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Report No: PAD4823

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A PROPOSED IDA GRANT

IN THE AMOUNT OF SDR 72.4 MILLION (US$100 MILLION EQUIVALENT)

AND A PROPOSED CRISIS RESPONSE WINDOW GRANT

IN THE AMOUNT OF SDR 14.5 MILLION (US$20 MILLION EQUIVALENT)

TO THE

THE REPUBLIC OF HAITI

FOR A

RESILIENT CONNECTIVITY AND URBAN TRANSPORT ACCESSIBILITY PROJECT

May 13, 2022

Transport Global Practice
Latin America And Caribbean Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2022)

Currency Unit =	Haitian Gourdes (HTG)
HTG 104.7120 =	US$1
SDR 0.72337963 =	US$1

FISCAL YEAR
October 1 - September 30

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ABBREVIATIONS AND ACRONYMS

AADT	Annual Average Daily Traffic
CASEC	Board of Directors of the Communal Section (Conseil d'Administration de la Section Communale)
CATCOP	Caribbean Air Transport Connectivity Project (P170907)
CCAP	Climate Change Action Plan
CERC	Contingent Emergency Response Component
CHUD	Cap-Haïtien Urban Development Project (168951)
CIP	Caracol Industrial Park
CPF	Country Partnership Framework
CRW	Crisis Response Window
DA	Designated Account
E&S	Environmental and Social
EIRR	Economic Internal Rate of Return
ESCP	Environmental and Social Commitment Plan
ESMF	Environmental and Social Management Framework
FM	Financial Management
GAP	Gender Action Plan
GBV	Gender-based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoH	Government of Haiti
GRID	Green, Resilient and Inclusive Development
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
IDA	International Development Association
IDB	Inter-American Development Bank
IFR	Interim financial report
IPF	Investment Project Financing
Km	Kilometer
LIW	Labor-Intensive Work
LMPs	Labor Management Procedures
LUTP	Leaders in Urban Transport Planning Program
MAST	Ministry of Social Affairs and Labour (Ministère des Affaires Sociales et du Travail)
MDOD	Delegated Implementing Agency (Maître d'Ouvrage Délégué)
MDUR	Municipal Development and Urban Resilience Project (P155201)
M&E	Monitoring and Evaluation
MEF	Ministry of Economy and Finance (Ministère de l'Economie et des Finances)
MTPTC	Ministry of Public Works, Transport, and Communications (Ministère de Travaux Publics, Transport et Communications)
OHS	Occupational Health and Safety
PBC	Performance-Based Condition
PDNA	Post-Disaster Needs Assessment

PDO	Project Development Objective
PIU	Project Implementation Unit
PLR	Performance and Learning Review
POM	Project Operational Manual
PP	Procurement Plan
PPP	Public-Private Partnership
PPIAF	Public-Private Infrastructure Advisory Facility
PPSD	Project Procurement Strategy for Development (
PRGRD	Disaster Risk Management and Reconstruction Project (P126346)
PRUII	Institutions Infrastructure Emergency Recovery Project
RARP	Rural Accessibility & Resilience Project (P163490)
RN	National Road (*Route Nationale*)
RPF	Resettlement Policy Framework
SCD	Systematic Country Diagnostic
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SMEs	Small and Medium Enterprises
SSP	Shared Socioeconomic Pathway
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
ToRs	Terms of Reference
TTL	Task Team Leader
UCE	Central Execution Unit of the MTPTC (Unité Centrale d'Exécution)
UTE	Technical Execution Unit of the MEF (Unité Technique d'Exécution)
US$	United States Dollar

DATASHEET

BASIC INFORMATION

Country(ies)	Project Name
Haiti	Resilient connectivity and Urban Transport Accessibility Project

Project ID	Financing Instrument	Environmental and Social Risk Classification	Process
P177210	Investment Project Financing	Substantial	Urgent Need or Capacity Constraints (FCC)

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[✓] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[✓] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	[✓] Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
26-May-2022	31-May-2028

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The Project Development Objective is to (i) enhance climate-resilient rural connectivity in the South Peninsula, (ii) improve climate-resilient urban accessibility in Cap-Haïtien and targeted urban areas, and (iii) enhance institutional capacity in the urban transport sector.

Components

Component Name	Cost (US$, millions)
Component 1: Resilient Transport Connectivity in the South Peninsula	50.00
Component 2: Resilient Urban Transport Infrastructure Improvements	50.00
Component 3: Promoting Low-carbon and Sustainable Urban Mobility	14.00
Component 4: Contingent Emergency Component	0.00
Component 5: Project Management	6.00

Organizations

Borrower: the Ministry of Finance

Implementing Agency: Unite Centrale d'execution of Ministry of Transport, Public works and Communications

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	120.00
Total Financing	120.00
of which IBRD/IDA	120.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	120.00
IDA Grant	120.00

IDA Resources (in US$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount

Haiti	0.00	120.00	0.00	120.00
National PBA	0.00	100.00	0.00	100.00
Crisis Response Window (CRW)	0.00	20.00	0.00	20.00
Total	**0.00**	**120.00**	**0.00**	**120.00**

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2022	2023	2024	2025	2026	2027	2028	2029
Annual	0.00	7.68	8.48	12.27	18.20	24.02	28.60	20.75
Cumulative	0.00	7.68	16.16	28.43	46.63	70.65	99.25	120.00

INSTITUTIONAL DATA

Practice Area (Lead)

Transport

Contributing Practice Areas

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	High
2. Macroeconomic	Substantial
3. Sector Strategies and Policies	Substantial
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial

8. Stakeholders	Substantial
9. Other	Moderate
10. Overall	Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description
Schedule 2, Section I., A. Institutional Arrangements

1. The Recipient shall vest the overall responsibility for the implementation of the Project in MTPTC.

2. The Recipient shall operate and maintain, at all times during the implementation of the Project, the UCE-MTPTC under the administrative authority of MTPTC, to be responsible for the day-to-day administration, overall planning, coordination, fiduciary, environmental and social, reporting and communication of Project activities, as further detailed in the Project Operational Manual, with functions, staffing and resources satisfactory to the Association.

3. Without limitation to paragraph 2 above, the Recipient shall appoint or recruit for the Project, not later than six (6) months after the Effective Date, or any later date agreed by the Association: (a) a project team leader responsible for supervising the implementation of activities under Part 2 of the Project; (b) a procurement specialist; (c) an accountant; (d) a monitoring and evaluation specialist; (e) a social risk management specialist; (f) an environmental risk management specialist; (g) a communication specialist; and (h) a gender specialist, all with qualifications, experience and terms of reference satisfactory to the Association.

Sections and Description
Schedule 2, Section IV. Other Undertakings
The Recipient shall, not later than four (4) months after the Effective Date, or any later date as agreed by the Association, hire an independent auditor under terms and conditions acceptable to the Association

Conditions

Type	Financing source	Description
Disbursement	IBRD/IDA	for Emergency Expenditures under Category 3, unless and until the Association is satisfied, and notified the Recipient of its satisfaction, that all of the following conditions have been met in respect of said expenditures: (i) the Recipient has determined that an Eligible Crisis or Emergency has occurred, has furnished to the Association a request

		to include the proposed activities in the Emergency Response Part in order to respond to said crisis or emergency, and the Association has agreed with such determination, accepted said request and notified the Recipient thereof; (ii) the Recipient has ensured that all environmental and social instruments required for said activities have been prepared and disclosed, and the Recipient has ensured that any actions which are required to be taken under said instruments have been implemented, all in accordance with the provisions of Section I.E.3(b) of this Schedule; (iii) the entities in charge of coordinating and implementing the Emergency Response Part have adequate staff and resources, in accordance with the provisions of Section I.E.2 of this Schedule, for the purposes of said activities; and (iv) the Recipient has adopted the CER Manual, in form and substance acceptable to the Association, and the provisions of the CER Manual remain in accordance with the provisions of Section I.E.1(a) of this Schedule so as to be appropriate for the inclusion and implementation of said activities under the Emergency Response Part.

I. STRATEGIC CONTEXT

A. Country Context

1. **Haiti is one of the world's poorest and most fragile countries.** Historically, fragility in Haiti has been driven by political violence and instability. The country remains one of the poorest in the Western Hemisphere. In 2021, its gross domestic product (GDP) per capita was US$1,272 and it ranked 170th out of 189 countries in the Human Development Index. Over the past decades, Haiti has demonstrated a very high degree of vulnerability to a significant number of economic and social crises, as well as to numerous exogenous shocks, such as adverse natural events and commodity prices, both of which have contributed to increasing inequalities and territorial disparities.

2. **Poverty reduction and economic growth have been severely hampered by a major sociopolitical crisis, including the assassination of Haiti's president, Jovenel Moise, on July 7, 2021.** The crisis started in July 2018 with massive and violent demonstrations against the shortage and increased cost of fuel, high cost of living, corruption allegations, and political instability. The assassination of President Moise, in the summer of 2021, plunged the country further into uncertainty. As a result of the sociopolitical crisis, aggravated by the effects of the COVID-19 pandemic, Haiti's economy contracted by 1.7 percent in 2019 and by another 3.8 percent in 2020. Women, who account for 80 percent of the informal market, have been disproportionally affected by COVID-19, given increasing mobility constraints that affect their access to markets and their ability to collect income, while increased household burdens during the pandemic increased their exposure to poverty.

3. **The combined effects of climate-induced natural hazards, vulnerable infrastructure, a high level of environmental degradation, institutional fragility, and a lack of adequate resources invested in resilience mean that natural hazard events often have catastrophic impacts on Haiti.** Haiti is among those countries with the greatest exposure to multiple natural hazards globally. Ninety-six percent of the Haitian population lives in areas considered at risk. The most extreme natural hazards affecting Haiti are seismic and climate induced (hurricanes, flooding, and tropical cyclones). Climate change exacerbates the climate-induced risks: it is projected that maximum five-day rainfall amounts will increase from 85 millimeters (mm) to 105 mm by 2050.

4. **The South Peninsula, the most vulnerable region to hurricanes and tropical storms in Haiti, was struck by a magnitude 7.2 earthquake on August 14, 2021, highlighting substantial shortcomings in Haiti's infrastructure policies and its territorial organization.** The South Peninsula had suffered heavy damage from Hurricanes Allen (1980), Gilbert (1988), Georges (1998), Hanna and Ike (2008), Matthew (2016), and more recently Tropical Storm Grace (2021). The recent earthquake caused damages estimated at US$1.11 billion (equivalent to 7.8 percent of Haiti's 2019 GDP)[1] in the South, Nippes, and Grand'Anse departments. This disaster has also put additional pressure on cities and urban centers, such as Les Cayes and Jeremie, where most basic services remain concentrated.

5. **Haiti is the third-most-urbanized country in Latin America and the Caribbean; 64 percent of the total population lives in urban areas.**[2] Between 2000 and 2015, Haiti's urban population grew 3.6 percentage points faster than that of the average Caribbean country. By 2028, the number of urban dwellers is expected to increase by nearly 2 million

[1] World Bank Group, *Global Rapid Damage Estimation (GRADE) Report* (Washington, DC: World Bank, 2021).
[2] GFDRR (Global Facility for Disaster Reduction and Recovery), "Five Reasons Why Haiti Should Invest in Resilient Cities," 2018, https://www.gfdrr.org/en/feature-story/five-reasons-why-haiti-should-invest-resilient-cities.

more people. It could surge to around 11 million by 2050, an urbanization rate of 76 percent.[3] Such rapid transformation comes with growing demands for infrastructure, services, jobs, and economic opportunities.

6. **While urbanization is usually accompanied by economic growth, increased productivity, and higher living standards, Haiti has taken a different course.** Potential benefits are overshadowed by immense challenges such as lack of basic services, congestion, pollution, and spatial fragmentation, all of which hold back sustainable development. Poor connectivity within Haitian cities hampers the integration of labor markets and access to basic services and economic opportunities. High levels of poverty, severe environmental degradation, the presence of settlements in areas most exposed to climate-induced hazards (low-lying areas and floodplains), and lack of climate-resilient infrastructure are key contributing factors toward the country's vulnerability. These translate into precarious living conditions for the majority of the urban population, drastically decreasing their coping abilities and resilience and further enhancing the vicious circle of poverty.

B. Sectoral and Institutional Context

Urban Transport Context

7. **Urban transport in Haiti is a limiting factor for access to economic activities and economic growth.** Congestion levels are severe in several major cities (Port-au-Prince, Cap-Haïtien, Les Cayes), mainly due to a combination of the poor conditions of road infrastructure, lack of maintenance, and the suboptimal use of public street space. A poorly functioning public transport system hampers accessibility and creates long travel times. Public transport travels at exceptionally slow speeds (as low as 8 km/h on average), with an average onboard travel time of 44 minutes for an average commute distance of 5.9 km.[4] In addition, urban public transport is characterized by high operation costs and weak governance, including lack of traffic management, route allocation and enforcement, and inadequate maintenance of the roads. This translates into low accessibility to economic opportunities for certain communities. For example, 20 percent of the population in Cap-Haïtien can reach less than 7 percent of all economic opportunities in the region within a 60-minute trip. In turn, poverty and low access to transport in the city seem correlated: 77.5 percent of people in poorer areas can reach an urban transport stop in a 15-minute walk compared to 86.4 percent of the rest of the city.

8. **The framework for planning and managing urban transport remains fragmented across different ministries.** Responsibilities for urban transport generally correspond to entities at the national level—the Ministry of Labor and Social Affairs (Ministère des Affaires Sociales et du Travail, MAST); the Ministry of Public Works, Transport, and Communications (Ministère de Travaux Publics, Transport et Communications, MTPTC); and the Ministry of Economy and Finance (Ministère de l'Economie et des Finances, MEF). Their roles in urban public transport, however, are quite limited, while their overall mandates are substantially larger than urban transport alone, leading to fragmentation, dilution, and lack of clarity in responsibilities across institutions with regard to policy making, regulation, and operational matters. The MAST is responsible with the MEF for setting the public transportation fares. The MTPTC has the combined responsibilities of public works, transport infrastructure, and communications. Sector knowledge is limited, and few efforts have been made to develop a comprehensive approach to improve it. Additionally, local

[3] Nancy Lozano-Gracia and Marisa Garcia Lozano, eds., *Haitian Cities: Actions for Today with an Eye on Tomorrow* (Washington, DC: World Bank Group, 2018), http://documents.worldbank.org/curated/en/709121516634280180/Haitian-cities-actions-for-today-with-an-eye-on-tomorrow.

[4] Lozano-Gracia and Garcia Lozano, *Haitian Cities*.

governments' minimal responsibilities are limited to traffic and parking management. Moreover, employment in the transport sector is gender segregated, as women represent only 7 percent of employees in transport and communications and only 2 percent of the total workforce in construction.[5] Increasing inclusion is not only relevant in terms of gender equality, but also for improving sector performance. Evidence shows that bringing diversity to the sector can improve decision-making by taking into consideration the differentiated needs of women, men, and vulnerable groups.[6]

9. **Because of the low quality and inefficiency of public transport, walking remains the primary mode of transportation in cities, but the urban infrastructure poses significant safety risks for both pedestrians and vehicle operators.** Public transport relies on informal operators, with little regulation from the government, which often translates into inefficient routing, overcapacity vehicles, high safety risks to drivers and operators (especially in gang-controlled areas and as a result of a cash-only system), and high, unaffordable fares. In the city of Cap-Haïtien, 15 percent of the population needs more than 30 minutes to reach public transport, but this share increases to 40 percent for the metropolitan area as a whole.[7] However, the streets lack proper pedestrian infrastructure and commercial activities often invade the sidewalks, compelling pedestrians to walk in the traffic lanes and contributing to poor safety and congestion. The substandard condition of the infrastructure adds to the difficulties of vulnerable individuals (including the poor and people with disabilities). Women are exposed to additional and frequent risks of sexual harassment and abuse during their walking trips.

10. **Cap-Haïtien—the country's second-largest city—has the potential to become a growth pole in the north.** In 2015, the core city was estimated to have around 320,000 inhabitants and the larger metropolitan area a population of around 500,000. Cap-Haïtien is the closest entry point for the Caracol Industrial Park (CIP), the largest state investment in the northern region. The CIP, a strategic node of the North–North-East Development Corridor and the key commercial route between Haiti and the Dominican Republic, is owned by the Government of Haiti (GoH) and managed by the MEF's Technical Execution Unit (Unité Technique d'Exécution, UTE). Despite the country's fragile situation and the lack of adequate infrastructure and services, the number of jobs created at the park grew from 2,500 in 2014 to about 15,000 today, of which 65 percent are women. An aging fleet of 400 vehicles operated by 120 private operators provides transportation services to the workers of CIP, carrying 11,000 passengers daily to and from communities within a 10-mile radius. While the CIP continues to provide subsidized transportation for workers, interchanges and passenger loading facilities remain nonexistent outside the CIP, and service remains unreliable. These factors negatively affect park operation hours and constrain growth opportunities.

11. **Access to urban transportation in Haiti is challenging for women, especially those living in low-income areas.** According to the Haiti Systematic Country Diagnostic (SCD 2015), women are 20 percent more likely than men to be unemployed and 6 percent more likely to be in the informal sector. In 2018, the female unemployment rate was at 16.3 percent, which is above the average of other low-income countries with similar characteristics. Poor, informal, and inefficient transportation services affect women's ability to generate income and access job opportunities or critical social services. Women's mobility patterns, in addition to trips for business purposes, include visits to health

[5] ILO (International Labour Organization), "ILOSTAT: Haiti Profile," https://www.ilo.org/shinyapps/bulkexplorer32/?lang=en&segment=indicator&id=EAP_2EAP_SEX_AGE_NB_A.
[6] A study by the Organisation for Economic Co-operation and Development (*Fostering Diversity in the Public Service - OECD , 2019*) on the public sectors of 26 EU countries found that workforce diversity can improve public-service quality and efficiency gains, increase policy effectiveness, enhance social mobility, and contribute to advancing the reform agenda.
[7] Team calculations (see annex 5).

centers and markets, taking children to school, and collecting water. Women's mobility patterns linked to the mobility of care resonates with the fact that 53 percent of women's time in Haiti is dedicated to domestic work, which implies traveling shorter distances, by foot, linking trips, and being accompanied by children or other family members. Men have access to faster modes of motorized transportation, while women rely on slower modes such as walking and shared transport such as tap-taps.[8] The characteristics of women's travel patterns increase their vulnerability to affordability, accessibility, security, and safety issues.[9] Poor road conditions represent another important barrier for women to access basic services. For instance, 48 percent of households in Haiti have at least one woman between 15 and 49 years of age who is unable to seek medical care because of the distance to the nearest health facility. In rural areas, these levels increase further, especially among poor households. Sixty-two percent of rural households have at least one woman whose decision to seek medical care is affected by distance. In addition, women are exposed to additional and frequent risks of sexual harassment and abuse during their walking trips.

12. **Urban areas continue to receive an influx of people from high-poverty rural areas, putting additional pressure on urban infrastructure and transport services**. The number of internal migrants in Haiti is about 790,000 (about 10 percent of the total population), with 83 percent of them migrating to urban areas. Port-au-Prince and Cap-Haïtien are the two main poles of attraction for those migrants. Seeking employment is the main reason for internal migration to urban centers. Despite these trends and the pressing needs arising from rapid urbanization, the 2018 urban mobility diagnostic[10] revealed that very few investments have been made to improve mobility and transport infrastructure.

13. **Frequent climate-induced natural disasters and related disruptions add challenges to urban mobility and accessibility in Haitian cities and tend to affect poor households to a greater degree.** In Cap-Haïtien, a city below sea level and highly exposed to climate impacts, 57 percent of households affected by floods indicated that road damage is the second-most-common impact. This share goes up to 63 percent among poor households.[11] Furthermore, 66 percent of moderately poor households and 73 percent of extremely poor households in rural Haiti have at least one woman whose decision to obtain medical care is affected by the distance to a health facility. The need for resilient transport infrastructure is significant in urban areas, half of which are exposed to flood hazards that are being exacerbated by observed and anticipated climate change risks, including changing precipitation patterns and more frequent and intense storms and hurricanes. In addition, sea level rise is projected to increase between 0.13 and 0.56 meters by 2090 in the Caribbean,[12] which would result in an increased risk of storm surges and urban flooding in coastal cities such as Cap-Haïtien and Port-au-Prince. Whereas large disasters such as earthquakes carry the potential to disrupt urban areas overall, lower-magnitude events such as urban flooding and intense rains can severely affect rural communities, local economies, and businesses by disrupting the transportation system and making commuting, the transportation of goods, and general movement extremely difficult.

[8] Camilla Gandini, Andrea Monje Silva, Pablo Guerrero, and Amanda Beaujon Marin, eds., "Gender and Transport in Haiti: Gender Diagnostic and Gender Action Plan," IDB Technical Note 2086, Inter-American Development Bank, Washington, DC, https://publications.iadb.org/publications/english/document/Gender-and-Transport-in-Haiti-Gender-Diagnostic-and-Gender-Action-Plan.pdf.
[9] Gandini et al., "Gender and Transport in Haiti."
[10] Kavita Sethi and Roger Gorham, *Urban Mobility in Haiti: A Diagnostic* (Washington, DC: World Bank Group, 2018), http://documents.worldbank.org/curated/en/271291607372517595/Urban-Mobility-in-Haiti-A-Diagnostic.
[11] World Bank, *Poverty and Floods in Cap-Haïtien* (Washington, DC: World Bank, 2020), https://openknowledge.worldbank.org/handle/10986/34165.
[12] Climate Change Knowledge Portal, "Haiti: Sea Level Rise," https://climateknowledgeportal.worldbank.org/country/haiti/impacts-sea-level-rise.

Road Infrastructure and Rural Transport Context

14. **The national road network is limited, in poor condition, and suffers from investment gaps in nonprimary roads and maintenance.** Up to 80 percent of the transportation of people and goods takes place on roads.[13] The road network is limited to about 3,450 km (700 km of national roads, 1,500 km of departmental roads, and 1,200 km of tertiary roads) for a territory of 28,773 square kilometers. The mobility of goods and people is constrained not only by the small size of the road network but also by its poor condition and maintenance. Significant investments have been made within the past decade, but these were concentrated on primary national roads. While this increased intercity connectivity, 50 percent of the national territory remains poorly connected. Entire regions can be totally isolated for days at a time during the rainy season and following major storms and hurricanes. Further, less than 20 percent of the financing needs for maintenance are covered by the dedicated maintenance fund or the budget set aside for periodic maintenance. The MTPTC is the line ministry responsible for the planning, execution, and maintenance of road infrastructure, with local directorates in charge of rural road maintenance.

15. **Transport infrastructure in the South Peninsula has suffered the impacts of frequent severe climate change events, aggravating the effects of the recent earthquake.** The four departments of the south—Grand'Anse, Nippes, South, and South-East—have experienced a steady increase in extreme weather events, and the GoH recognizes the critical importance of developing a disaster- and climate-resilient transportation network. Of the 32 percent of losses in GDP caused by Hurricane Matthew, 18 percent were in the transport sector due to the destruction of bridges and roads. Because of underlying vulnerabilities, the recent earthquake of August 2021 damaged more than 850 km of roads (including primary and secondary roads) in Nippes, South, and Grand'Anse, resulting in damages to the transport sector of up to US$160 million and leaving more than 450,000 people isolated. The damages were aggravated by Hurricane Grace, which also affected the South-East department with significant damages to the departmental road (Route Departmental 41—RD41) linking 200,000 people to the main city, Jacmel.

16. **Limited access to basic services (health, education, administrative centers) and economic opportunities is a key constraint to development in rural areas and exacerbates vulnerabilities to climate change and seismic impacts.** Haiti's Rural Access Index (2015) is about 39 percent, with much of the tertiary and rural networks in very poor condition. Nonfarming revenue represents a large share (up to 30 percent) of rural households' income and is a strong predictor of escape from poverty. Meanwhile, nonfarming economic opportunities in rural areas are usually concentrated in small towns in rural areas and inaccessible to the poorest because of inadequate connectivity or unaffordable transport services. Similarly, the rural poor are most affected by climate and seismic impacts, as food and medical aid cannot reach remote villages due to their precarious infrastructure.

17. **The proposed Project will support the reconstruction efforts of the South Peninsula** with the goal to improve rural access to basic service and economic opportunities that is frequently impacted by severe climate events. It will target investment needs that improve the area's overall transport climate resilience with (i) an integrated approach to territorial planning (including urban accessibility and overall connectivity); (ii) appropriate technical standards for road infrastructure design and rehabilitation; (iii) infrastructure maintenance and reliable connectivity; and (iv) capacity and institutional arrangements to properly handle investment planning, crisis management, and reconstruction.

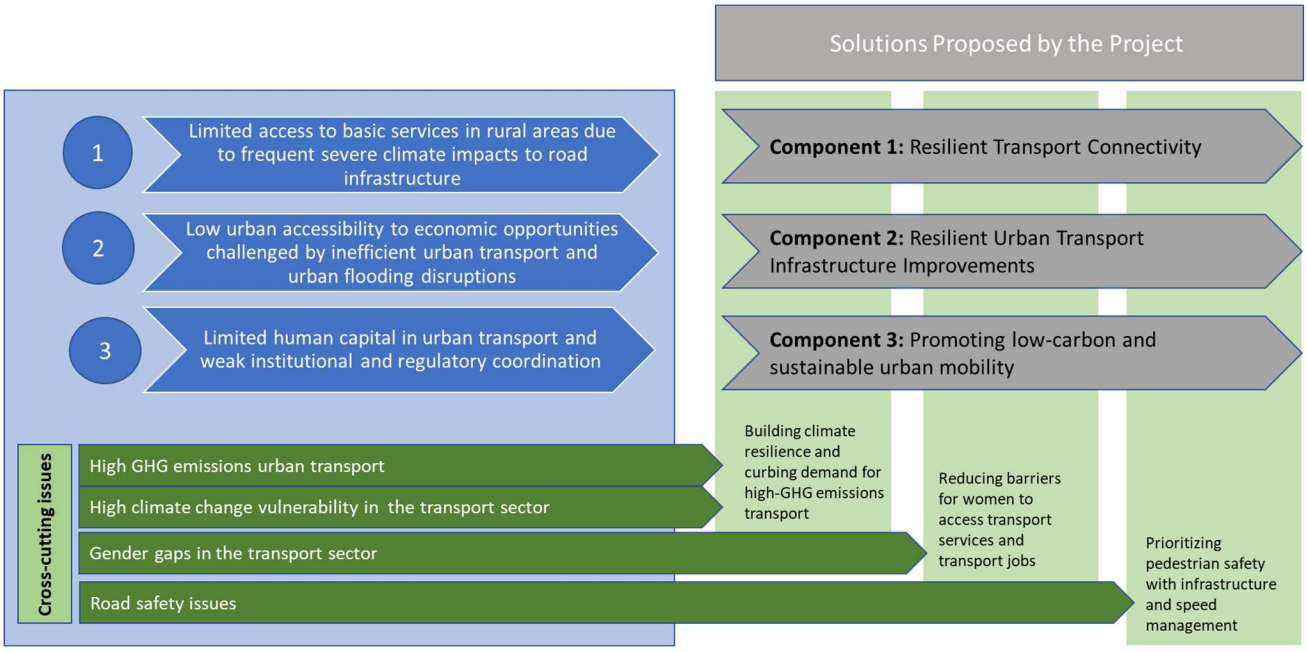
18. **The Crisis Response Window (CRW) financing (USD 20 million) strengthens the Bank's efforts and provides**

[13] MTPTC, *National Transport Plan* (Haiti: MTPTC, 2008).

additional emergency response for the long-term sustainability of results. The impact of the earthquake was described, and the proposed Word Bank response outlined in the Crisis Window Response Eligibility note to Executive Directors (November 2021). In this context, Management underlined that CRW resources would be deployed through the existing portfolio, building on existing partnerships and delivery mechanisms, and to one new project under preparation to extend their activities in the targeted areas. The scope and rationale for the post-earthquake support are described in further detail in annexes 2 and 4. Additionally, by improving road conditions and contributing to the all-weather resilience of selected road sections, the proposed Project seeks to mitigate one of the obstacles that women face to using health facilities.

