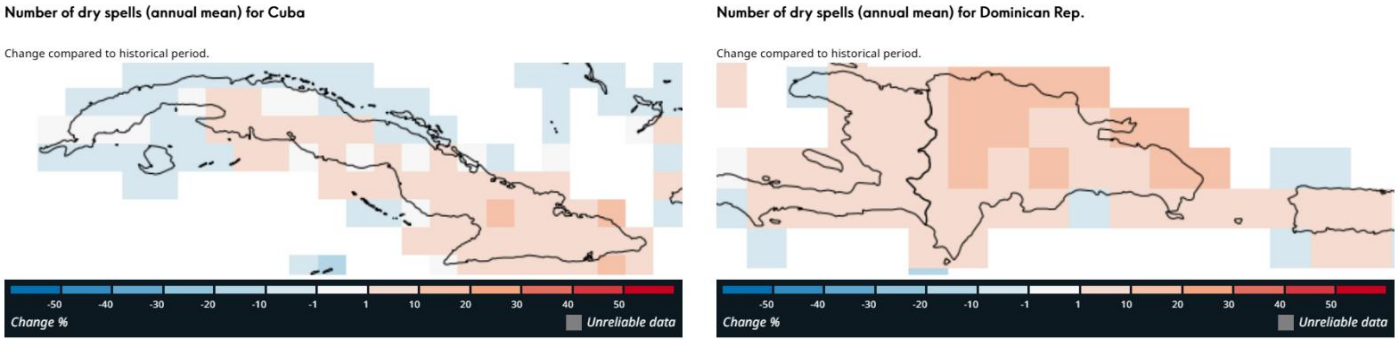


Figure 6. Number of dry spells (annual mean), Time period: 2041–2070, Historical period: 1981–2010, Model: CORDEX Central America Ensemble Mean, Model results for Cuba[28].

Precipitation:

Across the Caribbean, the IPCC predicts a decrease in precipitation to a median of 2.3 mm/day in the medium term (2041-2060) and to 2.2 mm/day in the long term (2081-2100) using an SSP2-4.5 scenario. However, under an extreme SSP5-8.5 scenario, the IPCC predicts a precipitation decrease to a median of 2.1 mm/day in the medium term (2041-2060) and 1.8 mm/day in the long term (2081-2100)[29]. In Cuba, more specifically, the annual mean precipitation is predicted to decrease by 3% in the medium term and by 9% in the long term. In the DR, annual mean precipitation is predicted to decrease by 11% in the medium term and by 19% in the long term[30].

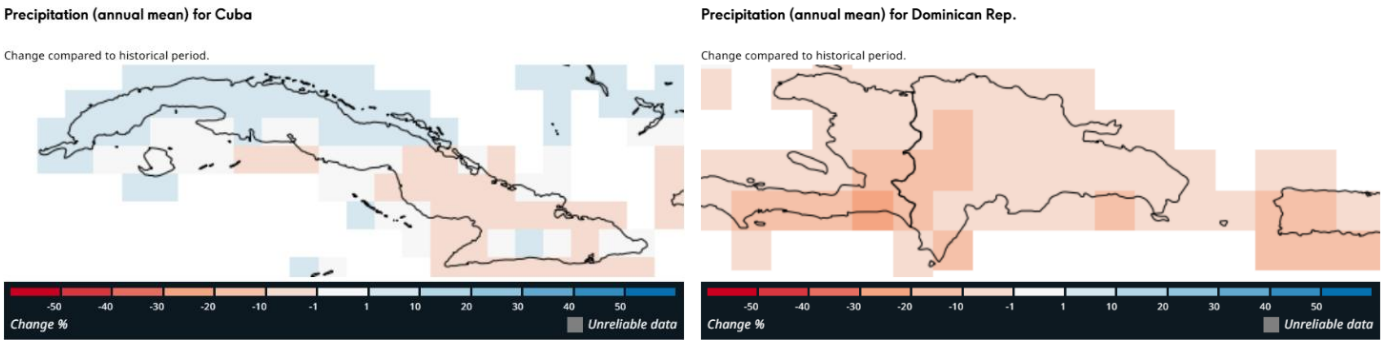


Figure 7. Precipitation (annual mean), Time period: 2041–2070, Historical period: 1981–2010, Model: CORDEX Central America Ensemble Mean, Model results for Cuba and the Dominican Republic. Retrieved from https://climateinformation.org (2025-02-11)

Storms, Hurricanes, and Extreme Precipitation:

While hurricane trends are uncertain, the intensity of these events is expected to increase, especially in wind speeds[31]. Tropical cyclones are expected to remain the main driver of (rarer) flooding in the Caribbean Sea (Mycoo et al., 2022).

Projected impacts on ecosystems and settlements

Rising temperatures and tropical cyclone intensity, combined with decreasing total rainfall, will put pressure on coastal and freshwater ecosystems and the ecosystem services that support the economies of Caribbean Small Island Development States (SIDS).

The region faces a severe loss of marine and coastal biodiversity, with coral bleaching being the most visible symptom of the impact of climate change[32]. Even under low-emission scenarios, coral loss will be significant, severely affecting crucial ecosystem services for Caribbean communities and with direct consequences for protection against extreme weather events and the provision of fisheries resources[33]. Seagrass and mangrove ecosystems will also be affected due to sea level rise

[28] Grossmann-Matheson, G., Young, I.R., Meucci, A. et al. Global changes in extreme tropical cyclone wave heights under projected future climate conditions. Sci Rep 14, 31797 (2024). https://doi.org/10.1038/s41598-024-82892-9

[29] https://interactive-atlas.ipcc.ch/

[30] https://climateinformation.org/

[31] https://ssr.climateinformation.org/

[32] Mycoo, M., M. Wairiu, D. Campbell, V. Duvat, Y. Golbuu, S. Maharaj, J. Nalau, P. Nunn, J. Pinnegar, and O. Warrick, 2022: Small Islands. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2043–2121, doi:10.1017/9781009325844.017

[33] Ferrario, F., et al., 2014: The effectiveness of coral reefs for coastal hazard risk reduction and adaptation. Nat. Commun., 5, 3794, doi:10.1038/ncomms4794.

and human activity. The region has experienced massive Sargassum blooms, possibly linked to climate variability and river pollution discharges[34], which damage coastal habitats and negatively affect local communities[35]. The degradation of these coastal ecosystems in the Caribbean has a direct impact on the ecosystem services that support the life and economy of the islands, including fisheries, agriculture, tourism, among others. The loss of reefs, mangroves, and seagrass beds reduces the protection of low-lying areas against storms and coastal erosion, increasing their vulnerability to extreme weather events.

Also, the increasing intensity of tropical cyclones, together with sea-level rise, cause massive coastal flooding and saline intrusion into aquifers, accelerating freshwater sources contamination by storm surges and heavy rainfall, contributing to water insecurity in Caribbean SIDS[36]. Furthermore, the figures above show that both countries are projected to be severely affected by dry spells until 2070, with a significant number of areas experiencing more than 10 annual dry spells. An additional 1.0°C of warming could result in a predominantly drier region (approximately 15% less rainfall than today). These trends will result in increased impacts on agricultural production and a 60% increase in the number of people projected to experience severe water stress between 2043 and 2071[37]. They also pose a threat to Caribbean biodiversity, with the potential for mass extinction of some endemic species by 2100, particularly if global warming exceeds 3°C[38].

About 22 million people in the Caribbean live in low-lying coastal zones, defined as areas below 6 meters in elevation[3940], making them extremely vulnerable to flooding and storm surges. The region's population and infrastructure face rising risks due to extreme events such as tropical cyclones and sea level rise. The growth of informal settlements in urban and peri-urban areas increases the vulnerability of Caribbean populations to climate hazards. These areas, often with poor planning and difficulties in enforcing building regulations, are particularly susceptible to coastal and riverine flooding, as well as the impacts of cyclones and storm surges[41]. Future cyclone intensification and sea level rise will exacerbate these risks, with projections indicating significant loss and damage to transportation infrastructure.

2. Vulnerabilities in the project area

The following project areas were selected because of their strategic significance: Yara and Jibacoa River basin (Cuba) and Yaque del Norte Basin (DR). Cities in both basins have been identified as highly vulnerable in national adaptation documents (Manzanillo in Cuba's Tarea Vida National Policy, and Santiago de Los Caballeros and Monte Cristi in DR's National Adaptation Plan). Also, UNEP's Nature4Cities (N4C) project's outputs helped raise awareness and knowledge base for NbS and identified NbS sites in Manzanillo and Santiago. This Adaptation Fund project will further the work of N4C to implement adaptation measures at multiple scales, including these two and other settlements within the respective river basins, in order to address interrelated climate change impacts (e.g., hazards generated upstream may have impacts in downstream settlements). Last, some settlements and landscapes in these basins had been deprioritised from national investment programmes to instead focus on coastal areas, often considered areas of greatest national interest.

i) Cuba: Yara and Jibacoa River Basin

The Yara and Jibacoa river basins are located within the province of Granma, in the East/Southeast of the country. The Yara River originates in the municipalities of Buey Arriba and Bartolomé Masó, in the Sierra Maestra mountains near Joaquín Peak. It flows north through the municipality of Yara, then northwest until it empties north of the city of Manzanillo, the second largest city in Granma. Its total length is approximately 90 km. Its flow is low, since its main water source is rain,

[34] Saintilan, N., et al., 2020: Thresholds of mangrove survival under rapid sea level rise. Science, 368, 1118–1121, doi:10.1126/science.aba2656.
[35] Van Tussenbroek, B., et al., 2017: Severe impacts of brown tides caused by Sargassum spp. on near-shore Caribbean seagrass communities. Mar. Pollut. Bull., 122(1-2), 272–281, doi:10.1016/j.marpolbul.2017.06.057.
[36] Mycoo, M., M. Wairiu, D. Campbell, V. Duvat, Y. Golbuu, S. Maharaj, J. Nalau, P. Nunn, J. Pinnegar, and O. Warrick, 2022: Small Islands. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2043–2121, doi:10.1017/9781009325844.017
[36] https://www.eumed.net/rev/caribe/2016/09/yara.html
[37] Mycoo, M., M. Wairiu, D. Campbell, V. Duvat, Y. Golbuu, S. Maharaj, J. Nalau, P. Nunn, J. Pinnegar, and O. Warrick, 2022: Small Islands. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2043–2121, doi:10.1017/9781009325844.017.
[38] Ibid.
[39] Cashman, A., Nagdee, M.R. (2017) Impacts of Climate Change on Settlements and Infrastructure in the Coastal and Marine Environments of Caribbean Small Island Developing States (SIDS), Caribbean Marine Climate Change Report Card: Science Review 2017, pp 155-17
[40] Although Cuba classifies coastal settlements as those located below 1 m above sea level and at a distance of 1,000 m from the coastline.
[41] Mycoo, M., M. Wairiu, D. Campbell, V. Duvat, Y. Golbuu, S. Maharaj, J. Nalau, P. Nunn, J. Pinnegar, and O. Warrick, 2022: Small Islands. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2043–2121, doi:10.1017/9781009325844.017

so in times of severe drought it decreases considerably, with the presence of abundant meanders along its course from south to north[42]. The Jibacoa River also originates in the Sierra Maestra mountains and flows almost parallel to the Yara River, 7-10 km southwest of it, until it joins the Guá River, shortly before flowing into the sea, 15 km northeast of Manzanillo. This region is predominantly agricultural, with fertile lands in the upper, middle, and lower basins. Along the Yara River and other minor waterways there are numerous dams for irrigating crops and partially supplying water to the population.

Figure 8. Map of Rivers Yara and Jibacoa basin, Granma Province, Cuba.

Historically, the upper part of the basin has been known for its coffee crops; however, these have declined significantly in recent years due to climate variability (increased drought and high temperatures) and changes in socioeconomic conditions, particularly rural-urban migration. The cyclical processes of deforestation, burning, and growing on slopes in this area have contributed to erosion and eventual landslides. The middle-lower basin, between Bartolomé Masó and Yara, is flatter. This region is traditionally known for sugarcane plantations. However, due to droughts, these crops have been affected by fires. Also, urban and suburban areas of Yara have recently been affected by flashfloods. Due to the lack of sewage treatment and the common use of latrines, flooding has led to significant public health problems.

Table 2. Municipalities in the Yara and Jibacoa River Basin and climate impacts affecting them

Town	Characteristics	Climatic impacts
Upper basin: Bartolomé Maso	This area has a total population of 47,828 inhabitants, and a population density of 75 inhabitants/km². The urban population is about 13,502 people. The economy is primarily based on agriculture, with 39% of commercial production coming from the sugar industry. The agricultural area is 32,308.99 hectares (50.65%). The non-agricultural area is 31,483.82 hectares (49.35%), with 42% forested area, mainly natural forests. Bartolomé Masó's urban area does not have an effective drainage system to evacuate water.	**Flooding:** Due to the more extreme rainfall and the lack of adequate drainage systems in urban areas or frequently clogged ditches, heavy rains cause flooding[43]. **Soil and ecosystem degradation:** Droughts, along with land-use changes and agricultural practices not adapted to climate change (e.g., land use on slopes steeper than 45 degrees, indiscriminate logging) cause degradation of soil and forest ecosystems[44]. **Water security:** The municipality is experiencing a severe drought, affecting the water supply for the population and agriculture, despite having multiple water sources. The lack of storage and the heavy dependence on the aqueduct exacerbate the situation[45].
Middle basin: Yara	The municipality has 55,789 inhabitants and seven urban centres (11,805 urban inhabitants). Of the municipality's 56,028 hectares, 78% is agricultural land [46].	**Floods:** Due to a lack of effective drainage system or low slope of the terrain, together with heavy rains, cause floods of great impact[47]. When rainfall exceeds 80 mm in one day, flooding occurs in at least 12 key points of the city[48].
Lower basin: Manzanillo	Manzanillo is the second largest city in the province of Granma. The municipality of Manzanillo has a total population of 127,167, of which 103,562 are urban and	**Coastal and river flooding:** Increased urban populations, the construction of new human settlements in floodplain and other high-hazard areas, and changes in land use (urbanization,

[42] https://www.eumed.net/rev/caribe/2016/09/yara.html
[43] Plan General de Ordenamiento Territorial, Municipio de Bartolomé Masó, 2020
[44] Ibid.
[45] Ibid.
[46] Plan General de Ordenamiento Territorial, Municipio de Yara, 2023.
[47] Plan General de Ordenamiento Territorial, Municipio de Yara, 2023.
[48] Ídem.

	23,605 are rural. Of the total population, 48.7% are male and 51.3% are female. The city's main economic activity is fishing, and agriculture is the main activity at the municipal level[49]. The predominant land use in the municipality is agricultural, occupying a total area of 37,523.74 ha (75.2%) of which 54% is cultivated with 20,226.231 ha, the remaining 17,297.509 ha which represents 46% is not cultivated, they are idle lands, covered by the invasive woody species known as marabú[50].	deforestation of hillsides in shallow basins), along with increased storm frequency, cause pluvial flooding[51]. **Ecosystem degradation:** Increased river flooding affects the municipality's farming areas and coastal mangroves due to high sedimentation[52]. **Water security:** Similarly, in the lower basin the groundwater is of very low quality with a salinity in the water table of 88.9% with significant limitations for human consumption[53]. **Landslides:** Rainfall and flooding cause landslides, which are aggravated by inappropriate land use and ecosystem degradation, especially those located in the municipality's natural ravines.

ii) Dominican Republic: Yaque del Norte Basin

The Yaque del Norte River basin is located between the regions of central Cibao (Jarabacoa, Santiago) and northwestern Cibao (Monte Cristi) of the Dominican Republic. The river originates in the Cordillera Central at approximately 2,580 meters and flows 296 kilometres to its mouth in Monte Cristi. The basin covers an area of approximately 7,000 km² (Ministry of Environment, 2003). Along its course, there are five hydroelectric dams with a capacity of 114 MW. The upper basin extends from its source to Jarabacoa (42 km), where a highly diverse ecosystem of great importance to the country exists, with 12 protected areas but enormous pressure on forest resources. The middle basin extends from Jarabacoa to Santiago (85 km), with varied vegetation ranging from conifers to dry forest, coffee and rice crops, and ten protected areas (44.86% of the province's land area). This stretch suffers from high deforestation and the substitution of forests for agricultural uses. The lower basin extends from Santiago to its mouth at Monte Cristi (169 km), across flat, meandering terrain with little rainfall but high flooding potential. This area is characterized by banana farming and fishing[54].

Figure 9. Map of the Yaque del Norte River basin. Dominican Republic.

The Yaque del Norte River basin faces various environmental problems that have been the subject of recent study. A water quality analysis revealed an average Water Quality Index (WQI) of 52, indicating moderate quality with significant variations among the different rivers in the basin[55]. In response to these challenges, ecological restoration initiatives have been implemented, such as the project led by ACAP and Apedi in the Northern Cordillera, which focuses on protecting catchment areas and increasing forest cover. In parallel, water governance and conservation are promoted in the lower basin, with the collaboration of the Ministry of Economy, Planning and Development and the NGO CONORYAQUE, seeking to establish financial mechanisms to support water recharge programs and improve resource management.

[49] Manuel Winograd y Michiel van Eupen (n.d.) Análisis de vulnerabilidad y riesgos climáticos para la ciudad de Manzanillo. Informe de proyecto: Cuba. Nature4Cities.
[50] Id.
[51] Id.
[52] Plan de Ordenamiento Urbano. Ciudad de Manzanillo. 2010.
[53] Manuel Winograd y Michiel van Eupen (n.d.) Análisis de vulnerabilidad y riesgos climáticos para la ciudad de Manzanillo. Informe de proyecto: Cuba. Nature4Cities
[54] https://ambiente.gob.do/app/uploads/2016/11/Yaque-del-Norte-Division-Politico-Administrativa.pdf
[55] https://revistas.intec.edu.do/index.php/cienacli/article/view/3411/3940

Table 3. Municipalities in the Yaque del Norte River Basin and climate impacts affecting them

Town	Characteristics	Climatic impacts
Upper basin: Jarabacoa	According to the latest census in 2022, Jarabacoa has a total population of 96,979, distributed across three towns: Jarabacoa, with 64,672 residents; Buena Vista with 23,663; and Manabao with 8,644. The population density is 96 inhabitants/km2. In 2018, 52.4% of households in Jarabacoa were living in general poverty and 18.4% in extreme poverty. Poverty primarily affects rural areas of the municipality and households headed by women[56]. Deforestation and soil erosion are environmental problems that impact the quality of natural resources and agricultural productivity.	**Floods**: The lack of vegetation cover in some areas of the municipality increases vulnerability to floods and drought[57]. **Droughts**: The lack of vegetation cover in some areas of the municipality increases vulnerability to floods and drought[58]. **Impacts on Agriculture:** Changes in temperature and precipitation patterns affect agricultural productivity, especially coffee, vegetable, and flower production.
Middle basin: Santiago de los Caballeros	Santiago has an urban population of around 783,800 (total 1,074,680 including rural population) , making it the second most populous city in the Dominican Republic. The majority of the population is young, with 47% under the age of 24. Santiago contributes between 15% and 18% of the Dominican Republic's Gross Domestic Product (GDP). In 2019, 32% of Santiago's population was living in poverty, while 4.8% lived in extreme poverty. Poverty primarily affects rural areas and female-headed households. The city is home to a variety of industries, including textile manufacturing, pharmaceuticals, food and beverages, and tobacco production. Rapid urbanization and land-use change have led to a reduction in surface permeability and a reduction in the productive capacity of soils[59]. The Northern Mountain Range, located in the municipality of Santiago, has experienced a significant reduction in vegetation cover in recent years. Over an eight-year period, 13% of the vegetation has been lost, equivalent to 12.9 square kilometres. This loss has reduced vegetation cover from 107.3 square kilometres to 98 square kilometres.	**Flooding:** The greatest risk is due to land use changes, especially the location of homes, infrastructure, and crops in floodplains. During the November 2016 events, most damages occurred in the natural floodplains of the Yaque River or in the meandering areas (UNDP, 2016). **Landslides:** Precipitation and flooding cause landslides, aggravated by land use changes, urban sprawl, and ecosystem degradation. 63,717 inhabitants are located in landslide zones, 85% (54,014) in the city of Santiago and the remaining 15% (9,703) in districts and municipalities of the metropolitan area[60]. **Droughts:** Droughts in the Cibao Region are projected to increase. This results in a gradual loss of soil moisture for agricultural and livestock activities[61].
Lower basin: Monte Cristi	The municipality of Monte Cristi has 65,290 inhabitants in urban areas and 58,230 in rural areas. It has an area of 517 km2 and a population density of 47.63 inhabitants/km2. 63.3% of households in Monte Cristi are living in poverty, and 13.5% in extreme poverty. Poverty primarily affects rural areas and households headed by women[62]. Land use in Monte Cristi is dominated by agriculture, with extensive areas dedicated to the cultivation of various crops. Salt production also occupies a significant portion of the territory, with more than 300 salt mines in operation. The province has a wide variety of tourist attractions, including El Morro, wetlands, beaches, and protected areas, which represent potential for tourism development.	**Floods:** Due to the more extreme rainfall, combined with the lack of adequate drainage systems in urban areas or frequently clogged ditches, heavy rains can cause flooding[63]. **Droughts:** Monte Cristi is one of the driest provinces in the country[64]. The province is the largest rice producer and also has significant areas for livestock and banana cultivation, which have been affected by droughts in recent years[65].

iii) Context and gender vulnerabilities

Both Cuba and the DR have strong legal frameworks and institutions dedicated to promoting gender equality. The Republic of Cuba's Constitution enshrines equal rights for women, and the Federation of Cuban Women (FMC) plays a central role in advancing their rights and incorporating a gender perspective into public policies. The Cuban National Statistics Office

[56] Plan Municipal Desarrollo de Jarabacoa 2023-2033.
[57] Ministerio de Medio Ambiente y Recursos Naturales: Estudio de uso y cobertura de suelo 2012. Santo Domingo, R.D.
[58] Idem.
[59] CDES. Plan Estratégico Santiago 2030: Actualización
[60] Idem.
[61] Idem
[62] Plan Municipal de Desarrollo Monte Cristi 2020-2024
[63] Idem
[64] Ministerio de Medio Ambiente y Recursos Naturales: Estudio de uso y cobertura de suelo 2012. Santo Domingo, R.D
[65] https://reliefweb.int/report/dominican-republic/piden-declarar-montecristi-en-estado-de-emergencia-por-la-sequ

(ONEI) also contributes by collecting and monitoring gender-disaggregated data. The DR's Constitution enshrines equal rights for women, guaranteeing the protection of their fundamental rights and prohibiting any type of gender discrimination (Article 39). In DR, the Ministry of Women leads the formulation and implementation of gender equality policies and programs. Furthermore, since 2019, public institutions have established internal Gender Equality Units to ensure the incorporation of a gender perspective into projects and budgets. The DR's National Statistics Office (ONE) has also produced data on "Gender and Special Population Groups"[66] and "Environment and Climate Change".[67]

Despite advances in women's political participation, their role in local planning and decision-making on climate change and natural resource management remains limited. The cities selected for this project lack gender-sensitive planning tools and processes. Santiago de Los Caballeros stands out for its history of participatory planning, with the participation of Neighbourhood Association Federations in the municipal participatory budget and civil society observation in the 2030 Strategic Plan[68]. In Cuba, the Federation of Cuban Women is present in all districts and acts as an observer in the development of local policies and strategies. At the community level, time constraints due to unpaid domestic work, unequal access to natural and financial resources and adequate services, and gender norms and stereotypes limit their role in decision-making and planning[69].

