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Report No: PAD2564

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF SDR 51.6 MILLION
(US$ 75.0 MILLION EQUIVALENT)

TO THE

THE REPUBLIC OF HAITI

FOR A

HAITI RURAL ACCESSIBILITY AND RESILIENCE PROJECT

May 3, 2018

Transport & ICT Global Practice
Latin America And Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective: March 31, 2018)

Currency Unit =	Haitian Gourdes (HTG)
HTG 65 =	US$1
US$1 =	SDR 0.68782414

FISCAL YEAR
October 1 - September 30

Regional Vice President:	Jorge Familiar
Country Director:	Anabela Abreu
Senior Global Practice Director:	Jose Luis Irigoyen
Practice Manager:	Shomik Raj Mehndiratta
Task Team Leader(s):	Pierre Xavier Bonneau

ABBREVIATIONS AND ACRONYMS

ARAP	Abbreviated Resettlement Action Plan
BCA (or CARDP)	Centre Artibonite Regional Development Project (P133352)
CASEC	Conseil d'Administration de la Section Communale
CE	citizen engagement
CERC	Contingent Emergency Response Component
CNMP	National Commission of Public Contracts *(Cours de Passation de marchés)*.
CPF	Country Partnership Framework
DDTP	Departmental Directorates of MTPTC *(Direction départementales du MTPTC)*
ECVMAS	Household Survey and Poverty Assessment
EIRR	Economic Internal Rate of Return
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EU	European Union
FCV	Fragile Conflict Violent
FDI	Foreign Direct Investments
FER	Road Maintenance Fund ("Fonds d'Entretien Routier")
GBV	Gender Based Violence
GDP	Gross Domestic Product
GoH	Government of Haiti
GRM	Grievance Redress Mechanism
ICB	International Competitive Bidding
ICF	Interim Cooperation Framework-Haiti
IDA	International Development Association
IDB	Inter-American Development Bank
IHE	*Institut Haïtien de l'Enfance*
LIW	Labor Intensive Work
MDUR	Municipal Development and Urban Resilience Project (P155201)
MEF	Ministry of Economy and Finance (*Ministère de l'Economie et des Finances*)
MS	Madan Sara
MSPP	Ministry of Health and Population
MTPTC	Ministry of Public Works, Transportation and Communication (*Ministère de Travaux Publics, Transport et Communications)*
NCB	National Competitive Bidding
NPV	Net Present Value
PIM	Project Implementation Manual
PIU	Project Implementation Unit *(Unité de Mise en Oeuvre de Projet)*
PDO	Project Development Objective
PPSD	Project Procurement Strategy Document
PRGRD (or DRMRP)	Disaster Risk Management and Reconstruction Project (P126346)
PROReV (or EBRVRP)	Emergency Bridge Reconstruction and Vulnerability Reduction Project (P114292)
PRUII (or IIERP)	Infrastructure and Institutions Recovery Emergency Project (P120895)
PTDT	Transport and Territorial Development Project (P095523)
QCBS	Quality Cost Based Selection
RAI	Rural Access Index

RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SBD	Standard Bidding Document
SCD	Systematic Country Diagnostic
SDG	Sustainable Development Goals
SDR	Special Drawing Rights
SEA	Sexual Exploitation and Abuse
SME	Small-Medium Enterprise
SNGRD	National System for Disaster Risk Management (*Système National de Gestion des Risques et des Désastres*)
SONU B	Basic Emergency Obstetrics and Newborn Services
SONU C	Complete Emergency Obstetrics and Newborn Service (includes SONU B, Blood Transfusion and C-Section)
UCE	Central Execution Unit (*Unité Centrale d'Exécution)* (PIU of MTPTC)
UEP	Planning Directorate (*Unité d'Etude et de Programmation*)
UNOPS	The United Nations Office for Project Services
USD	United States Dollar
UTSI	GIS/Statistical and Information Unit (*Unité Techniques des Statistiques et de l'Informatique*)
WB	World Bank
WDR	World Development Report

BASIC INFORMATION

Country(ies)	Project Name	
Haiti	Haiti Rural Accessibility & Resilience Project	
Project ID	Financing Instrument	Environmental Assessment Category
P163490	Investment Project Financing	B-Partial Assessment

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Disbursement-linked Indicators (DLIs)	[ ] 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)	

Expected Approval Date	Expected Closing Date
31-May-2018	30-Jun-2023

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The Project Development Objectives are to: (i) increase all-weather road access in selected sub-regions; and (ii) improve the resilience of selected segments of the road network.