19. **By focusing on improving urban transport infrastructure and services in Cap-Haïtien,** the Project fits into a coordinated territorial approach, with the long-term objective of promoting economic growth poles in the Northern region, complementing other existing Bank-financed operations. Awareness of the challenges in urban planning and urban mobility and the need to tackle them is growing. A presidential commission to modernize urban transport was created in 2018, and the GoH recently launched the Urbayiti program (financed by the European Union) that is aimed at tackling the transport needs of Port-au-Prince. However, human capital, institutional coordination, and regulation in urban transport sector need to be improved urgently. Additionally, efforts should be made to improve road safety and promote women's participation in low-, medium-, and high-skilled jobs in the transport sector.

Figure 1. Solutions proposed by the Project vis-à-vis key challenges of the sector



C. Relevance to Higher-Level Objectives

20. **The Project is aligned with the World Bank Group's Haiti Country Partnership Framework (CPF Report No. 98132-**

HT), for the FY16–21 period,[14] discussed by the Board of Executive Directors on September 29, 2015[26] and updated during the Performance and Learning Review (PLR Report No. 124812) dated June 27, 2018 as it emphasizes: (i) contributing to enhancing income opportunities (Area of Focus 1, Objective 1) and (ii) improving disaster prevention and strengthening climate resilience (Area of Focus 3, Objective 9). The Project also incorporates lessons from the PLR such as the need to continue to include Contingent Emergency Response Components (CERCs) in investment projects, the use of local governments as an entry point to strengthen the social contract with citizens, and the need for simple project designs and streamlined implementation arrangements. The Project is also aligned with Haiti's Strategic Development Plan (2012), which highlights the need to invest in secondary cities, as well as with other regional planning documents, including the Nord/Nord-Est Development Plan (2015) and the Cap-Haïtien–Ouanaminthe Development Corridor Regional Comprehensive Plan (2012).

21. **The Project is aligned with Haiti's Nationally Determined Contributions and the priorities of the World Bank Climate Change Action Plan (CCAP): Supporting Green, Resilient, and Inclusive Development 2021–25,**[15] as it focuses on climate adaptation and mitigation in two of the five key systems: "Transport" and "Cities." More specifically, the Project directly addresses two of the three main pillars of transitioning to the transport system defined in the CCAP: "Mobility and Access" and "Resilient Transport Systems." Additionally, the Project is aligned with Haiti's latest Nationally Determined Contribution 2015, which identifies the rehabilitation of infrastructure as an adaptation priority, and sustainable transport and enhanced regulation/control of the importation of second-hand vehicles as mitigation priorities for transport sector decarbonization.

22. **The Project contributes to the World Bank's twin goals of ending extreme poverty and promoting shared prosperity and is aligned with the Green, Resilient and Inclusive Development (GRID) strategy.**[16] The Project targets poverty alleviation by creating better living conditions, services, and opportunities in the South Peninsula—where extreme poverty reaches as high as 37 percent.[17] The Project promotes shared prosperity by addressing urban development needs in Cap-Haïtien, a city where around 31 percent of households are considered poor. The Project contributes directly to each dimension of the GRID including investing in sustainable transport (green), risk reduction (resilient) and access to infrastructure (inclusive). It also contributes to Sustainable Development Goal 9, "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation," and specifically Target 1, "Develop quality, reliable, sustainable and resilient infrastructure, […], to support economic development and human well-being, with a focus on affordable and equitable access for all," and SDG 11, "Make cities inclusive, safe, resilient and sustainable," especially Target 7, "to provide universal access to safe, inclusive, and accessible green and public spaces, particularly for women and children, older persons, and persons with disabilities."

23. **The proposed Project is fully consistent with the World Bank Group's strategy for Haiti, developed in response to the August 2021 earthquake (see annex 4).** Its overarching objective is to support the GoH in implementing sustainable post-earthquake recovery with a focus on: (i) rehabilitating key transport infrastructure and restoring

[14] The PLR extended the CPF period and milestones while a new CPF is being prepared. The new CPF is expected to be presented to the Board on April 6, 2023.
[15] World Bank, *World Bank Group Climate Change Action Plan 2021–2025: Supporting Green, Resilient, and Inclusive Development* (Washington, DC: World Bank, 2021), https://openknowledge.worldbank.org/handle/10986/35799.
[16] World Bank Group, "From COVID-19 Crisis Response to Resilient Recovery—Saving Lives and Livelihoods while Supporting Green, Resilient and Inclusive Development (GRID)," Development Committee, World Bank, Washington, DC, April 2021, https://thedocs.worldbank.org/en/doc/9385bfef1c330ed6ed972dd9e70d0fb7-0200022021/original/DC2021-0004-Green-Resilient-final.pdf.
[17] Raju Jan Singh and Mary Barton-Dock, *Haiti: Toward a New Narrative*, Systematic Country Diagnostic (Washington, DC: World Bank, 2015), https://openknowledge.worldbank.org/handle/10986/22580. License: Creative Commons Attribution CC BY 3.0 IGO.

connectivity; (ii) strengthening food security; and (iii) rebuilding damaged schools in the affected areas following a "build back better" approach to strengthen resilience to natural hazards and climate change. The World Bank's support to the earthquake response also seeks to complement other development partners' interventions, considering the value-added and current expertise of the World Bank Group in Haiti as well as these partners' ongoing and upcoming earthquake response operations.

24. **The proposed Project is aligned with the World Bank Group's Maximizing Finance for Development approach.** By exploring options for private sector participation, especially for revenue-generating activities, such as the renewal of the artisanal public transport fleet, this Project optimizes the use of limited public resources, informs future investment and public-private partnership (PPP) initiatives, and encourages private sector participation. Other than a small dedicated PPP unit at the Ministry of Finance, Haiti has no functional PPP policy or institutional architecture. The use of the International Development Association (IDA) resources therefore focuses on informing and promoting private sector participation. The Public-Private Infrastructure Advisory Facility (PPIAF) is currently financing a study to inform potential private sector involvement. The study first looks into the organization, structure, and business operations of tap-tap and mototaxi operators before identifying entry points toward a more efficient industry. These entry points include deployment of an automated fare collection system, financial mechanisms to renew the existing fleet, a governance model for operators, means to include intelligent transport systems in business operations, and the improvement of women's mobility.

II. PROJECT DESCRIPTION

A. Project Development Objective (PDO)

PDO Statement

25. **The Project Development Objective is to:** (i) enhance climate-resilient rural connectivity in the South Peninsula; (ii) improve climate-resilient urban accessibility in Cap-Haïtien and targeted urban areas; and (iii) enhance institutional capacity in the urban transport sector.

PDO-Level Indicators

26. **The PDOs will be measured with the following PDO indicators:**

1) People benefited from improved climate-resilient rural roads in the South Peninsula (number)
2) Economic opportunities in Cap-Haïtien accessible by public transport in less than 60 minutes (percentage)
3) Municipal Public Transport Unit in Cap-Haïtien is operational and staffed (Y/N)

B. Project Components

27. **The proposed Project builds on lessons learned and results from previous Bank-financed transport projects, including previous experience responding to emergencies, tackling climate change challenges, and engaging citizens in a fragile environment**. It includes five components, outlined in detail below.

Component 1: Resilient Transport Connectivity (estimated total costs of US$50 million)

28. **This component aims to strengthen the overall climate resilience of the road network in the four departments of the South Peninsula (the South, Nippes, Grand'Anse, and South-East departments) that have experienced a steady increase in extreme weather events.** It finances structural investments in the transport sector and institutional strengthening activities to improve climate resilience connectivity, by following a "build back better" approach.[18] Local communities will be engaged in road maintenance and civil works activities in subcomponents 1.1, 1.2, and 1.3. This component consists of four subcomponents:

29. **Subcomponent 1.1: Climate Adaptation of Rural Roads**, directly aims to improve the adaptation of road segments by identifying their most critical and vulnerable points to climate change impacts and selecting the engineering solutions that best protect and strengthen them (see annex 2 for more details on the specific contributions of each activity to climate resilience). The activities are prioritized based on a multicriteria framework (see annex 2). This component also promotes the rehabilitation of damaged assets before they fall to a level beyond repair and ensures all-weather and climate-resilient community access to the transportation network in the selected departments.

30. **Subcomponent 1.2: Drainage Improvement of Rural-urban Mobility Infrastructure** also supports climate resilience investments with a rural-urban mobility focus that include: (i) detailed feasibility studies for climate resilience improvement; (ii) drainage improvements at tap-tap interchanges and passenger loading facilities; and (iii) drainage improvements in pedestrian infrastructure. When technically feasible, these activities incorporate nature-based solutions.[19]

31. **Subcomponent 1.3: Complementary Facilities** finance the construction or improvement of small complementary facilities such as lighting, bus stops, small irrigation systems, other road safety structures in inhabited areas along the targeted roads, near schools, and around water kiosks and health centers. The definition of complementary facilities and their characteristics is based on a participatory process so that the priorities of low-income women and other vulnerable groups are considered. The use of local small and medium enterprises (SMEs) and labor-intensive work (LIW) is prioritized whenever possible, and the recruitment and retention of women is promoted through the implementation of the Gender Action Plan under Component 3.

32. **Subcomponent 1.4: Capacity Building** supports institutional strengthening and capacity building and includes technical assistance and training to the Crisis Emergency Response Unit and the departmental directorates of MTPTC's public works in asset management and investment planning.

Component 2: Resilient Urban Transport Infrastructure Improvements (US$50 million)

33. **This component aims to improve resilient access and enhance mobility along selected corridors in Cap-Haïtien and targeted urban areas.** It supports a low-carbon urban mobility model by improving conditions for safe nonmotorized

[18] "Building back better" means to leverage the recovery, rehabilitation, and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating climate change and disaster risk reduction measures into the restoration of physical infrastructure and societal systems and looking into the revitalization of livelihoods, economies, and the environment. Such approaches ensure that interventions are inclusive of the most vulnerable, while also advancing longer-term resilience and sustainability to not only be better prepared for the impacts of climate change in the future but to also invest in lower-carbon technologies and infrastructure that are more inclusive.

[19] The MTPTC's Central Execution Unit (UCE) has previous experience implementing nature-based solutions proven to provide multiple co-benefits in terms of ecosystem preservation, improved local livelihoods, and climate resilience.

mobility and the operations of the public transport system (minibuses and tap-taps). In addition, this component strengthens urban infrastructure resilience to climate change and extreme weather events by preventing interruptions in the flow of persons and goods along selected corridors in Cap-Haïtien and along the North-East corridor.[20]

34. **This component includes four main activities:** (i) improvements of critical sections of the urban street network to facilitate the safe coexistence of pedestrians and vendors with commercial vehicles; (ii) drainage improvements in pedestrian infrastructure, roads, streets, and markets to withstand projected increases in rainfall, sea level rise, and storm surges; (iii) public transport improvements, including new stations for tap-tap interchanges and passenger loading facilities in selected corridors including in the North-East corridor (see paragraph 38); (iv) traffic management improvements; and (v) feasibility studies and road infrastructure safety assessments.

35. **The investments follow an integrated multimodal approach targeting intersections and infrastructure improvements for vulnerable road users, such as pedestrians, and in particular women and people with disabilities.** By focusing on up to three corridors, these interventions serve as pilots that can be replicated on a larger scale in the future. An analysis of gender differences in mobility with a focus on intersectionality (disabilities, income levels, etc.) will be conducted to inform, identify, and prioritize the pilots. The investments also contribute to reducing the impacts of climate change on both nonmotorized and public transport mobility and improve the conditions and efficiency of public transport. Detailed contributions to carbon reductions and a modal shift are presented in the economic evaluation section.

Component 3: Promoting Low-Carbon and Sustainable Urban Mobility (US$14 million)

36. **This component aims to set up the transition to a low-carbon and sustainable urban transport sector in Haiti.** It is built around three technical assistance (TA) packages.

37. **First, the component finances TA at the national and municipal levels to foster the institutional conditions for implementing the urban mobility agenda.** This TA includes: (i) training and knowledge development of key public stakeholders in urban mobility management and planning, including women; (ii) establishment of a national strategic plan and a regulatory and operational framework for the urban transport sector; (iii) delivery of a roadmap for the structuring of informal public transport; and (iv) training and operational support to establish the Municipal Public Transport Unit of Cap-Haïtien and an informal transport observatory.

38. **In addition to these activities, the component finances TA to develop tools for urban transport planning at the national level.** The activities includes: (i) the preparation of a toolkit and design manual for planning inclusive and climate-resilient urban transport infrastructure with a gender perspective; (ii) a gap analysis of the recruitment, retention, and promotion barriers that women face to participating in the urban transport sector and the development of a Gender Action Plan (GAP) with actions and indicators to encourage women's participation in the sector; (iii) the establishment and population of a road safety database for urban transport; and (iv) resilient urban transport planning. These activities seek to promote and inform the inclusion of vulnerable users, improve road and pedestrian safety, and reduce gender inequities.

39. **Finally, this component finances TA to support public transport professionalization and improvement of transport**

[20] The Cap-Haïtien–Fort-Liberté–Ouanaminthe axis.

service in Cap-Haïtien, including: (i) a study to streamline tap-tap routes along selected corridors; (ii) capacity building and training for transport operators and drivers; (iii) the deployment of an automated fare collection system for selected corridors; (iv) development of a strategy to prevent and respond to sexual harassment against women in public transport; (v) capacity building and training for transport operators and drivers on road safety and gender issues; (vi) implementation of a pilot for regular technical inspection of vehicles in the selected corridor; and (vii) preparation of a plan for the fleet renewal mechanism. Several of these activities, such as the corporatization of transport operators, optimization of routes, deployment of the first automated fare collection system, development of a bus renewal scheme, and a vehicle inspection program, are implemented as pilot programs in the North-East corridor (Cap-Haïtien–Fort-Liberté–Ouanaminthe) combined with infrastructure improvements (Component 2). This pilot is developed in partnership with the UTE-MEF, MTPTC, and CIP.

Component 4: Contingent Emergency Response Component (CERC) (US$0 million)

40. **This component finances the provision of support in the event of an eligible emergency. It includes the implementation of emergency works, rehabilitation, and associated assessments, at the government's request in the event of a disaster.** This component provides an immediate response to an eligible emergency, as needed. The amount of uncommitted funds to be allocated to this component is decided at the time of the emergency, in agreement with the World Bank.

Component 5: Project Management (US$6 million)

41. **This component aims to support the Central Execution Unit (Unité Centrale d'Exécution, UCE) of the MTPTC in Project coordination, implementation, management, and supervision (including its fiduciary aspects, monitoring, evaluation, and reporting of activities and results), through the provision of goods, consultant services, training, and operating costs, including the carrying out of Project audits.** It would finance key Project staff, operational costs, and equipment for the Project Implementation Unit (PIU), ensure a strong local presence for close supervision in the targeted areas, support social and environmental risk management, identify and mitigate gender disparities, and support citizen engagement.

Project Financing

42. **The Project is financed by two grants for a total of SDR 86.9 million (including a proposed IDA grant of US$100 million and a Crisis Response Window grant of US$20 million equivalent).** The Project implementation period is six years. Paragraph 12, Section III of the World Bank Investment Project Financing (IPF) Policy has been triggered to allow preparation of the project following the condensed procedures for situations of urgent needs as part of the emergency response to the earthquake.

C. Project Beneficiaries

43. **The Project's primary beneficiaries are the inhabitants in the South, Nippes, Grand'Anse, and South-East departments in the south and the Cap-Haïtien city region and targeted urban areas**, who will benefit from improved connectivity and more reliable accessibility. The total primary beneficiaries are estimated at 406,800 people of which

60.5 percent are poor[21] and 49.5 percent are women[22]. The benefits in the south are expected to be concentrated in the earthquake-affected areas and along the Departmental Road 41, benefiting a population estimated at 226,800 people. The population benefiting directly from improved urban mobility and in the vicinity of the corridor infrastructure and flood management investments in Cap-Haïtien is estimated to be at least 180,000 residents. Benefits from corridor improvements and traffic management are also expected to spill over to the entire region of the north and toward the east (the North–North-East corridor), benefitting 500,000 inhabitants through the improvement of mobility.

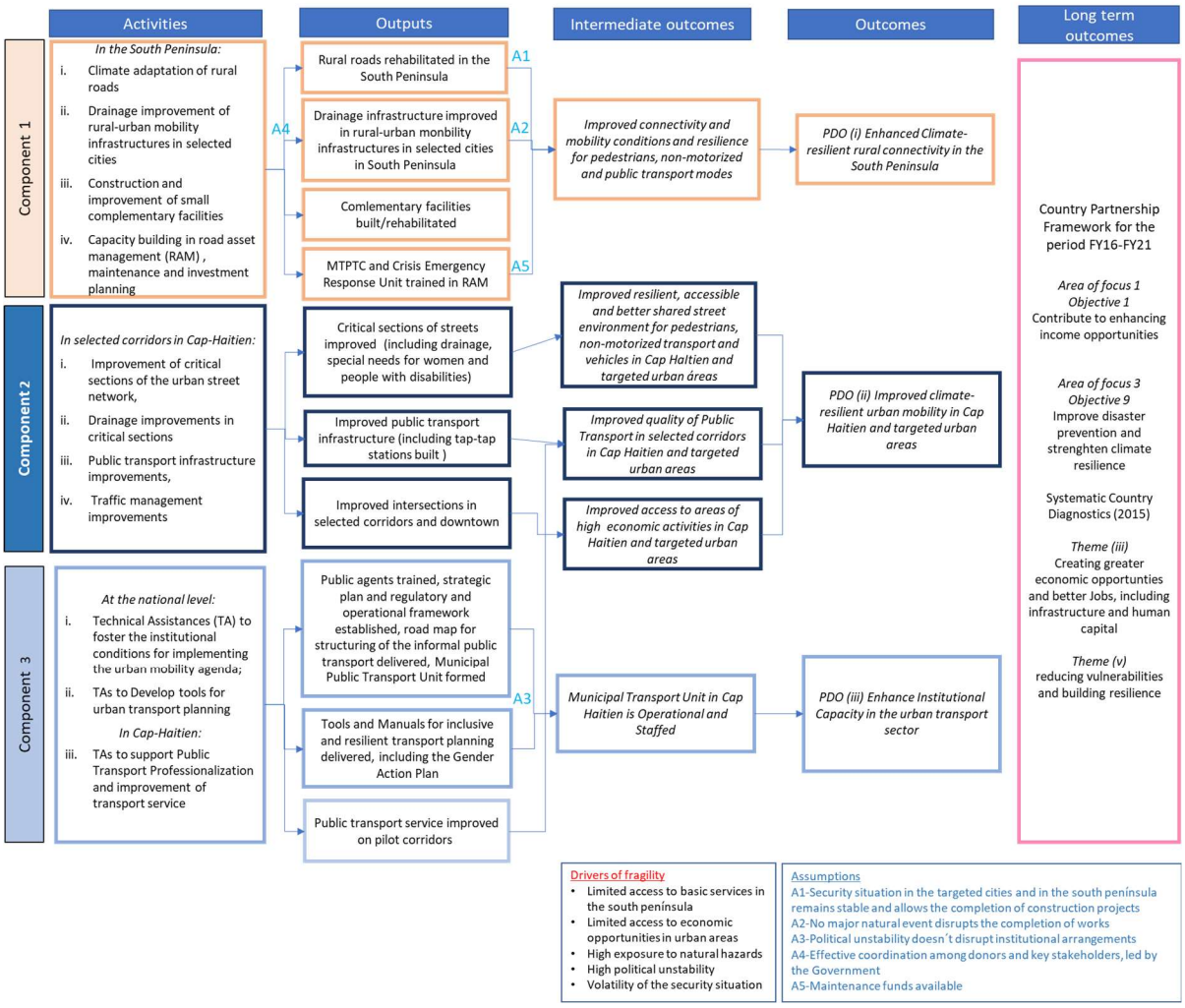
44. **While the infrastructure investments benefit the population of the targeted areas of intervention, they especially enhance the daily conditions of women's lives, given their role in society.** Previous studies in Haiti have shown that women usually make more trips and stops during a day as compared to men, as part of the multiple responsibilities linked to their roles in society. The proposed Project pays close attention to the priorities, safety, and needs of women and girls. The Project prioritizes interventions for local access (to schools and health centers, for instance) and defines the complementary facilities needed to enhance the benefits of improved connectivity. Women also benefit from the LIW activities of the Project with the goal of having 40 percent of the workload performed by women (105,000 person days of labor-intensive work to be done by women, of the total target of 350,000).

[21] World Bank and Observatoire National de la Pauvreté et de l'Exclusion Sociale (ONPES). 2014. Investing in People to Fight Poverty in Haiti, Reflections for Evidence-based Policy Making. Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO

[22] Haiti Mortality, Morbidity and Utilization Survey / Enquête Mortalité, Morbidité et Utilisation des Services (EMMUS-VI) 2016-2017

D. Results Chain

Figure 2. Results Chain of Resilient Connectivity and Urban Transport Accessibility Project



E. Rationale for Bank Involvement and Role of Partners

45. **The World Bank is uniquely positioned to support recovery activities in the South, as the Bank has been supporting strategic investments since 2004, focusing on spot improvements and resilient transport**. The World Bank has built a strong relationship with the implementing agency, UCE-MTPTC, which has become highly experienced in managing World Bank projects in the transport sector. The World Bank and the UCE-MTPTC have worked in the transport sector for over 18 years, including in the Haiti Transport and Territorial Development Project (P095523), the Institutions Infrastructure Emergency Recovery Project (PRUII/P120895), the Disaster Risk Management and Reconstruction Project (PRGRD-P126346), the ongoing Rural Accessibility & Resilience Project (RARP-P163490) and the Caribbean Air Transport Connectivity Project (CATCOP-P170907). Under Component 1, the proposed Project coordinates closely with Haiti's key partners in the transport infrastructure sector to ensure geographic and

sectoral complementarity, considering the ongoing investments financed by the national budget and by other partners, including the Inter-American Development Bank (IDB).

46. **The World Bank is Haiti's main financing partner in the reconstruction following the August 2021 earthquake.** The Post Disaster Needs Assessment (PDNA) was officially launched by the Prime Minister and development partners (United Nations, World Bank, European Union, IDB, and the United States Agency for International Development) on August 31, 2021. The PDNA estimated total damages at US$1.246 billion and total losses at US$373 million, and priced the resilient recovery and reconstruction needs at approximately US$2 billion. To respond to the earthquake recovery financing needs, the GoH allocated an estimated US$5 million for the immediate emergency response and deployed US$40 million from the Caribbean Catastrophe Risk Insurance Facility. The World Bank reallocated US$60 million to cover short-term recovery needs, activating the CERC mechanism of three ongoing projects, including the RARP (P163490) in the transport sector. For the medium- and longer-term earthquake recovery and reconstruction phase, the Bank has mobilized US$150 million, out of which US$60 million will be used to replenish the triggered CERCs**.**

47. **The World Bank is uniquely positioned to support the city of Cap-Haïtien through the Project due to its considerable experience in carrying out projects in the same region.** These include the rehabilitation of the Cap Labadie Road under the Institutions & Infrastructure Emergency Recovery Project (IIERP-P120895), the Cultural Heritage Preservation and Tourism Sector Support Project (PAST-P144614), the Cap-Haïtien Urban Development Project (CHUD-P168951), and the Municipal Development and Urban Resilience Project (MDUR-P155201). The World Bank's global experience in addressing urban transport issues in cities around the world is an added advantage, as well as the existence of specialized World Bank knowledge teams (e.g., Urban Transport; Resilient Infrastructure; Resilient Transport; Fragile, Conflict, and Violence Cross-Cutting Solution Area), which can provide inputs and share experiences for design and implementation of the Project.

48. **On the urban mobility front, the Project complements investments and activities of other development partners in Cap-Haïtien that target solid waste collection and disposal, and access to water and sanitation.** Given the considerable challenges and the strategic importance of Cap-Haïtien, the city has benefited from the development of several planning and visioning instruments, as well as a large and diverse set of investments from the World Bank and the government. The Bank is financing three ongoing operations in the city: the CHUD, the MDUR, and the CATCOP focusing on major urban infrastructure and transport investments. Role of other partners in urban mobility in Cap-Haïtien has been limited, with the European Union supporting the Urbayiti program focusing on urban planning and governance in Port-au-Prince, and the IDB financing pre-feasibility studies in urban mobility in Port-au-Prince.

49. **The Project has a clear rationale for public sector provision and financing, as it targets the improvement of public infrastructure (e.g., urban and transport infrastructure) and will cover areas where private sector financing is currently absent and is unlikely to materialize in the near term.** The value-added of the World Bank consists in providing significant resources for large capital investments that would otherwise be difficult to obtain, given the constrained fiscal environment of the country.

F. Lessons Learned and Reflected in the Project Design

50. **The proposed Project design takes into account lessons learned from previous emergency operations in Haiti, in**

particular the post-2010 EQ infrastructure project (IIERP-P120895) and the Post Hurricane Matthew Transport component under the PRGRD. The proposed Project also builds on lessons learned and results from previous Bank-financed transport projects, including previous experience tackling climate change and engaging citizens in a fragile environment with regards to the rehabilitation of vulnerable and critical transport infrastructure. It also draws on the Bank's experience in other low-income, low-capacity environments.