In both countries, women face disparities in the labour market and economic opportunities. Although they have higher levels of tertiary education, their labour force participation remains lower than that of men, with 77% of men in Cuba and less than 50% of women in the DR engaged in paid work. This disparity is related to the unequal burden of unpaid domestic and care work, which consumes a significantly larger share of women's time compared to men[70]. In Cuba, women spend 21.28% of their daily time on unpaid care work, while men spend 12.51%, and in the Dominican Republic, the figures are 25.5% for women and 10.9% for men. These inequalities are sometimes exacerbated by poverty and informal work, which disproportionately affect women[71].

Women's access to and control over natural resources, particularly land, remains unequal in both countries. In Cuba, only 22.6% of agricultural landowners are women[72], while in the Dominican Republic, the figure is 25%[73]. This limited access to land restricts women's economic opportunities and decision-making power in agriculture and natural resource management. Furthermore, climate change intensifies these inequalities by increasing the burden on women to secure scarce resources such as water and firewood, further limiting their time and options for income generation and participation in community affairs[74]. Likewise, gender-based violence is amplified in the context of climate change. The Dominican Republic, in particular, has a high rate of femicides with 2.7 per 100,000 women[75]. Climate-related stressors, such as droughts and natural disasters, can exacerbate existing risks of gender-based violence and create new vulnerabilities for women. Furthermore, women's increased participation in natural resource management, particularly in light of the impacts of climate change, may expose them to greater risks of violence and harassment[76].

3. Problem statement

Due to their location and conditions, Cuba and the Dominican Republic (DR) are subject to high climate risk, driven by high exposure to a number of natural hazards (hurricanes, floods, droughts, among others) and low adaptive capacity. These events will become more pronounced and extreme in the coming decades due to climate change. Residents, as well as public goods and services in communities along the basins, are highly exposed to these hazards due to their location. In

[66] ONE-Estadísticas Género
[67] ONE- Estadísticas Ambientales y Cambio Climático
[68] Ayuntamiento Santiago de los Caballeros (2018). Santiago de Los Caballeros Resiliente: Estrategia de Resiliencia. https://resilientcitiesnetwork.org/downloadable_resources/Network/Santiago-de-los-Caballeros-Resilience-Strategy-Spanish.pdf
[69] Examples of participatory urban planning instruments in the region include the Citizen Planning Secretariat, the Secretariat of Citizen Participation and Participatory Budgeting in Medellín, Colombia. Other cities have incorporated gender strategies, such as Montevideo (2021-2025).
[70] ONE (2022). Boletín Demográfico y Social. https://www.one.gob.do/media/4piglrpy/bolet%C3%ADn-demogr%C3%A1fico-y-social-no-6.pdf
[71] UN RCP LAC (2024). Perfil Regional de Igualdad de Género América Latina y el Caribe. Entidad de las Naciones Unidas para la Igualdad de Género y el Empoderamiento de las Mujeres. https://lac.unwomen.org/sites/default/files/2024-04/es-perfilregionaligualdadgenero-alc_26marzo24.pdf
[72] UNDRR & ONU Mujeres (2024). Hacia la igualdad de género y el liderazgo de las mujeres para la resiliencia ante el riesgo de desastres en América Latina y el Caribe. CEPAL. https://lac.unwomen.org/sites/default/files/2022-03/CSW66%20-%20Reduccion%20Riesgo%20Desastres%20-%20ES%20-%203MarVfinal.pdf
[73] ONE (2018). Medición del aporte de la mujer en las actividades agropecuarias en República Dominicana. https://www.one.gob.do/publicaciones/2019/medicion-del-aporte-de-la-mujer-en-las-actividades-agropecuarias-en-republica-dominicana-diciembre-2018/
[74] Aguilar Revelo, L. (2021). La igualdad de género ante el cambio climático: ¿Qué pueden hacer los mecanismos para el adelanto de las mujeres de América Latina y el Caribe? (No. 159; Asuntos de Género). Comisión Económica para América Latina y el Caribe (CEPAL). https://repositorio.cepal.org/server/api/core/bitstreams/8005c7ed-957e-4434-b6b6-cf29ceb54866/content
[75] ECLAC. (2025). Observatorio de Igualdad de Género de América Latina y el Caribe (CEPAL). https://oig.cepal.org/es/paises/
[76] Blaeker, A., Escibano, P., Candice, G., Liberati, C., & Mawby, B. (2021). Advancing gender equality in environmental migration and disaster displacement in the Caribbean (No. 98; Studies and Perspectives). ECLAC Subregional Headquarters for the Caribbean. https://www.cepal.org/sites/default/files/publication/files/46737/S2000992_en.pdf.

turn, various political, environmental, and socioeconomic dynamics have made these residents, especially women, and their goods and services more vulnerable to the impacts of these climate hazards.

i) Root causes of the problem

The limited access to economic and financial resources of the inhabitants of these areas limits their adaptive capacity, especially for women, who have less access to credit, property, or paid employment. Many women are heads of households and therefore have more limited opportunities for paid work, leaving them with fewer resources to meet basic needs in the event of a disaster[77]. Domestic work and care for children and vulnerable people are mostly performed by women; however, this work is not recognised and therefore unpaid. Among the factors contributing to this phenomenon are the lack of gender-disaggregated data and indicators that demonstrate such inequalities so as to inform gender-transformative policies and actions, as well as cultural factors of entrenched gender stereotypes.

On the other hand, the lack of economic and financial resources from state institutions[78] means that infrastructure and public services are often in poor condition and therefore highly sensitive to natural disasters (this was evident in Hurricane Oscar and then the earthquake that affected southeastern Cuba in October/November 2024, which caused significant damage to infrastructure and services in Granma)[79]. State institutions have limited capacity to mobilise financial resources and coordinate and implement actions for disaster risk reduction and management. In some cases, such as in Cuba, adaptation investments have been primarily concentrated on the coasts, as these are areas of greatest national interest due to the scale and potential of tourism, leaving some regions, especially inland, in the background. Furthermore, the states' capacity for territorial planning and land management is limited by a lack of resources and the necessity of prioritising basic needs. Consequently, appropriate land use management is inevitably relegated. There are currently human settlements that have been built in areas highly exposed to landslides and floods[80]. Among the drivers of this phenomenon are migration, rapid urbanisation of peri-urban areas and a lack of awareness among residents. At the same time, factors such as deforestation and unsustainable agricultural practices increase soil degradation, sedimentation, and the risk of erosion and landslides, impacting downstream cities and communities on river deltas, especially those most exposed and vulnerable. For these reasons, a basin-scale approach becomes necessary, with interventions at various scales, encompassing urban, peri-urban and rural areas along the rivers.

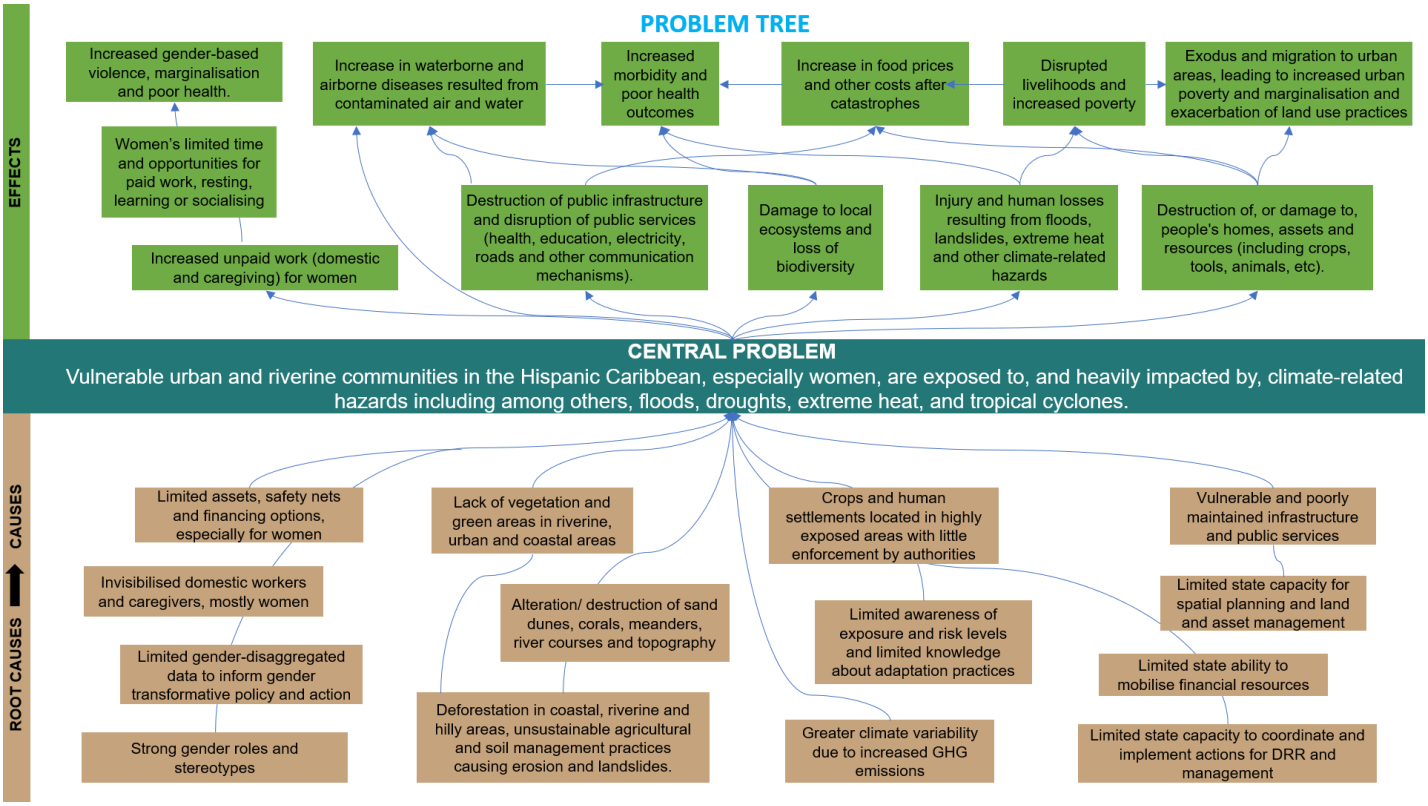


Figure 10. Problem tree diagram showing factors that contribute to people's vulnerability, especially women in both basins.

[77] See Annex – Gender Analysis
[78] Especially in Cuba with the economic, commercial and financial blockade
[79] https://reliefweb.int/report/cuba/plan-action-united-nations-system-cuba-disaster-response-hurricanes-oscar-rafael-earthquakes-november-2024.
[80] See, for example, the land use plans for Manzanillo (2020), Yara (2023) and Bartolomé Masó (2020), as well as the Climate Vulnerability and Risk Analysis for the city of Santiago de Los Caballeros from the Nature4Cities Project.

ii) Adaptation needs and solutions

The above issues evidence the need to reduce the exposure of urban and riverine communities in the Yara & Jibacoa (Cuba) and Yaque del Norte (Dominican Republic) basins to droughts, floods, landslides and other climate-related problems. They also evidence the need to address persistent drivers of vulnerability. This includes effective and resilient land management based on data and evidence; supporting the empowerment of vulnerable groups, especially women, to increase their adaptive capacity; the design and implementation of nature-based solutions and sustainable development models that can reduce risk while increasing food and water security in the face of more extreme climate change; and finally, improved access to information on risk factors and adaptation methods.

The total population of the two river basins is estimated at 2,034,000. The targeted municipalities of Bartolomé Masó, Yara, and Manzanillo in Cuba; and Jarabacoa, Santiago de Los Caballeros, and Monte Cristi in the DR have a combined population of 1,525,960 people, of whom about 770,610 are women and 1,042,660 live in urban areas. Although poverty and vulnerability data are incomplete for all cities, and there is no gender disaggregated information, at least 185,000 people live in precarious settlements in the project's six urban areas. In Jarabacoa, Santiago and Monte Cristi (RD), there are an estimated 472,902 people below the poverty line (45% of their population) and an additional 186,000 under extreme poverty (18% of their population). The project is aiming to directly benefit 312,800 vulnerable people in the targeted municipalities, equivalent to 30% of their urban population, and indirectly benefit the entire population of the two river basins (2,034,000).

iii) Barriers

The barriers described below have been identified through workshops and interviews with key stakeholders held in both countries. They have been corroborated and complemented with information from key national and provincial policy documents.

Institutional and Regulatory Barriers

- Inadequate or insufficient strategies and mechanisms for gender-responsive urban and basin planning: Urban and basin planning lacks effective integration of a gender perspective, despite the existence of regulatory frameworks and national strategies. The inclusion of a gender perspective is often limited to the presentation of descriptive demographic data in development and land-use plans.
- Inadequate strategies and mechanisms for climate-risk-informed urban and basin planning: While the cities of Manzanillo and Santiago have plans and strategies for climate change adaptation, the other cities and/or provinces lack strategies to address environmental and development issues with a climate change perspective[81]. Although there is greater coordination at the basin level in Yaque del Norte, coordination between municipalities and provinces is limited. This is evident in the lack of strategies or mechanisms at the basin level, which hinders comprehensive water resource management and adaptation to climate change.

Information and Technology

- Lack of equipment and tools for sustainable land and water use and management.
- Isolated or non-existent data on land use, climate, and the environment at the basin level for climate-smart decisions.
- Lack of gender-disaggregated data on the environment, climate change, and natural disasters that can inform gender and climate change strategies.
- Lack of data on climate projections at the subnational level: although some cities have climate risk analyses under various future emissions scenarios.

Socioeconomic Barriers

- Lack of funding for Nature-based Solutions (NBS) to adapt to climate change at the local, provincial, and national levels.
- Lack of cost-benefit analysis for lasting adaptation solutions that justify investments in NBS and similar initiatives.
- Lack of climate-resilient livelihood alternatives: Dependence on climate-sensitive economic activities, such as agriculture, and a lack of economic diversification limit women's adaptive capacity.
- Lack of access to education (in some instances), training, and appropriate technologies restricts their opportunities to generate income and adapt to changing climate conditions.
- Strong gender roles and stereotypes limit women's participation in decision-making and adaptation to climate change. Social norms that assign women the primary role in caring for the home and family restrict their time and opportunities to participate in public life and decision-making. Gender stereotypes can also limit women's access to education, training, and employment in non-traditional sectors, reducing their ability to adapt to climate change.
- Inflation and currency fluctuations, with extreme currency exchange rates resulting in significant increases in product prices in Cuba. This makes labour and the purchase of equipment extremely expensive.

[81] See for example: Plan Municipal de Desarrollo de Jarabacoa (2023-2033), Plan para el desarrollo económico local de la provincia Montecristi.

• Lack of recognition/awareness of differentiated impacts: The lack of recognition that climate change disproportionately affects women perpetuates gender inequalities. Women and men experience the impacts of climate change differently due to their social roles, responsibilities, and access to resources.

Knowledge and Capacities

• Lack of knowledge about NBS: The lack of knowledge and understanding about the implementation and maintenance of NBS limits their application at the community and decision-making levels. Despite progress in Manzanillo and Santiago de Los Caballeros thanks to initiatives such as the Nature4Cities project[82], or MiCosta[83] in Manzanillo, a low level of knowledge persists in other cities, making it difficult to incorporate NBS into both urban and basin strategies.
• Staff turnover and loss of knowledge: High staff turnover and the loss of institutional knowledge hinder the capacity to implement long-term climate adaptation measures.

4. Project/Programme Objectives

The project's objective is to improve the resilience of urban and riverine communities in Cuba and the Dominican Republic to the gender-differentiated impacts of climate change by integrating nature-based adaptation measures into territorial planning and implementing them with a gender-responsive lens. To this end, the following outcomes are expected:

1. Enhance the capacity of government institutions to plan and implement climate-resilient and gender-responsive land use policies and instruments.
2. Reduce the exposure of urban and riverine communities in the Yaque del Norte and Yara & Jibacoa river basins to climate hazards (floods, droughts, landslides) as a result of the implementation of NBS initiatives[84].
3. Improve the food, water, and energy security of urban and riverine communities in the basins, as well as contribute to climate-resilient livelihoods.
4. Improve data and information management (including project monitoring, evaluation, and learning) for climate-resilient planning in the Spanish-speaking Caribbean.

The activities will benefit people in the municipalities of Bartolomé Masó, Yara, and Manzanillo in Cuba, and Jarabacoa, Santiago de Los Caballeros, and Monte Cristi in the DR. These municipalities are located in the Yara & Jibacoa and Yaque del Norte basins, respectively. However, considering the interconnected nature of climate-related hazards and impacts (e.g., hazards occurring upstream may likely have impacts in downstream settlements), NbS project interventions may take place at multiple scales, including also rural areas or other settlements in the same river basin, in addition to the targeted six municipalities, on the basis of the climate vulnerability and risk analysis and the assessments under output 1.1.

The total population of these six municipalities is 1,525,960 people (1,042,660 in urban areas), and the total population of the two river basins is estimated at 2,034,000 people.

The project is seeking to indirectly benefit the entire population of the two river basins (2,034,000 people), as a result of improved land-use management, gender inclusion, and the implementation of NBS at the basin level. The project is also expected to directly benefit 312,800 people, equivalent to 30% of the urban population in the targeted six municipalities, who will benefit from interventions in resilient livelihoods, water and energy security to reduce vulnerability.

5. Project Components and Financing

Table 4. Project Components and financing

Project Components	Expected Outcomes	Expected Outputs	Countries	Amount (US$)
1. Climate-resilient and gender-responsive land use management	1. Government institutions enhance their capacity to plan and implement climate-resilient and gender-responsive land use policies and instruments	1.1 Climate vulnerability and risk analyses are developed at the basin level (1 in each country). 1.2 Technical and operational government staff at the national, provincial, and municipal levels (a total of 110 in each country) receive training, technology and equipment to monitor climate risks and implement resilient land use planning.	Cuba and the Dominican Republic	$2,900,000.00

[82] https://cityadapt.com/n4c/
[83] https://www.geotech.cu/proyecto-mi-costa/
[84] There is a large amount of regional evidence about NbS contribution to climate change adaptation, especially for vulnerable communities. For case studies, see https://casestudies.naturebasedsolutionsinitiative.org/case-search/.

		1.3 Government staff at the national, provincial, and municipal levels and decision-makers are trained in gender-differentiated impacts of climate change and gender-transformative policies (110 in total in each country). 1.4 (4x) action plans are prepared to incorporate a gender perspective into land use planning at the municipal and basin scale. 1.5 (8x) Climate resilient and inclusive land use planning instruments are strengthened or created at the basin and urban levels in both countries, based on climate risk and gender data.		
2. Implementation of NbS for climate risk reduction	Urban and riverine communities in the Yaque del Norte (DR) and Yara & Jibacoa river basins (Cuba) reduce their vulnerability and exposure to climate hazards resulting from implemented NbS	2.1. Training to government staff (120 in each country), communities, and other actors to plan, design, implement, and maintain NBS projects. 2.2 Participatory design and implementation of NBS for flood risk reduction and resilient water management (wetlands, forests and parks, ditches, etc.) in urban areas of 6x municipalities and in peri-urban/rural areas of the 2 basins (Yara/Jibacoa and Yaque Norte).	Cuba and the Dominican Republic	$16,045,460.00
3. Climate change - adaptive food, water and energy security	Communities improve their food, water, and energy security and adopt climate-resilient livelihoods	3.1. Women's groups, communities, and local governments in (6) municipalities receive training on gender-transformative resilient community agriculture and sustainable energy and water management. 3.2 Co-design and implementation of resilient community gardens and rainwater harvesting systems in (6) municipalities with beneficiaries. 3.3. Community photovoltaic systems are developed in (6) municipalities to facilitate NBS implementation with beneficiaries.	Cuba and the Dominican Republic	$5,000,000.00
4. Knowledge management and MEL	Improved knowledge management and MEL (Monitoring, evaluation and learning) for climate-resilient adaptation planning in the Hispanic Caribbean.	4.1. Minimum 4 online platforms (climate and gender) are strengthened in both countries to improve management, coordination, and open access to data on climate impact and gender. 4.2. Regional dialogues for South-South knowledge exchange on gender and climate among Caribbean and Latin American countries to ensure the sustainability of actions.	Cuba and the Dominican Republic	$600,000.00
Project Execution cost				$2,727,270.00
Total Project Cost				$27,272,730.00
Project Cycle Management Fee charged by the Implementing Entity (if applicable)				$2,727,270.00
Amount of Financing Requested				**$30,000,000.00**

6. Projected Calendar

Table 5. Project calendar

Milestones	Expected Dates
Start of Project/Programme Implementation	March 2027
Mid-term Review (if planned)	December 2029
Project/Programme Closing	March 2032
Terminal Evaluation	September 2032

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project components

Justification for the Regional and Strategic Approach

The project will contribute to facilitate the implementation of the agreement between Cuba and the Dominican Republic for binational cooperation on topics related to climate change (signed in 2022), including cooperation on data and Climate Transparency in accordance with the Paris Agreement.

Cuba and the DR have long been working together on bilateral cooperation and technical assistance, and this project intends to reinforce this cooperation. They have also consented to seeking possibilities of identifying potential joint projects on adaptation to climate change. Thus, the proposed project intends to advance on the implementation of this agreement by strengthening their capacities to address the challenges and risks generated by climate change, and by implementing key interventions in each country of mutual benefit. The regional approach is justified by the need to create and exchange knowledge, as both countries share similar exposures to climate hazards, have low income levels, and a limited capacity to address climate impacts. Despite these limitations, however, both countries have started to develop some adaptation and partnership initiatives with initial positive lessons worth considering for replication.

Urban Context and Common Climate Hazards

Although some climate hazards and risk drivers (e.g., landslides, erosion, deforestation, heavy rainfall, etc.) may originate in rural areas, their impact on urban areas can be significant, especially if they are located near rivers or water bodies. Further, while country poverty data show a higher level of poverty in rural areas, the concentration of vulnerable and low-income populations is higher in urban areas, where the poor have no option but to live in areas that are underserved, marginalised, and highly exposed to hazards (e.g., flood-prone zones). This has been evidenced in the vulnerability and exposure studies carried out in Manzanillo and Santiago de Los Caballeros as part of the Nature4Cities programme, which is intended to be scaled up and out via this AF project.

Justification of the Project Target Area

In addition to climate hazards exposure and vulnerability, other key factors have been considered for the selection of these two basins in the countries. These two areas represent a basin-level scale-up of Nature4Cities, which targeted the secondary cities of Manzanillo in Cuba and Santiago de Los Caballeros in the Dominican Republic. Both cities were identified by the national governments and key land use planning and environmental management departments of both countries for inclusion in Nature4Cities[85], as secondary cities to raise awareness and create the enabling conditions for NbS to be implemented to adapt to climate change impacts. During N4C, Manzanillo was identified as a vulnerable priority area in Cuba's "Tarea Vida"[86]. Santiago de Los Caballeros is DR's second largest city, it was selected after consultation with the Ministry of Environment and Natural Resources (MMARN), the Ministry of Economy, Planning, and Development, and the Vice Ministry of Territorial Planning & Development. The work undertaken during N4C in these two cities serve as a basis from which to scale up NbS planning and implementation to other cities in the same basin, as the environmental problems and climate impacts in these cities are interrelated.

Innovation and the opportunity to learn from each other

The two river basins represent an opportunity for learning and best practice sharing. For example, Yaque del Norte, in RD, shows a successful example of public-private partnerships for water resource management (through the Yaque del Norte Water Fund). In Cuba, long-established community-based agricultural practices have replicability potential but require support. These are entry points to foster knowledge transfer through collaboration. Thus, the production and access to data

[85]https://www.greenclimate.fund/sites/default/files/document/increasing-resilience-through-nature-based-solutions-latin-american-cities-nature4cities-latam.pdf

[86] http://financiamientoclimatico.cubaenergia.cu/index.php/descargas/8-folleto-tarea-vida/file

and products generated by the project in each country, such as climate and gender adaptation plans and decision-making tools for urban and land-use planning from a gender perspective, are replicable and scalable.

Theory of Change

IF national and local governments (of the Yaque del Norte basin in the DR, and Yara & Jibacoa basin in Cuba) adopt policies and instruments for the implementation of climate-resilient gender-responsive land use planning and nature- based solutions for adaptation, **THEN** urban and riverine communities in the Yaque del Norte and the Yara and Jibacoa river basins will suffer fewer losses due to climate change **BECAUSE** capacities to plan for and implement adaptation have been enhanced, flood risk exposure has been reduced and communities vulnerability has been reduced through improved food, water and energy security.

Figure 11 below shows the project's Theory of Change's outcomes:

1. Government institutions enhance their capacity to plan and implement climate-resilient and gender-responsive land use policies and instruments
2. Urban and riverine communities in the Yaque del Norte and Yara & Jibacoa river basins reduce their exposure and vulnerability to climate hazards as a result of the NBS initiatives being implemented.
3. Urban and riverine communities in the basins improve their food, water, and energy security and achieve climate-resilient livelihoods.
4. Improved data and information management (including project monitoring, evaluation, and learning) for climate-resilient planning in the Spanish-speaking Caribbean.

For example, to achieve Outcome 2 IF capacity building to governments, communities and other actors to plan, design and implement NbS projects, and participatory co-design and implementation of NbS for flood risk reduction and resilient water management in urban and riverine areas, THEN communities in both river basins will increase their resilience to the gender-differentiated impacts of climate change BECAUSE communities in both river basins will reduce their exposure to climate hazards.

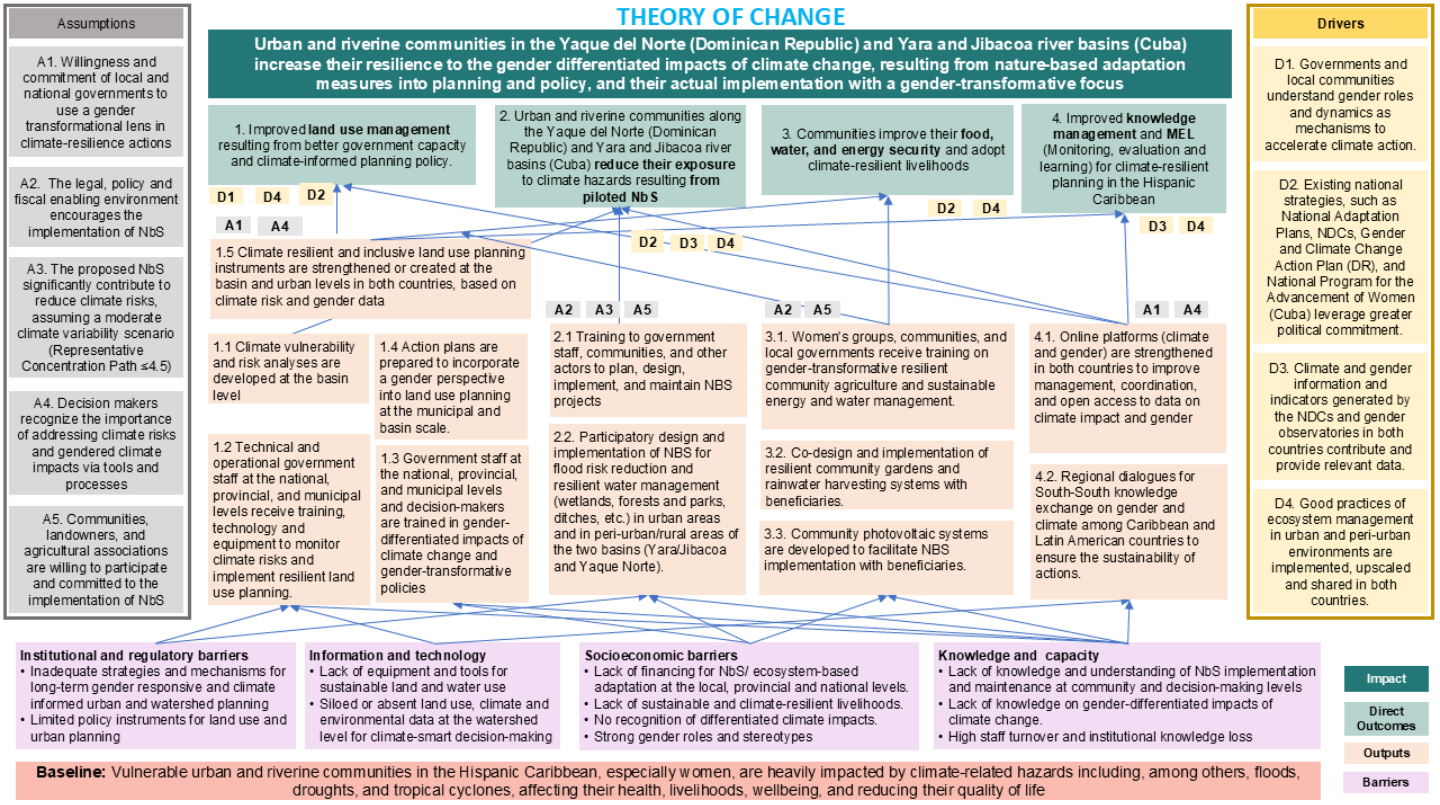


Figure 11. Project Theory of Change.

Project Description

Component 1: Climate-resilient and gender-responsive land use management

This component's objective is to achieve improved climate-resilient gender-responsive land use management and promote a gender perspective in adaptation and land use policies in both countries. To this end, the initiative seeks to build the capacity government personnel at the national, provincial, and municipal levels and generate data to develop land use plans (in Spanish *Planes de Ordenamiento Territorial* or POT) informed by gender-disaggregated data on risks and vulnerabilities and action plans to incorporate a gender lens in local adaptation plans, land use and development plans.

Each country has achieved different progress in the development of these policies and plans; therefore, the activities proposed below will have different approaches. In Cuba, key stakeholders will include the National Institute of Territorial and Urban Planning (INOTU), the Ministry of Science, Technology, and Environment (CITMA), the Ministry of Agriculture (MINAG), the National Institute of Hydraulic Resources (INRH), the Federation of Cuban Women and the Office of Statistics and Information in Cuba, among others. In the DR, the Ministry of Environment and Natural Resources (MMARN), the Ministry of Economy, Planning, and Development, the Vice Ministry of Territorial Planning & Development, the Ministry of Agriculture, the National Institute of Hydraulic Resources, the Ministry of Women's Affairs, the Office of Women's Affairs, the Dominican Association for the Development of Women, among others. Outputs are described below.

1.1 Vulnerability and climate risk analyses are being developed at the basin level in both countries. Activities proposed include: 1) Collection of gender-disaggregated data on risks and vulnerabilities in the municipalities of both basins. The data will inform gender action plans described in product 1.4 below. 2) Detailed hydrological, topographic, socio-ecological, and land use assessments to determine areas susceptible to landslides and pluvial and riverine flooding T10, T50, and T100 under different climate scenarios. The collected data will be used to formulate (in the case of Cuba) or strengthen (in DR) comprehensive vulnerability and climate risk analyses at the basin scale. The studies will also guide the identification of the most cost-effective and socially inclusive nature-based solutions (NbS), as well as specific priority locations at the basin level to reduce flooding, erosion and landslide exposure and enhance resilience. The data will be complemented by vulnerability and gender data collected as part of output 1.3 to inform the action plans under output 1.4 and the climate-resilient gender-responsive land use plans under output 1.5. This product will scale and complement the preliminary vulnerability analyses carried out in Manzanillo and Santiago de Los Caballeros as part of Nature4Cities.

1.2 Technical and operational government personnel at the national, provincial, and municipal levels receive training, technology, and equipment to monitor climate risks and enforce resilient land use management. The proposed activities are: 1) Provision of equipment, computers, and software for INOTU and CITMA offices at the national, provincial, and municipal levels in Cuba, and for the MMARN and the Territorial Planning Office in the DR to collect and manage cadastral and climate information, monitor risks of floods, landslides, droughts, and other hazards, maintain up to date climate hazards, vulnerabilities, exposure, and risks analyses in the basins, and design land value capture instruments[87]. 2) To ensure the well-functioning of the equipment provided under (1) above, it is proposed the acquisition and installation of photovoltaic energy generation and storage equipment (panels, batteries, etc), given the growing conditions of energy insecurity, especially in Cuba but also extended to the DR. This can contribute to national efforts to increase the amount of renewable energy. 3) Training of state personnel in the collection and management of cadastral, climate, and hazard data, including software skills to increase their autonomy in the preparation of risk maps and design of land value capture instruments, which will inform land use plans at the municipality and basin scale. It is expected to train 25 employees at the national level, 10 at the provincial level and 75 at the municipal level in each country (total 110 per country).

1.3. Government personnel and decision-makers at the national, provincial, and municipal levels are trained on gender-differentiated climate impacts and transformative policies. The proposed activities are: 1) Establish a national coordination group to ensure that a gender perspective is incorporated into adaptation policies at the national and provincial levels; 2) Collect data on gender inequality and gender-differentiated climate impacts at the basin level (in both countries). This activity will inform and complement the climate risk and vulnerability analyses, as part of product 1.1. 3) Development of outreach reports and awareness campaigns on the impact of climate change on women. 4) Training for key stakeholders and decision-makers in each country on differentiated concepts of vulnerability, risk, and climate impact. It is expected to train 25 people at the national level, 10 at the provincial level and 75 at the municipal level in each country (total 110 per country). 5) Knowledge exchange activities between the DR and Cuba, including lessons learned from the creation of the Gender and Climate Change Action Plan by the Ministry of Women and other institutions in the DR. To this end, the initiative will work hand in hand with the Ministry of Women's Affairs, the Office of Women's Affairs, the Dominican Association for the

[87] Process by which the public sector recovers all or part of the increase in land value attributable to "community effort" rather than to the individual action of the owners. Recovery is achieved by converting it into public resources in the form of taxes, contributions, levies, among others, or by investing it in local improvements for the benefit of the community.

Development of Women in the DR, the Federation of Cuban Women, and the Office of Statistics and Information in Cuba, among others.

1.4. Four action plans prepared to incorporate a gender perspective into territorial and adaptation plans at the municipal and basin levels in both countries. The activities proposed are: 1) Identify entry points and opportunities within the legislative framework for incorporating a gender perspective into adaptation plans and land use plans at the basin level. 2) Formulate action plans for integrating a gender perspective into territorial and adaptation plans, and for advancing basin-level initiatives to reduce gender-differentiated climate risk. The action plans will include concrete short-, medium-, and long-term actions, as well as specific indicators. They will be validated by INOTU and CITMA in Cuba, and the Ministries of Environment and Natural Resources (MMARN) and Economy, Planning, and Development in the DR. Their implementation will be the responsibility of INOTU in Cuba and the Vice Ministry of Territorial Planning and Development in the DR.

1.5. New, inclusive and resilient territorial planning instruments based on gender and climate data are strengthened or created. These territorial planning instruments will be informed by the vulnerability and risk analysis (output 1.1), data on gender inequality and gender-differentiated climate impacts at the basin level (output 1.3) and the action plans to incorporate a gender perspective into territorial and adaptation plans at the municipal and basin levels (output 1.4). These instruments will also serve to identify the types and locations of solutions to reduce climate risks under Component 2. The activities proposed include: 1) Technical assistance to review, update, and strengthen the climate risk components of the land use plans for the six (6) municipalities in the basins. In Cuba, municipalities have already developed their land use plans (POT). INOTU is responsible for updating them. However, assistance is required to incorporate the results of the risk and vulnerability analysis and gender analysis and to determine how these data inform territorial planning. In the DR, Santiago de Los Caballeros has developed a Municipal Land Use Plan (PMOT); the other two cities for this project are in the process of developing theirs; therefore, assistance in the DR will focus on support to incorporate these data into upcoming plans. This activity will also complement the World Bank's Resilient Agriculture and Integrated Water Resources Management (PARGIRH) project in the DR, which is planning to develop two overarching plans to be defined between the Yaque del Norte basin and another basin. 2) Technical assistance to create a basin-level land use plan in Cuba (Yara and Jibacoa rivers) and to strengthen the existing plan for the Yaque del Norte River basin in the DR, especially on gender and climate aspects. 3) Technical assistance to conduct studies for the application of land value capture (LVC) instruments to finance NbS in the cities of the two basins. This activity is proposed as a scaling up of the Nature4Cities products, which showed that regulations in both countries offer opportunities for LVC, but the institutional capacity and requirements (financial, personnel, equipment and knowledge) for its implementation need to be determined. LVC instruments may include contributions for building rights, minimum green areas for new buildings and requirements for sustainable urban drainage, among others.

Component 2. NBS projects implemented in urban and riverine communities along the Yaque del Norte (DR) and Yara and Jibacoa (Cuba) basins.

This component will seek to implement ecosystem-based adaptation practices, informed by the results of components 1 and 2. Key actors in implementation are: in Cuba: INOTU, the Ministry of Agriculture, CITMA, the Environment and Development Funds, and the IRIS Foundation. In the DR: the Ministry of Economy, Planning and Development, MMARN, the Ministry of Agriculture, and the Yaque del Norte Water Fund, among others.

2.1. Strengthening the capacities of governments, communities, and other stakeholders to plan, design, implement, and maintain NBS projects. The activities proposed under this component are: 1) Preparation of cost-benefit analyses to determine the NBS options to be implemented and the optimal financial model for their sustainability. 2) Training for communities and vulnerable groups (especially women and Afro-descendant), private and state actors on the formulation of conservation projects, management, and improvement of ecosystems and natural resources, as well as local conservation tourism initiatives. In terms of government staff, it is expected to train 20 people at the national level, 25 at the provincial level, and 75 at the municipal level in each country (a total of 120 per country). 3) Training for community groups and women's collectives on the implementation, management, and maintenance of NBS projects. This includes, among others, training in accounting, agroforestry and sustainable agriculture practices, forest and ecosystem management, and ecotourism, among others. This activity will build on the N4C products regarding training to identify suitable NBS. A parallel Green Climate Fund project “MiCosta” is being implemented in Manzanillo and other coastal cities, which includes the provision of training classrooms. So, the AF will coordinate with MiCosta in Manzanillo to make use of its classrooms for training related to the AF project. 4) Provision of tools, equipment, and technology to community groups and women's collectives to support the implementation, maintenance, and management of the interventions. Finally, 5) Awareness-raising among financial and microcredit institutions to promote microcredit lines for community-based conservation and small-scale agroforestry projects. This product scales up the financing and private sector analyses developed as part of the Nature4Cities project for Manzanillo and Santiago de Los Caballeros.

2.2 Participatory design and implementation of nature-based solutions for flood risk reduction and resilient water management in urban and river basin settings. Products of the N4C programme included a list of potential nature-based solutions to climate-related hazards (pluvial and river flooding, erosion, water and food scarcity, etc.). See Table 1 below. These solutions were proposed by key stakeholders during workshops during the Nature4Cities project, following a rigorous risk analysis in Manzanillo and Santiago de Los Caballeros. Therefore, output 2.2 will consider these options for potential implementation[88].

Table 6. Typologies of Nature-based Solutions and their basic attributes

Typology	Scale	Risks to address				
		Erosion	Flooding	Extreme heat	Water shortage	Food
Mangroves and ostrich corals	Coast	X	X			X
Rural and riverine forests	Basin	X	X	X	X	X
Terraces	Basin	X				
Floodplains	Basin		X		X	
Agroforestry	Basin	X		X	X	X
Wetlands	Peri-urban		X		X	
Retention ponds	Urban		X	X	X	
Detention ponds	Urban		X			
Urban forests and parks	Urban		X	X	X	X
Green corridors	Urban	X	X	X	X	X
Raingardens	Neighbourhood		X	X	X	
Urban farming	Neighbourhood		X	X		X
Bioswales	Neighbourhood		X		X	

However, the final selection of NBS types and their specific location will be determined by risk and vulnerability studies and hydrographic and environmental studies at the basin level, which will then inform updated land use plans (component 1). As mentioned, interventions may also take place in rural areas and other settlements, in addition to the targeted six municipalities (but within the same basin), as these may have a direct impact on the targeted population. At this stage, it is possible to identify preliminary possible solutions as follows:

In Cuba, activities may include:

- In the upper basin: Reforestation, rehabilitation, and conservation of native forests, incentives for the acceleration of agroforestry practices (e.g., shade-grown coffee, fruit trees, bananas, and others interspersed) in specific areas to be determined by INOTU, CITMA, MINAG and INRH, and development of terraces to prevent erosion.
- In the middle basin, especially peri-urban areas, natural wetlands and floodplain areas will be identified to reduce flood risk of inhabited areas; this can be realised via LVC (levies to beneficiaries and compensations to affected landowners).
- In the lower basin, UNDP and CITMA are understood to be working on mangrove restoration in the city of Manzanillo as part of the MiCosta project. Actions will be coordinated to avoid duplication.
- Within cities, existing lots (sports fields, vacant lots, parks, etc.) will be identified as multifunction areas, e.g., to serve as detention ponds that slow stormwater runoff and reduce the risk of flooding in populated areas.
- Likewise, in cities, the creation of infiltration ditches and bioswales, the adaptation of vacant lots as rain gardens, small natural and constructed wetlands, and the restoration of green corridors are proposed.

In the Dominican Republic, the project will partner with strategic stakeholders such as the Yaque Norte Water Fund (YNWF), to focus actions on locations where interventions are most relevant. The following activities are proposed:

- In peri-urban areas, solutions will focus on the implementation of riparian floodplains and wetlands, via LVC. Currently, local authorities and communities are involved in mangrove restoration in Monte Cristi and forest protection in the upper basin, therefore NBS will concentrate on urban areas to avoid duplication.
- Within cities, similar to Cuba, detention ponds are proposed on existing spaces with other uses (e.g., baseball fields, green areas, etc.). Likewise, infiltration ditches, bioswales and small lots or parks adapted as rain gardens are proposed.

Component 3. Communities improve their food, water, and energy security and adopt climate-resilient livelihoods

This component seeks to implement urban and peri-urban community farming initiatives, water harvesting systems, and local renewable energy generation. These practices complement each other and collectively increase resilience to climate

[88] There is strong evidence both in the region and across the world that nature-based solutions work. The evidence has shown that these are cost effective measures to increase climate resilience and to help communities adapt to climate change. See for example: https://casestudies.naturebasedsolutionsinitiative.org/case-search/, https://nature4climate.org/nature-in-action/case-studies/

impacts. Key implementing actors are, in Cuba: INOTU, MINAG, National Funds, CITMA, and IRIS Foundation. In the DR: MMARN, MEPD, Ministry of Agriculture, and the Yaque del Norte Water Fund.

3.1. Training for women's groups, communities, and local governments on community gardens and energy and water management from a gender perspective. The following activities are proposed: 1) Initial assessment to identify specific knowledge and skills gaps in each target group, emphasising the gender gap and roles in agricultural production. 2) Based on this, training activities will be designed tailored to the needs of the communities, focusing on the needs of women's groups, youth, and marginalised groups. 3) Training for women as trainers will be explored, enabling the transfer of knowledge to other groups in the community. 4) Provision of tools, equipment, and technologies to community groups and women's groups to implement gardens and water harvesting systems. This activity includes technical and financial support for improving existing nurseries and creating new ones as needed. This training will ensure the long-term sustainability of these activities and address one of the barriers to climate change adaptation with a gender perspective.

3.2. Design and implementation of community gardens and water harvesting systems in urban and riverine areas. To support the livelihoods of the most vulnerable people in these areas, a series of activities are proposed, including the participatory design and implementation of collective initiatives for urban and peri-urban gardens and rainwater harvesting. These activities are proposed as nature-based adaptation measures to ensure water and food security through drought-resilient food production and rainwater harvesting during droughts tailored to the context. The following activities are proposed: 1) Mobilising women's groups, communities, and local governments, with the support of NGOs in each country, to identify and plan optimal areas for urban and peri-urban agriculture. 2) Design and implementation of urban and peri-urban gardens and community farms, including small ponds and ditches to capture excess rainwater as a water source to irrigate the gardens. 3) Construction of rainwater harvesting systems at strategic points in cities, including those near gardens, to diversify water sources and improve drought resilience. This can include small-scale systems such as storage tanks or rainwater harvesting using roofs and gutters.