51. **Close implementation support and supervision—aided by financial and human resources that are commensurate with the Project's scale—are critical in the fragile and low-capacity context of Haiti.** Close supervision proximity (including through country-office-based staff) has been an effective approach to providing procurement, financial management, and safeguards support and faster identification and successful resolution of issues. In addition to this, the World Bank team continues to adopt a hands-on approach with the PIU under this Project, including through frequent video conferences, phone calls, and direct collaboration.

52. **Strong fragility analysis and close monitoring,** as well as tailored business processes and implementation arrangements, are needed to ensure efficiency, responsiveness, and the achievement of concrete results in Haiti's volatile environment. Specific monitoring mechanisms are integrated into the Project implementation arrangements to provide an immediate feedback loop to both improve implementation and provide data for Project assessment. Building on the lessons from the RARP, the Center Artibonite Regional Development Project (CARDP), and the PRGRD, this Project continues to utilize consultation, social engineering, and site visits to create beneficiary feedback loops for key Project activities and provide timely data to UCE and the World Bank team to improve the quality of implementation. The Project benefits also from decentralized monitoring and supervision approaches (e.g., having Project staff based at or near sites of operation, "bottom-up" community monitoring, etc.) to facilitate and reinforce frequent stakeholder consultations, communication, and awareness-raising and training activities, particularly related to the smooth implementation of environmental and social (E&S) risk management actions.

53. **Simplified objectives and limited scope improve efficiency.** While needs are significant, complex multisector operations are difficult to implement in fragile, conflict, and violence affected settings. In countries with weak capacity, it is critical to begin with a limited number of geographical areas of intervention (in this case, in the four selected departments in the South and Cap-Haïtien and targeted urban areas), and only scale up once the Project activities are deemed effective and tangible results are achieved.

54. **A flexible project design with adapted implementation mechanisms, including provisions to respond to emergencies, is recommended in fragile and disaster-prone countries.** In a context of high fragility, where change is often the only constant, there needs to be a balance between ambition at the Project design stage and flexibility during implementation to adapt an intervention to changing circumstances and needs. While the overall Project design and implementation approach is established during preparation, comprehensive implementation procedures are detailed in the Project Operational Manual (POM). In addition to an emergency component (Component 4—CERC) to respond rapidly in an eligible emergency, it is useful to include alternative delivery mechanisms and tailored implementation arrangements, as integrated in the Project, such as: (i) citizen engagement and complementary investments activities implemented by nongovernmental organizations, delegated implementing agencies (Maître d'Ouvrage Délégué, MDODs) with strong local credibility and experience (see section III.A and annex 3); and (ii) digital reporting and information and communication technology tools (including the Geo-enabling Initiative for Monitoring and Supervision—GEMS).

55. **Disaster risk management and resilience.** The Bank has gained extensive knowledge regarding disaster and climate risk exposure and vulnerability, climate change projections, the dynamics of environmental degradation, associated changes in river flows, and river sedimentation. With regards to the rehabilitation of vulnerable and critical transport infrastructure, the Bank's experience in Haiti and other low-income, low-capacity environments demonstrates that appropriate design, construction, rehabilitation standards, maintenance and emergency response mechanism are essential to reduce climate and disaster impact in the transport infrastructure. The Project has integrated this infrastructure life-cycle approach, including planning, engineering, operation and maintenance, contingency planning, and institutional capacity to climate and disaster resilience.

56. The Project's design benefits from the experience and knowledge gained across the World Bank's portfolio on urban transport, urban planning mobility (e.g., urban mobility diagnostics, urbanization reviews), and programs of informal transport reforms (e.g., in Senegal, Sierra Leone, Mozambique and Cote d'Ivore). In particular, an extensive knowledge work program has been developed by the Bank over the years to tackle poverty and improve service delivery in urban areas, focusing on accessibility and constraints created by reduced mobility and poor connectivity. The Project also builds on lessons learned from the World Bank's Leaders in the Urban Transport Planning Program (LUTP), based on which the Independent Evaluation Group has recognized the importance of promoting a common understanding of sectoral challenges and potential solutions. The Project focuses on contributing to capacity and leadership development through providing a platform for guidance, training, TA, and learning throughout the Project cycle, South-South learning and exchange, and best practices for demonstration to sector stakeholders and further initiatives.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

57. **The MTPTC, as the line ministry responsible for the planning, execution, and maintenance of transport and urban infrastructure and the development of urban planning regulations, is responsible for overall Project oversight.** The Central Execution Unit (UCE) within the MTPTC is responsible for Project implementation with all its components. It uses the institutional framework, procurement, financial management, and disbursement arrangements in place under other World Bank–financed projects implemented by the MTPTC. A more detailed description of the implementation arrangements is presented in annex 3 and further elaborated in the POM.

58. **A POM, detailing the procedures for the Project activities, has been prepared and adopted by the UCE-MTPTC.** The POM describes the Project implementation arrangements in detail, including the roles and responsibilities of key project stakeholders, as well as an ordered set of instructions on the organization, procedures, and resources dedicated to the efficient and effective achievement of the PDO. The POM also includes, among other things, specific financial management arrangements and internal control procedures, procurement, and monitoring and evaluation (M&E).

59. **The UCE is highly experienced in managing World Bank financed projects in the transport sector, with extensive knowledge of the Bank's fiduciary and safeguard procedures.** It has an excellent track of implementation progress and Project disbursement rates. The UCE has implemented Bank-financed projects in the transport sector for over 18 years, including the Haiti Transport and Territorial Development Project (P095523), PRUII (P120895), and PRGRD

(P126346), and the ongoing MDUR (P155201), RARP (P163490), CHUD (P168951), CATCOP (P170907), and Haiti Digital Acceleration Project (HDAP-P171976).

B. Results Monitoring and Evaluation Arrangements

60. **UCE will be responsible for Project monitoring, data collection, reporting, data dissemination, and evaluation.** UCE has increased its data collection activities in recent years but continues to need capacity for more comprehensive monitoring of projects. To enhance the monitoring at the level of this Project, additional M&E junior officers will be hired no later than six months after effectiveness at the UCE for coordinating collection of data and information for Project monitoring and reporting. The current M&E specialist at UCE will be responsible for coordinating closely with the PIU and MTPTC staff, in order to leverage existing data and provide technical support to the new M&E officer, as needed. The current M&E specialist will also be responsible for ensuring that the information on Project implementation necessary to keep all results framework indicators updated is provided by relevant local actors in an accurate and timely manner.

61. **Project-level M&E will continue to apply the arrangements currently being used under the RARP and will be further strengthened with the GEMS ICT tool for remote Project sites (Grand'Anse and Nippes).** The GoH and the Bank will organize joint supervision missions to monitor the implementation progress and results and adjust the Project's M&E plan, as needed. The M&E activities include tracking intermediate outcome and PDO-level indicators, communication, awareness-raising and citizen engagement activities, assessments of impact of climate and disaster resilience, and activities under the grievance redress mechanism (GRM), as well as beneficiary (including women) satisfaction and feedback surveys. UCE will prepare progress reports for the Bank every six months on the indicators (and on disbursements, financial management [FM], procurement, and compliance with social and environmental policies and guidelines), as well as an updated annual plan of works and activities and specific assessments of the progress under the GAP. UCE will disseminate reports to key stakeholders and facilitate their use for decision-making and feedback. A Mid-Term Review (MTR) will be conducted no later than three years after effectiveness.

C. Sustainability

62. **The proposed Project focuses on selected road segments in the four departments in the South (Component 1) and selected corridors in Cap-Haïtien and targeted urban areas (Component 2).** Activities under Component 2 aim to consolidate the foundations of a large urban transport program to be scaled up in other urban areas in the country. In addition, the Project aims to strengthen the institutional capacity at the national level and develop an appropriate regulatory framework to support the government's long-term strategic plan to develop adequate asset management capacity and advance sustainable public transport reform.

63. **The key sustainability elements considered in the Project design include:** (i) institutional strengthening to support the development of sustainable mobility and transport policies; (ii) the development of sustainable skills through the in-depth training of an interinstitutional group of public officials in urban transport planning through the LUTP; and (iii) support to road investment planning and maintenance practices and funding.

64. **Institutional strengthening activities support the sustainability of the Project outcomes and enhance:** (i) the urban transport policy framework; (ii) assistance to the MTPTC on resilient transport and road asset management; and (iii) sustainable urban transport policies and management through enhanced capacity planning. In addition to robust design, regular and periodic maintenance is critical to ensure the sustainability of the investments in the road

network and its climate resilience. Component 3 also finances assistance to the municipalities on traffic management, urban planning, and urban transport.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic, and Financial Analysis

65. **The economic analysis validates the feasibility of the long list of investments.** Due to the condensed preparation procedure for the Project, the final short list of investments will be prioritized during the first year of implementation. A simplified economic analysis focuses on the entire intervention envelope to demonstrate its economic feasibility and potential to reduce climate impacts and carbon emissions. Under the proposed approach, the selection of the final road segments for intervention would only be finalized during Project implementation. The final selection for roads under Component 1 follows a robust multicriteria methodology that ensures the highest social and economic impact of investments selected (see annex 2). The expected quantifiable benefits include reduced economic impacts of climate change (reduced assets damages and user costs), travel time savings measured through increased accessibility to markets and economic opportunities, reduction of traffic accidents, employment benefits, and economic benefits of greenhouse gas (GHG) reduction. Nonquantifiable benefits are also expected from improved access to health such as increased productivity, direct employment generation during the construction and maintenance phases, and productivity increases in the agricultural sector. Because the proposed Project focuses on improving women's economic and social accessibility, multiplier effects are also expected; women typically invest a larger proportion of their earnings in their families and communities than men.

66. **For Component 2, the Project has built an innovative spatial analysis to prioritize mobility services and infrastructure in Cap-Haïtien to enhance accessibility, inclusion, and resilience.** The prioritization framework integrates the following criteria to assess broader benefits to economic and social development and shared prosperity: (i) access to economic opportunities; (ii) access to social opportunities (i.e., education, health); (iii) climate-related impacts (floods); and (iv) socioeconomic data, including data on poverty. The accessibility analysis assesses who is benefiting from the interventions and makes it possible to prioritize those interventions that benefit excluded groups (for instance, low-income residents). The prioritized Project area is chosen based on close collaboration and coordination with ongoing and planned development projects in Cap-Haïtien to maximize synergy across sectors. Annex 5 details the methodological framework to prioritize mobility services and infrastructure.

67. **All interventions follow a double climate resilience technical assessment: resilience of the interventions and resilience through the interventions.** The technical assessment includes a Multi-Hazard and Risk Assessment to prioritize interventions that bring overall resilience to the mobility of people in rural areas of the South Peninsula (Component 1) and in Cap-Haïtien (Component 2) through the interventions. This includes the use of climate projections in economic analysis and engineering designs, and state-of-the-art network resilience analysis to ensure that the Project design can accommodate climate-related disruption of other parts of the transport network and enhance the resilience of the transport system through the Project itself. Once these interventions are selected, a risk assessment identifies mitigation measures to strengthen the resilience of the assets to adapt to and mitigate future damage from climate-related impacts (floods, coastal erosion, and landslides). These measures include a catalog of potential nature-based solutions to be incorporated in each intervention.

Economic and Financial Analysis

68. **The project mainly finances improvement of public infrastructure (e.g., urban and transport infrastructure), areas where private sector financing is currently absent in Haiti and is unlikely to materialize in the near term.** However, the Project also strengthens the legal and regulatory frameworks necessary for cost recovery from revenue-generating activities, such as parking, market facilities, and tap-tap terminals. As part of Project preparation, support has also been received from the PPIAF to examine the financial, operational, and institutional environment of private sector participation in the urban mobility sector. During implementation, specific areas of support to the sector will be identified and applied with the objective of financing and reducing the financial burden on private participants.

69. **The Project interventions yield a positive net present value (US$53.9 million), a benefit-cost ratio of 1.69, and an economic internal rate of return (EIRR) of 14.4 percent.** The Project is slightly sensitive to cost increases and benefits reductions, with an EIRR that could range from 7.7 to 11.09 for a 20 percent reduction in benefits and a 20 percent cost increase. In terms of GHG emissions (carbon dioxide equivalent) calculations, the Project interventions are expected to reduce the emissions of a cumulative number of vehicles over 20 years from 743,364 tons (without-project scenario) to 656,874 tons (with-project scenario) thanks to travel time savings, avoided congestion, and efficient travel speeds, with a net savings of 86,490 tons or 3,126 tons per year. A statistical process control calculation estimates net present value of carbon costs equal to US$454,947 and US$909,895 using low (US$40/ton) and high (US$80/ton) values, respectively.
    a) The economic evaluation focuses on the civil works investments under Components 1 and 2, which account for more than 65 percent of Project costs. The main Project costs include the capital cost for civil works and equipment in the transit terminal, road improvements, traffic signals, pedestrian infrastructure, and operation and maintenance costs. The main Project benefits included in the analysis are a reduction of travel times (in both the dry and rainy seasons) and traffic accidents, employment benefits, and reduced carbon emissions (using low-scenario values for the carbon price of US$40 per ton, based on the recommendations of a World Bank note[23]).
    b) In terms of GHG emissions (carbon dioxide equivalent) calculations, Project interventions under Components 1 and 2 result in a reduction of emissions from the cumulative number of vehicles (cars, tap-taps, motorcycles, and buses) as a result of travel time savings, a modal shift (for Component 2), avoided congestion, efficient travel speeds, and the renewal of public transport fleets.[24] Although a modal shift from high-polluting vehicles (including cars and motorcycles) to more carbon-efficient ones (tap-taps or buses) cannot be estimated during Project preparation, similar projects focused on the improvement of public transport facilities, traffic management, drainage, and road conditions used a conservative 5 percent modal shift.
    c) The economic evaluation results in even higher positive outcomes when accounting for climate change projections. The economic evaluation was tested using increased precipitation intensity due to climate projections related to the 2035–64 period for the Shared Socioeconomic Pathways (SSP) 2–4.5 and 5–8.5[25] that account for intermediate and pessimistic global decarbonization scenarios. Compared with the baseline scenario EIRR (at 14 percent), the SSP 2–4.5 scenario leads to an expected EIRR of 22 percent. This value is even greater in the SSP 5–8.5 scenario, at 30 percent.

[23] World Bank, "Guidance Note on Shadow Price of Carbon in Economic Analysis," World Bank, Washington, DC, 2017, http://documents.worldbank.org/curated/en/621721519940107694/Guidance-note-on-shadow-price-of-carbon-in-economic-analysis.
[24] Several pilots of renewal programs on public transport, including in Sierra Leone (P164353) and Côte d'Ivoire, have demonstrated substantial reduction in GHG emissions.
[25] Climate Change Knowledge Portal, "Haiti: Climate Projections," https://climateknowledgeportal.worldbank.org/country/haiti/climate-data-projections.

Technical Analysis

70. **The design of the works to be financed by the proposed Project applies international engineering standards and build on lessons learned under past and ongoing Bank-financed operations in Haiti.** The proposed Project also supports the development of specific guidelines for rural pathways based on low-cost design.

71. **Technical specifications for rural road improvement.** These specifications focus on all-weather practicability rather than full-scale rehabilitation. The improvements are localized at priority sections along selected roads, which are often cut off during the rainy season, pose safety hazards, and are at risk of future deterioration. This approach, called "spot improvement," reduces the cost of works per kilometer and therefore allows the inclusion of more beneficiaries per dollar spent. The use of SMEs and/or LIW methods under this model is technically feasible for a wide range of activities. Finally, the critical spot/segment improvement approach is appropriate for rural roads in Haiti as traffic count studies show that most of the traffic on these rural roads is from pedestrians, animals, bicycles, and motorcycles rather than cars and buses.

72. **Regarding road safety**, the proposed spot improvement and rehabilitation approach has likely no impact (Component 1) or limited impact (Component 2) on current road speed limits. However, the proposed Project also includes in its design critical spots or sections where road safety can be increased by: (i) limiting speeds when crossing community areas and at cities' entrance zones, and (ii) enhancing road shoulders where pedestrian traffic and mixed uses of the road exist. The proposed Project finances physical improvements such as speed bumps and/or the reduced width of lanes at the entrance of cities, the creation of shoulders or separate lanes, and, where possible, solar streetlights especially for crossroads.

73. **Last-mile investments.** Complementary facilities and additional targeted investments along Project roads, developed as part of the rural road investments, contribute to enhancing the living and travel conditions of the local population, especially women. Past Bank-financed projects have demonstrated that significant improvement of transport conditions (reduction of travel times and travel costs, greater availability and reliability of transport services) follow the rehabilitation of transport infrastructure.

74. **Climate change.** The Project has climate adaptation as a core objective and motivation in its design, and it aims to tackle climate mitigation with a focus on low-carbon urban transport. The Project design follows the Avoid-Shift-Improve-Resilient (ASI-R) framework, the Bank's strategic framework for climate change action in the transport sector. More specifically, Component 1 focuses mainly on Resilience, the fourth pillar of the strategic framework, through better planning, engineering, asset management, and contingency programming of the transport network following a life-cycle approach, as described in annex 2. Component 2 comprehensively addresses the four pillars. Within pillars 1 to 3, Avoid-Shift-Improve, Component 2 would improve the efficiency of traditional transport and curb the growing demand for individual motorized trips (especially motorbikes) by shifting those users to shared modes of transport and nonmotorized mobility. Infrastructure investment to improve pedestrian mobility and traffic management is an eligible activity under the Multilateral Development Bank mitigation co-benefits list. The substantial reduction of emissions under the economic analysis has been demonstrated. Component 2 addresses the fourth pillar, by improving urban street flooding, which is likely to become more frequent and severe due to climate change. Finally, Component 3 focuses on the third pillar, Improve, by financing a pilot for renewal of the public transport fleets (that is expected to improve fuel efficiency and reduce emissions) and will transform the urban

planning framework in the country to set the transport sector on a medium- to long-term pathway toward a low-carbon transport sector (see annex 2 for more details on climate change measures in the Project design).

75. **Citizen engagement.** The Project incorporates a wide range of measures to promote citizen engagement. The ongoing preparatory activities and studies have supported, and the Project continues to support, citizen engagement, including: (i) a participatory design approach for investments; (ii) proactive participation of local university students and entities in data collection and analysis; (iii) deployment of a stakeholder engagement plan (SEP) that systemizes two-way communication with citizens, including the use of geolocation technologies to obtain feedback from targeted groups about the Project in a cost-effective manner regarding topics such as the quality of public transport, road safety, and women's safety; and (iv) development of detailed procedures for grievance redress, including the pinpointing of grievance redress roles and responsibilities among government officials, creating a mechanism for providing feedback on complainants, and monitoring the status of grievance resolutions. The GRM also includes specific protocols to manage Project-related cases of sexual exploitation and abuse and sexual harassment (SEA/SH), and develop a public relations/communication campaign to inform stakeholders about the shared use of public space, road space management, and road safety, among others. The results framework contains the following citizen engagement indicators that reflect these efforts: "Citizens reporting satisfaction with Project's consultation and communication mechanisms, disaggregated by gender" and "Users satisfied with improved urban transport infrastructure in the selected corridors, disaggregated by gender."

76. **As part of Project preparation, consultations were held with private sector stakeholders, community leaders, and the Board of Directors of the Communal Section (Conseil d'Administration de la Section Communale, CASECs) to receive feedback on the proposed design and prioritization of investments.** The SEP identifies project stakeholders, the means to assure effective Project communication and consultation with each stakeholder group, and indicators to monitor implementation. All Project-supported interventions, including social and environmental risk management measures, will be disclosed and consulted to ensure that stakeholders' inputs are considered.

77. **The design process for both large urban infrastructure investments and rural investments includes frequent, regular consultations and interactions with beneficiary communities (including women, youth, and the private sector) and other Project stakeholders to ensure that their needs and interests are well understood and considered in subproject design.** The Project's GRM is designed to routinely report and keep records of all salient issues or grievances; and UCE-MTPTC is expected to ensure timely follow-up and tracking of grievances until their resolution. More information on stakeholder engagement is available in the SEP.

78. **Gender.** The proposed Project seeks to focus on women's mobility and accessibility to social and economic facilities and opportunities as an avenue to improving overall household well-being by: (i) facilitating all-weather road access that prioritizes connectivity to basic services and economic opportunities; and (ii) addressing some of the mobility barriers that women face, such as personal security. Existing studies show that improving women's economic participation and productive assets can have positive impacts on entire households, as women typically invest a larger proportion of their earnings in their families and communities than do men. In preparation for the Project, numerous challenges were recognized as being barriers to women's access to services, opportunities, and public transportation. In terms of employment, women are 20 percent more likely than men to be unemployed and 6 percent more likely to be in the informal sector.[26] Poor road access and connectivity particularly harm female traders in Haiti. While walking or waiting for shared transport vehicles in isolated areas or after dark, these women are exposed to theft or

[26] Singh and Barton-Dock, *Haiti: Toward a New Narrative*, 35.

sexual violence more often than their male counterparts. Female traders face particularly dangerous conditions during the rainy season, when tertiary roads and bridge points are inaccessible. As in other cities in the region, insecurity and safety concerns (fears of being assaulted, robbed, and harassed) while using urban transport are also significant barriers to accessibility and mobility, with many women altering and restricting their trips. Low-quality transport disproportionally affects girls and women, as they are frequent users of shared transport, where unwanted physical touch and harassment are experienced frequently.[27] Women's mobility needs are different from men's and increase their vulnerability and insecurity, including during visits to urban centers, health centers, markets, trips to and from children's schools, and daily water collection sites. As insecurity and safety concerns are predominantly high in many cities, women tend to alter and restrict their trips for fear of being assaulted, robbed, and harassed. This contributes to women earning less than half an average man's income in Haiti. Personal security, absence of access to all-weather roads, and low affordability all pose barriers to women's access to opportunities and services.

79. **The Project also focuses on the small representation of women in the transport and construction sectors.** Most working women tend to work in the informal sector, which is unregulated and unstable.[28] In 2019, it was estimated that females ages 15 and above made up 48 percent of Haiti's total labor force, in comparison to 73 percent of the male population in the same age group. Gender occupational segregation is predominantly evident in the transport, infrastructure, and construction sectors, which often tend to be better compensated and more competitive than others. The small representation of women in the transport and construction sectors is based on two main characterizations: (i) stereotypes about what physical work women and men can and cannot do; and (ii) the challenges women face in their roles as mothers, caregivers/caretakers, and housekeepers. To illustrate, throughout the Haitian post-earthquake reconstruction, training and income-generating opportunities promoted by infrastructure projects inclined to benefit more men than women.[29] In addition, infrastructure investments have typically disregarded women's specific needs and challenges, increasing the already existing gaps between women and men. Gender-based violence (GBV) is a chronic problem in Haiti. According to the MSPP, IHE, and ICF International (2013), 13 percent of Haitian women have experienced sexual violence.[30]

80. **The activities under the proposed Project that contribute to closing these gaps include the following:**
    a) Under Components 1 and 2, the proposed Project prioritizes the road sections: (i) women use for their economic activities (access to markets or trade routes); and (ii) that facilitate easier access to essential facilities and essential services. The interventions to be realized under these components also consider the specific needs of women in terms of mobility. These needs are expected to be incorporated at an early stage in the design of interventions. Similarly, the proposed Project pays close attention to women's and girls' priorities in the identification and funding of small-scale community investments. These are identified based on consultation through a participatory scheme during Project implementation, which ensure women's

[27] Gandini et al., "Gender and Transport in Haiti."
[28] World Bank, "Haiti: Labor Force, Female (% of Total Labor Force)," World Bank Open Data, https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS?locations=HT.
[29] Camilla Gandini, Andrea Monje Silva, Pablo Guerrero, and Amanda Beaujon Marin, eds., "Gender and Transport in Haiti: Gender Diagnostic and Gender Action Plan," IDB Technical Note 2086, Inter-American Development Bank, Washington, DC, https://publications.iadb.org/publications/english/document/Gender-and-Transport-in-Haiti-Gender-Diagnostic-and-Gender-Action-Plan.pdf..
[30] MSPP (Ministère de la Santé Publique and de la Population), IHE (Institut Haïtien de l'Enfance), and ICF International, *2012 Haiti Mortality, Morbidity, and Service Utilization Survey: Key Findings* (Calverton, MD: MSPP, IHE, and ICF International, 2013)

concerns are incorporated to enable improved mobility.[31] An indicator has been included in the result framework to track the incorporation of these characteristics in the proposed designs. Improving public infrastructure, such as lighting and sidewalks, as well as increasing visibility and amplifying surveillance within stations helps reduce the probability of all forms of crime, including violence against women.[32]

b) Under Components 1 and 2 the Project supports women's increased participation in the transport sector through several activities. First, an analysis will be carried out to identify barriers to: (i) the recruitment of women (e.g., access to information, gender-sensitive recruitment processes, gender-informed description of positions and advertisement); (ii) their retention (e.g., employment benefits such as child care provision and flexible schedules, existence of mechanisms to prevent and respond to sexual harassment); and (iii) their promotion (e.g., access to training and mentoring programs in the different subsectors of transport construction, planning, and regulation) in Haiti. Based on this, a Gender Action Plan will be developed and implemented by the MTPTC under Component 3 to promote specific activities, including but not limited to, certified training activities that support current and future employability, internships to address barriers to entry into the transport sector, targeted employment for women in medium- and high-level jobs in the sector, and training for female professionals and promoting the recruitment of new female trainees. To this end, the Project supports the full training requirements of new female recruits, including all costs associated with sending them to specialized, accredited international training programs (such as LUTP) or internships.

c) The use of the LIW approach is prioritized whenever possible to build on successful experiences in recent transport operations.

d) The Project has evaluated GBV risks and has identified mitigation and solution measures to address the problem to increase and ameliorate mobility in the transport sector in Haiti. Some of these measures may have long-lasting effects on the safety needs of women and girls, predominantly women, through the development of diagnostic and action plans that will address the Project's investments in facilities and infrastructure. The proposed Project would follow the recommendations of the World Bank Global GBV Task Force Report by: (i) enhancing contractual obligations by requiring contractors to have SH policies and codes of conducts for workers; (ii) developing SEA awareness by building capacity with the client, contractor, and supervision consultants on prevention, response, and monitoring of SEA; (iii) engaging with the community and mapping services for SEA survivors around the intervention areas; and (iv) enhancing the GRM in collaboration with local authorities and communities, including with women's and community organizations.[33]

81. The Project outcomes specific to women include: (i) improvements in accessibility for women and their children to social, education, and medical facilities, including pre- and postnatal health care and attention; (ii) reduction in the time women spend transporting products to the market; and (iii) increased opportunities for employment in small-scale, roadside commercial operations.