3.3. Community photovoltaic systems to facilitate NBS implementation: One of the greatest obstacles expressed during the consultations, especially in Cuba, was the constant power outages and the lack of access to reliable energy sources, to ensure the effective implementation of agricultural and land restoration and rehabilitation activities. Therefore, activities will focus on the installation of small-scale off-grid photovoltaic systems within pilot community gardens and orchard initiatives, which will facilitate access to energy for activities such as irrigation or the implementation of NBS. As part of output 3.1, women's collectives will be trained to maintain and operate the photovoltaic systems. Related to this output, output 3.1 will also address traditional gender roles that may limit women's participation in the use of these technologies.

Component 4. Improved knowledge management, as well as monitoring, evaluation, and learning for climate-resilient planning in the Hispanic Caribbean

4.1. Strengthening data platforms in both countries for the management, coordination, and open access to data on climate, differentiated impacts, and adaptation practices. This output addresses the need for information coordination within government entities and with other organisations. There currently exist databases at the national and regional level on climate risks, forecasts, and early warnings. However, the information is partial, dispersed, or restricted. This component will be implemented within the broader political agreement between Cuba and the Dominican Republic for binational cooperation on topics related to climate change (signed in 2022), including cooperation on data and Climate Transparency in accordance with the Paris Agreement

At the institutional level, Cuba has early warning systems in all provinces; and although relevant information and products exist, there is a lack of a centralised online platform to manage this information. The Cuban Institute of Meteorology's platform can be a starting point, as it has current climate information and forecasts that could be linked to. As part of the current GCF project "MiCosta", a new Knowledge Management Platform based in CITMA is planned. This platform is expected to integrate information derived from the project with early warning information and national data sets. However, its scope is limited to the coastal level. Consequently, this AF note proposes to strengthen it with data resulting from analyses at the basin level. In the DR, there is a state initiative to develop a hydrological, meteorological and climatic data management system (based on the recommendations of the project "Generation and Management of Hydrometeorological Data and Climate Change Scenarios in the DR "). However, it is at a very early stage. Therefore, technical assistance is proposed to learn from the Cuba experience and accelerate the implementation of the platform in the DR.

In terms of gender, there is a need to integrate the existing data and platforms towards improved adaptation decision-making. Currently, Cuba has a gender observatory, while the DR has a gender parity platform. However, in both cases data on differentiated climate impacts and better coordination with climate data platforms is lacking. At the non-governmental level, there have been efforts to disseminate information on climate adaptation practices. For example, the Bohío platform

in the DR monitors biodiversity and ecosystem resilience on the island of Hispaniola. Similarly, through the Nature4Cities project in Latin America, risk analyses were developed in some cities (including Manzanillo in Cuba and Santiago de Los Caballeros in the DR), as well as relevant guides and products.

Technical assistance is proposed to interconnect these with institutional platforms and improve coordination among governmental, academic, non-governmental, and private sector entities. Thus, existing climate and gender databases will be strengthened in each country. This AF project proposes the creation of a repository of useful and easily accessible information on initiatives and opportunities for ecosystem-based climate change adaptation. This includes, for example, links to other regional platforms such as City Adapt[89] and Climate Action-ACL[90] (UNEP) which document practices, training, and knowledge exchange. In agreement with state entities, these repositories can be linked to environmental institutions or hosted by non-governmental organisations, ensuring data exchange between ministries and other institutions. For example, in the case of Cuba, INOTU, CITMA -through the Environmental Agency (AMA) and its Study Group on Hazards, Vulnerability, and Risks, the municipal governments, and the Provincial Delegations of CITMA can coordinate and share data on gender-differentiated risks in the face of climate change, with the participation and input of the Federation of Cuban Women. This could also be reflected in the ONEI gender portal in Cuba.

4.2. Regional dialogues for South-South knowledge exchange between countries in the Hispanic Caribbean and Latin America for the long-term sustainability of NBS actions. This product entails a series of workshops and events, both between the two countries and with other countries in the region such as Haiti and Jamaica (to be defined). It aims to promote South-South knowledge exchange to strengthen states' capacity to implement adaptation strategies with a gender perspective. These dialogues will seek to share experiences on national and regional initiatives to empower women and reduce their vulnerability to climate hazards. Likewise, they seek to exchange practices on land use planning, the inclusion of climatological data in land-use and urban planning instruments, and the use of tools for effective land management.

In this regard, the idea is to delve into specific topics to ensure effective knowledge creation. For example, understanding the opportunities and limitations of the different regulatory frameworks; land-based financing instruments available and applicability to the context of both countries; potential innovative financial models involving the private sector and other actors for the implementation of nature-based solutions; among others. Cuba has been working on urban agriculture for decades, from which positive lessons can be learned. DR has initiated noteworthy gender equity initiatives, including the creation of the Ministry of Women and the Office of Women's Affairs of the Ministry of Agriculture. The Yaque del Norte Fund (RD) has been working with public and private investors on innovative investment models for environmental protection, climate adaptation and water security in the basin. This model has been applied elsewhere in Latin America with considerable success. In addition to binational dialogues, multilateral meetings with other countries in Latin America and the Caribbean are proposed, as well as virtual exchanges with other small island states to share lessons on NBS for adaptation. To this end, the project will work hand in hand with regional networks such as the Latin American Water Funds Alliance, the Platform for Climate Action in Agriculture in Latin America and the Caribbean (PLACA), among others.

B. New and innovative solutions to climate change adaptation

One of the project's key innovations is its gender-based approach to ecosystem-based adaptation measures. The project seeks to open opportunities, especially for women and vulnerable groups, to implement actions -at the policy and project levels- that contribute to addressing differentiated impacts and increase their autonomy and resilience. This will be done, via the collection of differentiated data and incorporation into land use and adaptation plans. Furthermore, during the consultations that took place in both Cuba and the DR for the development of the concept note, participants repeatedly expressed the need to open up opportunities for the inclusion of private actors in the design and implementation of adaptation measures[91]. Therefore, this project proposes the participation of beneficiaries and the private sector as key actors to co-finance and scale the project's initiatives.

The project offers an opportunity for learning and knowledge exchange between the two countries. Both Cuba and the DR have strengths and exemplary cases in specific areas of nature-based adaptation, from which the other one can draw valuable lessons. Cuba has extensive experience with community initiatives and public policies for urban agriculture worth considering. Likewise, there are public-private initiatives in the DR, such as the Yaque del Norte Water Fund, as a successful and financially sustainable example of water resource management. It is hoped that the participation of the Yaque del Norte Water Fund and the Latin American Alliance of Water Funds will help explore opportunities for similar models in the Cuban context and understand the barriers and entry points for such models.

[89] https://cityadapt.com/en/home/
[90] https://accionclimatica-alc.org/blog/iniciativa/sdg-cuba/
[91] During the consultations for the development of this note, participants consistently expressed the need for private sector participation in the project.

Finally, as a scaling up of Nature4Cities, this project will explore the feasibility of developing instruments for land value capture. A Technical Report is currently being prepared as a product of N4C and explores the potential of Land Value Capture Mechanisms for Urban Nature-Based Solutions in Latin America and the Caribbean, particularly in the project cities. Such land-based financing instruments are considered highly innovative, as they involve the participation of private actors and residents in the financial sustainability of the projects. Many of these have been implemented in various Latin American cities with great success[92]. These include, for instance, requirements for sustainable urban drainage, minimum green areas obligations, or betterment contributions (including taxes levied on residents which are then invested in environmental protection and nature-based solutions for risk reduction), among others.

C. Economic, social and environmental benefits

Economic: This project is designed to bring economic benefits to the local population, especially women. Output 2.1 (raising awareness among financial and microcredit institutions) will result in access to financial resources with more favourable conditions for women and vulnerable groups. Agroforestry and community farming activities (outputs 2.2 and 3.2) will result in increased income for women's groups in the project cities, creating green jobs and improving livelihoods for the most vulnerable groups. Training on resource and habitat conservation practices can create eco-tourism business opportunities. Also, improved flood risk reduction will lessen economic losses for communities vulnerable to flooding.

Social: The project's combined components are designed to bring multiple social benefits. For example, greater empowerment and participation of women in decision-making, including access to climate information, and opportunities for learning, socialization, and personal development. Urban agriculture will increase the supply of healthy, locally grown food, contributing to the food security of vulnerable groups, especially single mothers in the project cities. These activities will promote greater social cohesion through community participation in the implementation and maintenance of these practices. They will also contribute to the well-being and health of local communities by offering access to green open spaces, improving air quality, and reducing the urban heat island effect by mitigating extreme temperatures. Finally, activities related to the installation of photovoltaic energy will bring clear benefits to families significantly affected by the lack of electricity, thereby contributing to the energy sovereignty of vulnerable communities.

Environmental: Component 1 outputs will bring environmental benefits represented by improved management of green areas in urban and rural settings. These include zones designated for conservation and environmental protection, forests, and river buffer zones. The project will also result in improved water and soil quality. Activities under Components 3 and 4, will contribute to improved infiltration and increased soil capacity to store water during storms, thereby reducing runoff and flood risk. Likewise, greater soil stabilization will be reflected in less erosion and reduction of landslides risk and silting, currently affecting the middle and lower basin areas. These environmental improvements will help reducing disaster risks for the most vulnerable and poor populations, many of whom are located in areas highly exposed to these natural hazards[93]. Further, project activities include ecosystem restoration, leading to net benefits in terms of healthy habitats and increased biodiversity. Such conservation and protection of forests and ecosystems also provides improved carbon storage capacity and thus contributes to national and global climate change mitigation commitments.

Gender: Together, the components and activities seek to reduce women's differentiated vulnerability through gender-disaggregated data collection, gender-responsive planning, training and livelihood support for women's groups, and institutional awareness-raising on the gendered impacts of climate change. This will enable informed decision-making by local governments, greater adaptive capacity for communities, especially women, and greater awareness and integration of the gender perspective into local planning. Component 1, focused on resilient land-use management, contributes to narrowing the gender gap by ensuring that vulnerability and climate risk analyses include gender-differentiated data and that territorial planning instruments are based on this information to be inclusive and address existing inequalities. Component 1 is explicitly dedicated to incorporating gender-transformative strategies into policies and plans, closing the gender gap by training government personnel on gender-differentiated impacts, collecting data on gender inequality, and formulating action plans to integrate a gender perspective at the municipal and basin levels. This strengthens institutional capacity to respond to climate change while taking into account gender needs. Component 2 contributes to improving adaptive capacity by strengthening the capacity of communities and key actors to plan, design, and implement. It provides training and tools/equipment to women's groups. The component also contributes to raising awareness among financial institutions for microcredit loans that support their economic participation. Component 3 seeks to improve food, water, and energy security by boosting adaptive capacity through community gardens, water harvesting systems, and photovoltaic systems. It closes the gender gap by offering targeted training to women's groups on resilient agriculture and gender-responsive energy and water management, providing them with resources and technology, and addressing traditional

[92] See for example the several publications from the Lincoln Institute of Land Policy on Land Value Capture in Latin America.
[93] Municipal land use plans and N4C products have shown that in cities like Manzanillo (Cuba) and Santiago (DR), slums and high-poverty areas are the most exposed to climate hazards.

gender roles. Finally, Component 4, focused on information management, improves adaptive capacity and helps close the gap by strengthening open-access climate and gender data platforms, making visible the disaggregated information needed for informed policies. Regional dialogues foster South-South knowledge exchange on gender and climate, strengthening regional capacity for inclusive adaptation.

D. Cost-effectiveness of the project

This project is presented as a regional initiative with activities in strategic themes aimed at maximising the project's effectiveness and positive impact. They are aimed at increasing the resilience of vulnerable groups—particularly women—in the project's target cities. These groups are also the most exposed to environmental hazards and therefore likely to be more adversely impacted by these hazards. It is estimated that these activities will directly benefit 312,800 people (the estimated 30% most vulnerable urban population), and an additional 1,721,200 people indirectly (the rest of the population in the two river basins). This demonstrates a highly beneficial cost-benefit ratio. Furthermore, the benefits will be multiplied by the exchange of knowledge and experiences between the two countries, as they share similar environmental and socioeconomic characteristics, but also distinct advances in areas such as gender equity, environmental and territorial management, among others. Thus, the activities are presented as cost-effective measures, compared to infrastructure interventions, with short-, medium, and long-term multiplier effects. The requested amount is the minimum necessary for implementation; the regional approach allows for cost rationalisation of administrative and implementation costs, avoiding duplication of efforts and improving the project's cost-effectiveness.

Evidence demonstrating the effectiveness of the proposed measures is presented below:

Land management plays a fundamental role in climate change adaptation; this involves, for example, the capacity of state and non-state actors to plan land uses and effectively enforce them, reducing the exposure of settlements, infrastructure, goods, and services to climate hazards. Therefore, component 1 focuses on effective land management through capacity, as well as the review and improvement of land-use planning instruments. Although land-use planning instruments alone do not ensure effective land management, they are a step in the right direction, as they complement development plans at the different scales. To strengthen them, land-use planning decisions must be updated and informed by climate risk data; for instance, it is vital to know what settlements, goods, and services are located in hazard-prone zones and what land-use management measures can be implemented to reduce disaster risk. There is considerable evidence in the region on the effectiveness of good land-use management in climate adaptation processes. For example, climate-informed land use plans and the use of urban NBS parameters, such as minimum green area and tax incentives to reduce flooding, in Sao Paulo and Belo Horizonte, Brazil. Similarly, development obligations for green areas in new urban developments in Colombia contribute as an adaptation and flood risk reduction measure[94].

Regarding component 1, while there is global interest in including gender considerations in adaptation and ecosystem protection plans, in practice, concrete actions fall short[95]. Therefore, this component focuses on specific training measures and the development of action plans to increase a gender lens and effectively implement initiatives to reduce climate risk for women. There is evidence of the impact of similar initiatives in the region. For example, the "From Knowledge to Action" projects work on Ecosystem-Based Adaptation (EbA), gender equality, and social inclusion (GESI) to address climate change. These have resulted in the empowerment of women in key adaptation roles, the strengthening of community leadership and planning, and the integration of traditional knowledge with modern approaches in projects[96]. Similarly, Nature4Cities, from which this project is planning to scale, has promoted gender approaches in urban planning to address the specific challenges faced by women in cities. As a result, integrating gender perspectives into urban planning has become a cornerstone of the project's work, which has spanned 13 cities in 7 countries.

Regarding component 2, the potential of nature-based interventions for climate change adaptation is globally recognised. While information on cost-benefit analyses of NBS is limited, useful examples with cost-effectiveness data have been identified[97]. In a recent review of scientific literature, 71% of studies indicated that NBS have consistently proven to be a cost-effective approach to reduce the impact of hazards. Studies comparing the cost-effectiveness of NBS versus grey solutions for certain hazards showed that NBS are equally effective as engineering-based solutions, with 65% finding NBS consistently more effective at mitigating hazards compared to grey solutions[98].

Regarding component 3, the activities proposed -gardens, rainwater harvesting, irrigation and photovoltaic systems- complement each other to increase resilience to climate impacts, thus being a cost-effective measure. The contribution of

[94] https://www.lincolninst.edu/app/uploads/legacy-files/pubfiles/de_la_sala_wp19sd1sp.pdf
[95] https://www.iisd.org/publications/toward-gender-responsive-EbA
[96] https://cdkn.org/es/story/iniciativa-regional-impulsa-la-adaptacion-climatica-con-enfoque-en-genero-e-inclusion-social-en-colombia-peru-y-ecuador
[97] https://www.naturebasedsolutionsinitiative.org/news/the-cost-effectiveness-of-nature-based-solutions-for-reducing-disaster-risk/
[98] https://www.sciencedirect.com/science/article/abs/pii/S0048969724046722

urban and peri-urban agriculture to resilience has been widely documented over the past decades, not only in terms of food security—providing basic nutrition, crucial in times of climate variability and crisis—but also from a social, economic, environmental, and educational perspective, proving to be a cost-effective practice with multiple benefits for urban dwellers[99]. In this sense, knowledge exchange increases the effectiveness of the proposed activities. Cuba has a long history of promoting urban and peri-urban agricultural practices, such as the organoponic system, which uses organic waste to achieve very high productivity[100]. These and other practices can be replicated in project cities with the support of the Adaptation Fund. There is evidence of similar practices in multi-country programs in the region. For example, as part of the UNEP CityAdapt program, more than 130,000 people have benefited in Jamaica, El Salvador, and Mexico from access to urban farms, rainwater harvesting and irrigation systems to cope with climate change.

Finally, as part of component 4, the project intends to work hand in hand with national and international partners such as the Yaque del Norte Water Fund and the Latin American Alliance of Water Funds. They have worked for several years in the DR and other Latin American countries. The project seeks to create partnerships to develop pre-feasibility and viability studies for scaling up the water fund in both countries. To this end, the regional events will be a cost-effective option that creates the right environment to spark the interest of local and national stakeholders to support these initiatives.

E. Consistency with national or sub-national sustainable development strategies

Table 7. Consistency with national or sub-national sustainable development strategies

Strategies	Description	Relationship with the project
Cuba		
'Tarea Vida' (2017)	The State Plan for Combating Climate Change, "Tarea Vida" under Macroprogram #5 of the National Economic and Social Development Plan is a progressive investment program. The main objectives are 1) to carry out climate change adaptation actions and projects in the 15 most vulnerable areas; 2) to restore and conserve priority beaches; 3) to guarantee water use and availability to prevent drought; 4) to direct reforestation toward maximum soil protection; 5) to rehabilitate coral reefs and the most affected mangroves; and 6) to implement, monitor, and evaluate adaptation and mitigation measures. Two priority coastal human settlements in the province of Granma have been identified as being partially vulnerable to climate change.	This project aims to strengthen water security and reforestation to protect soils in three municipalities in Granma province.
Nationally Determined Contribution (3.0) (2025)	In terms of climate change adaptation, the NDC identifies the need to adapt agricultural activities and land-use changes, and to plan urban redevelopment processes in threatened human settlements. It also prioritizes reforestation for soil protection.	The project aligns with Cuba's new NDC, as it promotes urban and basin-level planning to foster resilient land use and NBS measures to protect soils, including agricultural NBS to support climate-resilient livelihoods.
State Plan for the Implementation of the New Urban Agenda in Cuba (NAU-Cuba)	The State Plan (NAU-Cuba) shows the Cuban government's commitment to the Quito Declaration on Sustainable Cities and Human Settlements for All. The climate change objectives are: to reduce the exposure of human settlements to risks; increase the resilience of human settlements; and implement nature-based measures to reduce vulnerability.	This project aims to reduce exposure to climate risks in three Cuban municipalities through NBS that simultaneously increase the resilience of urban and peri-urban communities.
Dominican Republic (DR)		
National Adaptation Plan (2015-2030) (NAP)	The DR's National Action Plan (PAN) aims to reduce vulnerability to climate change in key sectors through seven cross-cutting strategic objectives, the last of which is to "integrate the gender perspective" and recognize women as agents of and disproportionately affected by climate change.	The project is in line with measures *14) Improve urban planning* and land use, *17) Strengthen the capacity of planning professionals and institutions to prevent and mitigate exposure to climate change risk* and measure *20) Incorporate Ecosystem-Based Adaptation (EBA) into sectoral climate change adaptation plans, biodiversity and sustainable development policies.*
NDC (2020)	The DR's NDC identifies 37 sectoral adaptation measures, including water and food security, resilient cities and human settlements, and resilient ecosystems. Furthermore, one of the cross-cutting themes is the integration of a gender perspective.	The project seeks to mainstream a gender perspective into adaptation measures. NBS aims to improve water and food security and reduce settlements' exposure to climate risks.
NDC Action Plan	The NDC Action Plan aims to create the enabling conditions to leverage investment flows for implementation, monitor and	The project aligns with Industry, infrastructure and settlements Objectives 1 and 2, Awareness and TA

[99] https://openknowledge.fao.org/server/api/core/bitstreams/0bd766db-e6e7-4e53-860b-248de7e983e8/content
[100] https://openknowledge.fao.org/server/api/core/bitstreams/0bd766db-e6e7-4e53-860b-248de7e983e8/content

	evaluate, and develop and strengthen government capacity to implement the NDC. These overarching objectives are distributed across 27 outcomes across the six NDC sectors.	to improve land use policy, support to municipalities to implement adaptation and territorial planning measures, Objective 2 on Ecosystems, forestry and REDD+ on Agroforestry and agriculture with an ecosystem approach in targeted basins, etc.
Gender and Climate Change Action Plan (PAGCC-RD) (2018)	This action plan integrates gender into climate change with actions across nine sectors: energy, transportation, infrastructure, agriculture, food security, waste, forests, water, health, coastal and marine areas, tourism, and risk management.	This project promotes the integration of a gender perspective in agriculture, food security, and risk management.
Santiago de los Caballeros Resilience Strategy (ER-SC)	The strategy focused on the Santiago de Los Caballeros Metropolitan Area (AMSC) with the objective of climate-proofing infrastructure, incorporating climate resilience into land use and urban planning, and improving environmental management of the Yaque River. Specifically, actions C2.1, C2.2, and C2.3 aim to establish a gender policy, create investment plans for gender, health, and education, and validate them, respectively.	The ER-SC promotes the use of risk analysis tools and climate data for territorial plans. The AF Project Component 1 is aligned with ER-SC's Resilient Territorial Planning (strengthening of the land governance framework). Component 1 also aligns with ER-SC Axis 2 Gender Equity and Social Inclusion by recognising gender-differentiated climate vulnerabilities and incorporating a gender lens into land and climate policy. Component 2 aligns with ER-SC on Green Infrastructure and Ecosystem Adaptation (rain gardens, sustainable drainage, urban wetlands, and riparian conservation) by having similar interventions that reinforce urban ecological adaptation and key ecosystem restoration goals. Component 3 aligns with AER-SC axis on Local Water, Energy, and Food Security by addressing community-based natural resources management, sustainable urban production, and equitable access to basic services. Component 4 aligns with ER-SC axis on Participatory Governance and Citizen Science by promoting public access to data, citizen monitoring, and collaborative institutional learning
National Development Strategy (2030)	The NDS 2030, developed through a broad consultation and consultation process, is structured around four main strategic axes: a social and democratic state governed by the rule of law, a society with equal rights and opportunities, a territorial and sectoral economic integration, and a society with a culture of sustainable production and consumption. It has seven sectoral objectives, of which 3) Equality of rights and opportunities and 4) Territorial cohesion, are relevant to this project.	Components 1, 2 and 4 are aligned with Objective 3) Equality of rights and opportunities and 4) Territorial cohesion.
Biodiversity Law 333-15	The law seeks to establish a legal framework to promote the maintenance and recovery of biodiversity, guaranteeing its conservation and sustainable use, regulating access to genetic resources, and ensuring fair and equitable sharing of the benefits derived from their use.	Component 2 of the project contributes to the restoration of riparian ecosystems.

F. Compliance with national technical standards and AF Environmental and Social Policy

Table 8. Compliance with national technical standards and AF Environmental and Social Policy

Regulation	Description	Adherence	AF Policy
Cuba			
Law 145 of 2021 on Territorial and Urban Planning and Land Management. Decree 68/2022, Resolutions 172/2022, 173/2022, and 174/2022 INOTU	It establishes the objectives, content, stages, areas, scope, and approval processes for territorial and urban planning instruments, the classification and qualification of land, its delimitation, definition, and regulation, its occupation, use, and the urbanization process, including for restricted gardens or urban agriculture, as well as participation in the development and management of these instruments, and their communication. The resolutions also include specific urban planning regulations on land use, including public spaces and green areas.	The project will be governed by the parameters established in this law and resolutions, including land uses and classification, increasing green areas, and seeking to improve the protection and quality of soils, ecosystems, and ecological activities.	Compliance with the law; Access and equity; Land and soil conservation.

Resolution 90/2023 “Regulation of the strategic environmental assessment process”	It establishes the procedure and guidelines for Strategic Environmental Assessment as the process designed to evaluate the environmental impacts of a policy, plan, or program in the transportation, urban development, industrial, agricultural, water, tourism, mining, gas, and oil, fishing and marine, forest management, and new materials sectors, among others.	The project's activities will be governed by the instruments established in the resolution, including guidelines for assessing the project's environmental impacts (positive or negative, if any).	Climate Change; Compliance with Law 150/2022 Decree 86/2023
Decree-Law 77 of 2023 From Coasts	It establishes mechanisms, actions, and instruments for the sustainable management of coastal zones, including permitted uses and activities, environmental licenses, and the protection of human settlements from climate hazards, among others.	The project promotes compatible measures for climate risk reduction and the protection of human settlements without resorting to involuntary relocation.	Marginalized or vulnerable groups; Involuntary resettlement
Law 150/2022 “On the Natural Resources System and the Environment” Atmosphere"	It establishes the principles and standards for the implementation and operation of the Natural Resources and Environment System. It establishes, among other things, the integration of the environmental dimension into development planning, environmental management instruments, and guidelines for ecosystem management and sustainable agriculture. It also establishes the National Environment Fund.	The project seeks to improve the integration of environmental factors into development planning through optimal use of the law's tools.	Land and soil conservation; Protection of natural habitats; Conservation of biological diversity
Presidential Decree-Law No. 198/2021 "National Program for the Advancement of Women"	It is conceived as the Cuban State's agenda for the advancement of women; it integrates actions and measures toward gender equality in a single document. It includes an Action Plan, which outlines a set of actions that will allow for the implementation and evaluation of the National Program for the Advancement of Women.	The project will contribute to the action plan's objectives regarding women's economic empowerment, access to decision-making, and statistics and research.	Gender equality and women's empowerment
Granma Provincial Territorial Planning Scheme 2021-2035	It formulates the planning model, territorial and urban planning policies and determinations for the province, with a long-term scope until 2035. It determines land uses, conservation and protection zones, agroforestry and tourism use, among others.	The project promotes ecosystem conservation, agroforestry, and other initiatives in harmony with existing human settlements.	Marginalized or vulnerable groups; Informal settlements.
Agreement 8928/2020 (GOC-2020-673-O75)	This approves the National Territorial Planning Framework, which contains the Territorial Structuring Model, policies, and territorial determinations for development through 2030. Among other objectives, it promotes the efficient and sustainable use of agricultural land; encourages protective forestry activities in hydro-regulating zones of rivers and reservoirs; promotes a shift in the energy mix toward renewable sources; and directs actions in the eastern region to address drought and flooding caused by heavy rains.	The project seeks to promote agroforestry activities, protect riverbanks with natural solutions, and increase green areas in cities to reduce climate risks, conserve ecosystems, and provide a portion of residents with photovoltaic energy.	Land and soil conservation; Climate change
Special Plan for the System of Green Areas and Public Spaces 2013. Methodological Instruction	It determines the structure, functions, and dimensions of the different public spaces and urban green areas, based on their location as determined by the General Urban Planning Plans (PGU), and defines guidelines and regulations regarding the design and morphology of the spaces.	The proposed solutions will be governed by the guidelines in the land use plans, urban development plans, and the special plan for the green areas system.	Access and equity; Protection of natural habitats
Law 85, Forestry Law 1998	On forest control and management. It provides regulations on areas where afforestation or reforestation is mandatory, specifies the classification of forests (production protection or conservation), rules on their use, guidelines for conservation and protection, and available incentives. It formalizes the creation of the National Forest Development Fund.	The project adheres to the land uses designated by law and will propose compatible solutions for reforestation, conservation, sustainable farming, and other areas.	Land and soil conservation; Protection of natural habitats; Conservation of biological diversity
Dominican Republic			
Guide for incorporating climate change adaptation considerations into the Dominican Republic's Environmental Impact	The methodological guide aims to facilitate the integration of climate change adaptation into the various steps and stages of the EIA process. Its methodological approach reflects the specific and cross-cutting nature of its different approaches, seeking to integrate it into all its steps in a harmonious and technically sound manner. To this end, it begins with a conceptual framework that provides stakeholders (NRM, project owners, and environmental service providers) with the conceptual aspects that facilitate understanding of the topics covered.	The project will be subject to an environmental and social impact assessment. This assessment will determine the project's adaptation attributes. Additionally, as part of the proposal, an environmental and social impact analysis will be conducted, detailing compliance with relevant regulations.	Climate Change; Law Enforcement

Assessment process. 2024			
Territorial Planning Law 368-2022	It establishes the regulatory framework for territorial planning, types of land use, the formulation and implementation of territorial planning plans, parameters for the protection and conservation of ecosystems, among others.	The project will be aligned with the parameters for protection and conservation and territorial planning plans.	Land and soil conservation
National Forest Inventory of the Dominican Republic, 2021	Detailed report on the quantity, location, and current condition of the Dominican Republic's forest resources, including the different types of forests and other ecosystems.	This inventory will be key to the project, providing guidelines on the native species and ecosystems to be protected and restored.	Land and soil conservation; Protection of natural habitats; Conservation of biological diversity
National Plan for Equality and Gender Equity 2018-2030 (PLANEG III)	A national policy instrument that addresses the main problems facing women in the country and proposes seven topics and guidelines to determine the necessary actions by state entities.	The project seeks to empower women economically and overcome poverty, as well as promote access to and control of goods and services, information, and knowledge.	Gender equality and women's empowerment
Technical Standards of the National Public Investment System (2017).	These regulations include specifications on the technical procedures for project eligibility and prioritization, including those for external financing, as well as guidelines for project-related evaluations.	The project will comply with the guidelines established by the Directorate General of Public Investment (DGIP) for project approval and endorsement.	Compliance with the law
Law 64-00 of 2000 on the environment and natural resources	It establishes, among other things, instruments for environmental assessment, environmental and natural resource management, the incorporation of the environmental dimension into planning, and territorial planning.	The project will support and be governed by the instruments established by law, including land use plans.	Protection of natural habitats
Resolution No. 0025/2024 and No. 0038/2024, on Environmental Impact Assessment Management Policy and amending Resolution No. 0025-2024, dated August 13, 2024.	Modifies the Regulations of the Environmental Assessment Process and its Annexes (List of Activities, works, projects, study category corresponding to Annex A and the Exclusion List of Projects, Works and Activities of Annex B) and the Environmental Assessment Procedure established in the Compendium of Regulations and Procedures for Environmental Authorizations of the Dominican Republic	The project will be governed by this process-	Land and soil conservation; Protection of natural habitats; Conservation of biological diversity
Law 57-18, Forestry Sector of the Dominican Republic, 11th December 2018	This law regulates and promotes sustainable forest management, ensuring their conservation, use, production, industrialization, and marketing, as well as the protection of other natural resources that form part of their ecosystems, maintaining their biodiversity and regenerative capacity.	The activities of Components 2 and 3 will be governed by that law.	Compliance with the law
Law No. 44-18, of August 31, 2018, which establishes Payments for Environmental Services;	Law No. 44-18's main objective is the conservation, preservation, restoration, and sustainable use of ecosystems in the Dominican Republic, through a system of compensation and remuneration for the environmental services they provide. The law establishes a legal framework for the application of Payments for Environmental Services, recognizing the importance of these services for the maintenance of life and economic development.	The project will explore the possibility of establishing financial incentives such as PES.	Land and soil conservation; Protection of natural habitats; Conservation of biological diversity
Law 202-04 on protected areas	This law aims to guarantee the conservation and preservation of representative samples of the different ecosystems and the natural and cultural heritage of the Dominican Republic to ensure the permanence and optimization of the environmental and economic services that these ecosystems offer or may offer to Dominican society for present and future generations. The law describes the areas that make up the National System of Protected Areas, with their respective conservation categories, surfaces, locations, and boundaries.	The project is not planned to be implemented in Protected Areas.	Compliance with the law

G. Describe if there is duplication of project/programme with other funding sources, if any

Table 9. Project complementarity with existing projects

Relevant project	Description	Relevance and complementarity with the proposed project.
Regional		
Nature4Cities	The project supported seven Latin American and Caribbean countries through interventions in 13 selected secondary cities, aiming to identify and address key barriers to nature-based adaptation and mitigation solutions. It provided the necessary assessments, capacities, and alternative financing schemes to accelerate the adoption of these strategies. At the regional level, replicable methodologies and tools were developed, and multinational collaboration was fostered to replicate and scale up lessons learned from these cities. Furthermore, the project contributed to existing regional and global platforms, which currently offer limited information and examples of NBS in urban areas.	The proposed project involves scaling up N4C activities in Manzanillo and Santiago de Los Caballeros, Cuba, and the Dominican Republic, respectively, where N4Cs were preliminarily identified and training provided. Given the interrelated upstream impacts, the proposed project seeks to expand the basin approach. Furthermore, it seeks to incorporate a cross-cutting gender perspective.
Cuba		
Increasing the climate resilience of rural households and communities through the rehabilitation of productive landscapes in selected locations in the Republic of Cuba (IRES). GCF and FAO: USD 119.9 million 2020-2027	The project seeks to increase the climate resilience of agricultural production and ensure food security by improving ecosystem services through agroforestry, silvo-pasture systems, reforestation, and assisted natural forest regeneration in seven vulnerable municipalities. The project's target areas are Las Tunas Province (Eastern Region) and Villa Clara/Matanzas Province (Central Region).	The IRES project aims to create a Landscape Resilience Fund. This is critical to creating synergies with the proposed project to scale up and expand interventions in the project areas and beyond. Lessons from IRES can support the development of financially sustainable conservation and agroforestry models.
Coastal resilience to climate change in Cuba through ecosystem-based adaptation "MiCosta". CITMA, UNDP GCF: $44.3 million 2021-2029	The project aims to increase the climate resilience of more than 1.3 million vulnerable people living in targeted coastal communities. It will restore mangroves, swamp forests, and grasslands, seagrass beds and coral reefs. The project includes training for 60 percent of the population in the targeted municipalities on ecosystems protection for climate change adaptation. Although this project includes the city of Manzanillo, its interventions focus on mangrove and swamp forest rehabilitation, training, classrooms, and monitoring equipment.	The proposed project will complement MiCosta by scaling out interventions and capacity to inland (riverine) areas, building on MiCosta community networks, and sharing training facilities. The urban and riverine NBS interventions by the proposed project can be part of a broader ecosystem network with MiCosta, reducing pressures on mangroves, wetlands, and others.
Introduction of new production methods for the conservation and sustainable use of biodiversity, including plant and animal genetic resources, in productive landscapes in selected areas of Cuba (COBIMAS). GEF/FAO $26.4 million. 2019-2025	The COBIMAS project is being implemented in three pilot zones (east, central, and west) and four designated protected areas. It supports a landscape production strategy, with special attention to gender and youth, applying the Save and Grow approach (FAO). It seeks the adoption of sustainable agricultural intensification practices at the farm level, supporting rural development through capacity building for farmers, cooperatives, and forest guards with a gender perspective. This includes agroforestry and silvopasture systems, conservation agriculture, and sustainable forest management.	The proposed project is expected to leverage the momentum and lessons learned from the COBIMAS project for gender-responsive practices, particularly in terms of advancing robust monitoring systems to ensure the development and implementation of gender-transformative policies and actions for climate adaptation.
"Strengthening agro-environmental policies in Latin American and Caribbean countries through dialogue and the exchange of national experiences". FAO and the Brazilian Cooperation Agency. 2012–present.	The project's objective is to contribute to strengthening agro-environmental public policies as a tool for reducing rural poverty and food insecurity in the context of climate change in the countries of the region. This project produced a set of tools designed to promote dialogue and knowledge exchange among key stakeholders in the design and implementation of rural development and natural resource management policies and plans.	A national diagnostic study on agro-environmental policies and lessons learned was conducted for Cuba. This study was key to identifying the gaps, challenges, and strengths of the institutional and regulatory framework for agroforestry in Cuba and thus providing the basis for some of the components of the AF project.
Environmental Foundations for Local Food Sustainability (BASAL)	This project was designed to benefit approximately 1,820,000 people in 33 Cuban municipalities (outside the proposed municipalities). Its objective was to record and systematize information on differentiated vulnerabilities and climate risks, as well as best practices, lessons, and tools from previous projects on	The proposed project provides lessons on the differential climate impacts and needs of women and men, as well as best practices and tools that were important for

EU, SDC and UNDP 2012-2020	agroecological and sustainable agriculture. The project sought to compile experiences and lay the environmental foundations for local food production.	developing a participatory approach to climate adaptation and local food production.
Dominican Republic		
GAIA Project, GCF and MUFG Bank Ltd. 1.5 billion 2023-2053 (30 years)	This program covers nineteen countries in three regions, including the Dominican Republic. It offers a blended finance platform that provides long-term loans for climate change adaptation and mitigation, enabling access to funds through sources previously unavailable to these countries. The platform allocates 70 percent of its portfolio to adaptation projects and an additional 25 percent to least developed countries and small island developing states. Partners include FinDev Canada, UNDP, GGGI, Resilient Cities, C40 Cities, R20, and CAF, which help generate, select, and develop adaptation and mitigation projects driven by country needs.	GAIA will support small-scale community adaptation and resilience projects ($5 million), with the option to bundle smaller projects into a single transaction to meet the size requirement. Funds have not yet been accessed by the Cuba and Dominican Republic but once accessed, the proposed project can support and complement the GAIA project, offering financial support to scale up NBS investments in the target area and beyond.
Ecosystem-based adaptation to increase climate resilience in the Central American Dry Corridor and the Arid Zones of the Dominican Republic. Green Climate Fund and Central American Bank for Economic Integration (CABEI) $268.3 million 2021-2031.	This regional program aims to strengthen the adaptive capacity and climate resilience of vulnerable rural communities, including farmers and entrepreneurs, through loans, grants, and guarantees from the Green Climate Fund. It will include a $28 million grant to implement EbA interventions in rural communities in seven target basins in the Dry Corridor and Arid Zones. In addition, an EbA credit line (a $60 million loan from the GCF and $42.8 million in co-financing from CABEI) will be established and operationalized at below-market rates for small- and large-scale EbA investments at the farm, business, and household levels.	Although funds have not yet been accessed by the DR, this GCF project will complement the AF project by focusing on other vulnerable areas of the DR, namely the Guayubín and Mao watersheds areas It may also offer the opportunity to build synergies for scaling up interventions in agroforestry and ecosystem-based adaptation.
Integrated Landscape Management in River Basins of the Dominican Republic GEF and WB $20 million 2021-2026	The project's objective is to strengthen integrated landscape management in selected basins in the DR, of which Yaque del Norte is one of them. The expected direct beneficiaries of this project are 3,275 people, including at least 30 percent women. Additionally, 2.45 million inhabitants of the Yaque del Norte and Yuna basins are expected to benefit indirectly from improved environmental services. Activities include capacity development in integrated land management, expansion of sustainable rice production, and restoration of biodiversity and hydrological services in critical ecosystems. Through a competitive process, subprojects are selected that provide incentives for farmers to adopt agroforestry for shade-grown coffee and cacao; the restoration and protection of riverbanks, wetlands, forests, and riparian forests; and the diversification of environmentally sustainable livelihoods.	The proposed project complements this project with other innovative and effective planning tools for land-based financial mechanisms. The proposed project will also coordinate and leverage community training as part of this GEF/WB project to avoid duplication and instead replicate it in the remaining project target areas. Similarly, coordinated efforts will be made to incorporate both projects as part of a comprehensive basin management plan that can be replicated in Cuba.
Mainstreaming biodiversity conservation and ecosystem services into productive landscapes in threatened mountain areas. GEF, EU, WB, UNEP, and FAO. $62.8 million. 2018-2024	This program seeks the incorporation of agroforestry practices and ecosystem services into public policies. The project is working in the South side of the Sierra de Neyba; (II) Corridors that connect Valle Nuevo NP, La Humeadora NP, Barbacoa Reserve; and (III) Mid-watershed of Ozama River, all in the south of the country. Outcomes include sustainable productive management of 58,000 hectares, strengthening of the capacities of provincial and local governments in the sustainable management of productive mountain landscapes, development of provincial environmental plans, municipal land use plans, municipal development plans, an inter-institutional coordination platform, and access to financial instruments for small farmers.	While this multi-donor program focuses on three southern regions (Sierra de Neiba, Ozama, and Nizao), lessons are drawn already, such as identifying indicators and understanding the process, challenges, and entry points for developing plans and policies that integrate biodiversity protection, land restoration, and sustainable land management.

H. Learning and knowledge management to capture and disseminate lessons learned

The project's regional focus permits the application of a broader range of solutions, enabling innovation and the exchange of experiences between countries. In this regard, mutual learning is expected, for example, based on the Dominican Republic's experience with the Yaque del Norte River Water Fund model, which involves public and private actors to finance environmental projects. This model has proven successful in the DR and other Latin American countries; so, lessons can be learned with a view to exploring feasibility opportunities in the Cuban context. Similarly, the experience with the creation of the Ministry of Women and the Office of Women's Affairs of the Ministry of Agriculture (among others) in the Dominican Republic can be shared with similar efforts in Cuba. On the other hand, Cuba has been a pioneer in the region in urban

agriculture, permaculture practices, participatory budgeting, and community garden cooperatives. Regional dialogues will facilitate learning lessons from these practices with the aim of scaling them up. To this end, dialogues have already been established with non-governmental organisations and institutions working on food security and the circular economy, such as the Antonio Núñez Jiménez Foundation in Cuba, to bring these sustainable urban agriculture approaches to the project's target cities in both Cuba and the Dominican Republic.

In addition, the project will contribute to facilitating the implementation of the agreement between Cuba and the Dominican Republic for binational cooperation on topics related to climate change (signed in 2022), including cooperation on data and Climate Transparency in accordance with the Paris Agreement, so that data is transparent and accessible to all. Currently, emissions data exists, but there are gaps regarding climate risks and vulnerabilities. Component 4 will seek to build an accessible and centralised information repository in each country and seeks to share best practices and lessons learned on mainstreaming a gender perspective in climate change adaptation. Finally, and based on the innovative approach to gender in climate adaptation, it is foreseen that the lessons from this project can be replicated in the region and other small island states. To this end, component 4's activities regarding management, dissemination, and knowledge exchange will be crucial.

I. Consultative process, including the list of stakeholders consulted

During the design of the Concept Note, stakeholder consultations were held in Cuba and the Dominican Republic. In Cuba, as part of the Nature4Cities closure, an AF concept note initiative was presented to participants in April 2024; key stakeholders were mapped and potential risks identified in Manzanillo, Yara, and Bartolomé Masó. Subsequently, bilateral workshops and meetings were held in both countries in November and December 2024. The objective was to obtain baseline information at the basin level on the risks and impacts of climate change, as well as gender-specific information. In Cuba, two workshops were held with key stakeholders, where participants developed a problem tree of cause and effect, collectively identified short- and medium-term objectives, barriers to adaptation, and potential strategies. Due to electricity and mobility restrictions in Cuba, stakeholder consultations were carried out in Havana only, through meetings, interviews with experts from ministries, government and non-government institutes, complemented with telephone communications with stakeholders in the municipalities. The communication disruptions caused by the national energy crisis limited the possibility of deep consultation in the provinces. Despite the challenges resulting from the aforementioned energy crisis, much of the information was captured, and additional data was subsequently acquired for the entire Yara and Jibacoa river basin, consolidating a valid baseline for the project target territories. In the Dominican Republic, a visit to three cities with bilateral meetings was conducted. These meetings led to the development of problem trees and potential solutions to inform the project design. In all bilateral meetings and consultations, the representation of women and men was guaranteed, with a variety of stakeholders, including NGOs, civil society organizations, academic institutions, and the private sector. In Havana, Cuba, the following participated in the consultations during the week of November 25, 2024:

Table 10- Participants in Cuba

Actor	Organization	Mode of participation
National Government	National Institute of Territorial and Urban Planning (INOTU)	As a government counterpart
	National Institute of Hydraulic Resources (INRH)	Bilateral meeting, 2 workshops
	Ministry of Agriculture (MINAG)	Bilateral meeting, 2 workshops
	Forest Development Fund and Environmental Fund	Bilateral meeting, 2 workshops
	National Office of Statistics and Information (ONEI)	Bilateral meeting, 2 workshops
	Ministry of Finance and Prices (MFP)	2 workshops
	Ministry of Science, Technology and Environment (CITMA)	Bilateral meeting, 2 workshops
	Civil Defence General Staff (EMDC)	2 workshops
Local government	Municipal Directorate of Territorial Planning (Manzanillo)	Bilateral meeting, 2 workshops
Civil society, educational institutions and NGOs	Generacción	Participation in workshops
	Federation of Cuban Women (FMC) National	Bilateral meeting, 2 workshops
	Federation of Cuban Women (FMC) Bartolomé Masó	1 telephone conversation
	Federation of Cuban Women (FMC) Yara	1 telephone conversation
	Latin American Faculty of Social Sciences (FLACSO)	1 workshop
	Antonio Núñez Jiménez Foundation	Bilateral meeting, 2 workshops
	IRIS Foundation	Bilateral meeting, 2 workshops
	University of Granma	2 workshops

In the Dominican Republic, consultations were held in the 3 project cities through workshops in December 2024.