82. Gender M&E. The Project monitors the extent to which its activities contribute to closing gender gaps. The Project's Results Framework includes six gender indicators to monitor women's participation and inclusion. In particular, an

[31] These small investments may include the financing of streetlamps around areas where women wait for shared transport vehicles, market stalls that could be used by women to sell goods, small-size rest areas (benches, tables, etc.), or restrooms along road sections, particularly targeting those female commuters who tend to travel with children or older family members.

[32] Alice Taylor, *Women and the City: Examining the Gender Impact of Violence and Urbanization* (Johannesburg: ActionAid, 2011), https://actionaid.org/publications/2011/women-and-city.

[33] World Bank, *Working Together to Prevent Sexual Exploitation and Abuse: Recommendations for World Bank Investment Projects* (Washington, DC: World Bank, 2022), https://documents1.worldbank.org/curated/en/482251502095751999/pdf/117972-WP-PUBLIC-recommendations.pdf.

indicator has been included to monitor the percentage of women trained and hired under the Project. Indicators that measure user satisfaction with the achievements of Components 1 and 2 have been disaggregated to capture women's specific needs. Targets are high, at 90 percent of women satisfied. This high standard requires consultation and identification of requirements early in implementation.

83. **Gender-based violence.** The SEA/SH risk of the Project is classified as substantial. This risk level is based on the high contextual risk and the targeting of the Project in hard-to-supervise and humanitarian assistance areas of the country. The Environmental and Social Management Framework (ESMF) includes an assessment of GBV/SEA/SH risks, as well as an SEA/SH action plan, which in turn proposes risk prevention, mitigation, and response measures.

B. Fiduciary

84. **Financial management.** A Financial Management (FM) assessment was conducted in January 2022 in accordance with OP/BP for IPF and in line with the Financial Management Manual for World Bank IPF Operations (OPCS5.05-DIR.01, issued February 10, 2017). The assessment concluded that the FM risk is rated Substantial due to the country's high governance risk profile and the increased volume of activities to be implemented in decentralized locations. The UCE-MTPTC that will be in charge of the FM aspects of the projects already manages the FM aspects of five other projects financed by the Association and has demonstrated good performance. The current FM arrangements are acceptable to the Bank. However, the large number of projects for which the UCE-MTPTC is responsible, and their increasing complexity, could undermine the implementing unit's ability to carry out the FM duties and responsibilities effectively and efficiently. The FM system including the staffing will be strengthened accordingly. The specific risks and associated mitigation measures are described in the fiduciary risk section and FM arrangements are detailed in the annex.

85. **Procurement.** A procurement assessment was conducted in February 2022 through PRAMS. The assessment concluded that the risk for procurement is substantial. The UCE-MTPTC that will be in charge of the procurement and contract Management of the project already manages other projects financed by the Association and has demonstrated good performance. The current procurement arrangements are acceptable to the Bank. However, the large number of projects for which the UCE-MTPTC is responsible, and the increasing procurement complexity for some contracts, could undermine the implementing unit's ability to carry out the procurement and contract management duties and responsibilities effectively and efficiently. The procurement system including the staffing will be strengthened accordingly. The specific risks and associated mitigation measures are described in the fiduciary risk section .

86. **World Bank Procurement Regulations for IPF Borrowers.** Procurement will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers' (Procurement Regulations), Fourth Edition, dated November 2020, with due consideration to the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants," dated July 1, 2016, and other provisions stipulated in the Financing Agreement.

87. **Project Procurement Strategy for Development and Procurement Plans.** A draft Project Procurement Strategy for Development (PPSD) and initial Procurement Plan (PP) for the first 18 months has been prepared by the Borrower. They define the applicable procurement arrangements, selection methods, and market approaches for each of the contracts to be financed out of the grant proceeds. The PPSD provides market analysis to support the choice of

selection methods that will apply to each contract financed under the project, which, in turn, drives the development of the PP to be cleared by the World Bank. The PP will be updated in agreement with the World Bank annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The PPSD and associated PP define what Project contracts will be subject to Bank's prior review and those that will be subject to the Bank's post review only. Aside from prior review of the contracts indicated in the PPSD and PP, the Bank will also conduct post reviews of at least 10 percent of the Project contracts that are not subject to the Bank's prior review. In addition, the Bank will regularly follow up the progress of procurement during Project implementation support missions that are expected to take place twice a year (see annex 3 for details).

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

88. **The environmental risk is classified as Substantial.** Anticipated public works financed by the Project in northern and southern Haiti include intersection improvements and road rehabilitation, drainage channels, climate-resilient improvements (access, approaches, drainage, and coastal protection), new stations for tap-tap interchanges and passenger loading facilities, pedestrian infrastructure, construction of new markets (to provide reliable infrastructure for street vendors), and the rehabilitation and upgrading of damaged and vulnerable critical spots/segments such as bridges, culverts, river crossings, drainage structures, retaining walls, and slope stabilization work.

89. **Project parameters indicate that the potential substantial environmental risks are based primarily on the Project's location, the nature of the works, and the capacity of national and municipal authorities to manage risks consistent with the requirements set out in the Environmental and Social Framework.** With regards to the Project location, investments will be made in the context of densely populated urban and peri-urban areas subject to a high level of flood risk (in Cap-Haïtien) and a high level of recurrent disaster risk, especially from extreme-climate-related events during hurricane season (in southern Haiti). Additionally, all Project intervention areas are subject to a high level of informal settlement coupled with weak zoning enforcement and poor traffic regulations and road safety. These will imply occupational health and safety (OHS) risks for project workers, as well as community health and safety risks related to traffic management and safety measures to secure sites from unauthorized access. The complex nature of some of the specific risks are assessed through ESMFs as investment locations are not yet known and, eventually, through site-specific Environmental and Social Impact Assessments and/or Environmental and Social Management Plans (ESMPs) once investment locations and details are known. Climate and disaster resilience, in general, and flood risk, in particular, are integrated into the Project design. Additionally, waste management is a particular challenge in Haiti and will be a cross-cutting risk for all Project activities. Every effort is made to minimize and repurpose waste and ensure circularity in resource use. Appropriate mitigation measures are included in the ESMPs, once exact urban locations and precise interventions in different zones are known.

90. **The social risk is classified as Substantial.** While the overall social benefits are expected to be positive, identified social risks and potential impacts include: (i) contextual social risks—political fragility, a deteriorating security

situation, and travel restrictions constitute significant risks in terms of limiting the borrower's capacity to deliver and supervise Project activities; (ii) the Project location, which is composed of densely populated urban areas and peri-urban zones at high risk of flooding that can cut off residents' access to basic infrastructure and services, and which pose poor traffic control and road safety; (iii) SEA/SH risks that are assessed as substantial based on high contextual risks and Project-specific risks; (iv) potential negative impacts due to land acquisition and physical and economic resettlement, especially potential adverse impacts on economic activities given the high level of street vendors in urban areas; and (v) social exclusion risks especially for vulnerable stakeholders, including the risk that women, residents with disabilities, or the elderly may not fully access the Project benefits or that community/day/rotating workers, which is a common practice in Haiti, may not have full access to proper working conditions or OHS measures in work areas, if targeted measures are not in place, or may not receive formal work contracts.

91. **These risks and corresponding mitigation measures will be set out in the Project's ESMF, which will include labor management procedures (LMPs, including a Project workers' specific GRM), a Resettlement Policy Framework (RPF), and a SEP incorporating stakeholder mapping, a two-way engagement strategy to guide interactions with Project beneficiaries (including the most vulnerable),and a Project GRM for addressing concerns and grievances during Project implementation and an annex to cover the potential Contingent Emergency Response activities. E&S actions to meet the Environmental and Social Standards are outlined in the Environmental and Social Commitment Plan (ESCP).** The drafts of the SEP and the ESCP were developed and disclosed prior to appraisal[34]. The draft ESMF, LMP, and RPF will be developed and disclosed prior to Project effectiveness. The final versions of the ESMF (including LMPs) and RPF will be consulted, finalized, and redisclosed at the latest 60 days after Project effectiveness, as set forth in the ESCP.

92. **Institutional capacity**. The Ministry of Public Works, Transport and Communications through its Project Implementation Unit (Unite de Centrale d' execution - MTPTC/UCE) – has demonstrated strong capacity to prepare and implement World Bank-financed projects and ensure adequate management, supervision and reporting of environmental and social risks in line with World Bank policies and standards. MTPTC/UCE, whose team comprises environmental, social and gender specialists, has experience garnered through implementing multiple World Bank projects in the transport sector in both Cap Haitien and in the Nippes, Grand-Anse and Sud over nearly two decades. To fully monitor assessed risks and impact during project implementation, MTPTC/UCE will hire additional staff to the unit to support environmental and social risk management, specifically an environmental specialist, a social specialist, as well as a communications specialist to support the overall communications and stakeholder engagement activities as set out in the Stakeholder Engagement Plan. These staff will complement the existing E&S staff in MTPTC/UCE who are working on implementing other World Bank-financed operations, but who will also be available to cross-support and train new staff as needed including the MTPTC/UCE Gender specialist who will oversee SEA/SH prevention and response aspects.

E. Grievance Redress Services

[34] Stakeholder Engagement Plan disclosed on April 20, 2022 and available at *https://www.mtptc.gouv.ht/media/upload/doc/publications/RUTAP_PMPP_Avril%202022.pdf* and draft Environmental and Social Commitment Plan disclosed on April 28, 2022 available at *https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099120004292273381/p17721003862080c0a0b6012a013fc385e*

93. **Communities and individuals who believe that they are adversely affected by a World Bank–supported project may submit complaints to existing project-level GRMs or the World Bank's Grievance Redress Service (GRS).** The GRS ensures that complaints received are promptly reviewed in order to address Project-related concerns. Project-affected communities and individuals may submit their complaints to the World Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of World Bank's noncompliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and the Bank management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit http://www.inspectionpanel.org.

F. Key Risks

94. **The Project's overall risk is assessed as Substantial.** Several specific risks are rated Substantial or High after considering the effectiveness of the mitigation measures and the likelihood of the risks materializing irrespective of mitigation. These risks, along with measures to address them, are discussed below.

95. **Political and governance risk is rated High.** Haiti's chronic political instability and volatile security situation can create bottlenecks and delays in implementation of the Project as well as unexpected realignments in the government's policy objectives and in technical counterparts. Over the past four years, the deterioration of Haiti's sociopolitical situation has negatively affected economic activity, culminating in the complete paralysis of the economy in 2019. Violent demonstrations and gang violence have been disrupting transit from and within Port-au-Prince. These risks will be partly mitigated by reinforcing implementation and supervision capacity on the ground in the targeted Project sites (in the South and in the North), and by adapting implementation modes and schedules to evolving situations. Some of the risks have been and will be mitigated by aligning Project outcomes and activities with key priorities supported by a broad range of stakeholders and a proactive engagement with the government, as issues arise, and by regular consultations with communities and stakeholders. Furthermore, the PIU is staffed with experienced professionals who have not been subject to change or influenced by political leadership fluctuations. However, political instability and volatile situations are highly likely to occur and could contribute to significant delays. Therefore, the risk to Project implementation remains High.

96. **Macroeconomic risk is rated Substantial**. The fiscal deficit has increased significantly, putting pressure on the exchange rate and inflation. Macroeconomic risks could affect the Project via exchange rate volatility and continued inflation that could alter the projected costs of planned activities. To mitigate these risks, price and exchange rate volatility will be accounted for in the planning and budgeting of project activities.

97. **Sector strategies and policies risk is rated Substantial.** The proposed urban transport focus aligns with government priority to modernize urban transport, as set up in the presidential commission in 2018. However, responsibilities for urban transport generally correspond to entities at the national level, MAST, MTPTC, and MEF, and little participation of local and city authorities. Their roles in urban public transport, however, are quite limited, while their overall mandates are substantially larger than urban transport alone, leading to fragmentation and lack of clarity in responsibilities across institutions with regard to policy-making, regulation, and operational matters. Mitigation

measures include: (i) establishment of a Public Transport Authority, (ii) ensure close coordinate between relevant stakeholders, especially between MTPTC and Municipality of Cap-Haitien and (iii) development of a regulatory and operation framework for urban transport. These mitigation measures are estimated to lower the sector strategy risk by streamlining communication and clarifying decision-making in the urban transport sector, but if these risks materialized the impact on project outcomes (especially component 3) will be significant. Therefore, Sector strategies and policies risk is rated Substantial.

98. **Technical design of the Project risk is rated Substantial.** The technical complexity of investments varies within the Project, with the urban mobility investments and TA being more technically complex compared to the investments targeting the road network. The technical capacity of implementation unit in urban transport is weak and could pose a challenge to the achievement of the PDOs. Mitigation measures include: dedicated technical assistance and implementation support in urban transport/urban planning, as well as technical training for key staff at the UCE-MTPTC and Cap-Haïtien municipality. These mitigation measures are estimated to lower the risk of the implementation unit facing difficulties with the technical complexity, but if they materialized, the impact will be significant. Therefore, the residual risk is Substantial.

99. **Fiduciary risk is rated Substantial.** The main fiduciary risk concerns the country's high governance risk profile and the increased volume of activities to be implemented in decentralized locations. Despite UCE-MTPTC having demonstrated appropriate financial management and procurement capacity for past and current implementation of Bank-financed projects, the large number of projects for which the UCE-MTPTC is responsible, and their increasing complexity, could undermine the implementing unit's ability to carry out its fiduciary duties and responsibilities effectively and efficiently. Relevant training will be planned for the fiduciary teams to ensure that they are well equipped to effectively carry out their respective roles. The other main areas of concern include (i) delays in finalizing the accounting system's upgrade, installation, and networking in the new UCE office site; (ii) delayed project disbursements due to current delays in setting up the designated account; (iii) delays in finalizing procurement processes and documents; and (iv) the complexity of some of the contracts, particularly the MDODs. These risks will be mitigated through close implementation support by the Bank; (ii) quality technical inputs being provided in a timely manner by the technical stakeholders; (iii) raising awareness and communication with potential suppliers/contractors and consultants about the upcoming tenders; and (iv) specific provisions to be included in the MDODs' contracts to ensure compliance with Bank's requirements on procurement, financial management, E&S risk management, and anti-corruption policies. Therefore, the residual risk is Substantial.

100. **Institutional capacity for implementation and sustainability risk is rated Substantial.** Despite UCE-MTPTC having demonstrated appropriate technical and fiduciary capacity for rural roads and resilient infrastructure, the urban planning and public transport sectors are characterized by weak interinstitutional and technical capability that can lead to coordination and prioritization challenges in implementing integrated projects. Mitigation measures include: (i) enrollment of UCE-MTPTC and other relevant staff in training programs, including the participation in the Leader in Urban Transport Planning Program (LUTP); and (ii) potential support from TA and MDODs to complement the PIU's capacity. These mitigation measures are estimated to lower the institutional capacity risk, but if this risk materialized the impact on project outcomes (especially component 3) will be significant. Therefore, Institutional capacity for implementation and sustainability risk is rated Substantial.

101. **Stakeholders' risk is rated Substantial.** A project in an urban environment brings together a large number of stakeholders and varied interests which could exert social pressure on the Project, disrupting its implementation.

This risk is partially mitigated by: (I) the PIU experience and capacity; (ii) the elaboration of a detailed stakeholder engagement strategy materialized through the SEP (see paragraph 75) that also includes the beneficiary feedback mechanism; (iii) support to facilitate communication and coordination between key stakeholders at the national and municipal levels. These mitigation measures are estimated to lower the stakeholders' risk, but if these risks materialized the impact on project outcomes will be significant. Therefore, residual risk is rated Substantial.

102. Environmental and social risks are each considered Substantial. While the overall longer-term E&S effects are expected to be positive, E&S risks and impacts during Project implementation include: (i) OHS risks for Project workers; (ii) community health and safety risks related to traffic management and safety measures to secure sites from unauthorized access; (iii) waste management (which will be a cross-cutting risk for all Project activities); (iv) contextual social risks that threaten to limit the borrower's capacity to deliver and supervise Project activities; (v) SEA/SH risks assessed as high based on contextual risk and Project-specific risks; (vi) potential negative impacts due to land acquisition and physical and economic resettlement, especially potential adverse impacts on economic activities given the large number of street vendors in urban areas; and (vii) social exclusion risks especially for stakeholders in situations of vulnerability, including the risk that women, people with disabilities, or the elderly may not fully access Project benefits or that community/day/rotating workers may not have full access to proper working conditions. These will be partially mitigated as the UCE-MTPTC has included stakeholder mapping and a two-way communication strategy in the instruments to guide interactions with a wide range of beneficiaries (including the most vulnerable) and facilitate innovative "bottom up" supervision approaches where feasible. The ESMF (including the LMPs) and SEP will also ensure that a GRM is in place for addressing concerns and grievances during Project implementation. A RPF will also be developed by the Project to address resettlement impacts. Further details on E&S risks and associated risk management measures are detailed in the Concept Environmental and Social Review Summary. Additionally, Haiti is one of the countries with the greatest exposure and vulnerability to climate-related hazards in the world. This vulnerability will be mitigated by supporting appropriate technical standards for road infrastructure design and rehabilitation and maintenance. Additional measures to mitigate the climate risks include the inclusion of a CERC component in the Project that would allow for a rapid mobilization of Project funds to respond to a climate emergency.

V. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY: Haiti
Resilient connectivity and Urban Transport Accessibility Project

Project Development Objectives(s)

The Project Development Objective is to (i) enhance climate-resilient rural connectivity in the South Peninsula, (ii) improve climate-resilient urban accessibility in Cap-Haïtien and targeted urban areas, and (iii) enhance institutional capacity in the urban transport sector.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets		End Target
			1	2	
Enhance climate-resilient rural connectivity in the South Peninsula					
People benefited from improved climate-resilient rural roads in the South peninsula (Number)		0.00	75,600.00	151,200.00	226,800.00
Improve climate-resilient urban accessibility in Cap-Haïtien and targeted urban areas					
Economic opportunities in Cap-Haitien accessible by public transport in less than 60 minutes (Percentage)		35.00	35.00	60.00	90.00
Enhance institutional capacity in the urban transport sector					
Municipal Public Transport Unit in Cap Haitien is operational and staffed (Yes/No)		No	No	Yes	Yes

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets		End Target
			1	2	
Resilient Transport Connectivity					
Roads rehablitated (CRI, Kilometers)		0.00	65.00	130.00	200.00
Drainage improvements of urban-rural mobility infrastructure in selected cities in the South Peninsula (Number)		0.00	2.00	4.00	5.00
Infrastructure investments climate informed in the South Peninsula (Percentage)		0.00	100.00	100.00	100.00
Person-days of labour intensive works of people from local communities generated by Project activities (Number)		0.00	100,000.00	200,000.00	350,000.00
Person.days of Labour Intensive Work of women (Number)		0.00	30,000.00	60,000.00	105,000.00
Citizens reporting satisfaction with project's consultation and communication mechanisms, disaggregated by gender (Percentage)		0.00	90.00	90.00	90.00
Women reporting satisfaction (Percentage)		0.00	90.00	90.00	90.00
Resilient Urban Transport Infrastructure Improvements					
Design study for the interventions in the selected corridors delivered (Yes/No)		No	No	Yes	Yes
The design of the urban infrastructure investments addresses the specific needs of women (Yes/No)		No	No	Yes	Yes
Length of streets improved with climate-		0.00	6,000.00	12,000.00	18,000.00

Indicator Name	PBC	Baseline	Intermediate Targets		End Target
			1	2	
resilient features and better street space sharing in selected corridors in Cap Haitien and other targeted urban areas (Meter(m))					
Intersections improved in selected corridors and downtown in Cap Haitien (Number)		0.00	2.00	5.00	8.00
Road infrastructure safety assessment completed (Yes/No)		No	No	Yes	Yes
Direct beneficiaries of improved resilient and accessible street environment in Cap Haitien and targeted urban areas (Number)		0.00	40,000.00	100,000.00	180,000.00
Users satisfied with improved urban transport infrastructure in the selected corridors (Percentage)		0.00	80.00	80.00	80.00
Women satisfied (Percentage)		0.00	90.00	90.00	90.00
Promoting Low-Carbon and Sustainable Mobility Development					
Public agents trained on urban mobility planning and management (Number)		0.00	20.00	40.00	60.00
Public agents trained that are women (Number)		0.00	10.00	20.00	30.00
National Strategy for urban transport delivered (Yes/No)		No	No	Yes	Yes
Regulatory framework for urban public transport adopted (Yes/No)		No	No	Yes	Yes
Toolkit and Manual for inclusive and climate-resilient urban transport planning delivered (Number)		0.00	0.00	1.00	2.00
Gender action plan for the urban		No	No	Yes	Yes

Indicator Name	PBC	Baseline	Intermediate Targets		End Target
			1	2	
transport sector delivered (Yes/No)					
Road safety data base established and populated (Yes/No)		No	No	Yes	Yes
Automated fare collection pilot deployed in one corridor (Yes/No)		No	No	Yes	Yes
Plan for the Renewal fleet mechanism delivered (Yes/No)		No	No	Yes	Yes
Number of participants in transport internship programs hired before the end of the project (Number)		0.00	5.00	8.00	12.00
that are women (Number)		0.00	2.00	5.00	7.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
People benefited from improved climate-resilient rural roads in the South peninsula	The indicator measures the number of people with restored and more resilient connectivity in both rural and urban areas along the 200 km of roads rehabilitated under the Project in the three departments that were impacted by the August 14	Bi-annual	Rural Access Index database Criticality assessment	The number of beneficiaries will be computed based on the progress of civil works and using the population data from the Rural Access Index. It will be updated every 6 months after the start of the first works.	UCE-MTPTC

	earthquake (South, Nippes, and Grand'Anse) and in the South-East Department?.				
Economic opportunities in Cap-Haitien accessible by public transport in less than 60 minutes	The indicator captures the improvement of access to economic opportunities to the center of Cap Haitien by public transport (and possibly other targeted areas) as a result of the improvement of critical intersections and the implementation of traffic management. Limonade, in the east of Cap, and Vaudriel, in the west, are the target localities for the origin of trips (target areas of influence of corridor improvements). Economic opportunities include shops, banks, restaurants and other amenities as defined by Open Street Map under category 21xx to 29xx.	Bi-annual	CNGIS and travel-time surveys	The UCE-MTPTC will conduct a travel-time survey to assess the impact of the corridor intervention on the efficiency and reliability of public transport. Based on this survey, the amount of economic opportunities (shops and amenities data from OpenStreeMap) in the Cap-Haitien urban area accessible by public transport in 60 minutes travel time from Limonade and Vaudriel localities (target areas of influence of corridor improvements) will be computed and compared with the ex-ante situation.	UCE-MTPTC
Municipal Public Transport Unit in Cap Haitien is operational and staffed	The indicator will account for the staffing and functionality of the Muncipal Public Transport	Annual	UCE semestral report.	UCE-MTPTC will inform on the development and adaption	UCE-MTPTC

	Unit of Cap-Haitien. (staffing and operational conditions will be defined by the Regulatory framework for urban public transport adopted).The indicator will account for the creation of the unit staffed ,with trained personnel and specific tools that will be developed under then project				

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Roads rehablitated		Bi-annual	Supervision Monthly Reports	The number of roads rehabilitated will be computed based on the civil works progress on the different road sections.	UCE-MTPTC
Drainage improvements of urban-rural mobility infrastructure in selected cities in the South Peninsula	The indicator reflects the progress on the achievement of the different interventions under the drainage improvement of rural-urban mobility infrastructure	Bi-annual	Supervision monthly reports and UCE-MTPC semestral reports	The design of interventions to be achieved for each city entrance will be determined through a pre-feasibility study. The completion of each	UCE-MTPTC

	subcomponent 1.2 in Jacmel, Les Cayes, and Jeremie to improve the climate-resilience of local mobility infrastructures to connect the cities with the departmental and national road network.			intervention will be monitored and reported biannually.	
Infrastructure investments climate informed in the South Peninsula	The indicator will measure the proportion of investments in climate-resilient infrastructure. This indicator will apply for both component 1 (200km of roads rehabilitated in the three departments that were impacted by the August 14 earthquake (South, Nippes, and Grand'Anse); the South-East Department and the drainage improvements of rural-urban mobility infrastructure subcomponent in the targeted cities, and component 2 (infrastructure investments in selected corridors of the metropolitan area of Cap-Haïtien.	Annual	Civil works supervision reports and payment bills.	UCE-MTPTC will inform on the financial progress of civil works for climate-informed infrastructure. The objective is that all financed infrastructures will take into account climate-resilience measures in their design,	UCE-MTPTC

Person-days of labour intensive works of people from local communities generated by Project activities	The indicator will result from participation of local communities in road maintenance and civil works activities generated by subcomponents 1.1, 1.2 and 1.3.It measures person days of their participation in road maintenance and civil works. The use of local small and medium enterprises (SMEs) and labor-intensive work (LIW) will be prioritized whenever possible, and the recruitment of female staff promoted trough specific training. The indicator will specifically target to provide women job opportunities in this sector.	Annual	Contractors´activity monthly reports.	The UCE-MTPTC will compile the information of each contractor on the participation of local communities inhabitants in maintenance and civil works activities. The data will be disaggregated to monitor the inclusion of women in the training plan.	UCE-MTPTC
Person.days of Labour Intensive Work of women	This sub indicator will measure the number of women trained on maintenance and civil works for roads and employed under the activities generated by the Project. The target is to allocate 30% of the workload to women.	Annual	Same as for the parent indicator	Same as for the parent indicator	UCE-MTPTC
Citizens reporting satisfaction with project's consultation and communication	This indicator will measure the citizen´s satisfaction	Annual	Survey to the communities	A survey will be designed in order to	UCE-MTPTC

mechanisms, disaggregated by gender	with the project consultation and communication mechanisms.		concerned by the Project.	measure citizen satisfaction in the concerned communities. After the first consultation, the survey will be repeated every year, to monitor the citizens' satisfaction with their engagement.	
Women reporting satisfaction	The indicator will be disaggreated by gender				
Design study for the interventions in the selected corridors delivered	This indicator reports on the delivery of the feasibility study which will be a fundamental milestone in the definition of the interventions to be implemented in the selected corridors.	Annual	Bi-annual report of the UCE	Upon delivery and approval by the UCE-MTPTC of the feasibility study, the indicator will be marked as "Yes".	UCE-MTPTC
The design of the urban infrastructure investments addresses the specific needs of women	The indicator will reflect the result of the participatory workshops that will be put in place in order to identify and specify women's needs to feed in the design of street improvements.	Annual	Women focus group consultation workshops minutes, Street Improvement designs.	As an output of the consultative workshops, the UCE-MTPTC will complement the specifications to be included in the design of climate-resilient street improvements, in order to incorporate the women-specific needs in those. These	UCE-MTPTC

				measures will be a necessary condition for design approval.	
Length of streets improved with climate-resilient features and better street space sharing in selected corridors in Cap Haitien and other targeted urban areas	The indicator accounts for the linear length of streets with climate-resilient mobility improvements achieved in the selected corridors in Cap Haitien and other targeted urban areas. This improvement are accounting for activities under (i) improvements of critical sections of the urban street network to facilitate the coexistence of various road users (e.g., pedestrians, vendors, commercial vehicles) and (ii) drainage and climate-resilient improvements (access, approaches, drainage, and coastal protection)	Bi-annual	Civil works supervision monthly reports	The UCE-MTPTC will compute the length of streets with improved climate-resilient features based on the supervision reports.	UCE-MTPTC
Intersections improved in selected corridors and downtown in Cap Haitien	The indicator will measure the number of intersections in the selected corridors in the metropolitan area of Cap-Haïtien that have been improved under component 2.	Bi-annual	Bi-annual report of UCE	The UCE-MTPTC will track the progress and calculate the number of intersections intervened based on the supervision reports.	UCE-MTPTC