Table 11- Parties consulted in the Dominican Republic

Actor	Organization	City	Mode of participation
National Government	Ministry of Environment and Natural Resources	Monte Cristi, Santiago de Los Caballeros, Jarabacoa	Government counterpart
	Directorate General for Border Development (DGDF)	Monte Cristi,	Workshop
	National Council for Food and Nutritional Sovereignty and Security (CONASSAN)	Santiago de los Caballeros	Workshop
	Ministry of Economy, Planning and Development (MEPYD)	Jarabacoa	Workshop
	Ministry of Women	Jarabacoa	Workshop
Local government	Civil Defence	Jarabacoa	Workshop
	Municipal government representatives	Monte Cristi, Santiago de los Caballeros, Jarabacoa	3 workshops
	Dominican Federation of Municipalities (FEDOMU) - Monte Cristi	Monte Cristi	Workshop
	Ministry of Tourism	Monte Cristi	Workshop
Civil society, universities, Private sector, community and NGOs	University of Granma	Manzanillo	Workshop
	Joven Club Manzanillo	Manzanillo	Workshop
	Academy of Sciences, Culture and Arts	Monte Cristi	Workshop
	Monte Cristi Ecological Group (GREMONT)	Monte Cristi	Workshop
	Centre for Urban and Regional Studies (CEUR)	Santiago de Los Caballeros	Workshop
	Technological University of Santiago (UTESA)	Santiago de Los Caballeros	Workshop
	Yaque del Norte Water Fund	Online	Meeting
	The Pontifical Catholic Mother and Teacher University (PUCCM)	Santiago de Los Caballeros	Workshop
	Center for Financial Studies (CEFS)	Santiago de Los Caballeros	Workshop
	SOSCLIMA	Santiago de Los Caballeros	Workshop
	Association of Fishing Women - Monte Cristi	Santiago de Los Caballeros	Workshop
	Manzanillo EcoAdventure	Santiago de Los Caballeros	Workshop
	Hotel El Cayito	Santiago de Los Caballeros	Workshop
	Association of Industries of the Dominican Republic (AIREN)	Santiago de Los Caballeros	Workshop
	Dominican Corporation of State Electric Companies (CDES)	Santiago de Los Caballeros	Workshop
	BANFONDESA	Santiago de Los Caballeros	Workshop
	Kayak Adventures	Santiago de Los Caballeros	Workshop

J. Justification for funding requested, focusing on the full cost of adaptation reasoning

The Caribbean is one of the most vulnerable regions to climate-related disasters. Both Cuba and the DR have been severely impacted by hurricanes, tropical rains, floods, and extended periods of drought in recent years. However, the financial resources available for climate change adaptation fall far short of what is required to meet adaptation needs. For example, according to the DR latest Nationally Determined Contribution (NDC 2020) report, $8.7 billion is needed for climate adaptation, in sectors such as food and water security, resilient cities and coasts, and ecosystems, among others. In Cuba, on the other hand, presents significant adaptation needs in infrastructure, coastal zone management, agriculture, settlements, water, marine ecosystems, and forests, among others[101].

At the same time, both countries have very low incomes and limited capacity to cope with climate impacts. The DR, for example, ranks 81st out of 196 countries in terms of GDP and has a public debt reaching 60.02% of its GDP[102]. Cuba, on the other hand, is suffering the impacts of the US economic, commercial, and financial blockade, which limits its room for manoeuvre. This, combined with the effects of the pandemic, has resulted in a significant increase in inflation in Cuba (24%

[101] https://unfccc.int/sites/default/files/resource/UNFCCC_NBF_SD_Cuba_2022.pdf
[102] https://datosmacro.expansion.com/paises/republica-dominicana

as of January 2025)[103] and, consequently, in the cost of living for its inhabitants. Cuba's state budget for 2025 estimates a deficit of 88.538 billion pesos[104] (CUP88 billion), equivalent to almost 20% of gross state revenue. Furthermore, the credit ratings of both countries limit their borrowing capacity. For example, the DR's latest credit rating is "non-investment grade speculative"[105], while Cuba's latest credit rating was set at "extremely speculative"[106]. Given these conditions, the extent of public debt and the ability to obtain financing for climate change adaptation exceed their capacities, requiring additional assistance to implement the necessary interventions. However, despite economic limitations, both countries will seek to contribute various co-financing methods and human resources to ensure the long-term sustainability of the project. For example, the Government of Cuba, through the National Environmental Fund and the Local Development Fund, has committed to contributing support for the implementation and management of NBS, with training, labor, and native seed banks as needed. Likewise, the project seeks the active participation of the private sector in the scaling up of these activities (e.g., value capture and the development of water funds), a participation that is actively supported by state actors in both Cuba and the DR[107].

K. Sustainability of the project outcomes

The project incorporates several design features that will ensure the sustainability of activities once the project is completed. These are described below.

Institutional Strengthening: Currently, barriers such as limited state capacity and limited technical, equipment, and energy resources restrict the implementation of inclusive, climate-data-driven land management policies. The outputs of component 1 are aimed at strengthening institutional capacities in both countries. The goal is to reduce these technological and resource barriers to climate risk data management and inform territorial planning policies and instruments. They will also provide the physical and knowledge tools for improved territorial management in the medium term. Likewise, the outputs of component 1 are focused on a paradigm shift in gender and inclusion policies in the medium and long term, reflected in the real and effective integration of actions that reduce the environmental impact gap between men and women.

Private Sector Participation: Efforts are also directed toward finding innovative ways to finance projects based on land management and the equitable distribution of burdens and benefits (e.g. via land value capture mechanisms). The project aims to increase institutional capacity to capture such capital gains resulting from improved land management, which can be used to reinvest in NbS and climate adaptation projects. This will increase the financial sustainability of project outputs.

Participation and Empowerment of Local Communities and Women: The proposed training (outputs 2.1 and 3.1) will contribute to the sustainability of the solutions. With the support of non-governmental organisations[108], local communities, especially women's groups, will improve their knowledge and skills in the management and maintenance of gardens, in value-added products, the circular economy, accounting, local tourism, water resource management, and renewable energy generation, among others. Thus, the income obtained from the sale of products and services is reinvested in the management and maintenance of the proposed solutions (outputs 2.2, 3.2, and 3.3). These activities will be complemented by institutional support and co-financing (for example, in the maintenance of power generators) as well as training for financial institutions to access more favourable lines of credit, thus improving the livelihoods and achieving long-term economic sustainability of these groups.

Strategic alliances: The experience of Water Funds in the DR, and in the region in general, offers lessons with quite positive results on the role of strategic alliances between public and private actors in profitably financing and implementing green projects. Therefore, the project includes the Yaque del Norte Water Fund as a key stakeholder in the DR, which in turn is supported by national and international organizations[109]. The project seeks to establish alliances for the scaling up of environmental protection and ecosystem-based adaptation initiatives, both in the DR and in Cuba. Likewise, the project expects to work with the Dominican Microfinance Network (REDOMIF), which is part of the Central American and Caribbean Microfinance Network (REDCAMIF), as well as with the Banco de Credito y Comercio de Cuba, which recently, with the support of the Central Bank of Cuba have advanced on the creation of a 'Green Fun'. Equally, Granma Province, and the United Nations Development Program (UNDP) have jointly developed a new microcredit line called "Crece" to facilitate financing opportunities for sustainable agriculture and resource conservation initiatives.

[103] Cuba's annual inflation rate has seen significant increases since the pandemic, reaching a record high of 77.30% in December 2021 and 46.42% in March 2023.
[104] https://www.mfp.gob.cu/ficheros/publicaciones/P-GOC[126-2025].pdf
[105] https://www.fitchratings.com/research/sovereigns/fitch-affirms-dominican-republic-at-bb-outlook-positive-21-11-2024
[106] https://countryeconomy.com/ratings/cuba
[107] During the consultation for the development of this note, one of the most frequent statements was the need for private sector participation in the project.
[108] For example, the Federation of Cuban Women and the Antonio Núñez Jiménez Foundation in Cuba, and the Yaque del Norte Water Fund in the DR.
[109] As part of the Latin American water fund alliance, which includes partners such as The Nature Conservancy, GEF, the Inter-American Development Bank, and others.

Finally, it is proposed implementing the project within a reasonable period (six years) to ensure sufficient time for, among other things: 1) the consolidation of these partnerships and the development of interest and participation among key stakeholders; 2) the implementation and implementation of land management and gender inclusion policies; and 3) the development and maturation of nature-based solutions, which will require several years to become effective.

L. Environmental and social impacts and risks identified as relevant to the project

Table 12- Environmental and social impacts and risks identified as relevant to the project

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks: further assessment and management required for compliance
Compliance with the law	*Maybe*	The potential adoption of new relevant legislation in one of the participating countries may require a more in-depth policy assessment. The Implementing Agency (IA) and Executive Entities (EE) will coordinate closely with the governments of Cuba and the Dominican Republic to ensure that any policy changes relevant to project implementation are communicated in a timely manner to inform project design.
Access and equity	No	Challenges can include disparities in access to information, resources, and decision-making processes, leading to unequal vulnerability and resilience outcomes. The project aims to provide fair and equitable access to Nature-Based Solutions (NBS) and their benefits, including training options, access to information, experience sharing, and other opportunities, especially for women.
Marginalized and vulnerable groups	Maybe	Vulnerable groups may include women and girls, children, the elderly, people with disabilities, dependent family members, and informal workers. Poverty, informality, unemployment, and caregiving responsibilities could hinder the active participation of these vulnerable groups in project activities. During the proposal and implementation stages, the IA and EE will consider how to ensure the participation of marginalized groups, especially women, through a gender action plan (GAP).
Human rights	No	No activities are proposed that may present a risk of non-compliance with national human rights requirements or international human rights laws and conventions. Rather, the project will support and promote respect for human rights as an integral part of its implementation.
Gender Equity and Women's Empowerment	Maybe	Women in project areas are more vulnerable to climate impacts as they tend to be more dependent on public services and infrastructure and have caregiving responsibilities, in addition to their lower adaptive capacity. The increased frequency of extreme weather events, such as floods, storms, or droughts, may disproportionately affect women due to their roles as caregivers and providers within households. Women may also have limited access to resources, making it difficult to adapt to changing climate conditions. Furthermore, women in project areas often participate in the informal economy, making them more economically precarious and susceptible to livelihood disruptions caused by climate change. Women tend to be disadvantaged when it comes to training, technical assistance, entrepreneurship, and other opportunities. There is little evidence of effective participation mechanisms. The project proposal has been designed to be gender-sensitive and inclusive in all trainings, consultative workshops, planning processes, and knowledge-relevant activities. Furthermore, the project aims to transform gender relations by creating tailored opportunities that respond to women's needs and priorities through NBS that support their livelihoods.
Core labour rights	No	Irregularities with workers' rights may be found among migrant populations, women, children, and others. Support and training for project participants involved in local livelihoods will include content related to formalization, respect for human rights, occupational health and safety, and compliance with the core labour standards of the International Labor Organization and the labour laws of both countries.
Indigenous peoples	No	There are no indigenous peoples in the project area.
Involuntary resettlement	Maybe	The project's outcomes do not involve activities that could potentially lead to the involuntary or physical resettlement of any people settled in or using the project's area of influence. However, the review of land-use and urban development plans could restrict economic activities that currently amplify the impacts of climate change in urban and peri-urban areas. The risk of economic displacement will be assessed in a social and environmental management plan at the proposal stage.
Protection of natural habitats	No	The project implementation area is not located within any protected area. The project will foster the integration of legally sound best practices and NBS into local livelihoods. This will promote sustainable land use, contributing to its conservation and restoration.
Conservation of Biological Diversity	No	"Recommended good practices and NBS will contribute to strengthening biodiversity conservation and enhancing critical habitats and corridors, including terrestrial and riparian ecosystems. The project will avoid the use of any potentially invasive species in the implementation of NBS.

Climate change	Yeah	Extreme weather events, such as hurricanes, floods, and droughts, pose significant threats to urban and peri-urban communities. These risks can lead to extensive damage to infrastructure, loss of livelihoods, population displacement, and exacerbation of socioeconomic inequalities. Rising temperatures and altered precipitation patterns can impact water resources, agriculture, and public health, as well as human comfort, further diminishing community resilience. The project includes additional climate impact assessments and modelling to identify potential future effects in the project area. The results will inform the design of interventions and other project activities.
Pollution prevention and resource efficient	No	The project involves the installation of small-scale photovoltaic infrastructure and will adopt low-carbon approaches to minimize pollution and optimize resource efficiency.
Public health	No	Project activities, including field visits, interviews, workshops, and training, will be carried out following the guidelines established by the national health authorities of each country. The IA and EEs will be kept informed and updated on these guidelines.
Physical and cultural heritage	No	The project implementation sites are not located in areas of physical or cultural heritage.
Lands and soil conservation	No	The project contemplates the implementation of NBS to incorporate soil conservation strategies, such as restoration practices that will help reduce erosion, protect soil biodiversity, increase productivity, and decrease GHG emissions.

The project will establish and ensure the availability of a grievance mechanism accessible to all stakeholders or anyone wishing to file a complaint related to project activities. Information on the operation of this mechanism will be widely distributed among project participants, beneficiaries, organizations, and communities potentially affected by project activities. Emphasis will be placed on informing the existence of grievance mechanism and on building local capacity to ensure that key implementing entities and stakeholders are informed of potential social and environmental impacts. Efforts will also focus on enhancing their capabilities to monitor and ensure compliance with social and environmental standards.

PART III: IMPLEMENTATION ARRANGEMENTS

Project alignment with the Results Framework of the Adaptation Fund

Table 13- AF Results Framework alignment at the outcome level

Project objective(s)[110]	Project objecti indicator(s)	Fund Outcome	Fund outcome indicator	Grant amount (USD)
1. Government institutions enhance their capacity to plan and implement climate-resilient and gender-responsive land use policies and instruments	Number of climate risk and vulnerability analyses developed. Number of land use plans and instruments based on climate risk analyses at the basin level. Number of local and basin-level adaptation and resilience policies and plans that integrate a gender perspective.	Outcome 1: Reduction of exposure to climate-related risks and hazards Outcome 7: Improved policies and regulations that promote and enforce resilience measures Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	1.1 Number of projects that carry out and update risk and vulnerability assessments. 7. Climate change priorities are integrated into the national development strategy. 2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased.	2,900,000
2. Urban and riverine communities along the Yaque del Norte (DR) and Yara and Jibacoa (Cuba) river basins reduce their vulnerability to climate risks due to NBS projects.	Number of hectares under enhanced management for climate resilience.	Outcome 5: Increased ecosystem resilience in response to climate change and variability induced stress	5. Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress	16,045,460

[110]The AF used OECD/DAC terminology for its results framework. Project proponents may use different terminology, but the general principle should still apply.

3. Communities improve their food, water, and energy security and adopt climate-resilient livelihoods	Number of people with improved livelihoods resulting from sustainable food growing practices	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.	6.1 Percentage of households and communities having more secure access to livelihood assets.	5,000,000
4. Improved information management (including monitoring and learning from the project) for resilient and inclusive planning in the Spanish-speaking Caribbean.	Number of tools, guidelines and lessons shared. Number of resilient planning initiatives resulting from regional dialogues.	Outcome 8: Support the development and diffusion of innovative adaptation practices, tools and technologies.	8. Innovative adaptation practices are rolled out, scaled up, encouraged and/or accelerated at regional, national and/or subnational level.	600,000

Table 14- AF Results Framework alignment at the output level

Project Outcomes	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant amount (USD)**
1.1. Climate vulnerability and risk analyses are developed at the basin level (1 in each country).	1.1 Number of risk and vulnerability analyses that are developed and integrated in land use plans.	Output 1.1: Risk and vulnerability assessments carried out and updated	1.1. Number of projects that conduct and update risk and vulnerability assessments (by sector and scale).	700,000
1.2 Technical and operational government staff at the national, provincial, and municipal levels receive training, technology and equipment to monitor climate risks and implement resilient land use planning.	1.2 Number of technical and operational staff with enhanced technical and operational capacity to improve land use	Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1. Number of personnel trained to respond to and mitigate the impacts of climate-related events (by gender).	700,000
1.3 Government staff at the national, provincial, and municipal levels and decision-makers are trained in gender-differentiated impacts of climate change and gender-transformative policies	1.3 Number of government officials (by gender) demonstrating improved understanding of gender-differentiated climate impacts and transformative approaches, through pre-post assessment.	Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events.	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	700,000
1.4. (4) action plans are prepared to incorporate a gender perspective in territorial plans at the municipal and basin level in both countries.	1.4. Number of gender action plans with a climate resilience perspective created.	Output 7: Improved integration of climate-resilience strategies into country development plans	7.2. No. of targeted development strategies with incorporated climate change priorities enforced	200,000
1.5. (8x) resilient and inclusive land use planning instruments are strengthened or created at the basin and urban levels in both countries, based on climate risk and gender data.	1. Number of improved planning policies and instruments or those generated in land use management that incorporate climate risk at the river basin level	Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No. of policies introduced or adjusted to address climate change risks (by sector)	600,000
2.1. Strengthening the capacity of government, communities, and other stakeholders to plan,	2.1. Number of actors (by gender) trained and committed to planning, implementing and	Output 3.2. Percentage of targeted population applying appropriate adaptation responses	3.2.2 No. of tools and guidelines developed (thematic, sectoral,	500,000

design, implement, and maintain NBS projects.	maintaining NBS projects		institutional) and shared with relevant stakeholders	
2.2 Participatory design and implementation of NBS solutions for flood risk reduction and resilient water management in urban and basin areas	2.2. Number of hectares placed under enhanced management to reduce flood risk and resilient water management.	Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	15,545,460
3.1. Women's groups, communities, and local governments in (6) municipalities receive training on gender-transformative resilient community agriculture and sustainable energy	3.2. Number of women's groups or women trained at all levels in climate-resilient agricultural practices	Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	500,000
3.2. Participatory design and implementation of resilient community gardens and rainwater harvesting systems in (6) community municipalities.	3.2. Number of people (by gender) benefiting from NBS for food and water security.	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability.	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	3,500,000
3.3. Community photovoltaic systems are developed in (6) municipalities to facilitate the implementation of NBS.	3.3. Number of people with access to reliable electricity for agricultural activities.	Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	1,000,000
4.1. Data platforms in both countries are being strengthened for the management, coordination, and open access to data on climate impact and gender.	4.1Number of platforms (digital or otherwise) improved and strengthened.	Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.1 No. of technical committees/associations formed to ensure transfer of knowledge 3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	400,000
4.2. Regional dialogues for South-South knowledge exchange on gender and climate among countries in the Spanish-speaking Caribbean for sustainable action.	4.2 Number of tools, guidelines, and workshops shared with stakeholders across the region that showcase adaptation practices.	Output 8: Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated	200,000

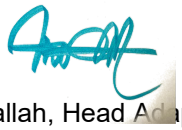
PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[111]

Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project/programme. Add more lines as necessary. The endorsement letters should be attached as an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:

Ulises Fernandez Gomez Director International Relations Ministry of Science, Technology and Environment Cuba	Date: July 7th , 2025
Ana Emilia Pimentel Deputy Minister of Climate Change and Sustainability Ministry of Environment and Natural Resources Dominican Republic	Date: June 2nd, 2025

B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans of Cuba and the Dominican Republic and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
 Mirey Atallah, Head Adaptation and Resilience Branch, Climate Division, UNEP Implementing Entity Coordinator	
Date: *July 31st, 2025*	Tel. and email: mirey.atallah@un.org
Project Contact Person: Jessica Troni	
Tel. And Email: (+254) 795751062 jessica.troni@un.org	

[111] Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

ADAPTATION FUND

Letter of Endorsement by Government

July 7, 2025

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Junta del Fondo de Adaptación
c/o Secretaría de la Junta del Fondo de Adaptación
Email: afbsec@adaptation-fund.org
Fax: 202 522 3240/5

Subject: Approval of Nature-Based Adaptation - with a Gender Perspective - in Urban and Riverine Areas of Cuba and the Dominican Republic.

In my capacity as designated authority for the Adaptation Fund in Cuba, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Cuba.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by National Institute of Territorial Planning and Urbanism –INOTU- and executed by INOTU Granma Delegation and its municipal directorates Yara, Manzanillo y Bartolomé Masó.

Sincerely,

Ulises Fernández Gómez
Director of International Relations
Ministry of Science, Technology and Environment
Cuba

GOBIERNO DE LA
REPÚBLICA DOMINICANA

MEDIO AMBIENTE

VCCyS-0139-2025

Santo Domingo, DR
June 2, 2025

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: afbsec@adaptation-fund.org
Fax: 202 522 3240/5

Subject: Endorsement for *"Nature-based adaptation with a gender perspective in urban and coastal areas of Cuba and the Dominican Republic"*

In my capacity as designated national authority for the Adaptation Fund in Dominican Republic, I confirm that the above regional project proposal is in accordance with the government's regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Dominican Republic.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by The United Nations Environment Programme (UNEP) and executed by the Ministry of Environment and Natural Resources.

Sincerely,

MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
VICEMINISTERIO DE CAMBIO CLIMÁTICO Y SOSTENIBILIDAD
REPÚBLICA DOMINICANA

Ana Emilia Pimentel
Designated Authority for the Adaptation Fund
Deputy Minister of Climate Change and Sustainability
Ministry of Environment and Natural Resources

AEP/ICB/sd

GOBIERNO DE LA
REPÚBLICA DOMINICANA

MEDIO AMBIENTE

VCCyS-0139-2025

Santo Domingo, República Dominicana
2 de junio de 2025

A: **La Junta del Fondo de Adaptación**
a/c/ Secretaría de la Junta del Fondo de Adaptación
Correo electrónico: afbsec@adaptation-fund.org
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Asunto: Apoyo al proyecto *«Adaptación basada en la naturaleza con un enfoque de género en zonas urbanas y ribereñas de Cuba y la República Dominicana»*

En mi calidad de autoridad nacional designada para el Fondo de Adaptación en la República Dominicana, confirmo que la propuesta de proyecto regional anteriormente mencionada se ajusta a las prioridades regionales del gobierno en la implementación de actividades de adaptación para reducir los impactos adversos y los riesgos del cambio climático en la República Dominicana.