Road infrastructure safety assessment completed	The indicator reports on the delivery of a road safety assessment to inform on the design of the interventions in selected corridors of the metropolitan areas of Cap-Haïtien under component 2	annual	UCE Semestral report	A road safety assessment, using the RSSAT tool will be led on the road sections to be improved under component 2. It will inform on possible improvements to be included in the road improvement designs.	UTE-MTPTC
Direct beneficiaries of improved resilient and accessible street environment in Cap Haitien and targeted urban areas	The indicator will capture the number of beneficiaries that will benefit from the improved street environment in the selected corridors in Cap Haïtien. The indicator will capture the benefits from the improvement of the 18,000 meters of streets in Cap-Haïtien.	Bi-annual	Centre National de l'Information Géo-Spatiale (CNIGS)	The number of beneficiaries will be computed by assessing the number of inhabitants in a buffer of 250m from the corridor.	UCE-MTPTC
Users satisfied with improved urban transport infrastructure in the selected corridors	This indicator will measure the satisfaction of citizens with the urban transport infrastructure and services in the improved corridors as a results of project interventions including sub activity (iii) intersection	Annual	Annual Satisfaction Survey	A Satisfaction survey will be done prior to the start of civil works and updated every year after the start of civil works. This indicator will be disaggregated by	UCE-MTPTC

	improvements, (iv) tap-tap stations and (vii) traffic management			gender, in order to capture the inclusion of women-specific needs in the infrastructure design and realization. The first survey will determine the baseline that will be updated.	
Women satisfied	This indicator will measure the satisfaction of public transport users in the improved corridors.	Annual	Annual Satisfaction Survey	A Satisfaction survey will be done prior to the start of civil works and updated every year after the start of civil works. This indicator will be disaggregated by gender, in order to capture the inclusion of women-specific needs in the infrastructure design and realization. The first survey will determine the baseline that will be updated.	UCE-MTPTC
Public agents trained on urban mobility planning and management	The indicator reports on the number of public agents and relevant stakeholders from MAST, CIAT, MEF, MTPTC, Muncipalities of Cap Haitien and Port au Prince, trained	Annual	UCE-MTPTC semestral report	In each Semestral report, the UCE-MTPTC will inform on the number of public servants trained, according to the	UCE-MTPTC

	on urban transport planning.			training plan.	
Public agents trained that are women	This sub indicator will measure the number of public agents trained that are women	Annual	UCE-MTPTC semestral report	n each Semestral report, the UCE-MTPTC will inform on the number of public servants trained, according to the training plan disaggregated by gender	
National Strategy for urban transport delivered	This indicator reports on the delivery of the National Strategy for urban transport.	Annual	Semestral reports of the UCE-MTPTC	The indicator will change to "Yes" after delivery and approval by UCE-MTPTC	UCE-MTPTC
Regulatory framework for urban public transport adopted	This indicator will account for the adoption of a regulatory framework for urban Public Transport in Haiti.	Annual	UCE-MTPTC semestral reports	UCE-MTPTC. The PIU will inform on the development and approval of the framework and associated tools/documents	UCE-MTPTC
Toolkit and Manual for inclusive and climate-resilient urban transport planning delivered	The indicator accounts for the delivery of (i) a toolkit of mapping instruments to inform climate-resilient urban transport planning and (ii) a manual for inclusive and resilient urban	Annual	UCE-MTPTC semestral reports.	The UCE-MTPTC will inform on the progress and delivery of these activities through their semestral reports.	UCE-MTPTC

	transport infrastructure.				
Gender action plan for the urban transport sector delivered	The indicator accounts for the formalization and delivery of a gender action plan.	Annual	UCE Semestral Reports.	The UCE will inform on the delivery status of the action plan through their semestral reports and missions.	UCE-MTPTC
Road safety data base established and populated	The indicator accounts for the development, installation, and populating of a road accident management tool, which will allow the identification of critical safety spots in Cap Haïtien.	Annual	Accident reports in Cap Haïtien.	The UCE-MTPTC will inform on the development, installation, and populating of a tool (driver) that will allow to register and locate road accidents in Cap Haitien.	UCE-MTPTC
Automated fare collection pilot deployed in one corridor	This indicator will account for the completion of a pilot automated fare collection system based on cell phone solutions in one corridor.	Annual	UCE semestral reports	The implementation status of the automated fare system will be reported by the PIU in their semestral report.	UCE-MTPTC
Plan for the Renewal fleet mechanism delivered	The indicator reports on the delivery of the study for the definition of an action plan for the fleet renewal.	Annual	UTE-MTPTC	The indicator will change to Yes, after delivery and approval by the UCE	UCE-MTPTC
Number of participants in transport internship programs hired before the end	The indicator reports on the number of participants in	Annual	UCE-MTPTC semestral	In each Semestral report, the UCE-MTPTC	UCE-MTPTC

of the project	the internship program hired before the end of the project		report	will inform on the number of recruitment among the interns in relevant government agencies disaggregated by gender	
that are women	This sub indicator will measure the number of women that participate in the transport internship program with relevant government agencies that were hired	Annual	UCE-MTPTC reports	Same as for the parent indicator	Same as for the parent indicator

ANNEX 1: DETAILED PROJECT DESCRIPTION

1. **The project would include the following components:** (i) resilient transport connectivity; (ii) resilient urban transport infrastructure improvements; (iii) promoting low-carbon and sustainable urban mobility; (iv) the Contingent Emergency Response Component (CERC); and (v) Project management. The total Project cost is estimated at US$120 million.

Component 1: Resilient Transport Connectivity (Total Estimated Cost: US$50 million)

2. **Component 1 primarily strengthens the overall climate resilience of the road network in the four departments of the South Peninsula by targeting the post-earthquake reconstruction efforts toward enhancing all-weather access and connectivity in the south.** It finances structural investments in the transport sector and institutional strengthening activities to improve climate resilience connectivity, by following a "build back better" approach in the three departments that were impacted by the August 14 earthquake (South, Nippes, and Grand'Anse) and in the South-East department. The activities to be financed include: (i) rehabilitation and upgrade of damaged and vulnerable critical spots/segments such as bridges, culverts, and river crossings; (ii) drainage structures, retaining walls, and slope stabilization work; (iii) segment road surface stabilization; (iv) detailed design studies, including relevant social and environmental safeguards instruments for selected investments; and (v) corresponding supervision activities and associated technical studies. Activities under this component will be prioritized based on a multicriteria framework, with a focus on avoiding asset damages and socioeconomic losses, rehabilitation of damaged assets before they fall to a level beyond repair, and ensuring all-weather and climate-resilient community access to the transportation network in the selected departments. This component has four subcomponents to achieve that objective: (i) climate adaptation of rural roads, (ii) drainage improvement of rural-urban mobility infrastructure, and (iii) complementary facilities, and (iv) capacity building.

3. **The activities financed under Subcomponent 1.1 in the South, Nippes, and Grand'Anse, as well as in the South-East Department directly aim to improve the climate adaptation of road segments.** This will be achieved by identifying the most critical and vulnerable points of each road segment to climate change impacts and selecting the engineering solution that best protects and strengthens the climate resilience of those road segments (see annex 2 for more details on the specific contributions of each activity to climate resilience). All critical points and roads to be worked on will be selected based on their vulnerability to climate change. Solutions and activities considered under this component include, among others: the rehabilitation and upgrade of critical points such as bridges, culverts, and river crossings that are particularly vulnerable to climate change (e.g., projected rainfall increases); the construction of additional drainage structures, river bank protection, retaining walls, and slope stabilization in segments for which flooding or landslide risks are projected to increase; stabilization of eroded road surfaces in segments characterized by projected rainfall increases, high slopes, and eroded soil; detailed design studies, including relevant social and environmental safeguard instruments for selected investments; and corresponding supervision activities and associated technical studies. Activities under this subcomponent will be prioritized based on a multicriteria framework (see annex 2), with a focus at the level of climate change risks and vulnerability, the greatest avoidance of asset damages, and socioeconomic losses. A long list of these investments has already been identified as part of the damage assessment completed in December 2021 and include repair of national roads—Route Nationale (RN) nos. 2 and 7, repair of several bridges on RN2 and RN7, and cleaning of the main drainage in Les Cayes.

4. **The Drainage Improvement of Rural-Urban Mobility Infrastructure subcomponent will also support climate resilience investment with a rural-urban mobility focus that will include:** (i) detailed feasibility studies for climate resilience improvement (including climate impact and vulnerability assessments in selected cities in the South Peninsula including Jacmel, Les Cayes, and Jeremie, and climate resilience intervention assessments); (ii) drainage improvement at tap-tap interchanges and passenger loading facilities; and (iii) drainage improvements in pedestrian infrastructure. When technically feasible, these activities will incorporate nature-based solutions[35] such as the use of vetiver to protect slope failure due to intense rainfall, restoration of mangrove ecosystems to protect coastal roads from storm surge, or local plants to protect soil erosion in bridge abutments due to river flooding.

5. **This component will also finance, under the Complementary Facility Improvements subcomponent, the construction or improvement of small complementary facilities and structures, including lighting, bus stops, irrigation systems, and other road safety structures in inhabited areas along the targeted roads, near schools, and around water kiosks and health centers.** The proposed small complementary facility investments would be made along the rehabilitated roads and critical spots/segments in the communities and localities. Such investments would enhance benefits from improved connectivity, target gender-specific needs, facilitate the inclusion of and acceptance by the communities in the works, and contribute to a reduction in overall fragility. The use of local SMEs and labor-intensive work (LIW) will be prioritized whenever possible, and the recruitment of female staff promoted through specific training.

6. **The Capacity Building subcomponent 1.4 would support institutional strengthening and capacity building and include support to the Ministry of Public Works, Transport, and Communications (Ministère de Travaux Publics, Transport et Communications, MTPTC), the Crisis Emergency Response Unit, and the departmental directorates of the MTPTC in charge of road maintenance**. Technical assistance (TA) would be engaged to support the design of construction, rehabilitation, and maintenance guidelines for transport infrastructure works, as well as training activities and materials. Improved capacity for road maintenance has been proven to be one of the most cost-effective measures to increase the climate resilience of vulnerable road assets and ensure the sustainability of proposed climate resilience investments.

Table A1.1 Subcomponent Cost Amount in Component 1

Subcomponent	Amount (US$, millions)
Climate adaptation investments (all-weather connectivity focusing on upgrading critical vulnerable spots on roads in rural areas in the South Peninsula)	36.5
Drainage improvements of urban-rural mobility infrastructure in selected cities in the South Peninsula	9
Complementary facilities	2.5
Capacity building in road maintenance	2

[35] The MTPTC's Central Execution Unit (Unité Centrale d'Exécution, UCE) has previous experience implementing nature-based solutions proven to provide multiple co-benefits in terms of ecosystem preservation, improved local livelihoods, and climate resilience.

Component 2: Resilient Urban Transport Infrastructure Improvements (US$50 million)

7. **This component would improve resilient access and enhance mobility along selected corridors in Cap-Haïtien and selected targeted urban areas**. It would also improve mobility and strengthen urban infrastructure resilience to climate change and extreme weather events by (i) protecting and upgrading essential/critical points and (ii) preventing interruptions in the flow of individuals and goods on selected corridors in Cap-Haïtien.

8. **Activities would include civil works to enhance reliable access to nonmotorized and public transport mobility, strengthen climate resilience, and improve road safety in selected corridors of the metropolitan area of Cap-Haïtien. This component would finance inter alia:** (i) detailed feasibility studies and potential works for a bypass route (not including the *Sos* road); (ii) drainage and climate-resilient improvements (access, approaches, drainage, and coastal protection); (iii) new stations for tap-tap interchanges and passenger-loading facilities; (iv) climate-resilient pedestrian infrastructure and markets; (v) improvements of critical sections of the urban street network to facilitate the coexistence of various road users (e.g., pedestrians, vendors, commercial vehicles); (vi) a traffic management, signalization, and parking strategy for the city center area; and (vii) safety audits to inform infrastructure environmental design for violence prevention.

9. **The investments will follow an integrated multimodal approach targeting intersections and infrastructure improvement for vulnerable road users such as pedestrians, in particular, women and people with disabilities.** By focusing on up to three corridors, these interventions will serve as pilots that can be replicated on a larger scale in the future. This multimodal corridor approach will also address specific civil works, infrastructure, and service provision to reduce mobility barriers by designing tap-tap stops, sidewalks, lighting, and services that consider different groups' mobility patterns, personal security, and use of public space. All interventions will be designed using climate projections and accounting for the impact of future climate change with a special focus on sea level rise, coastal erosion, and urban flooding. These investments will contribute to reducing impacts of climate change to both nonmotorized and public transport mobility and improve conditions and efficiency of the public transport. The component would finance investments that are currently being studied for prefeasibility under the Rural Accessibility & Resilience Project (RARP, P163490) and an origin and destination survey. Detailed contribution on carbon reduction and modal shift are described in the economic evaluation section.

10. **Infrastructure improvements will target pedestrians by creating new sidewalks and upgrading existing ones.** Flooding often affects pedestrians' mobility by limiting their access to tap-tap stops or making roads impossible to walk on. While pedestrians are vulnerable to climate events, climate change will increase the magnitude of those events making drainage and other infrastructure improvements a priority. In addition, high temperatures and the likelihood of increasingly frequent heat waves must be taken into account. Since walking is the main transportation mode in Haiti, this component will aim to ensure resilience of pedestrians' mobility in the critical areas of the city. These areas will be determined using several factors such as population density, poverty levels, and accessibility to tap-taps.

11. **The traffic flow will be improved in the selected corridors by removing existing mobility obstacles in the city center area.** Tap-tap interchanges and stops will be implemented to streamline traffic and allocate adequate space off the road for passengers' boarding and offboarding. It will serve two purposes: to improve road traffic conditions and also provide commuters with basic infrastructure such as a roof or lighting. In particular, the component will consider the deployment of adequate interchanges and stops in the area of the Caracol Industrial Park (CIP) which serves the North–North-East corridor. Specific issues have been identified related to the large fleet of vehicles (120) for the

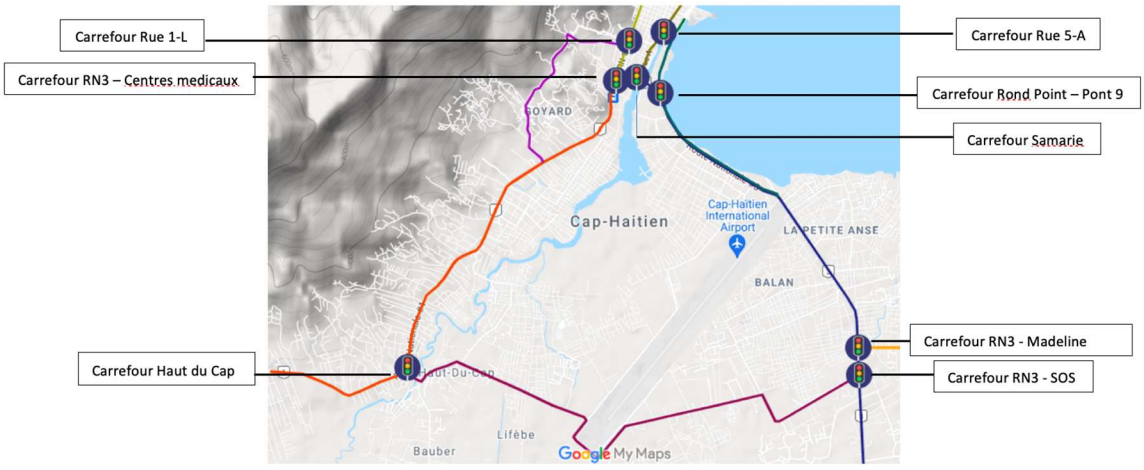
10,000 commuters working at the CIP. Based on the information collected, the Project will aim to enhance the suboptimal use of the fleet and improve the level of service through dedicated interchanges and stops and the use of intelligent transportation system technologies to count the number of passengers and encourage the consolidation of transport operators into smaller companies. The safety of women will also be improved by measures such as providing lighting at stops and avoiding overloading of vehicles in Limonade where numerous incidents have been reported. At the same time, another challenge experienced in the city center relates to the use of roads by street vendors and the related waste. This component will consider the implementation of markets to frame the street vendors' activity in a single area that does not hinder mobility and to improve waste management. Additionally, traffic management supervision will be upgraded by streamlining the traffic structure and designing specific lanes and parking wherever relevant based on the peak and off-peak traffic flow.

12. **Identifying the key areas where infrastructure improvements will ensure the most satisfactory cost-benefit ratio will be possible by building on existing analytical studies.** The World Bank's efforts have allowed for a better understanding of the East-West connectivity along RNs 1, 3, and 6 with a specific focus on the North-East corridor along Cap-Haïtien–Fort-Liberté–Ouanaminthe. The ongoing urban mobility study will provide an overview of the supply and demand of transport within the Cap-Haïtien metropolitan area. By analyzing the traffic flow around the eight main intersections, conducting a geo-spatial analysis, and surveying 420 households, the report will draw an assessment of the mobility obstacles and potential areas of improvement. It will be completed by a prefeasibility study that will analyze the costs and benefits of future investments. One can expect a more nuanced prioritizing of future investments in the city based on the population distribution and accessibility needs. Finally, a design study will conclude these efforts to confirm the rationale and areas requiring infrastructure improvements.

Table A1.2 Activities Cost Amount in Component 2

Activities	Amount (US$, millions)
Pedestrian infrastructure improvements	5
Drainage and climate-resilient infrastructure upgrades	35
Public transport improvements	5
Traffic management improvements	2
Studies and road safety audits	3

Figure A1.1 Overview of the Eight Main Intersections of Cap-Haïtien



Component 3: Promoting Low-Carbon and Sustainable Urban Mobility (US$14 million)

13. **This component will aim to set up the transition to a low-carbon and sustainable urban transport sector in selected urban areas.** It will support the establishment of a regulatory and institutional framework conducive to the implementation of the urban mobility agenda. It will support the modernization and professionalization of public transport services that will be informed in detail by an ongoing TA funded by the Public-Private Infrastructure Advisory Facility. The component will be built around three TA packages.

14. **First, the component will finance a TA to foster the institutional conditions for implementing the urban mobility agenda.** This TA will include: (i) training and knowledge development of key public stakeholders, in order to train a future Municipal Public Transport Unit; (ii) establishment of a strategic plan and the regulatory and operational framework for the sector; (iii) delivering a roadmap for the structuring of informal public transport; and (iv) training and operational support to establish the Municipal Public Transport Unit of Cap-Haïtien and an informal transport observatory.

15. **In addition, the component will finance a TA to develop tools for urban transport planning at the national level.** The activities will include: (i) the preparation of a design manual for inclusive and resilient urban transport infrastructure; (ii) a gap analysis of the barriers that women face to participate in the urban transport sector and the development of a Gender Action Plan for the sector; (iii) the development of a road safety database for urban transport; and (iv) mapping tools for resilient urban transport planning. These activities will seek to promote and inform the inclusion of users who are vulnerable, road and pedestrian safety, and reduction of gender inequities.

16. **Finally, this component will finance a TA to support public transport professionalization and improvement of transport service.** It will finance inter alia: (i) the deployment of an automated fare collection system in the selected corridors; (ii) a study to streamline the tap-tap routes in the selected corridors; (iii) capacity building and training for transport operators and drivers; (iv) TA to the Ministry of Economy and Finance (Ministère de l'Economie et Des Finances, MEF), MTPTC, and other relevant stakeholders (e.g., the CIP) to inform the deployment of a bus renewal pilot scheme to encourage the private sector; (v) capacity building and training for transport operators and drivers on road safety and gender issues; and (vi) implementation of a pilot for regular technical inspection of vehicles in the selected corridor.

17. **Several activities under the *public transport professionalization and improvement of transport service* are going to be piloted in the North-East corridor (Cap-Haïtien–Fort-Liberté–Ouanaminthe).** This pilot will include the corporatization of transport operators, the optimization of routes, a renewal scheme for buses, and a vehicle inspection program. This pilot is going to be developed in partnership with the MEF, the MTPTC, and the CIP and will target around 120 operators along that corridor.

Table A1.3 Activities Cost Amount in Component 3

	Activities	Amount (US$, millions)
Foster the institutional conditions for implementing the urban mobility agenda	Knowledge and tools development, software development, and training (including the Leaders in Urban Transport Planning Program)	4
	Development of (i) a regulatory and operational framework for the sector; (ii) a roadmap for structuring the informal public transport; (iii) an informal transport observatory in Cap-Haïtien	3
Develop tools for urban transport planning at the national level	Technical assistance (TA) and tools for inclusive and resilient urban transport infrastructure planning and investment	1
	Development of a gender gap analysis and Gender Action Plan for the public transport sector	0.2
	Development of a road safety database	0.3
Public transport professionalization and improvement of transport service	TA for tap-tap routes' optimization along selected corridors	0.5
	Efforts toward professionalization of the sector (capacity building and training for transport operators and drivers including on road safety and gender issues)	1
	Implementation of a pilot for regular technical inspection of vehicles along selected corridors	0.5
	TA and financial support for the implementation of the first integrated pilot in Haiti: optimization of routes, deployment of an automated fare collection system along selected corridors, fleet renewal scheme, and vehicle inspection program (North–North-East corridor).	3.5

Component 4: Contingent Emergency Response Component (CERC) (US$0 million)

18. **This component would finance provision of support in case of the occurrence of an eligible emergency.** It would include the implementation of emergency works, rehabilitation, and associated assessments at the government's request in the event of a disaster. This component, which includes triggers and conditions for the use of funds, is included in keeping with the recommendations of the 2011 World Development Report on Conflict, Security and Development and the Bank's operational experience in Haiti in responding to natural catastrophic events. Uncommitted Project funds may be reallocated from other components in accordance with an Emergency Action Plan prepared by the Government of Haiti (GoH) and the CERC's implementation modalities. A dedicated chapter of the Project Operation Manual (POM) will detail the guidelines and instructions to trigger a qualifying emergency and the

use of funds under this component. The amount of uncommitted funds to be allocated to this component will be decided at the time of the emergency in agreement with the World Bank.

Component 5: Project Management (US$6 million)

19. **Component 5 would support the Central Execution Unit of the MTPTC (Unité Centrale d'Exécution, UCE) in the coordination, implementation, management, and supervision (including fiduciary aspects, monitoring, evaluation, and reporting of Project activities and results) through the provision of goods, consultancy services, training, and operating costs, including the carrying out of Project audits.** It would finance key Project staff, operational costs, and equipment for the Project Implementation Unit, ensure a strong local presence for close supervision in the targeted areas, support social and environmental risk management, identify and mitigate gender disparities, and support citizen engagement.

Table A1.4 Scheduling of Project Activities

Civil Works

Studies, Trainings, TA

	Activities	Amount (US$, millions)	2023		2024	2025	2026	2027	2028
Component 1	Upgrading critical vulnerable spots on rural roads	36.5							
	Drainage improvements of urban-rural mobility infrastructure	9							
	Complementary facilities	2.5							
	Capacity building	2							
Component 2	Pedestrian infrastructure improvements	5							
	Drainage and climate-resilient infrastructure upgrades	35							
	Public transport improvements	5							
	Traffic management improvements	2							
	Studies and safety audits	3							
Component 3	Knowledge and tools development (including LUTP)	4							
	TA and tools for inclusive and resilient urban transport	3							
	Development of a gender gap analysis and Gender Action Plan	1							
	Development of a road safety database	0.2							

	Development of (i) a regulatory and operational framework; (ii) a roadmap for structuring the informal sector; (iii) an informal transport observatory in Cap-Haïtien	0.3							
	TA for tap-tap routes' optimization	0.5							
	Capacity building and training for transport operators and drivers	1							
	Implementation of a pilot for regular technical inspection of vehicles along selected corridors	0.5							
	TA and financial support for the implementation of the first integrated pilot in Haiti (North–North-East corridor)	3.5							

ANNEX 2: CLIMATE CHANGE ACTIVITIES THROUGHOUT THE PROJECT DESIGN

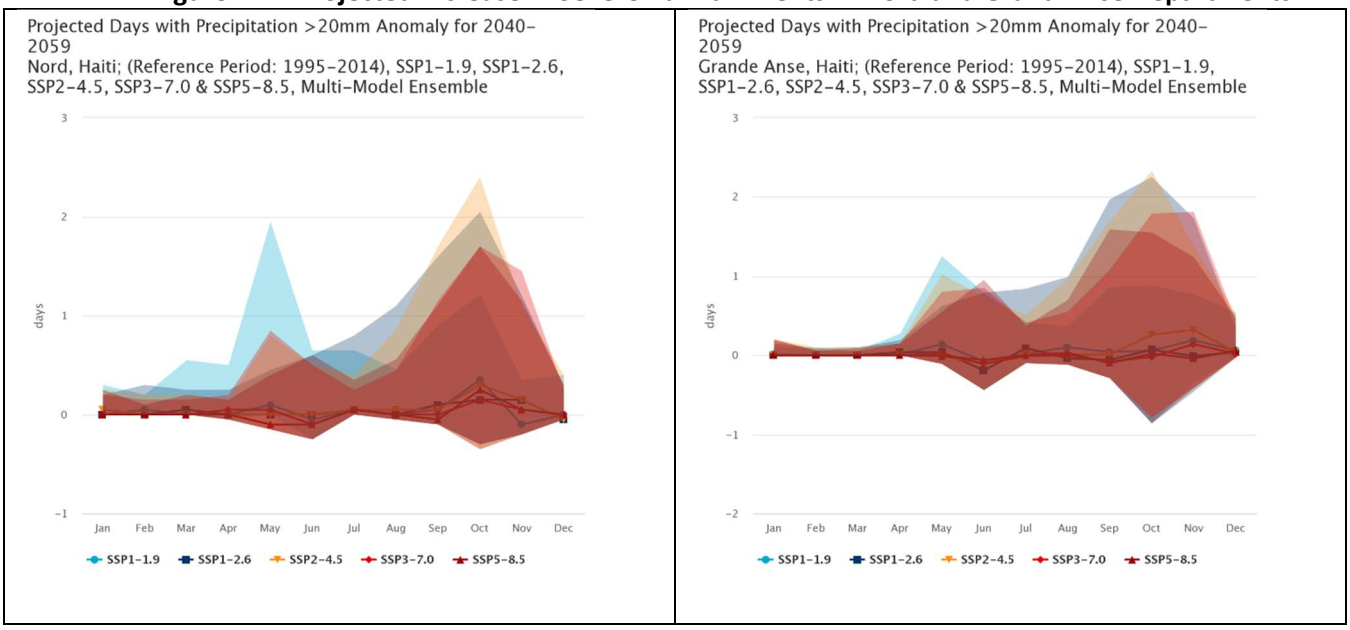
1. **The Project's design has climate adaptation as a core objective and motivation and tackles climate mitigation with a focus on low-carbon urban transport.** More specifically, Component 1 addresses climate resilience through better planning, engineering, operations and maintenance, and contingency programming of the transport network following a life-cycle approach as described below. All critical points and road sections to be improved under this component will be selected based on their climate change vulnerabilities, including flooding, landslides, and storm surges triggered by intense rainfall events that are projected to increase (see Figure A2.1). Detailed links of each project activity with climate adaptation can be found in Table A2.1.

2. **Component 2 will address the issue of urban street flooding, which is likely to become more frequent and severe due to climate change in Cap-Haïtien (see Figure A2.1 and Table A2.1).** Additionally, within the Avoid-Shift-Improve Framework, under Component 2, the Project will improve the efficiency of traditional transport and curb the growing demand for individual motorized trips (especially cars and motorbikes) by shifting those users to more efficient modes of transport (tap-taps and buses) and prioritize interventions to promote pedestrian and nonmotorized mobility. Infrastructure investments to improve pedestrian mobility and traffic management are an eligible activity under the Multilateral Development Bank's mitigation co-benefits list. The substantial reduction of emissions is demonstrated in the greenhouse gas (GHG) analysis. The modal shift from motorbikes to tap-taps has been assumed to be 5 percent, based on expert judgment. Component 3 will finance a pilot for renewal of the public transport fleets (that will result in improvement of fuel efficiency and reduction of emissions) and capacity-building activities to transform the urban planning framework in the country and to set the transport sector on a medium- to long-term pathway toward a low-carbon status.

3. **To respond to the projected impacts of climate change on the transport infrastructure in Haiti, and in line with the World Bank's Resilient Transport Guidance Note,[36] the Project is taking a life-cycle approach to climate resilience and adaptation of transport assets to ensure investments are effective in reducing climate vulnerabilities.** The project areas, including Grand Sud (Sud, Sud-est, Nippes, and Grand'Anse departments) and Cap-Haïtien (Nord departments) will experience an increase in temperature and rainfall intensity (see figure A2.1). This can trigger flooding events and landslides that severely damage transport assets. The Project is addressing climate adaptation by improving and upgrading drainage and landslide mitigation infrastructure to withstand the projected increase in rainfall intensity.

[36] World Bank, *Climate and Disaster Resilient Transport in Small Island Developing States: A Call for Action* (Washington, DC: World Bank, 2017), https://openknowledge.worldbank.org/handle/10986/28798.

Figure A2.1 Projected Increase in Severe Rainfall Events in Nord and Grand'Anse Departments



4. **The life-cycle approach is mainstreamed and implemented through various activities under different components.** This approach highlights how climate and disaster risk management can be integrated in the phases of infrastructure life spans including: (i) systems planning: shifting deployment of long-lived infrastructure away from disaster-prone areas to avoid development lock-in, and consideration of integration and redundancy of critical infrastructure to offer alternatives; (ii) engineering and design: using transport infrastructure both for connectivity and for disaster risk management purposes (particularly focused on hydro-meteorological-related hazards) and the use of innovative materials and design specifications that enhance robustness and flexibility of infrastructure; (iii) asset management: inventory and mapping of transport infrastructure using open and interoperable technologies and improving institutional and financial arrangements for infrastructure maintenance, as well as integration of climate and disaster risk considerations in the prioritization of investments in new infrastructure, rehabilitation, and restoration; and (iv) contingency programming: policy and institutional frameworks, communication protocols, and investments in emergency preparedness and response, and alignment of transport systems and flows with local and regional evacuation, response, and recovery needs. Each of these adaptive life-cycle phases offers an opportunity to intervene and invest in better information, integration, and innovation for transport infrastructure both individually and as a system.

Figure A2.2 Life-Cycle Approach to Transport Climate Resilience

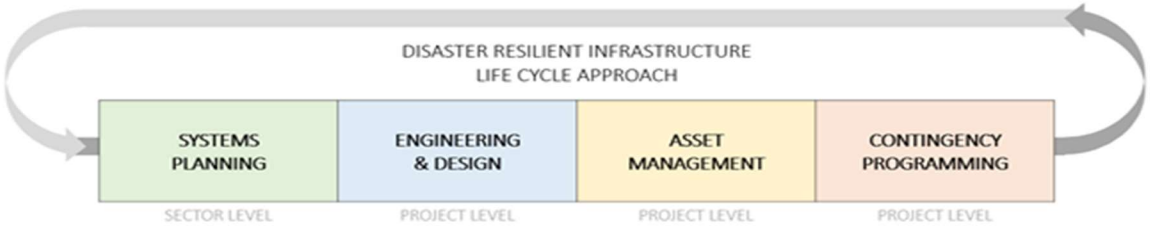


Table A2.1 Project Activities and Detailed Contribution to Climate Adaptation

Life-Cycle Phase	Project Activities	Contribution to Climate Adaptation
System planning	Vulnerability and criticality assessment	Assess and quantify risks related to transportation infrastructure and identify potential threats. Identify critical and vulnerable infrastructure that is susceptible to flooding.
	Prioritization tool (project preparation)	Adaptation and investment strategies offer possible ways to anticipate changes to transportation and invest accordingly.
	Economic analysis (project preparation)	Economic analysis used during project preparation (see annex 6) accounts for the impact of climate change (flooding events using SSP2-45 and SSP5-85 global scenarios projected frequency increase[37]), including cost of transport infrastructure repair and user cost (by accounting for disruption of travel due to asset failure). The economic analysis demonstrates the effectiveness of project investment (both Components 1 and 2) to substantially reduce projected transport asset damage and user costs.
Engineering and design	Bridge and culvert protection and rehabilitation (Subcomponent 1.1)	The design for culverts will be adjusted to accommodate higher water volumes within a short period of time. To define the capacity design of the drainage system, the intensity-duration-frequency curves (IDF curves) will be used, taking into account the influence of climate change and updating of these IDF curves with the projected rainfall characteristics in future climate scenarios.
	Slope stabilization of rural roads (Subcomponent 1.1)	Structural protection measures, including the construction of retaining walls, gabion walls, or similar with an updated drainage system to accommodate the projected increase in rainfall that could exacerbate slope failure. For steep rural roads (>6 percent incline) in the mountainous parts of the region, common in Nippes, Sud-est, and Grand'Anse departments, stabilization of road surfaces with asphaltic mix is the most effective solution to prevent severe damage to road surfaces due to increased rainfall intensity.
	Stabilization of eroded road surface (Subcomponent 1.1)	

[37] As recommended in the guidance note: https://worldbankgroup.sharepoint.com/sites/Climate/Knowledge%20Base/Global%20Scenarios%20for%20CCDR%20Analyses.pdf.

	Drainage structures along rural roads, streets, and urban roads (Subcomponent 1.1 and activities under Component 2) Drainage improvement in facilities (Subcomponent 1.2 and activities under Component 2) Drainage improvement in pedestrian infrastructure (Subcomponent 1.2 and activities under Component 2)	Rainfall-intense events are expected to increase (especially during rainy seasons in November–December) in most parts of the country but specifically in project locations in the Grand Sud and Nord departments. The drainage system, capacity of roads, complementary facilities, and pedestrian infrastructure (sidewalks, plazas, or beach front) will be adapted to the projected higher intensity and frequency of these extreme rainfall events. Along steep rural roads (>4 percent incline) the most effective drainage solution (concrete) will be used to prevent severe damage to road surfaces due to increased rainfall intensity.
	Nature-based solutions (Subcomponents 1.1 and 1.2, and activities under Component 2)	Nature-based solutions offer a win-win solution in selected cases by offering protection to transport assets while fostering ecosystem restoration. The use of vetiver and other indigenous plants effectively stabilizes slopes on mountain rural roads by protecting them against a projected increase of slope failure due to climate changes. Similarly, restoration of mangroves in coastal areas will protect coastal roads from increased sea level rise and storm surges.
Asset management	Support to maintenance capacity (Subcomponent 1.4)	Technical and financial support and enhancement of maintenance capacity (cleaning and maintenance of drainage systems, cleaning of roads).
Contingency programming	Contingency Emergency Response Component (CERC) (Component 4) Capacity building of the Ministry of Public Works, Transport, and Communications (MTPTC) crisis unit (Subcomponent 1.4)	The CERC allows for the rapid mobilization of project funds to respond to a disaster including a climate-related emergency. This mechanism has proved very effective in mobilizing funds to repair and rehabilitate essential transport assets after disasters. Capacity-building activities will ensure disaster and government plans account for more severe weather.

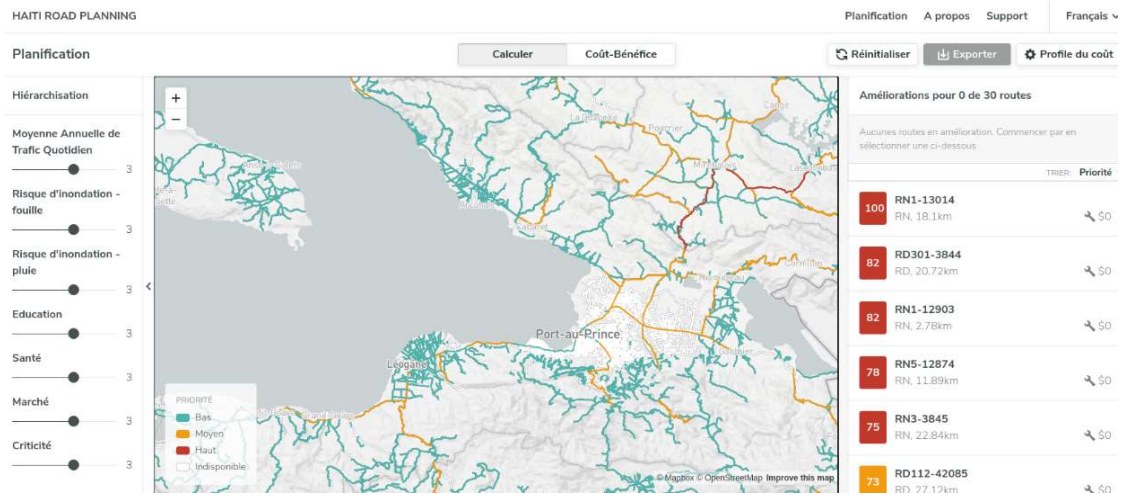
Planning and Prioritization Tool

5. **The prioritization tool allows the road agency staff and other interested stakeholders to visualize and evaluate climate impacts to the road network, including which roads add to the redundancy of the network and which roads are more critical in terms of access to education, health care, and markets.** Additionally, this tool provides an estimate of costs and benefits of resilient interventions, so the road administration, or agencies in charge of investment planning, can efficiently use their resources. The prioritization framework gives each of the criteria a

value from 0 to 100. The rest of the values are scaled from the maximum of 100 in a logarithmic scale. The total score is an aggregation of each attribute's score. Each attribute is given the weight chosen by the user in the sliding scale. The criteria used in the tool are defined below:

- **Annual average daily traffic (AADT):** AADT is estimated based on a simple gravity model. These are not values collected on the roads and may differ from real values. The model is calibrated using eight real counts of AADT in eight different road segments across the entire network. The gravity model uses population values of major settlements and travel time between settlements as a friction value. The travel time values take road surface types into account.
- **Flood risk—rain/scour:** Flood risk is calculated for flood events with 10 different intensities (5-, 10-, 20-, 50-, 75-, 100-, 200-, 250-, 500-, and 1,000-year return periods), and for four different climate scenarios (one based on past climate and three climate change projections, derived from the SSBN Global Flood Model for the project area). Individual events are then aggregated for each climate scenario into expected annual damage (EAD). To calculate EAD, the trapezoidal rule was used, using the losses associated with each event and their probability of occurrence as the inverse of the return period. Where i is an integer between 1 and 10, T_i is the return period, and D_i is the damage to the infrastructure corresponding to T_i.
- **Education/health/markets:** These three criteria indicate the relevance of each road segment to the connectivity between a critical facility (education, health care, or markets) and its closest settlement. To calculate the value, the model takes into account how many critical facilities are connected by each road segment. Therefore, a higher value indicates that the road connects a larger number of critical facilities. A value of zero indicates that that road segment is not used to access critical facilities.
- **Network criticality:** The criticality of a link is defined as the degree to which network performance declines if the link is disrupted. The metric for evaluating the network performance is additional travel time. The performance of the network—defined as the total travel time between each origin-destination pair—is calculated in the baseline (no disruption). The performance is reevaluated when individual links are removed one by one. The analysis includes major origin/destination nodes such as major population clusters, settlements, and cities.

Figure A2.3 User Interface of the Climate Resilience Investment Prioritization Tool for Haiti



ANNEX 3: IMPLEMENTATION ARRANGEMENTS AND SUPPORT PLAN

Implementation Arrangements

1. **Project implementation will be the responsibility of MTPTC.** All project activities will be implemented by UCE-MTPTC. The technical, fiduciary, and environmental and social (E&S) risk management teams at UCE-MTPTC have long experience in implementing Bank-financed operations. UCE-MTPTC also has a local office in Cap-Haïtien that is currently supporting the implementation of the Municipal Development and Urban Resilience Project, the Cap Haïtien Urban Development Project, and the Caribbean Air Transport Connectivity Project. Both the central and local offices have technical, E&S risk management, monitoring and evaluation (M&E), and fiduciary (accounting) specialists.

2. **Strengthening of UCE-MTPTC capacity.** UCE-MTPTC capacity is strengthened by the hiring of additional technical, E&S risk management, and supervision staff, as follows: (i) a project team leader (*chargé de la component transport urbain,* (ii) a procurement specialist junior, (iii) an accountant, (iii) an M&E specialist junior, (iv) a social risk management specialist, (v) an environmental risk management specialist, and (vi) a communication specialist. A gender specialist, focusing on sexual exploitation and abuse /sexual harassment aspects, has been hired as part of the RARP project and also covers the proposed Project.

3. **POM:** A POM detailing the procedures for the new project activities has been prepared and adopted by UCE-MTPTC. The POM describes the project implementation arrangements in detail, including the roles and responsibilities of key project stakeholders, as well as the organization, procedures, and resources dedicated to efficiently and effectively achieve the Project Development Objective. The POM describes, among other things, specific financial management arrangements and internal control procedures, procurement, and M&E.

4. **Delegated implementing agencies (*Maîtres d'Ouvrage Délégué*, MDODs).** Implementation of investments in remote and rural areas under Component 1 and the complementary facilities under Component 2 is delegated to the MDODs, which will be selected based on the eligibility criteria and selection process agreed with the World Bank, as described in the POM. Specific provisions are included in the MDODs' contracts to ensure compliance with the World Bank requirements on procurement, financial management, E&S risk management, and anti-corruption policies.

5. **Stakeholders.** Like in the RARP, technical teams comprising focal points within the MTPTC Departmental Directorates in the south departments ensure quality control and technical compliance under Component 1. Besides playing an active role in the selection of priority activities and in the discussion of technical solutions for Component 2 and 3, the Ministry of Social Affairs and Labour (*Ministère des Affaires Sociales et du Travail*, MAST), the municipalities, MEF, and UTE/MEF are expected to provide inputs to key activities during Project implementation. The municipalities also play an active role in setting construction timelines and traffic management procedures under Components 1 and 2. They also play a key role under Component 2 in citizen engagement, supporting the dissemination of Project activities and establishing the informal transport observatory. Collaboration arrangements between the UCE-MTPTC and the participating decentralized entities (i.e., departmental directorates, municipalities, and Board of Directors of the Communal Section [Conseil d'Administration de la Section Communale, CASECs]) for monitoring of relevant outcome indicators and intermediate indicators are included in the POM. The POM also provides specific reporting procedures, templates, and M&E responsibilities at the decentralized and national levels.

6. **The GoH prepares biannual progress reports in the format outlined in the POM.** The progress reports cover: (i) physical and financial progress achieved against agreed indicator targets; (ii) issues and problem areas, including remedial actions; and (iii) work programs and cost estimates for the coming year, including revised estimates for the current period.

Financial Management

Table A3.1 Assessment Table and Mitigation Measures of Financial Management Risks

Risk type[38]/Description	Inherent Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Residual Risk Rating
Risk rating	**H**		**S**
Country level Chronic country fragility characterized by socio-political instability, weak governance and lack of accountability in the use of public resources are likely to favor fraudulent and corruption behavior in the use of the project funds (e.g. ineligible expenditures) that may disrupt the implementation progress of the project and delay the achievement of project development objectives.	H	Through collaboration with various donors, the governance system including external and internal control institutions is being strengthened. This includes the WB Statistic and PFM financed project that aims to improve efficiency, transparency, and accountability in the use of public funds all backed up by solid statistical data. As a result, in the meantime, this project will not rely on country system rather will be implemented using a dedicated implementing unit with an established internal control environment based on international standards. Country systems will only be relied on if deemed appropriate and consistent with the design and objectives of the project.	S
Entity The UCE-MTPTC is currently implementing five Bank-funded projects. Work overload for current staff may slow down the implementation rate of the new project activities.	S	Additional staff dedicated to the new project will be hired based on terms of reference (ToRs) acceptable to the Bank to handle increased workload. The internal controls are established in the UCE-MTPTC, and all procedures are clearly documented in the Project Operational Manual (POM). This will also help new staff adapt easily and quickly to new roles.	M
Project The main components of the project will include rehabilitation and construction related to public transport facilities in Cap-Haïtien and	H	The MTPTC has departmental directorate offices that have technical experts who are experienced in supervision of similar work in other Bank-funded projects. In addition, the UCE-MTPTC will recruite additional technical experts who will be	S

[38] The **FM inherent risk** is that which arises from the environment in which the project is situated. The **FM control risk** is the risk that the project's financial management (FM) system is inadequate to ensure project funds are used economically and efficiently and for the purpose intended. The **overall FM risk** is the combination of the inherent and control risks as mitigated by the client control frameworks. The **residual FM risk** is the overall FM risk as mitigated by the Bank supervision effort.

Risk type[38]/Description	Inherent Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Residual Risk Rating
the other departments in the South (Nippes, Grand'Anse, and South-East). Construction and rehabilitation works may not be fully documented in a timely manner nor properly done in accordance with minimum technical requirements. Technical works may not be fully accounted for.		part of the technical supervisions. The technical supervision teams will regularly visit the decentralized project sites and provide relevant reports on the project activities. The technical supervision team will also verify the work in progress of rehabilitation and construction works. The team will send technical and relevant financial progress reports and documents to the FM Unit for accounting. The UCE-MTPTC will also work with a delegated implementing agency under agreed contract terms to ensure accountability and timely completion of project deliverables.	
Control risk	**S**		**M**
Budgeting The project will be financed entirely with the grant proceeds of the International Development Association. There may be delays preparing the annual operational plans and budgets because of the large number of local activities which may not be consolidated in time for overall budget preparation. Also, during project implementation, there may be deviations in executing the budget as some activities may not be implemented as planned given the high level of decentralization of project activities.	M	The operational plan and budget will be prepared before the beginning of the new fiscal year. It will be submitted to the Bank for nonobjection. Budget monitoring will be carried out periodically (quarterly and biannually), through the overall and fiduciary supervision missions as well as through quarterly interim unaudited financial reports and annual financial audits. The POM clearly details the timelines for annual work plan and budget preparation. The POM also indicates the responsibilities for the budget preparation, execution, and monitoring.	M
Accounting The UCE-MTPTC unit uses the ACCPAC accounting software for recording various project transactions. However, the accounting software needs to be updated and the installation at the new UCE-MTPTC office site completed. Also, given the increasing volume of work for the unit, the team may experience delays in the recording and analysis of the project's financial information, leading to delays in the production of timely interim financial	S	To strengthen the current financial management (FM) team, the UCE-MTPTC unit will recruit an additional accountant based on the ToRs acceptable to the Bank. The accountant will be fully dedicated to the project. The UCE-MTPTC will have the accounting software updated, finalize installation, and ensure staff training is carried out for all FM unit staff. The POM details the financial and administrative procedures related to project activities. It will also detail the mechanism for contracting with	M

Risk type[38]/Description	Inherent Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Residual Risk Rating
reports.		delegated implementing agencies for certain activities. This will ensure accurate documentation of all the transactions of the project.	
Internal controls Not all processes for the activities under the new project may be included in the POM. Due to the decentralized nature of activities of the project, controls may not always be adhered to.	H	The UCE-MTPTC developed a POM to document procedures for activity implementation under the new project. The POM details procedure mechanisms on contracts and contracting of delegated implementing agents. Technical teams will prepare technical audit reports to be submitted to the Bank when carried out. Also, should third-party monitoring be required, or any labor-intensive program work be necessary, the control arrangements will be reviewed during implementation. Control procedures over services and work carried out during supervision of work done in the region by the technical experts are also detailed in the POM.	S
Funds flow The PIU is responsible for implementing other donor-funded projects. Funds from other sources may be comingled with the new project's funds. Most of the project funds will be for decentralized activities at the southern local level. Therefore, there may be delays in using the funds for the purposes they are intended for due to delays in activity implementation.	S	A Designated Account (DA) to be opened at the Central Bank of Haiti (BRH). In addition, a separate operational account in Haitian Gourdes (local currency) will be opened from which payments related to the new project activities will be made. The project FMS will review the activities planned for in the annual work plan and budget and arrange for timely disbursements for work and services completed and delivered. The UCE-MTPTC will also ensure that the transactions for these activities are recorded and documented in a timely manner.	S
Financial reporting Increased volume of work from the additional new project may result in delays in recording and consolidating the project financial data. This may delay the preparation and submission of the Interim Financial Reports (IFRs) within the agreed timelines.	S	An additional accountant dedicated to the new project will be recruited based on ToRs acceptable to the Bank. The UCE-MTPTC has hired a consultancy firm to update and program the ACCPAC accounting software with multiuser capabilities. This will facilitate the generation of financial reports following the recording of the financial	M

Risk type[38]/Description	Inherent Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Residual Risk Rating
		transactions for all the funding sources for the projects managed by UCE-MTPTC. The consultancy firm will also carry out users' training for the FM staff to be able to efficiently use the accounting software to produce the required financial reports for IFR as well as year-end financial statements for audit purposes.	
Auditing The information included in the annual financial reports may not be reliable and the audit firms may not be able to provide consistent opinion, sound internal control system analysis, and related recommendations due to the poor quality of the audit firms operating in the country.	H	An audit firms' quality review was carried out in 2020 in collaboration with the Inter-American Development Bank to identify the weaknesses in audit firm capacity and how to address them. An external auditor will be recruited in line with the findings of the assessment and based on ToRs acceptable to the Bank.	S
Overall project FM risk	**H**		**S**

H – High; S – Substantial; M – Modest; L – Low

Table A3.2 Financial Management Action Plan

Action to Be Undertaken	Responsible Body
1- Recruit an accountant dedicated to the project, based on ToRs acceptable to the World Bank	UCE-MTPTC
2- Develop a Project Operational Manual that includes administrative, financial, and accounting procedures for the activities under the new project.	UCE-MTPTC
3- Upgrade and complete installation of the ACCPAC accounting software for production of interim financial reports and annual financial statements.	UCE-MTPTC
4- Recruit an external auditor to conduct annual financial audit of the financial statements of the project along with the review of the internal control system based on ToRs acceptable to the World Bank.	UCE-MTPTC
5- Submit the technical expert/technical audit reports when they are available.	UCE-MTPTC

Financial Management Arrangements

7. **Organization and staffing**. FM staff currently include one project FM specialist and five accountants, all of them supporting all World Bank–funded projects implemented by UCE-MTPTC. An additional accountant would need to be recruited to help manage the additional workload that comes with the new Project. FM trainings on the World Bank's policies and procedures are carried out regularly to ensure Project Implementation Unit staff are knowledgeable on the relevant project management policies and procedures.

8. **Budgeting arrangements.** The Project will be financed entirely with the grant proceeds of IDA. There will be no government counterpart funding. UCE-MTPTC would be responsible for planning Project activities and preparing the annual budgets and operational plans for approval by the World Bank before the beginning of each fiscal year. The annual budget will be monitored periodically through supervisions (including financial management) and progress and financial reports (biannual interim unaudited financial reports and annual financial audits). The budget preparation, approval, and monitoring processes are detailed in the POM. The annual operational plan and budget would be prepared specifying activities by Project components and subcomponents and would also include detailed information on operational costs. The annual operational plan and budget will be reviewed and approved by the World Bank.

9. **Accounting system.** UCE-MTPTC uses the ACCPAC accounting software for the recording of financial transactions of the projects under implementation funded by the IDA. However, the accounting system needs to be updated to include all functions that allow for multiple users and generation of complete and regular financial reports. The current system version does not allow for the preparation of financial reports that comply with the World Bank's requirements. Presently, financial reports are prepared using an auxiliary system (MS Excel). The accounting software will need to be updated and the installation at the new UCE-MTPTC office site completed. The UCE-MTPTC will have the accounting software updated, finalize installation, and ensure staff training is carried for all FM unit staff.

10. **Financial reporting.** For existing projects implemented by UCE-MTPTC, unaudited interim financial reports (IFRs) are prepared but not transmitted to the World Bank in a timely manner. The UCE-MTPTC has hired a consultancy firm to update and program the ACCPAC accounting software with multiuser capabilities. This will facilitate the generation of financial reports following the recording of the financial transactions for all the funding sources for the projects managed by UCE-MTPTC. The hiring of an additional accountant will ensure timely recording of financial transactions in the accounting system and timely production of financial reports. IFRs would be prepared and submitted biannually to the World Bank no later than 45 days following the end of each fiscal semester. The format and content of the IFRs are detailed in the approved POM as agreed with the World Bank. The IFRs will allow the World Bank to monitor disbursements, financial, and budgetary project information.