En tal sentido, me complace respaldar la propuesta de proyecto indicada, con el apoyo del Fondo de Adaptación. En caso de ser aprobada, la iniciativa será implementada por El Programa de las Naciones Unidas para el Medio Ambiente, PNUMA y ejecutada por El Ministerio de Medio Ambiente y Recursos Naturales.

Atentamente,

MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
VICEMINISTERIO DE CAMBIO CLIMÁTICO Y SOSTENIBILIDAD

Ana Emilia Pimentel
Autoridad Designada para el Fondo de Adaptación
Viceministra de Cambio Climático y Sostenibilidad
Ministerio de Medio Ambiente y Recursos Naturales

AEP/ICB/sd

Revised PFG Submission Form[1] (additions in red)

Project Formulation Grant (PFG)

Submission Date: 31 /07/2025

Adaptation Fund Project ID:
Country/ies: Cuba and the Dominican Republic
Title of Project/Programme:
Type of IE (MIE): Nature-based adaptation in urban and riverine areas of Cuba and the Dominican Republic.
Implementing Entity: United Nations Environment Programme (UNEP)
Executing Entity/ies: 1. UNEP 2. Cuban National Institute of Territorial Planning and Urbanism (INOTU) and 3. Dominican Republic Ministry of Environment and Natural Resources

A. Project Preparation Timeframe

Start date of PFG	November 2025
Completion date of PFG	June 2027

B. Proposed Project Preparation Activities ($)

List of Proposed Project Preparation Activities	Output of the PFG Activities	US$ Amount	Budget note[2]
1.Stakeholder consultations	Stakeholder consultation reports	25,250	Includes stakeholder consultation meetings and community level consultations per country
2. Full proposal formulation	Full proposal document and annexes endorsed by the Designated Authorities.	102,000	Consultancy firm cost based on market rates
3 Validation workshop	Validation workshop report	10,000	1 validation workshop per country
Total PFG activities		137250	
IE management fee		12,750	

[1] As presented in AFB/PPRC.33/40 Annex 1.
[2] The proposal should include a detailed budget with budget notes indicating the break- down of costs at the activity level. It should also include a budget on the Implementing Entity management fee use.

Total Project Formulation Grant		150,000	

The PFG activities include:

1. Stakeholder consultation

Building on the concept note stage consultation workshops carried out in Cuba and in Dominical Republic as part of the Nature for Cities project the PFG funding will enable the implementation of more in-depth stakeholder consultation including key informant interviews and field level consultations among the communities in the selected river basins and target municipalities and to collect further data and information to develop the full proposal. In particular more in-depth local level consultations will allow:

• Further site prioritization within target municipalities and river basins.
• Identification of the roles and responsibilities of each government institution and stakeholders at the national, regional, district, and community levels in project implementation and monitoring at different levels.
• Identification of result framework SMART indicators and targets aligned with the Adaptation Results Framework.
• Identification of costed activities necessary to attain the planned outputs and outcomes and a detailed budget.
• M&E and knowledge management plan, Gender Action Plan and Environmental and Social Management Plan.
• Sustainability and exit strategy

2. Full proposal development and annexes

The information gathered during the above in-depth and implementation-oriented consultation process will be used to develop the full proposal (PART III), including:

• Detailed Results Framework for the project, including SMART indicators and targets aligned with the Adaptation Results Framework.
• Implementation workplan and milestones.
• Costed M&E and knowledge management plan.
• Risk register
• Implementation arrangements
• Detailed budget and budget notes including quantification of stakeholders' in-kind contributions
• Sustainability and exit strategy

Annexes:
• Stakeholder Engagement and Project Implementation Plan defining the roles and responsibilities of each government institution, implementation partners and stakeholders at the national, regional, district and community level in the project implementation and monitoring at different levels. The plan will include measures to mitigate financial, reputational, security and other risks.

• Gender Action Plan
The existing gender analysis will be further developed to identify gender-differentiated climate impacts, risks, and opportunities to address gender gaps and promote women's empowerment in the specific context of target rural and urban settings along the Shabelle watershed. A costed Gender Action Plan for the project

will be developed identifying gender-responsive measures to address differences, identified impacts, risks, and opportunities. The plan will include indicators and sex-disaggregated targets in the project results framework.

• Environmental and Social Management Plan (ESMP)
An environmental and social management plan will scope the main environmental and social safeguards risks and identify mitigation measures through consultations and lessons learned. The ESMP will be developed to align with the Environmental and Social Policy of the Adaptation Fund and UNEP's Social and Environmental Sustainability Framework.

3. Validation workshop

A validation workshop will enable the incorporation of final stakeholder's feedback and validate the project design prior to the obtention of the letters of endorsement and submission.

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
UNEP Mirey Atallah		31 July 2025	Jessica Troni	+254795751062	Jessica.troni@un.org

ANNEX A – GENDER ANALYSIS

A.1 Introduction

This Gender Assessment has been developed to support the Concept Note design for the Adaptation Fund (AF) Project *Gender-Responsive Nature-based Adaptation in Urban and Coastal Cuba & Dominican Republic.* The project focuses on urban climate change risk in cities along the Yara and Jibacoa Rivers (Cuba) and Yaque del Norte River (DR). Selected cities include Bartolomé Masó, Yara, Manzanillo (Cuba) and Jarabacoa, Santiago de los Caballeros, Monte Cristi (DR). The project aims to reduce the vulnerabilities of urban and periurban communities in two basins in Cuba and the DR, particularly focusing on women, who often face disproportionate impacts from climate change due to existing socio-economic disparities. Both island states are highly vulnerable to natural hazards like hurricanes, floods, and droughts, which climate change is expected to intensify. The project aims to adopt a gender-transformative approach. The project builds on the results of Nature4Cities, a GCF and EU-funded project led by UNEP, under which two of the cities, Manzanillo and Santiago, were targeted. The project thus extends to Bartolomé Masó, Yara, Manzanillo (Cuba) and Jarabacoa, Santiago de Los Caballeros, Monte Cristi (DR) and mainstreams gender- responsive planning approaches. These cities were selected due to their locations along the basin, as climate impacts are exacerbated by land use practices that drive flooding, heat island effect, drought, soil erosion, degradation and sedimentation.

Regionally, the World Economic Forum's (WEF) most recent Gender Gap Report, which looks at economic participation, educational attainment, health and political empowerment, shows that Latin America and the Caribbean achieved an overall gender parity score of 74.2%. This region has demonstrated the most significant progress since 2006, narrowing the overall gap by 8.3 percentage points since the start of the reports. Notably, it reached its highest economic parity score to date at 65.7%, a slight increase of 0.5 percentage points from 2023, driven by strong parity in labour force participation and professional roles. (World Economic Forum, 2024). At the same time, Cuba and the DR are situated below the world average in the Gender Inequality Index (GII). In 2022 Cuba scored 0.3 and the DR 0.433.

As this assessment shows, there are still many inequalities and differentiated impacts in both countries which exacerbate the impacts of climate change on women, intersecting with race and socioeconomic status.

The objective of the gender analysis is to:

- Understand the socioeconomic inequalities and gender dynamics in different domains at a macro level in Cuba and the DR and how climate change exacerbates or interacts with these structural inequalities.
- Understand gender dynamics and issues in the Yaque del Norte (DR) and Yara and Jibacoa (Cuba) basins.
- Integrate findings into project outputs for the AF Concept Note
- Provide recommendations for project design at full proposal stage.

A.2 Methodology

This gender analysis was developed from January to March 2025 through desk-based research and primary data collected from individual interviews and stakeholder consultations in both countries. Due to mobility and time constraints, particularly exacerbated by the energy crisis in Cuba, the consultations in the country were held in la Habana, outside of the project area. Consultations in the DR were carried out in the three cities (Refer to section 0). Data from consultations was especially useful in informing section 5 onwards of the gender assessment. It is advised that further stakeholder engagement is developed during the proposal stage at the community level, with specific gender-disaggregated data.

Limitations

Particularly for the project area, gender-disaggregated data and information on the impact of climate change on women is not available. Additionally, at times the perceptions and discussions during the stakeholder consultations do not reflect an awareness of gender differentiated impacts of climate change, demonstrating the need for gender sensitization at all levels in government and civil society.

A2.1 Stakeholder engagement

During the design of the AF Concept Note, week-long stakeholder consultations took place in Cuba and the DR in November and December 2024 respectively to obtain baseline information on climate change risks and impacts at the basin level, as well as gender-specific information. Due to electricity and mobility restrictions, stakeholder consultations in Cuba took place in Havana. However, in the DR, a visit to the three cities with bilateral meetings was possible. The consultations in Cuba faced significant challenges due to energy crisis which meant that not all foreseen interviews and consultations went ahead. Nevertheless, in all bilateral meetings and consultations representation from both women and men was ensured representing a diversity of types of actors, including NGOs, CSOs, academia and private sector organisations. Further consultations engaging women from the targeted cities and communities should be developed during the full proposal stage.

During the CN development stage, consultations took place in Havana, Cuba during the week commencing the 25th of November 2024. 57% of participants were women. In the Dominican Republic, consultations were held in Santiago de los

Caballeros, Monte Cristi and Jarabacoa via workshops in the week of 16th of December 2024. 43% of attendees were women.

A.3 Gender Legal and Policy overview

A.3.1 International commitments

Table 15- International commitments for Dominican Republic and Cuba

UN Convention on the Elimination of All Forms of Discrimination Against Women - CEDAW (1979)	The CEDAW was ratified by Cuba (as the first country in the world to do so) and the Dominican Republic in 1980 and 1982 respectively. Among the international human rights treaties, the CEDAW addresses discrimination against women in all spheres of life, including political, economic, social, cultural, and civil domains. It defines discrimination as any distinction, exclusion, or restriction based on sex, and mandates states to take all necessary measures to ensure the full development and advancement of women. The Convention's significance lies in its recognition of the inherent dignity and worth of all women and its commitment to achieving true gender equality. It not only establishes an international bill of rights for women but also provides a roadmap for states to implement concrete actions to guarantee these rights (UN General Assembly, 1979).
Montevideo Consensus on Population and Development (2013)	The Montevideo Consensus on Population and Development is a regional agenda for Latin America and the Caribbean and provides a roadmap for the integration of population dynamics and sustainable development with equality and a rights-based approach, through 120 measures. Both countries are signatories (United Nations Economic Commission for Latin America and the Caribbean, 2013)
Beijing Platform for Action (BPfA) (1995)	Ratified in 1995, the Beijing Platform for Action establishes programmatic frameworks to be implemented by governments to eliminate gender inequality as a fundamental step for sustainable development, peace, and human rights. It includes 12 priority areas and aims to ensure women's equal access to natural resources and environmental decision-making, as well as addressing women's vulnerability to environmental degradation and climate change. It also calls for countries to formulate National Action Plans for the advancement of women. Both countries are part of the BPfA and have published respective national action plans (see below).
Inter-American Convention on the Prevention, Punishment, and Eradication of Violence against Women	Ratified in 1996 by Dominican Republic, it establishes international standards to prevent, punish and eradicate violence against women in the public and private spheres.

A.3.2 National and local government institutions

In Cuba, the main organisation working towards ensuring that gender is mainstreamed in public policies is **the Federation of Cuban Women (FMC).** Founded in 1960, the FMC has been and continues to be the main defender of women's rights and promoter of public policies in favour of their advancement and more equitable gender relations. The FMC is recognised as the National Mechanism for the Advancement of Women Program, promoting women's greater participation in the country's development as beneficiaries and decision-makers. As a civic society organisation (CSO), it has members from every constituency in Cuba, including in the project locations. Additionally, the **Office of National Statistics' (ONEI) Gender equality observatory** collects and monitors relevant data at a national level to inform government planning.

In the DR, the **Ministry of Women** is the body responsible for establishing norms and coordinating the execution of policies, plans and programmes at the inter-institutional and sectoral levels, in order to achieve gender equality and equity and the full exercise of women's citizenship. This ministry was established in 1999. Since 2019, public institutions have internal **Gender Equality Units** to mainstream gender perspectives in formulation, execution and evaluation of government-led projects, programmes and budgets as well as collecting relevant gender-disaggregated information (MAP, 2019). The Ministry of Women has offices at a provincial level and municipal, meaning that they are also present in Monte Cristi, Jarabacoa and Santiago de los Caballeros.

A.3.3 National and local laws, policies and strategies

Cuban Constitution grants equal rights and responsibilities in economic, political, cultural and social domains. The table below gives an overview of gender-related laws and strategies in the country. Notably, nor the differential impacts of climate change, nor the role of women in advancing adaptation to climate change, are present in national climate change strategies and policies. This is the case for Cuba's NDC 2.0 2020, NDC 3.0 (2025), nor the"*Tarea Vida*" 2017 strategy, which is Cuba's

climate change plan. (Ministerio de Ciencia Tecnología y Medio Ambiente, 2017; *Nationally Determined Contribution Update*, 2020). The table below provides an overview of relevant laws, policies and plans in relation to gender in Cuba.

Table 16- Overview of relevant laws, policies and plans in Cuba

Cuba	
Laws	
Decree 56/21- Maternity Law and Family responsibility	Establishes regulations for maternity leave, childcare, and parental leave benefits for working women. It also provides social benefits to grandparents caring for children of student mothers to support women's education and autonomy (Decreto Presidencial 156/2022, 2022)
Decree law 198/2021- Approval of the National Programme for Women's Advancement	Following the BPfA, the decree approves the National Programme for Women's Advancement (PAM) and establishes the Federation for Cuban Women as the main consultative body to work alongside the Cuban government for its implementation (Decreto Presidencial 198/2021, 2021)
Decree law 156/2022 Family Code	Building on the 1975 decree, this decree establishes the legal equality of women and men in marriage, abolishes the distinction between natural and legitimate children and defines equal duties of spouses/parents towards children and teenagers in their development (Decreto Presidencial 156/2022, 2022).
Policies and Strategies	
National Programme for the Advancement of Women (PAM) (2021)	The PAM, adopted following decree 198/2021, outlines specific actions and responsibilities at the ministerial level, organised in 7 strategic areas: Economic empowerment, media representation, education, protection systems against violence and discrimination, sexual and reproductive health, and statistics and data. Action 6 of Area 1) promotes the mainstreaming of gender in technology, science, innovation, and climate change, under the responsibilities of the Ministry of Science, Technology and the Environment (CITMA) and the Ministry of Work and Social Security.
National Strategy for Women in Agriculture 2021-2025	This Ministry of Agriculture strategy aims to promote gender equality in the agricultural sector. It focuses on addressing women's disadvantages, closing gender gaps, and enhancing women's participation and leadership in agriculture, forestry, and tobacco
State Plan for the Implementation of the New Urban Agenda	This State Plan, in line with the New Urban Agenda for the sustainable development of cities, aims, amongst others, to guarantee equal access of resources and promote gender equity and protect vulnerable groups.

The DR also guarantees women's equal rights in its Constitution. Overall, the country integrates gender as a cross-cutting topic across sectoral policy and planning, as well as specifically for climate change strategies and plans. In Santiago de los Caballeros, the largest city of the project with a strong track record in planning for climate change, gender is recognised as a cross-cutting issue. Its Resilience Strategy lays out actions to establish local gender policies and investment plans. The table below provides an overview of relevant laws, policies and plans in relation to gender in the DR.

Table 17- Overview of relevant laws, policies and plans in the Dominican Republic

Dominican Republic	
Laws	
Law 24-97 on violence against women and domestic violence 7:16	Provides legal basis and definitions of consent, domestic violence (including psychological, verbal, physical) and intrafamiliar violence.
Ley no. 86-99 Creation of the Ministry for Women	Creation of the Ministry for Women to coordinate ministries and implement the National Plan for Gender Equality.
Ley 176-07 – Gender, Education and Health	Outlines responsibilities of relevant ministries including Gender Equality Units and Ministry for Women in guaranteeing equal access to roles in local government, with a minimum representation (33%), elimination of discriminatory practices, and promote labour practices that empower women of lower socioeconomic status
Policies and Strategies	
National Plan for Gender Equality and Equity (2020-2030) (PLANEG III)	Strategy put forward by the Ministry of Women in the Dominican Republic establishing gender as a cross-cutting topic and establishes actions cross seven areas: education, health, economic autonomy, citizenship, political participation, gender equality ad climate change.

National Adaptation Plan (NAP) (2015-2030)	The DR's NAP aims to reduce the vulnerability to climate change in key sectors, across 7 strategic cross-cutting goals, the last one being "integrating gender perspective", and recognising women as both agents and disproportionally affected by climate change.
Action Plan for Gender and Climate Change (PAGCC-RD) (2018)	This action plan integrates gender in climate change with actions across nine sectors - energy, transport, infrastructure, agriculture, food security, waste, forests, water, health, coastal and marine areas, tourism, and risk management.
Santiago de los Caballeros Resilience Strategy	Strategy focussed on the Santiago de los Caballeros Metropolitan Area (AMSC) aimed at climate-proofing infrastructure, mainstreaming climate resilience in land use and urban planning and improving environmental management of the Yaque river. Notably, Actions C2.1, C2.2, C2.3 are aimed at establishing a gender policy, creation of a gender, health and education investment plans and validating them, respectively.

A.4 Regional and country context

A.4.1 Demographic and health data

The table below presents key demographic and health data in both countries.

Table 18- Selected demographic and health data in both countries

Statistic	Cuba	Dominican Republic
Adolescent mothers (birth rate per 1000 women aged 15-19)	1.3 (2021)	19.7 (2009)
Maternal mortality rate (for every 100,000 children born)	40.9 (2022)	90.7 (2019)
Women (ages 15-49) with family planning unmet needs with modern methods (%)	12.7 (2023)	10.1 (2023)

Source: CEPAL Observatorio de Genero

In terms of composite indexes, the Gender Development Index (GDI), which measures gender inequalities in achievement in three basic dimensions of human development, Cuba scored 0.973 in 2022, and DR scored 1.029 in the same year, indicating high levels of gender parity in both countries. UNDP's Gender Inequality Index (GII), which measures gender-based disadvantage in three dimensions— reproductive health, empowerment and the labour market, shows that the DR scored 0.433, while Cuba scored 0.300 in 2022. Both results are below world average, which is 0.462.

A.4.2 Access to economic and social resources

Housing and public services

In 2022, 55% of Cuban urban dwellers had access to basic sanitation[112] and 37% safely managed[113]. In the DR, the figures for urban dwellers the same year were 48% and 42% correspondingly (UNICEF & WHO, 2024). In Cuba, research shows that 57.5% of households without access to running water were women-led. Also 70% of households with damaged pipes were women-led (Fleitas Ruiz, 2013). Also, despite policy reforms in Cuba, women, and particularly black women, continue to face disadvantages in terms of adequate housing and are compelled to live in areas with lack of basic services and with greater exposure to climate change impacts (e.g. landslides, flooding) (Fundora Nevot et al., 2021). Poor housing conditions disproportionately burden women with unpaid domestic work, such as when the lack of running water requires them to fetch water. Overcrowding, inadequate housing, and limited access to essential services also affect health and contribute to poverty, particularly for women who spend more time at home due to traditional gender roles (Oiga Cambio Climático, 2022; UN RCP LAC, 2024). Consequently, these material conditions restrict their adaptive capacity in the face of climate change, leading them into a situation of persistent poverty, and in some cases, leaves them more exposed and sensitive to climate hazards.

Education

Primary education levels in Cuba for 2023 are similar between women and men, while in the DR, the proportion of men is slightly higher (38% for women vs 44% for men in 2021). In both countries, women have higher percentages of tertiary education or university degrees (23.0 % for women vs. 15.0 % for men in Cuba, and 25% for women vs 17% for men in the DR) (Centro de Estudios de Población y Desarrollo, 2023; ONE, 2022).

A.4.3 Labour and unpaid care

Women spend a higher proportion of their daily time on unpaid domestic and care work than their men counterparts: 21.28% spent by women vs. 12.51% spent by men in Cuba, and 25.5% vs. 10.9% in the DR (UN RCP LAC, 2024). This is in line with the wider Latin American and Caribbean region, where women experience greater time burdens due to their role in

[112] JMP Definition: Basic sanitation refers to the use of improved facilities which are not shared with other households

[113] JMP Definition: Safely managed sanitation refers to the use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or removed and treated offsite.

domestic and care work and this limits their opportunities to enter the paid labour market. This has a compounding effect on women of lower socioeconomic status: women who are unable to outsource part of their care and domestic work on the market, have to provide it themselves, and in turn face more difficulties in overcoming poverty because of their lack of time (Centro de Estudio de la Mujer & Centro de Estudios de Población y Desarrollo, 2018; UN RCP LAC, 2024). In both countries, men have higher labour force participation. In Cuba 77% of men were engaged in paid work compared to 57% of women above the age of 15 (Centro de Estudios de Población y Desarrollo, 2023). In the DR, female employment in the labour market maintains levels that have persisted below 50% (ONE, 2022). The widest gaps in income are in lower-income workers and mothers because of higher levels of informal work amongst women. This is related to the fact that women are likely to enter the labour market through self-employment to adapt their schedules to domestic obligations (UN RCP LAC, 2024). Climate change significantly impacts vital resources like water, energy, and food, disproportionately affecting women. Societal norms often assign women the primary responsibility for managing household resources. As these resources become scarcer, women spend more time in these roles, especially in peri-urban and rural areas. This exacerbates existing time constraints (Aguilar Revelo, 2021). When site-specific information is gathered at the full funding proposal stage, the specific dynamics in terms of time burden and the impacts of climate change will be further assessed.

A.4.4 Gender-based violence (GbV) and sexual exploitation, abuse and harassment (SEAH)

14 out of the 25 countries with the highest femicide rate globally are in Latin America and the Caribbean region. The most recent figures from ECLAC's Gender Equality Observatory report at least 4640 cases of femicide for 18 countries in Latin America and 6 in the Caribbean in 2019 alone. One of the highest rates of femicides per 100,000 women is recorded in the DR (2.7), behind Honduras (6.2) and El Salvador (3.3). (ECLAC, 2025).