11. **Internal control and internal audit.** Specific mechanisms to control and safeguard the proposed Project's financial information and assets are outlined and incorporated in the POM including detailed eligibility criteria and procedures to select and engage the delegated implementing agencies (i.e., MDODs). Technical teams will prepare technical audit reports to be submitted to the Bank. Also, should third- party monitoring be required, or any labor-intensive program work be necessary, the control arrangements will be reviewed during implementation. Control procedures over services and work carried out during supervision of work done in the region by the technical experts are in the POM. Adequate supervision and monitoring procedures for delegated activities under the relevant project components will also be included in the manual to ensure that Project activities and investments are timely, satisfactorily implemented, and accounted for.

12. **Disbursement and flow of funds.** The main disbursement methods to be used by the proposed Project will be reimbursement, direct payment, and special commitments. The option to have funds advanced into a designated account (DA) will be available once the closing of DAs for closed projects in the portfolio has been finalized. Once the advance option is available, project funds will be advanced in US dollars into a dedicated DA at the Central Bank of Haiti (Banque de la République d'Haïti, BRH). The DA will be managed by UCE-MTPTC. In addition, a separate operational account in Haitian Gourdes (local currency) will be opened for payments related to the new project activities. Withdrawal applications and statements of expenditure will be prepared by UCE-MTPTC to: (i) document

the grant proceeds advanced into the DA, and (ii) replenish the DA, as agreed upon with the World Bank. The funds flow and disbursement arrangements are described in the Disbursement and Financial Information Letter.

13. **External audit.** Annual audits on Project financial statements and a review of eligibility of expenditures will be performed in accordance with World Bank policy. An independent auditor will be hired based on ToRs acceptable to the World Bank not later than four months after the Effective Date.

14. **FM supervision.** The World Bank would conduct at least two FM supervisions per year. FM performance and compliance would also be monitored through the review of biannual IFRs and yearly financial audit reports.

Procurement

15. **All procurement activities will be implemented by UCE-MTPTC. Procurement will be executed in accordance with the "World Bank Procurement Regulations for Borrowers under Investment Policy Financing" (July 2016) ("Procurement Regulations"), as well as the provisions stipulated in the Procurement Plan and the POM.** The procurement audit report will be furnished to the World Bank, along with other information concerning procurement records, documentation, and reviews.

16. **STEP.** In accordance with paragraph 5.9 of the World Bank Procurement Regulations, the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) system will be used to prepare, clear, and update procurement plans and monitor all procurement transactions for the Project.

17. **General Procurement Notice**. The Borrower shall prepare and submit to the World Bank a General Procurement Notice before beginning any procurement activity under the project, and the World Bank will arrange for its publication in United Nations Development Business (UNDB) Online and on the World Bank's external website.

18. **Specific Procurement Notice.** For open, international competitive procurement, the Borrower shall publish Specific Procurement Notices for all goods, non consulting services, and Requests for Expressions of Interest for consulting services on its free-access website, if available, and in at least one newspaper of national circulation in the Borrower's country, in the official gazette, and in UNDB Online.

19. **Standard Procurement Documents.** The World Bank's Standard Procurement Documents must be used for all project contracts subject to international competitive procurement. In addition, these documents shall be used for project contracts not subject to open international market approach as well.

20. **The procurement functions, roles, responsibilities, and proceedings are further detailed in the POM.** Periodic procurement reports will be required covering the same periods as the IFRs, containing at least the following information: STEP, contract number, contract number, supplier name, contract date, final contract amount, date of the World Bank's no objection to contract, total amount paid to supplier during the reporting period, and the World Bank's share of amount paid to the supplier during the reporting period. When the contract falls under operations cost, training, or another non procurable category defined in the legal agreement, the STEP contract number will be replaced by an acronym and specify the expenditure type.

21. **Procurement assessment**. The UCE submitted a Project Procurement Strategy for Development (PPSD) acceptable to the Bank (see below). The procurement plan for the next 18 months has been finalized and will be uploaded in STEP.

The procurement risks identified by the assessment and the agreed mitigation measures are summarized in table A3.3. The project procurement risk is rated "**Substantial.**"

Table A3.3 Procurement Risks and Mitigation Measures

Risk Description	Mitigation Measures	Risk Owner
Delays in the implementation of activities	Anticipate the selection of the firm that will have to develop and update the studies and prepare the procurement documents for the construction works.	UCE
High workload at the UCE level due to the number of projects implemented by the UCE	Anticipate in the recruitment of additional resources.	UCE
Due to the climate of insecurity, companies qualified for the supply of goods, works, and consultancy services will be reluctant to bid	Implement market awareness actions to expand the project's supply base.	UCE
Inaccurate cost estimate	Comprehensive and detailed cost estimates based on market analysis to align estimates with market value; therefore, reducing the risk of unresponsive proposals.	UCE MTPTC
The poor description of the specifications when drafting the Terms of Reference	Specifications and terms of reference for consultancy services should clearly specify duration, a comprehensive scope and content of tasks, a well-planned schedule of deliverables, payments linked to deliverables in lump sum contracts, a well-planned number of experts/month by area of expertise, and a clear approach for review and approval of deliverables.	UCE MTPTC
Weaknesses of the international arbitration mechanisms in place	When developing MOPs, take this problem into account.	UCE MTPTC
Delay in payment of supplier invoices	Set up a monitoring mechanism payment of default interest.	UCE MTPTC
The delay in the delivery time	Apply the public procurement code late delivery penalties.	UCE MTPTC
	Ensure upstream the technical and financial capacity of the supplier to be able to deliver the supplies or goods, including an analysis aimed at identifying abnormally high/low offers leading to the rejection/acceptance of unreasonable proposals.	UCE/MTPC
Lack of technical and financial capacity of bidders	Strengthen contract management and cost control, monitoring payments against quality and not only against progress of deliverables expected from contractors/consultants, as per contract.	MTPTC

22. **Procurement of goods, works, and consultancy services will be carried out in accordance with the World Bank's Procurement Framework 2016 and the "Procurement Regulations for Borrowers 2016" would be applicable for procurement under the Project.** When approaching the national market, as agreed in the Procurement Plan approved by the Bank, the country's own procurement procedures will be used subject to the no-objection by the Bank. In this case, all methods and procedures shall be consistent with the Bank's Core Procurement Principles and ensure that the Bank's Anti-Corruption Guidelines and Sanctions Framework and contractual remedies set out in its legal agreement apply.

23. **The PPSD, which has been approved by the Bank, contains a market analysis for different packages of procurement, and based on its findings, decisions on the optimal procurement approach for works, goods, and services can be finalized to ensure adequate participation of bidders.** Based on the PPSD, it can be concluded that the national environment is not always favorable for the acquisition of works, goods, and services identified for implementation under the Project.

Procurement Methods and Thresholds

24. **Procurement and selection processes will be subject to the Bank's prior review procedures in accordance with the following thresholds and methods**:

Table A3.4 Thresholds for Procurement Methods and Prior Review

Category	Procurement Threshold (US$, thousands)	Procurement/Selection Methods	Prior Review Thresholds
1. **Works**	>3,000	Request for bids	All contracts
	from 1,000 to 3,000	Request for quotations	None
	Any involved amount	Direct selection	All contracts
2. **Goods and nonconsulting services**	>500	Request for bids	All contracts
	≤500	Request for quotations	None
	Any involved amount	Direct selection	All contracts
3. Consulting services 3.A Consulting firms	> 300	QCBS, QBS, FBS, LCS*	All contracts above US$200,000
	≤300	CQS*	All contracts above US$100,000
	Any involved amount	Direct selection (SSS)	All contracts
3.B Individual consultants	Any involved amount	3 Curriculum Vitae comparison and procedures in accordance with Section VII, Items 7.34 to 7.39 of the Bank's Procurement Regulations for Borrowers	All contracts above US$100,000 and some key project's posts

*Quality- and Cost-Based Selection ("QCBS"); Least-Cost Selection ("LCS"); Request for Qualifications ("RFQ"); Request for Bids ("RFB"), Single-Source Selection ("SSS"), Consultants' Qualifications Selection ("CQS").

Table A3.5 Procurement Plan

#	Contract Title/Description	Category	Estimated Cost (US$, millions)	Bank Oversight	Market Approach and Competition	Selection/Procurement Methods
1	Road segments rehabilitation—Multiple packages (South, Nippes, Grand'Anse) Multiple packages (6–7) (réseau primaire)	**Civil works**	10	**Prior**	Open National	RFQ
2	Spot improvement rural roads executed by local SMEs—Multiple packages (18–20)	**Civil works**	14	**Prior**	Open National	RFQ/RFB
3	Protection and reinforcement of the resilience of structures—Multiple packages (8–10)	**Civil works**	4	**Prior**	Open National	RFQ/RFB
4	Support for improving community access (critical points) and HIMO implementation program	**Civil works**	6	**Prior**	Paragraphs 6.47 and 6.48 of the World Bank Procurement Regulations	SSS with UN agency
5	Community infrastructure/complementary/related to the road	**Civil works**	1.5	**Post**	Open National	RFQ/RFB
6	Interventions in critical urban areas of the cities of Les Cayes, Cavaillon, and Jeremie (multiple packages)	**Civil works**	9	**Prior**	Open National	RFQ
7	Design and supervision of infrastructure rehabilitation works (multiple)	**Consulting services**	2.5	**Post**	Open National	QCBS
8	Institutional strengthening and capacity development of the MTPTC	**Consulting services**	2	**Post**	Open National	QCBS
9	Treatment of critical points and roads/ Rehabilitation of road segments and key intersections in Cap-Haïtien to improve urban mobility	**Goods**	15	**Prior**	Open National	RFQ
10	Improvement of the drainage system to reduce flooding in certain areas of the city	**Civil works**	15	**Prior**	Open National	RFQ
11	Downtown traffic management (physical improvement and technical assistance)	**Civil works**	1.5	**Post**	Open National	RFQ
12	New stations for tap-tap interchanges and passenger boarding facilities	**Civil works**	4	**Prior**	Open National	RFQ
13	Pedestrian infrastructure and climate-resilient markets	**Civil works**	4	**Prior**	Open National	QCBS
14	Diagnostic studies: network performance diagnostics and prefeasibility analyses aimed at improving service	**Consulting services**	2	**Post**	Open National	QCBS
15	Design and supervision of infrastructure rehabilitation works (multiple)	**Consulting services**	3	**Prior**	Open international	QCBS
16	A traffic management strategy; signaling and parking for the central area	**Consulting services**	1	**Post**	International	QCBS

17	Safety audits to inform the environmental design of infrastructure for violence prevention	**Consulting services**	1	**Post**	Open National	QCBS
18	Development of a gender gap analysis and gender equality action plan for the public transport sector 0.1	**Consulting services**	0.3	**Post**	Open National	. QCBS
19	Technical assistance (TA) to develop tools for urban transport planning at the national level	**Consulting services**	1	**Post**	Open National	QCBS
20	Integrated TA for CIP Driver Deployment	**Consulting services**	3.5	**Prior**	Open National	QCBS
21	Development of a road safety database 0.3	**Consulting services**	0.3	**Post**	International	QCBS
22	TA and tools for planning and investing in inclusive and resilient urban transport infrastructure	**Consulting services**	1	**Post**	Open National	. QCBS
23	TA for the optimization of service roads in Cap-Haïtien and design/supervision of the location of loading points	**Consulting services**	3	**Prior**	Open International	QCBS
24	Studies for the constitution of the observatory	**Consulting services**	0.5	**Post**	Open International	QCBS
25	TA: urban mobility (roadmap and concerted operational framework)	**Consulting services**	3	**Prior**	Open International	QCBS
26	TA capacity building and training of transport operators and drivers including on road safety and gender issues	**Consulting services**	1	**Post**	Open International	QCBS
27	Pilot for the regular technical inspection of vehicles along the selected corridors	**Consulting services**	0.5	**Post**	Open International	QCBS
28	Audit services	**Consulting services**	0.1	**Post**	National	QCBS
29	Monitoring and evaluation tools	**Consulting services**	0.3	**Post**	Open National	LCS
30	Social assessment	**Consulting services**	0.5	**Post**	Open National	QCBS
31	Hiring individual consultants to provide technical assistance to UCE and MTPTC	**Consulting services**	1.0	**Prior/Post**	Open International/ National	Consulting Services. Individual
32	Purchase of equipment for the project management	**Goods**	0.5	**Post**	Open National	RFQ

Implementation Support Plan

25. **The strategy for implementation support has been determined based on the risks to achieving the Project Development Objective identified in the Systematic Operations Risk-Rating Tool table.** As all risks are rated either Substantial or High (except institutional capacity), the project will require dedicated implementation support as well

as continuous evaluation to adjust the project design and implementation arrangements to reflect the changing national and local contexts. The Bank will conduct regular missions, video conferences, and periodic fiduciary compliance reviews. A Mid-Term Review will be conducted after approximately 36 months of implementation to review performance in depth and make any adjustments necessary. In addition to the Mid-Term Review, the team will conduct yearly reviews of the project progress to assess whether any adjustments are needed.

26. **It is projected that a total of 22 implementation support missions will be required over the life of the project.** Beyond the start-up of the project, these are intended to take place every four months. The estimated skill mix and resource needs are shown in Table A3.6 **Implementation Support**

27. **Key areas of focus for the first year of project implementation include**:
    a) Monitoring the procurement for (i) the MDODs, (ii) the design studies for rehabilitation works under Component 1, and (iii) the corridor design concepts and detailed designs.
    b) Assuring that UCE/MTPTC is fully staffed and equipped for project implementation.
    c) Launching the implementation of the stakeholder and project communication strategies.
    d) Conducting training to assure that newly recruited staff is knowledgeable on Bank fiduciary and Environmental and Social Framework requirements.
    e) Coordinating with the main partners (Inter-American Development Bank, European Union) to ensure synergies with other planned and ongoing projects.

Table A3.6 Implementation Support

Skill Needs	Number of Staff Weeks (for the duration of the Project)	Number of Trips	Comments
Task Team Leader (TTL)	70	Based in country office	Four implementation support missions during the first year; three the following years; + technical visits to solve bottlenecks as needed.
Co-TTL	70	20	Four implementation support missions during the first year; three the following years; + technical visits to solve bottlenecks as needed.
Urban transport specialist	50	15	Twice a year missions, routine support as needed.
Transport economist	30	15	Twice a year missions, routine support as needed.
Procurement specialist	50	Based in country office	Twice a year missions, routine support as needed.
Hydraulic engineer	30	12	Twice a year missions, routine support as needed.
Financial management	30	Based in country office	Twice a year missions, routine support as needed.
Gender specialist	30	12	Twice a year missions, routine support as needed.
Environmental specialist	50	15	Twice a year missions, routine support as needed.
Social development specialist	50	15	Twice a year missions, routine support as needed.

Program assistant	30	Based in country office	Support as needed for mission planning, etc.
Legal	2	0	Staff weeks if restricting is needed
Disbursement	2	0	

Table A3.7 Project Partners

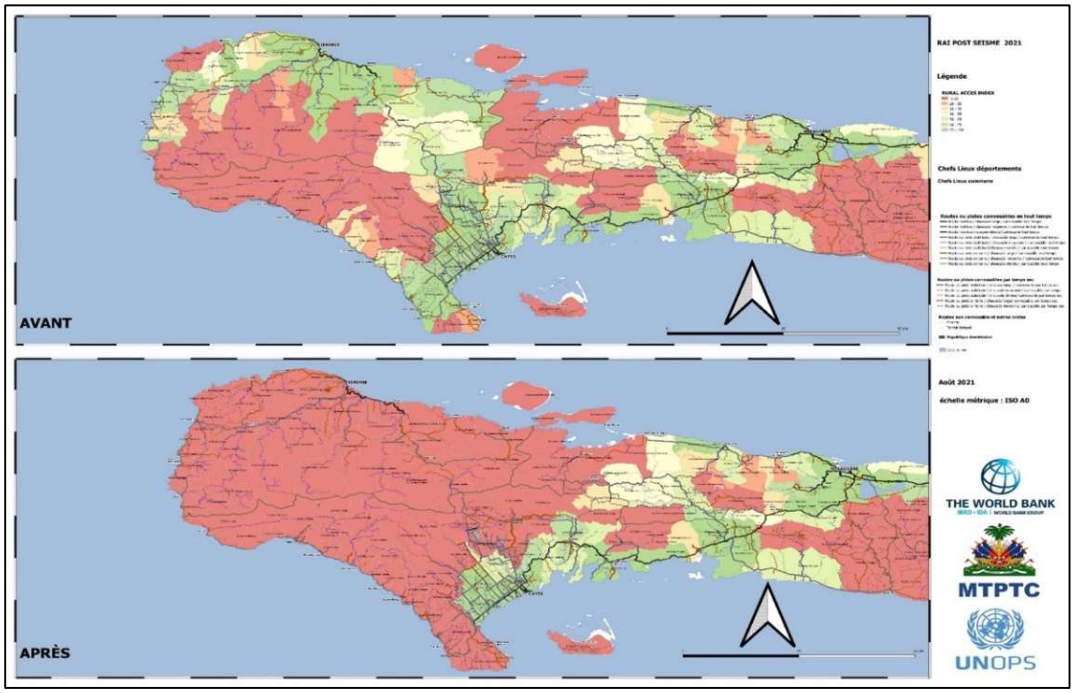
Name	Institutions	Role
Client	MTPTC	Project Counterpart, overall responsible for Project implementation, in compliance with agreements spelled out in the Financing Agreement coordinating the GoH's support for the Project.
PIU	UCE (MTPTC)	Responsible for Project execution.
Project partner institutions (Governmental)	CIAT MEF/UTE MAST	Components 2 and 3: Entities to contribute to the policy framework dialogue, the elaboration of guidelines and supporting documents, participatory and decision-making mechanisms supported in the Project.
Local institutions and authorities	Local-level representation of line ministries and local authorities at the municipal level	Local-level representation of line ministries: key actors in the coordination, monitoring, as well as participatory and decision-making mechanisms supported in the Project. Local authorities: Mayors and CASECs: key actors in promoting and selecting subprojects in coordination with the Departmental Directions, and key actors in the participatory and decision-making mechanisms supported in the Project.
Bank and other donors	World Bank GPs, IDB, EU	Ensure coordination so that World Bank–financed programs complement one another in terms of sectors of intervention, geographic areas of intervention, time of intervention, etc. to leverage development impacts.
Associations and private sector partners	Various, including the Private Sector Economic Forum, chambers of commerce, associations of industries, associations of transporters, women associations, etc.	Beyond consultation, play a key role in the sustainability of the Project by perpetuating Project activities through investments, taking ownership of the investment, and conveying the local demand and requiring that local needs be addressed and accounted for. Furthermore, the role of the private sector and associations will be critical in ensuring the establishment of an institutional dialogue with public authorities. It is part of the process to build capacity on mobility and urban planning. For Components 2 and 3 in particular, the private sector will be part and parcel of the design of the roadmap to identify the means to enhance the efficiency of the industry.

ANNEX 4: WORLD BANK'S SUPPORT TO HAITI'S EARTHQUAKE RECOVERY AND RATIONALE FOR CRW SUPPORT

1. **On August 14, 2021, at 8:36 a.m. local time, a 7.2-magnitude earthquake struck southwestern Haiti.** The South Peninsula, which includes the departments of Sud, Grand'Anse, and Nippes, bore the brunt of the earthquake, with 2,246 people confirmed dead and 12,763 injured. This region is one of the poorest parts of the country and had previously been hit by Hurricane Matthew in 2016. The earthquake damaged 34 percent of housing stock in the Southwestern Peninsula, destroying or seriously damaging more than 39,850 houses and rendering thousands of Haitians homeless. Beyond the human toll, the earthquake directly or indirectly affected an estimated population of 690,000 people, representing 45 percent of the total population of the three departments of the South Peninsula. Only three days after the earthquake, Tropical Storm Grace lashed the South Peninsula with high wind and torrential rain, hampering search-and-rescue efforts and the delivery of humanitarian aid.

2. **Because of underlying vulnerabilities, this earthquake damaged more than 850 kilometers (km) of roads (including primary and secondary roads) in the three southern departments, resulting in damages of up to US$160 million to the transport sector and leaving more than 450,000 people isolated**. The damages were aggravated by Hurricane Grace. Before the earthquake, 280,000 people in the three departments lived in hard-to-reach areas, whereas after the earthquake this number more than tripled to 980,0000 people (as illustrated in the maps in Figure A4.1). Indeed, MTPTC estimates that over 400,000 people were left totally isolated by the two disasters, mainly due to landslides.

Figure A4.1 Haiti Rural Access Index before and after the Earthquake



Source: MTPTC, World Bank, and UNOPS, "Présentation de l'impact du séisme sur le réseau routier," September 15, 2021.

3. **In the immediate aftermath of the August 14 earthquake, the GoH officially declared a one-month state of emergency and requested a Post-Disaster Needs Assessment (PDNA).** The PDNA was completed on October 9, 2021. It

assessed total damages[39] at US$1.246 billion, total losses[40] at US$373 million, and the identified resilient recovery and reconstruction needs—with the application of the "build back better" principle—at approximately US$2 billion. The most affected sectors in terms of damages were the social sectors (US$1,022 billion)—which included housing (US$753 million), education (US$257 million), and health services (US$11 million). Losses were highest across the productive sectors (US$188 million), including agriculture (US$46 million); commerce, industry, and financial services (US$127 million); and tourism (US$15 million). The infrastructure sector recorded US$129 million in damages, of which US$118 million was to transport infrastructure. The housing sector comprised the largest share (almost 52 percent) of total needs.

4. **The overall earthquake-related financing needs for recovery and resilience significantly exceed the capacity of the GoH to respond to the emergency and absorb the shock.** The GoH was not able to meet the significant emergency recovery needs, beyond the allocation of an estimated US$5 million for the immediate emergency response and the deployment of the US$40 million payout received 10 days after the earthquake from the Caribbean Catastrophe Risk Insurance Facility, its largest payout to date. The GoH has underscored the critical importance of the IDA's assistance to effectively address the short- and medium-term earthquake response needs, which should not only support the recovery but also strengthen the country's resilience to future disasters in the affected areas.

World Bank's Support to Haiti's Earthquake Recovery

5. **The GoH has called for the World Bank's support through all available channels, including its existing portfolio and access to the IDA's Crisis Response Window (CRW).** In response, the IDA has mobilized resources in the amount of US$38 million from its existing portfolio, through the reallocation of funds and the amendment of ongoing contracts in Bank-financed projects operating in the Southwestern Peninsula on disaster risk management, education, health, social protection, transport, and agriculture. The CERCs for the transport project (US$30 million) and the DRM project (US$11 million) were triggered in September 2021 and January 2022, respectively. An additional CERC for the health project (+/- US$19 million) was also triggered in Q3 FY22. For the medium- and longer-term earthquake recovery and reconstruction phase, the Bank mobilized US$150 million CRW resources, out of which US$60 million will be used to replenish the triggered CERCs. The CRW resources will be deployed through the existing portfolio, building on existing partnerships and delivery mechanisms, and to one new project under preparation to extend their activities in the targeted areas. The breakdown of the CRW financing between projects is presented in table A4.1.

Table A4.1 The CRW-Supported Program in Haiti

Project	PDO	From National PBA	From ERF CRW	From CRW (EQ)
Rural Accessibility and Resilience (P163490)	To (i) increase all-weather road access in selected subregions; and (ii) improve the resilience of selected segments of the road network.	US$108 million		US$30 million (CERC replenishment)
Strengthening DRM and Climate Resilience (P165870)	To improve: (i) early warning and emergency evacuation capacity in selected municipalities in high climate-risk-prone areas; and (ii) the provision of and accessibility to safe havens.	US$35 million		US$11 million (CERC replenishment)

[39] "Damages" are estimated at the replacement value of physical assets wholly or partly destroyed, built to the same standards as prevailed prior to the disaster.
[40] "Losses" are estimated from the economic flows resulting from the temporary absence of the damaged assets.

Strengthening Primary Health Care (P167512)	To (i) increase utilization of primary health care services in selected geographical areas; and (ii) strengthen surveillance capacity especially for cholera.	US$55 million (+ US$15 million TF)		US$19 million (CERC replenishment)
Promoting a more Equitable, Sustainable and Safer Education-AF (P176406)	To improve the Ministry of Education's planning functions, and support access to primary education with improved learning conditions.	US$50 million (+US$15.6 million TF)		US$40 million
Food Security and Climate Resilient Livelihoods Strengthening (P177072)	To (i) support timely access to nutritious food; (ii) increase climate-smart, nutrition-smart agricultural food production, including in earthquake-affected areas; and (iii) effectively respond to an eligible crisis or emergency event.	US$22 million	US$50 million[41]	US$30 million
Resilient Connectivity and Urban Transport Accessibility (P177210)	To (i) enhance climate-resilient rural connectivity in the South Peninsula; (ii) improve climate-resilient urban accessibility in Cap-Haïtien and targeted urban areas.	US$100 million		US$20 million
Total		**US$370 million** **(+US$30.6 million TF)**	**US$50 million**	**US$150 million**

6. **The CRW financing will strengthen the Bank's efforts to balance emergency response with building resilience for the long-term sustainability of results.** This is in line with Pillar 3 of the World Bank Group's Country Partnership Framework for Haiti, "enhancing resilience to natural disasters." Following the recurrent shocks that the country faced (2010 Earthquake, Hurricane Matthew in 2016), it became clear that integrating resilience at the local and sectoral levels, as well as in recovery efforts, was critical. The CRW funds will therefore be used for, *inter alia*, rehabilitating rural infrastructure, strengthening food security, rebuilding damaged schools, and repairing roads and bridges to restore connectivity in the affected areas following a "build back better" approach. The World Bank's support to the earthquake response will also seek to complement other development partners' interventions, considering the value-added and current expertise of the World Bank Group in Haiti as well as these partners' ongoing and upcoming earthquake response operations.

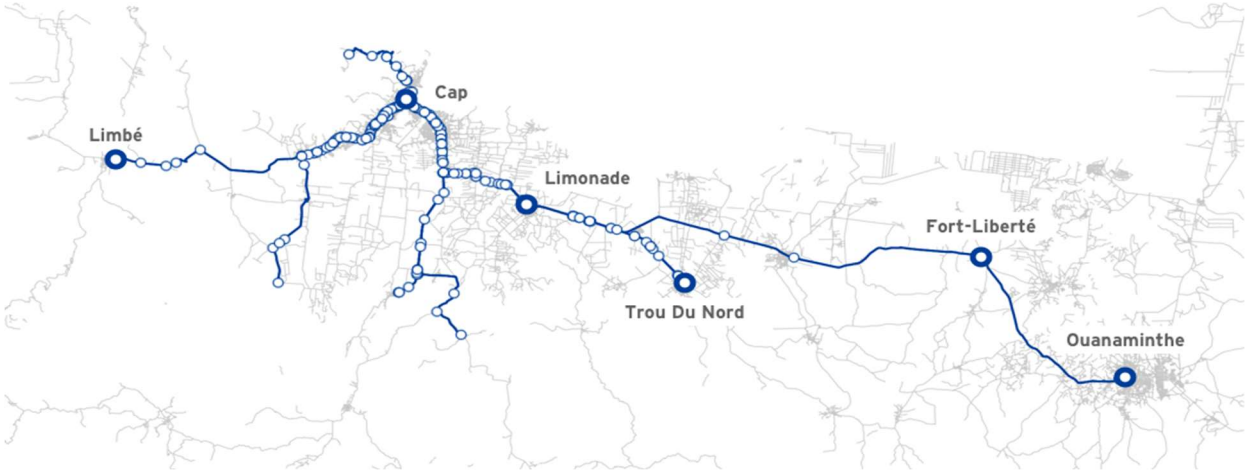
[41] US$50 million of the CRW Early Response Financing resources mobilized in September 2021 to support the government in its response to Haiti's food insecurity crisis, which predated the August 14 earthquake.

ANNEX 5: URBAN ACCESSIBILITY ANALYSIS FOR CAP-HAÏTIEN

1. **This annex summarizes the insights from the urban mobility diagnostic conducted in Cap-Haïtien.** By using an innovative approach, the analysis outlined the areas needing infrastructure investments to improve sustainability, inclusiveness, and resilience under Component 2. The preliminary urban accessibility analysis drawn from a Geographic Information System analysis sheds new light on the population's accessibility and distribution in the metropolitan area of Cap-Haïtien.

2. **The uneven population distribution creates connectivity issues and hinders the mobility of people living outside the city center.** With the support of the World Bank's Geospatial Operational Support Team, a Geographic Information System analysis was conducted using the General Transit Feed Specification (see Figure A5.1) and World Pop data as a baseline. Accessibility maps were drawn to shed light on residents' access to schools, markets, health care services, and economic activities while taking into consideration the impact of flooding on their mobility. By focusing on the critical intersections, the data emphasized the travel times to reach basic services through several parameters such as the transport mode (tap-taps vs. walking), poverty levels, resilience (flooding levels), and population distribution. It highlighted the extent of the spatial fragmentation in the city that is exacerbated by urban transport systems.[42]

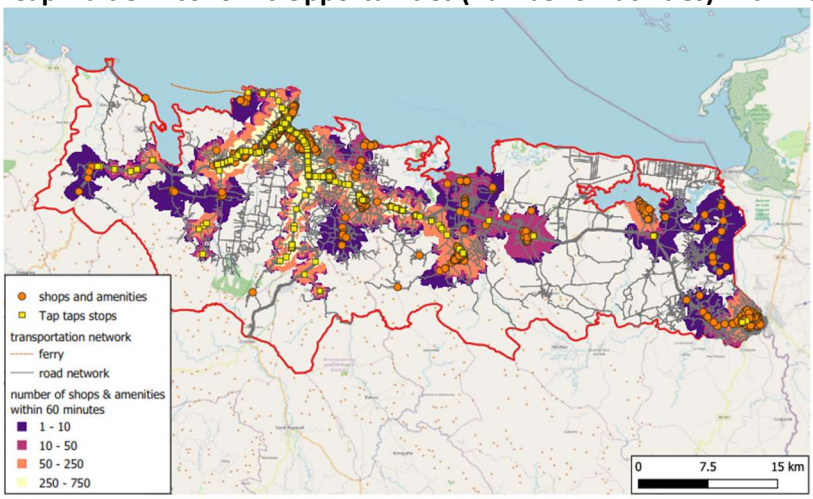
Figure A5.1 Overview of Tap-Tap stops in Cap-Haïtien



3. **The study revealed that, while 84 percent of the population lives within 30 minutes of a tap-tap stop in Cap-Haïtien, this number falls to 61 percent when considering the metropolitan area.** This observation provides for the first time a measure of the extent of spatial fragmentation. Combined with other maps such as flood resilience or accessibility to essential services, it is possible to identify connectivity improvements in the road infrastructure to address urban accessibility. Regarding access to economic opportunities, 65 percent of the population has access to over 36 percent of economic opportunities located within 60 minutes of their residence, while 16 percent of the inhabitants only have access to 36 percent or lesser of economic opportunities within that time frame. Besides, data show that the traveling distance is low, with a median of 1.6 km or 3.3 km when considering only commuters.[43]

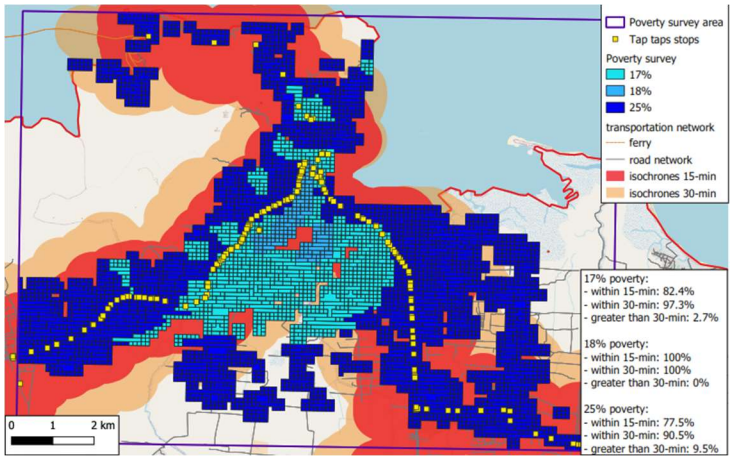
[42] World Bank Group, *Urban Mobility in Haiti: A Diagnostic* (Washington, DC: World Bank, 2018).
[43] World Bank Group, *Urban Mobility in Haiti*.

Figure A5.2 Cap-Haïtien Economic Opportunities (number of facilities) within 60 Minutes



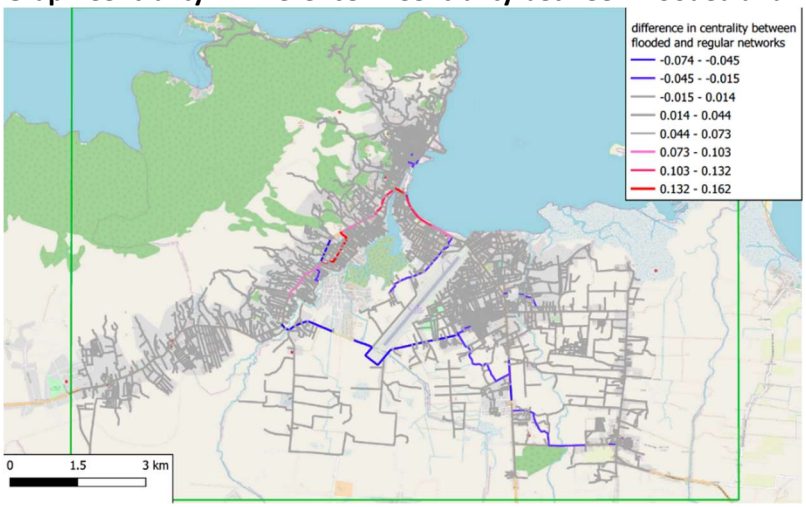
4. **The poorest inhabitants face economic and spatial exclusion from mobility services owing to the unaffordability of tap-taps and their stops' location.** The poverty distribution in Cap-Haïtien emphasized the correlation between poverty and low access to tap-taps: 9.5 percent of the poorest residents live more than 30 minutes away from a tap-tap stop and 77.5 percent beyond a 15-minute walking trip, in comparison to 2.1 and 86 percent of those with higher incomes. Although walking is the main mode of transportation, it also brings to attention the necessity of providing equal and affordable access to public transportation regardless of revenue levels.

Figure A5.3 Cap-Haïtien Isochrones Poverty Survey



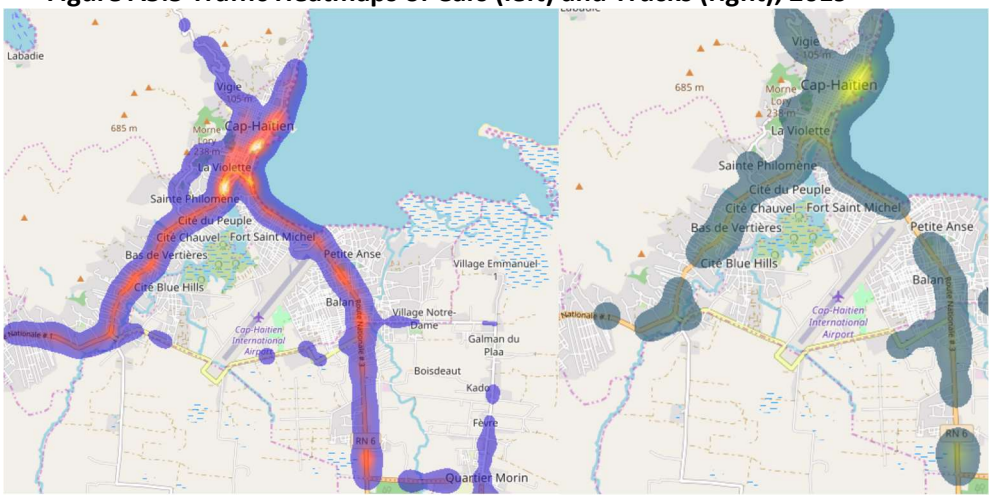
5. **Climate vulnerability analysis reveals that, due to frequent urban flooding (a 20-year return period event), more than 10,000 persons would lose accessibility to critical services (health and education) and markets.** Additionally, urban flooding is estimated to disrupt several key segments of the urban road network that could translate into additional pressure in already congested segments of the road network (RN 1 and 3). Strengthening the resilience of the surrounding roads could mitigate this impact in order to maintain sufficient accessibility levels to basic services. During project preparation, the team would use the baseline accessibility analysis to evaluate the gain in accessibility as a result of project interventions.

Figure A5.4 Cap-Haïtien Graph Centrality—Difference in Centrality between Flooded and Regular Network



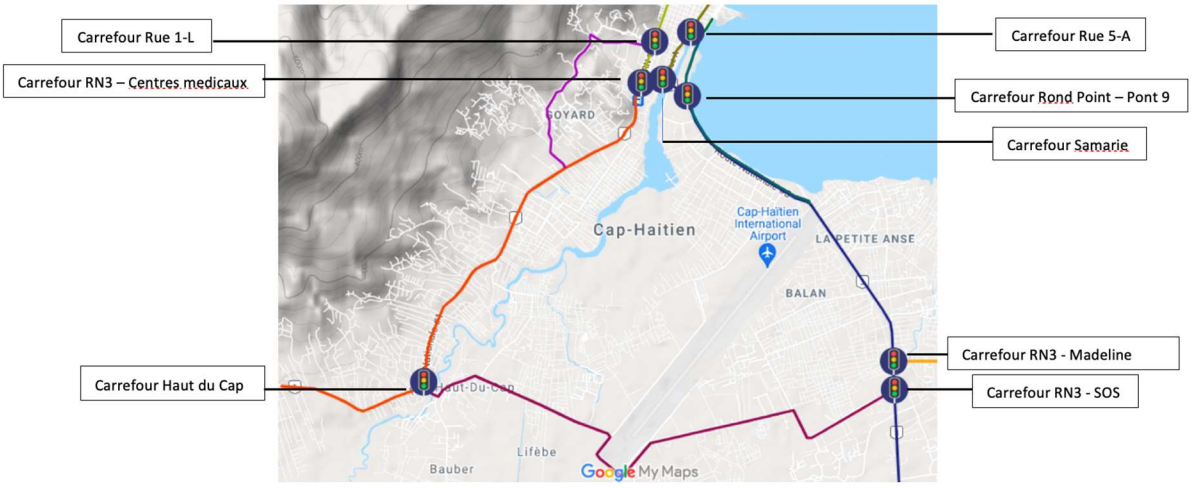
6. **Satellite data show that markets exacerbate congestion levels in Cap-Haïtien.** An analysis of traffic counts provided a better understanding of the different factors impacting traffic as well as the most congested areas of the city (see Figure A5.5). On market days (Tuesdays and Saturdays), the number of cars and trucks is significantly higher than on other days, leading to longer-than-usual commuting times on the main corridors (RN 3, 1, and 6). While traffic heatmaps show a high concentration of cars along these corridors, trucks are mostly concentrated in the city center. Similarly, the numbers of trucks detected in December was three times higher than the monthly average, reflecting a high seasonal impact. However, one should note that these data should be used cautiously due to weather conditions which limit its accuracy.

Figure A5.5 Traffic Heatmaps of Cars (left) and Trucks (right), 2019



7. **Intersections located outside the city center should ensure better East-West connectivity to reduce the number of vehicles in the city center.** The analysis was complemented with an in-depth traffic analysis using drone footage and ground observations to measure traffic levels around the eight main intersections of the city (see Figure A5.6). By capturing videos at different moments of the day (one hour in the morning, afternoon, and evening each) for each intersection, one can observe the variations of traffic flow and identify infrastructure issues. This helps in mapping out areas where the improvement of traffic speed and resilience would have the greatest impact on the population.

Figure A5.6: Overview of the Eight Main Intersections of Cap-Haïtien



8. **For the first time, a detailed estimate of the traffic count for each road user category in Cap-Haïtien was drawn (table A4.1).** Based on the data collected, one can identify the most critical intersections based on traffic flows and the connectivity to the main corridors. On the one hand, the intersections located in the city center see the highest number of vehicles due to the central location where all corridors converge. On the other hand, intersections located outside the city center in the East (Haut du cap) and the West (RN3-SOS and RN3-Madeline) play a critical role in ensuring east-west connectivity while diverting road users from the congested city center. Therefore, any strategy aiming to address the congestion level in the city center area should first consider enhancing east-west mobility as a means to limit the number of transiting vehicles. Similarly, an estimated number of pedestrians was measured in several locations (RN3-SOS, RN3-Centre Medicaux, Rue 5.A, and Rue 1.L). At the same time, aerial videos provide an overview of the magnitude of the challenging coexistence of pedestrians and vehicles due to the lack of adequate infrastructure in areas such as Rond Point-pont 9, RN3-SOS, Rue 5.A, and Rue 5.L.

Table A5.1 Traffic Count of the Main Intersections of Cap-Haïtien

Average Hourly	Intersections							
	RN 3-	Rond Point-	Samarie	RN3-	RN3-Centres	Rue 5.A	Haut du	Rue 1.L
Cars	468	1,841	1,371	665	887	966	1,099	878
Motorcycles	2,080	2,061	3,338	1,163	2,372	907	1,275	2,702
Tap-taps	197	188	133	190	115	87	90	9
Heavy vehicles	74	70	183	127	60	138	134	41
Total vehicles[44]	**2,819**	**4,160**	**5,025**	**2,145**	**3,434**	**2,098**	**2,598**	**3,630**
Pedestrians[45]	n.a.	n.a.	n.a.	1,056	9,692	5,000	n.a.	4,772

[44] Numbers are hourly average estimates that were calculated based on three hours of drone recordings (one hour in the morning, during lunch time, and in the evening) except for the intersection RN3-Madeline (four hours of recordings) and RN3-SOS (two hours of recordings).
[45] Numbers are hourly average estimates that were calculated based on a 15-minute drone recording.

Figure A5.7 Carrefour RN3-Madeline



9. **An origin-destination survey will validate mobility behaviors resulting from the spatial organization of the city by providing detailed data for about 420 households.** The two main representatives of the household will first be requested to answer a thorough mobility questionnaire that will touch upon the specificities of their household with a focus on the accessibility of women. As a second step, a four-week survey will monitor their mobility habits via an interactive application with a view to providing a thorough overview of accessibility metrics in the city. By combining the questionnaire and real-life mobility data, one can measure people's accessibility by their socioeconomic profile, habits, and role in the households. An overview of the mobility obstacles at the micro level will be possible due to the random statistical selection of households.

ANNEX 6: ECONOMIC ANALYSIS

1. **The economic evaluation covers all proposed interventions under Component 1 in rural areas and under Component 2 in urban areas.** For Component 1, with scenario-based modelling,[46] the analysis simulated flood and earthquake damages for the target region (south and north) and calculated the damage level and associated costs. In addition, the road damage results were used to calculate the user costs. The earthquake simulation was only performed for the southern region since the northern part was not impacted by earthquakes. To do this, an original probabilistic methodological approach was developed to estimate the avoided potential flood and earthquake damages and the associated user and emission costs that will be enabled by the climate resilience investment in the road network.

2. **Regarding the potential flood damages, in the selected scenario, the investments envelope assumed improvements on 500 km of roads with highest vulnerability in the southern departments.** These roads were assumed to be protected from any type of damage due to flooding in the life span after the enhancement. The road segments were sorted based on the overall yearly flood probability using climate projections scenarios provided by the World Bank climate modeling group related to the 2035–64 period. The rationale for that time frame was that the benefits gained from avoided flood losses will be realized during that period by the time the climate resilience improvement projects are completed. Based on the climate projections and extreme rainfall return periods, multiplier factors were calculated that account for the increase in the annual flood probability of road segments. The multipliers for the Shared Socioeconomic Pathways (SSP) 2-4.5 and 5-8.5 that account for intermediate and pessimistic global decarbonization scenarios were used. The estimated multiplier factors (1.451 and 2.12, respectively) were used to adjust the baseline probability of the road inundations in the baseline scenario. Using the multiplier factor, the road flooding probability values were calculated for each scenario, and, accordingly, the simulations for road damage calculations, user cost calculations, and the emission were conducted. For each climate projection scenario, 50 probabilistic iterations were carried out.

3. **For estimating damages from earthquakes, a Monte Carlo simulation was used to model the damage to road segments by an earthquake of similar magnitude as in August 2021. Each road segment in the targeted areas was assigned a peak ground acceleration value based on the earthquake prototype.** Then, 1,000 runs of damage modeling were performed for paved and unpaved roads and 350 runs for tertiary roads using different fragility curves based on road type. The total associated repair cost was computed using the distribution of lengths of roads in each damaged state by road type and its respective local unit repair cost. It was assumed that one earthquake would occur during the 20-year analysis period. The costs obtained for earthquake damage, user, and carbon costs are the total costs for one event that were annualized calculating the "annual expected costs." For each climate scenario (earthquake and flood), the probabilistic cash flow analysis (1,000 iterations) was implemented to evaluate the return on investment of the $50 million climate resilience improvement projects on the road networks in the Southern department of Haiti.

4. **Regarding Component 2, the analysis was based on a sample of potential interventions, since the targeted roads were not yet selected.** For the last interventions, quantities of all work items were estimated from the envisioned design. The estimated quantities were then written as bills of quantities in accordance with the Standard Method of Measurement of Civil Engineering Works and according to the prices of previous similar interventions in Haiti. The unit rates were then applied to the bills of quantities to provide the cost estimate, which is US$67,820,000.

[46] The scenario-based approach model was developed in partnership with Professor Ali Mostafavidarani at the Texas A&M University.

5. **The economic analysis for the investments was based on the determination of an incremental analysis of the difference in costs and benefits between a "without-project" scenario and a "with-project" scenario, both over a specific time horizon of 20 years.** The economic, social, and environmental direct and indirect impacts of the improvements in the project's area of influence were assessed to capture these perspectives of transport and travel, safety, employment, basic social services, and environment. Among these impacts, attempts were made to quantify the direct benefits to beneficiaries in monetary terms, as follows:

6. **Travel time saved by people.** The value of time saved by a person who travels in the course of his or her normal employment is considered to be equal to the salary he or she is paid. Thus, if as a result of road improvement some time is saved in these trips, the value of this time is equal to the aggregate salaries of those involved for the time period in question.

7. **Reduction in natural disasters impacts.** The impacts from natural disasters (earthquake and flooding) are included in the economic analysis. The analysis calculates the reduction in repair and rehabilitation damages and reduction of users' economic losses as results of strengthening the resilience of transport assets. The analysis uses natural disaster scenarios equivalent to flood events of 25- and 50-year return periods and an earthquake of similar intensity as the one experienced in August 2021.

8. **Reduction in road accidents.** Besides the human suffering generally associated with road accidents, there are economic losses in the form of vehicle and property damage, medical costs, loss of productivity of injured persons, and, in the case of commercial vehicles, loss of earnings. As such, accident reduction is clearly an economic benefit. Existing accident characteristics were employed to estimate the likely accident reductions. The value of life in the case of fatalities was included in the analysis.

9. **Benefits from employment.** These were estimated as benefits to residents as a result of labor services during and after project implementation activities. The project-related activities in which direct benefits were assessed are civil or construction works executed during the period. The post-project activities in which benefits were assessed are the maintenance works to be carried out during the lifetime of project investment.

10. **Benefits from reduction of carbon emissions.** The World Bank's Shadow Price of Carbon Guidance Note was adopted and used in the benefits estimation of reduction in carbon emissions. To achieve the Paris Agreement on keeping temperature rise below two degrees, the Guidance Note recommends the use of a low and high estimate of the carbon price starting at US$40 and US$80, respectively.

11. **The project cost contains two main components: capital cost and maintenance cost.** All financial costs were converted into economic costs to address distortions in prices due to market imperfections by applying a Standard Conversion Factor (SCF) of 0.85, which is generally used for the economic evaluation of public investments in developing countries.

12. Other key assumptions considered in the economic analysis are:

- Discount rate for public investments is 6 percent.[47]
- Horizon time for analysis is 20 years.
- Traffic growth rate is 2.5 percent per year in urban areas and 2.25 percent in rural areas[48].

[47] World Bank, "Discounting Costs and Benefits in Economic Analysis of World Bank Projects," OPSPQ, Washington, DC, May 9, 2016.

[48] In absence of traffic forecast modeling, the analysis use population growth as proxy. source: *https://ihsi.ayiti.digital/indicator-growrate#*

- Value of time is US$0.34 per hour.
- Value of life in Haiti is US$50,242 (based on Robinson et al. [2018, 65]).
- Regarding flood and earthquake damages, one month of damage persistence is considered (until repairs are made and roads are passable).
- The "social cost of carbon" World Bank policy requires the use of two scenarios: US$40/ton and US$80/ton with a 2.25 percent increase each year. The higher value has been used in the calculations to be conservative.

13. The outputs of the economic appraisal produce the following economic viability indicators:

Table A6.1 Economic Analysis Indicators

	With-Project Scenario
Net present value (NPV)	US$53,891,311
Benefit-cost ratio (BCR)	1.69
Economic internal rate of return (EIRR)	14.39%

14. **The improvements case shows a net present value greater than zero, a benefit-cost ratio greater than 1.0, and an economic internal rate of return (EIRR) greater than the recommended discount rate of 6 percent**.[49] As a result, the project intervention is expected to yield positive economic returns and can be confirmed to be economically viable.

15. **The economic analysis includes a stress test of climate projections in economic results, as the project is building climate resilience in transport assets.** When accounting for projected rainfall intensity increases using the probability multipliers from SSP2-45 and SSP5-85 as described above, the economic evaluation results in higher positive outcomes. Compared with the baseline scenario EIRR (at 14 percent), the SSP2-4.5 scenario leads to an expected EIRR of 22 percent and the SSP5-8.5 scenario yields an EIRR of 30 percent.

16. **Additional sensitivity analysis reveals that the various project indicators remain robust in the face of either increases in project costs or reductions in project benefits.** A 20 percent increase in cost results in an EIRR of 11.09 percent, while a reduction of benefits by 20 percent results in an EIRR of 10.52 percent. A combination of either scenario or an increase in project cost and a reduction in project benefits by the same margin of 20 percent makes the planned investments still worthwhile with an EIRR of 7.71 percent, still above the 6 percent World Bank–recommended threshold. Additionally, this analysis does not take into account some of the benefits of the interventions that will certainly improve the project's EIRR: the decrease in serious and slight injuries due to accidents in urban areas, the increase in the income of street traders associated with their relocation to the new formal market, the improvement of rural road safety, and others. In addition, some nonquantifiable benefits are expected. One of these is the gender-specific gain. By focusing particularly on women's accessibility to social and economic facilities, their safety while using transport, and their participation in work associated with the interventions, the project is likely to improve overall household welfare. Indeed, there is evidence that improving women's economic participation and productive assets can have positive effects on households as a whole, as women typically invest a greater proportion of their income than men in their families and communities. Another benefit not considered in this analysis is related to some important intangible social benefits such as those associated with avoiding disruption of access to hospitals and educational institutions and lost wages due to road disruption. These benefits are not incorporated, mainly due to the unavailability of data and technical difficulties in

[49] World Bank, "Discounting Costs and Benefits in Economic Analysis of World Bank Projects."

quantifying these costs. Since some potential benefits are not considered and some benefits are not quantifiable, evidence suggests that the cost-benefit analysis underestimates the positive impact of the project, particularly with respect to long-term effects.

17. **In terms of GHG emissions (carbon dioxide equivalent) calculations, the project interventions are expected to reduce the emissions from a cumulative number of passenger cars over 20 years from 743,364 tons (without-project scenario) to 656,874 tons (with-project scenario) thanks to travel time saving, avoided congestion, and more efficient travel speeds.** Therefore, the gross GHG emissions with project will be 656,874 tons, while the net savings of GHG emissions will be 86,490 tons.

18. **The urban and rural interventions proposed under Components 1 and 2 will have significant implications in terms of GHG emissions reductions.** The interventions in Component 2 result in reduced GHG emissions through improved traffic conditions. To estimate the GHG emissions, the team used traffic count data from a recent survey conducted at the eight main intersections in Cap-Haïtien. In Component 1, the analysis simulated flood damages and earthquake damages for rural areas. Then, the GHG emissions reductions were estimated as the annual emission avoidance associated with the additional travel due to disruption of transport assets due to the occurrence of earthquakes and floods. The total GHG emission savings from Components 1 and 2 are estimated at 86,490 tons (10,257 tons from Component 1 and 76,232 tons from Component 2).

Table A6.2 GHG Annual and Total Emissions

Tons	*Annual*	*Over 20 years*
Gross GHG (without)	27,454	743,364
Gross GHG (with)—medium	24,238	656,874
Saving	3,216	86,490

19. The SPC calculation uses low (US$40/ton) and high (US$80/ton) values. It uses results from GHG calculations and a discount rate of 6 percent. Total benefits from GHG reductions are shown in Table A6.3.

Table A6.3 Net Present Value (NPV) from GHG Reduction

	NPV (US$)
Low	- 454,947.39
High	- 909,894.77