Table 19- Selected GbV and SEAH indicators in Cuba and the Dominican Republic (ECLAC, 2025)

Indicator	Cuba	Dominican Republic
Death at the hand of partner or ex-partner (rate per 100,000 women)	0.9 (2023)	1.1 (2023)
Feminicide (rate per 100,000 women)	1.1 (2023)	2.7 (2021)
Proportion of women and girls (15 and above) subject to physical violence at the hands of a partner or ex-partner (%)	2.4% (2016)	18.4 (2019)
Proportion of women and girls (15 and above) subject to sexual violence at the hands of a partner or ex-partner (%)	2.2% (2016)	17.3 (2019)

GbV related to the use, access and control over natural resources can increase, especially in the face of resource scarcity, environmental pressures, and threats resulting from climate change. GbV against women acts as a barrier to rights-based conservation of natural resources. Additionally, due to its geographic location and status, the Caribbean is the second most hazard-prone region globally. In the aftermath of extreme events and natural disasters, Caribbean women are at greater risk of GbV , due to socioeconomic instability, structural power inequalities, health-care inaccessibility, resource scarcity, breakdowns in safety and law enforcement, and increases in stress (Blaeker et al., 2021; van Daalen et al., 2022). More comprehensive GbV data collection disaggregated by gender rather than households after natural disasters remains a priority and a gap in the region (Blaeker et al., 2021).

A.4.5 Migration and urbanisation

Stakeholder consultations for the concept note showed that internal migration from rural to urban areas and immigration contribute to people's vulnerability to climate change impacts. Migration is also a driver of rapid urbanization in sites that are either inadequate for housing, and or exposed to climate hazards (e.g., located in flood prone and landslide prone areas). For example, the DR experiences a significant influx of Haitian migrants across its border, creating specific vulnerabilities for women within the migrant population and worsening gender inequality. (Blaeker et al., 2021). In Cuba, 77% of the population currently lives in urban centres. Internal migration is frequently influenced by environmental factors, such as hurricanes and floods, and the need to access better services.

A.4.6 Participation and Decision-making

At national and local government levels, women's participation has significantly increased in recent years in both countries, notably in Cuban local governments, as seen below.

Table 20- Selected indicators for participation and representation in local and national politics and public institutions (ECLAC, 2025)

Indicator	Cuba	Dominican Republic
Participation in ministerial cabinets (%)	18.5 (2024)	17 (2021)
Participation in the country's highest court of justice (%)	62.2(2018)	23.5 (2021)
Women mayors (%)	47 (2021)	12.0 (2021)

Women city councillors (%)	35.5 (2021)	30.2 (2021)

Nevertheless, despite leaps in political participation and representation of women, there is still a regional gap in mechanisms for gender mainstreaming in governmental institutions responsible for climate adaptation and disaster risk reduction (UNDRR & ONU Mujeres, 2024).

A.5 Gender Issues and Dynamics in Project Areas

The project focuses on urban climate change risk in cities along the Yara and Jibacoa Rivers (Cuba) and Yaque del Norte River (DR). Selected cities include Bartolomé Masó, Yara, Manzanillo (Cuba) and Jarabacoa, Santiago de los Caballeros, Monte Cristi (DR). The basin approach enables interventions beyond urban areas, extending to peri-urban and rural areas. Due to limited data at the municipal level (except for Santiago de los Caballeros) analysis of gender dynamics will also focus on women's roles in rural productive activities within each country more generally.

A.5.1 Productive roles and resources in project areas

Gendered productive roles

In both the upstream cities of Jarabacoa and Bartolomé Maso, and the downstream cities of Monte Cristi and Manzanillo, agriculture is the main economic activity of the provinces. In the latter, due to the cities' location on the coast, fishing is also an important source of income in the cities themselves. However, the division of labour is generally gendered. Consultations held in the DR evidenced that women are involved in agricultural and craft-making activities in peri-urban and rural areas, whereas men are more involved in cattle and fishing[114]. Consultations in Monte Cristi also involved a focus group discussion with the Women's Fishing association, however, this is not the norm in the sector in the country. In these communities, women traditionally assume caretaking responsibilities, a role reinforced by cultural and social norms. This is reflected in their heightened awareness of climate change impacts on resources like water and forests, leading them to prioritize conservation efforts more strongly than men. (Medina, 2023; Romero Sarduy et al., 2019). Despite women's significant contributions to agricultural production, their labour is often undervalued and overlooked due to men's dominant access to resources and decision-making power. This results in women being relegated to lower-paying tasks and excluded from formal recognition, such as cooperative membership (María Isabel Romero Sarduy, 2023).

Access to land

In Cuba, only 22.6% of agricultural landowners are women. Women owners are more likely to be usufructuaries (38%) than men (32%) and the highest proportion of women landholders are over 50 years of age. In the DR, 25% of women hold formal land titles, but are not necessarily users/principal producers (ONE, 2018; UNDRR & ONU Mujeres, 2024). Land ownership offers women multiple socio-economic benefits. In addition to productive and financial value, land tenure enables women's access to services and opportunities to improve living conditions and participation in local economies.

Labor market

Santiago de los Caballeros is the DR's second largest city. The wholesale and retail trade sector, including stores, small grocery stores, and supermarkets, represents 37% of the province's businesses and employs 16% of the workforce (Ayuntamiento Santiago de los Caballeros, 2018). In the Cibao region of the DR, which encompasses the whole Yaque del Norte basin, there was a 20.8% gender gap between men and women in the formal labour market in 2019 (ONE, 2025). Additionally, in the Santiago Metropolitan Region, women have a global participation rate of 31.8% s 53.9% for men in the labour market, in line with the trends outlined in section 0.3(ONE, 2025).

A.5.2 Participation in decision-making and planning

The cities selected for this project lack gender-sensitive planning instruments or processes. In the DR, Santiago de los Caballeros stands out as an exception due to its strong record in participatory planning and inclusive approaches to planning. Federations of Neighbourhood Councils participate in municipal participatory budgeting, and civil society and non-project observers witness progress on the 2030 Strategic Plan, detailed in Section 3 (Consejo para el Desarrollo Estratégico de la Ciudad y el Municipio de Santiago, 2021). In Cuba meanwhile, the Federation of Cuban Women has bases in every constituency and acts as an observer for the development of policies and strategies also at a local level. At full project development stage, the meaningful engagement of women in stakeholder consultations and then implementation and participation of project activities needs to be carefully planned. Contextual barriers to women's engagement need to be assessed and measures to overcome these needs to be implemented. This includes considering location of engagements, measures to alleviate childcare responsibilities, or the time of the day at which consultations, engagements and meetings are held (Buhmann et al., 2025).

A.5.3 Gender-based violence

In the DR, data on GbV and feminicide is collected at the municipal level, even if there are not always strategies to prevent or address it. For example, despite having a Citizen safety and Gender workgroup since 2017 and an increasing trend in GbV, Jarabacoa has not established a GbV or SEAH prevention strategy (Ayuntamiento Municipal de Jarabacoa, 2023). An assessment of GBV, SeAH, and other gender-specific risks is crucial when designing interventions aimed at enhancing women's participation in community-level decision-making over natural resources, like this project intends. There is evidence that strengthening participation of women in natural resource management to strengthen ecosystem and community resilience may expose them to an increased risk of GbV. This is because women often encounter violence, such as rape, physical abuse, and/or verbal and sexual harassment, when collecting or managing resources (whether forest, agricultural or coastal) due to traditional gender roles and norms (Caswell & Jang, 2024).

A.5.4 Needs and Priorities

Overall, women's roles in agriculture and productive roles, their limited access to economic resources, decision making power and vulnerability to gender-based violence heighten their sensitivity to climate shocks and lowers their adaptive capacity. From both consultations and the knowledge gaps emerging from a literature review at a sub-national level, the following needs and priorities have been identified:

Gender sensitisation and awareness:
In Cuba and the DR, information collected in stakeholder consultations in both countries demonstrate the need for gender sensitisation and awareness of gender-differentiated climate change impacts at community, local government and institutional levels. While participants acknowledged cultural and social gendered roles (e.g. unpaid labour), there was little to no awareness of how climate change affected women and men differently in the project area in different dimensions (e.g. domestic labour, gender violence, time burden).

Gender-disaggregated data collection for climate change adaptation
There is a significant need at a sub national level for a better understanding of the impacts of climate change on women and their access to resources (economic, natural and social), and importantly, to use this data to mainstream gender in climate adaptation strategies at subnational level.

Understand barriers to engagement in project activities
There is a need to understand context-specific barriers that women face in engaging in restoration and agricultural activities, as the project's component 4 is intended to empower women to plan, implement and manage small-scale urban and peri-urban community farms.

A.6 Gender Considerations for the Project Design

The project will include activities for the co-design of NbS for livelihoods, specifically in agriculture, that address the unique needs and priorities of women in the project areas. These activities consider their roles in agriculture, and household resource management, as well as their vulnerability to climate change impacts and risk of gender-based violence. Due to the different levels of gender data collection, and gender-inclusive planning, across municipalities and countries, the project will include activities that mainstream gender into climate adaptation planning at subnational level, as well as a component to ensure knowledge exchange and dissemination of best practices in both countries, building on existing efforts to integrate nature-based approaches to urban resilience (for e.g. in Manzanillo and Santiago under the Nature4Cities project in Cuba and DR).

A.6.1 Recommendations for Funding Proposal stage

During the Funding Proposal stage of the project, the project design team should:

- Identify specific capacity gaps regarding NbS for agricultural and aquiculture activities for women-led associations.
- Identify specific gender awareness and sensitisation gaps at local community level as well as local governments in the two project basins, particularly for Cuba.
- When specific activities and sub-activities are determined, a gender mainstreaming expert with expertise in gender-sensitive budgeting will be involved.
- Ensure that women-only focus groups are held at the community level as well as local government/government level during more thorough consultation process.
- Regarding the previous point, engage with municipal authorities in charge of gender issues, whether it be data collection, or in gender-related planning and identify capacity and sensitisation needs.
- Detailed assessment of the risk of GbV and SeAH, as well as other gender-specific risks when designing activities that enhance the participation of women in decision-making at community level. This also includes the creation of safe environments during stakeholder consultation for women's participation to voice their concerns, needs and priorities.

- Address barriers for participation in project meetings, such as limited time and mobility, and offer support for ensuring women participation. This might include offering support for childcare or travel costs to ensure their ability to participate consistently in project activities.
- Similarly, address barriers for participation in Component 2, as the project aims to co-design urban agriculture solutions, as well as capacity building needs.

A.7 Bibliography

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ANNEX B – MAPS

The following selection of key maps are part of the N4C output document “Integration of Prioritized Urban NBS with Complementary Gray Interventions and Ongoing Actions.” 2024

Figure 12. Location of the main ravines at risk of flooding in Manzanillo

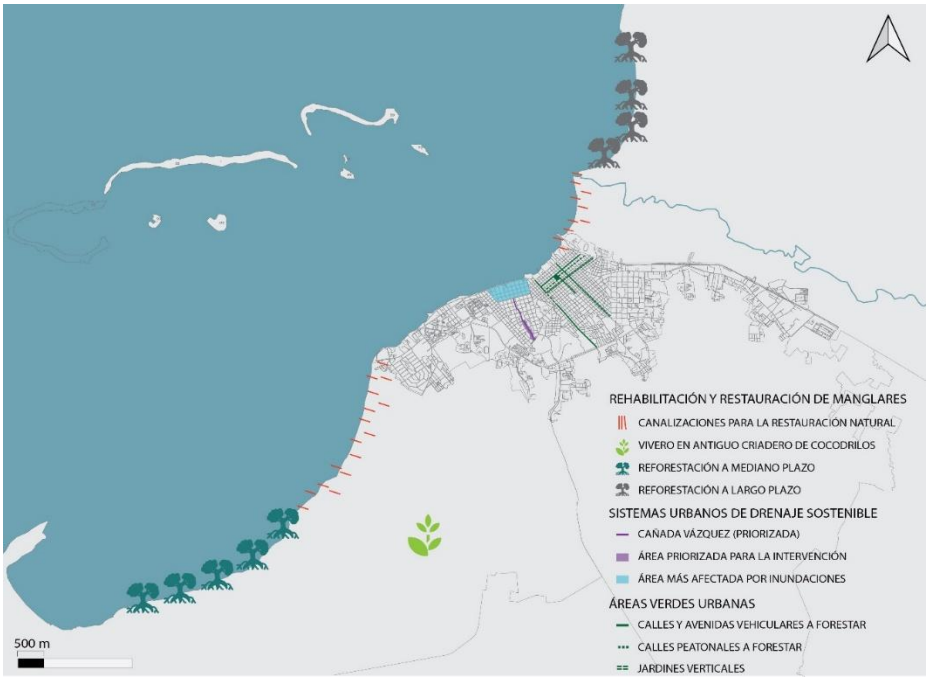

Figure 13. Integration of prioritized urban NBS with complementary grey interventions and ongoing actions

Yara's "Risk and Vulnerability Task" document has identified flood-prone[115] and landslide-prone areas[116] susceptible to be intervened. However, technical studies are required to determine the number of hectares and the type of reforestation needed. It is also necessary to determine the areas with the highest incidence and urgency in order to prioritise them.

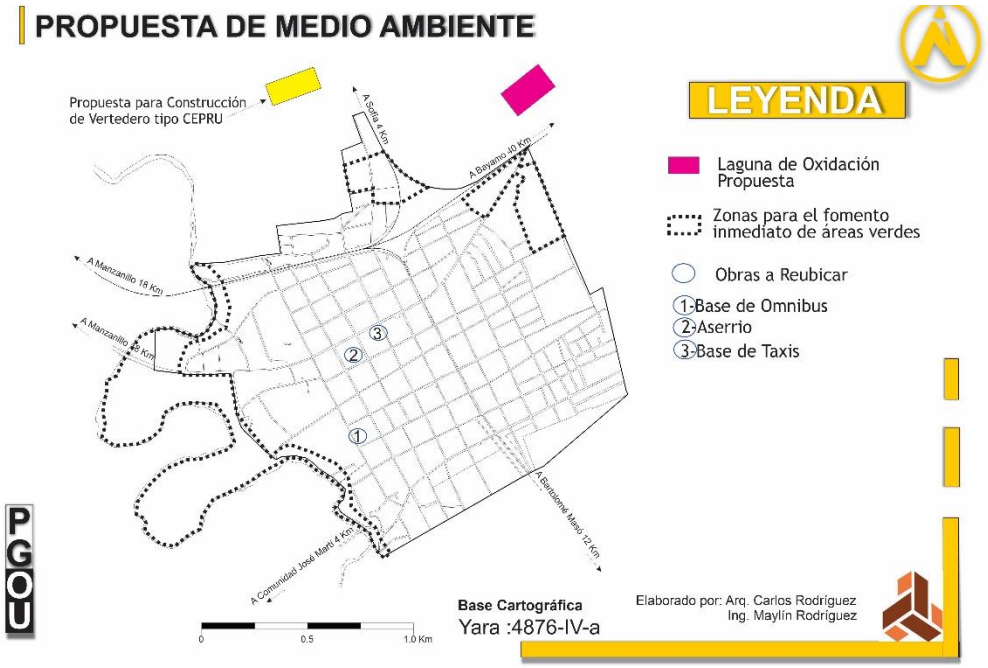

Figure 14. Map from Yara's Plan General de Ordenamiento Urbano 2023 showing in dotted lines potential areas for intervention, conservation and reforestation.

In Bartolome Masó, the 2020 POT identified sites with poor drainage or near streams, prone to river flooding. This includes El Zarzal, and the districts of Matadero, La Joya, and El Zarzal. The greatest impacts from pluvial flooding are located in the northern and eastern urban areas, especially the neighbourhoods of El Corojo, El Palmar, Los Espinalitos, and Ramón Paz, as well as the peri-urban neighborhoods of Sabana Larga and Guasimabito.

Figure 15. Plan de Ordenamiento Urbano Bartolomé Masó, 2018.

[115] In Yara's urban centre, several low-lying areas were identified as being floodable: Avenue los Mártires; Carlos Amengual García St; Perucho Figueredo St; 10 de Octubre St; Grito de Yara St; Bartolomé Masó St; Emilio Herriman St; Quintín Bandera St; José Martí St; Ignacio Agramonte St; Guillermón Moncada St; Simón Bolívar St; Elidover Arias St; and Dos de Diciembre neighborhood in general where a total of 176 streets were flooded.

[116] The first two are on the Bayamo-Manzanillo Highway, the first in La Mambisa and the second in Pueblo Nuevo. The third case is on the Yara-José La Martí Highway near Jobosí, caused by the flooding of the Yara River.

In the Dominican Republic, the Climate Vulnerability and Risk Analysis for Santiago as part of N4C, determined the location of areas with high poverty and flood risk levels showing significant overlap. (Map available for consultation). During the workshop on Prioritizing NbS as an Adaptation Strategy in Santiago de los Caballeros (2024) participants proposed the following solutions (however, their technical feasibility, location, and extent need to be verified): (i) Tree network in the Rafey Ecopark., (ii) Artificial wetlands for wastewater treatment. (iii) Linear park in the Free Trade Zone Corporation. (iv) Water Harvesting/Water Capture Pilot Project, (v) Retention ponds (Gurabo Stream and Pontezuela-Nibaje Stream), (vi) Sustainable urban drainage system (Pilot project in the communities of La Joya, Pueblo Nuevo, and Bella Vista), (vii) Respect for the 30-meter distance in streams and gullies. The main actions proposed in the context of Cuenca are reforestation and soil conservation. Their feasibility would need to be reviewed from a technical perspective, in addition to conducting a prioritization exercise based on impact, cost-effectiveness, and other criteria.

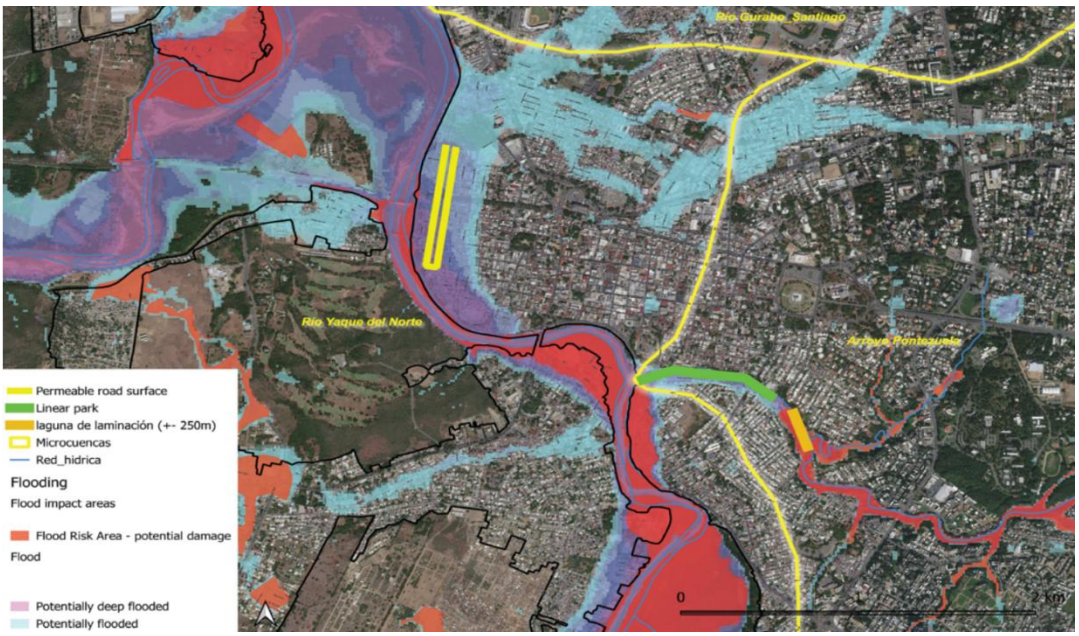

Figure 16. Proposed location of NbS interventions in Santiago's urban áreas, N4C.

Finally, Jarabacoa's development plan 2023-2033 determines that in the urban areas, the most vulnerable sectors are El Bolsillo, Yerba Buena, Las Piedras, Barrio San José, Estancita, Venecia, Pedregal, and rural areas such as La Peña and Boma. Again, a technical study is required to determine the specific sites and land available for implementing NBS.

A study by Pradilla & Hamhaber (2021) assessed the hydromorphological and socio-cultural conditions of rivers in Jarabacoa to promote NbS[117]. The study applied a rapid visual assessment for river restoration complemented by a survey on perceptions and uses of NbS. The study proposed restoration measures as shown in figure 20 below.

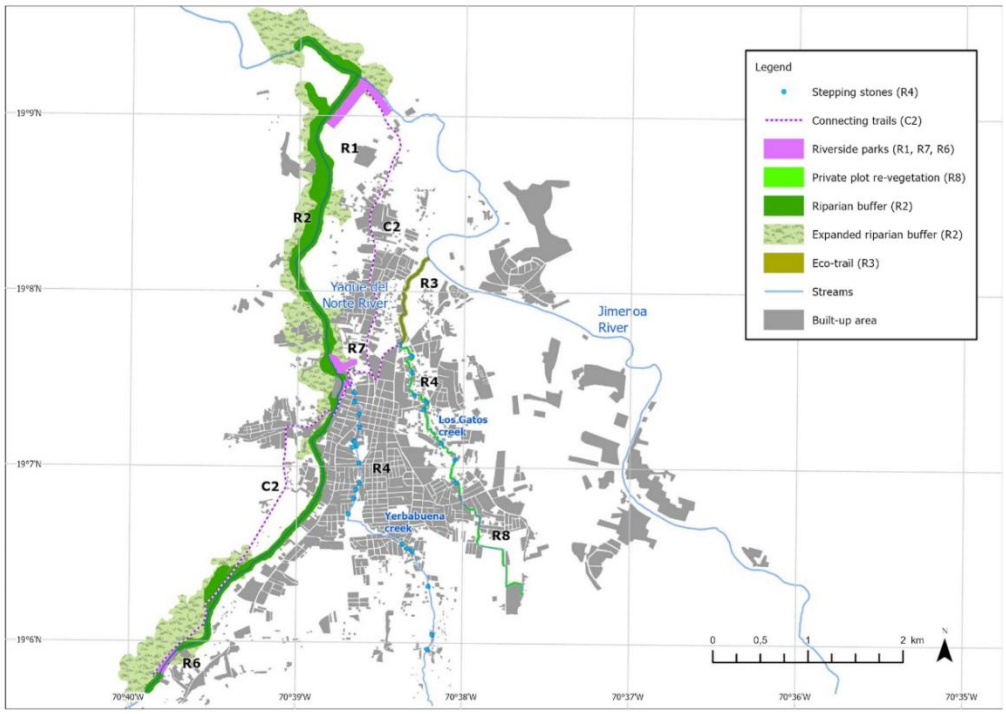

Figure 17. Location of proposed restoration measures (R) and complementary measures (C) in Jarabacoa.

[117] Pradilla, G., Lamberty, G. & Hamhaber, J. Hydromorphological and socio-cultural assessment of urban rivers to promote nature-based solutions in Jarabacoa, Dominican Republic. *Ambio* **50**, 1414–1430 (2021). https://doi.org/10.1007/s13280-021-01565-3