Components

Component Name	Cost (US$, millions)
Enhancing Rural Connectivity	45.00

Improving Resilience of Transport Connecting Infrastructure	22.00
Promoting Sustainable Mobility Development	3.00
Contingent Emergency Response	1.00
Project Management	4.00

Organizations

Borrower:	The Republic of Haiti
Implementing Agency:	Unite Centrale d' Execution of the Ministry of Public Works (UCE)

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	75.00
Total Financing	75.00
of which IBRD/IDA	75.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	75.00
IDA Grant	75.00

IDA Resources (in US$, Millions)

	Credit Amount	Grant Amount	Total Amount
National PBA	0.00	75.00	75.00
Total	**0.00**	**75.00**	**75.00**

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2018	2019	2020	2021	2022	2023

Annual	0.00	5.00	15.00	26.00	25.00	4.00
Cumulative	0.00	5.00	20.00	46.00	71.00	75.00

INSTITUTIONAL DATA

Practice Area (Lead)

Transport & Digital Development

Contributing Practice Areas

Climate Change and Disaster Screening

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

Gender Tag

Does the project plan to undertake any of the following?	
a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	Yes
b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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

8. Stakeholders	Moderate
9. Other	
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

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Performance Standards for Private Sector Activities OP/BP 4.03		✓
Natural Habitats OP/BP 4.04	✓	
Forests OP/BP 4.36		✓
Pest Management OP 4.09		✓
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10		✓
Involuntary Resettlement OP/BP 4.12	✓	
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description

Schedule 2, Section I., A. 1 of the Grant Agreement: Implementation Arrangements

1. The Recipient shall operate and maintain, throughout Project implementation, the UCE, with qualified and experienced staff in sufficient numbers, as well as with adequate funds, facilities, services, and other resources, all

acceptable to the Association.

Sections and Description
Schedule 2, Section I., A. 2 of the Grant Agreement: Independent Auditor.

2. For purposes of implementing Section 5.09 of the General Conditions, the Recipient shall, no later than four (4) months after the Effective Date, hire an independent auditor under terms and conditions acceptable to the Association.

Sections and Description
Schedule 2, Section I., D, 1 and 2 of the Grant Agreement: Safeguards.

1. The Recipient, through the MTPTC, shall ensure that the Project is carried out in accordance with the Safeguards Instruments, including the guidelines, rules and procedures defined in saidSafeguards Instruments.

2. To this end, if an EMP or a RAP is required on the basis of the ESMF or the RPF, the Recipient shall specifically take the following actions, in a manner acceptable to the Association:

(a) such EMP, or RAP shall be prepared in accordance with the requirements of the ESMF or the RPF, consulted and disclosed locally and furnished to the Association for approval; and

(b) the pertinent Project activity shall be carried out in accordance with such EMP, or RAP as approved by the Association.

Conditions

Type	Description
Disbursement	Schedule 2. Section III., B.1 (b) of the Grant Agreement. Notwithstanding the provisions of Part A above, no withdrawal shall be made: (b) under Category (2), for Emergency Expenditures under Part 4 of the Project, unless and until the Association is satisfied, and has notified the Recipient of its satisfaction, that all of the following conditions have been met in respect of said Emergency Expenditures: (i) the Recipient has determined that an Eligible Emergency has occurred, has furnished

	to the Association a request to include said Eligible Emergency under Part 4 of the Project in order to respond to said Eligible Emergency, and the Association has agreed with such determination, accepted said request and notified the Recipient thereof; (ii) the Recipient has prepared and disclosed all safeguards instruments required for said Eligible Emergency, and the Recipient has implemented any actions which are required to be taken under said instruments, all in accordance with the provisions of Section I.D of this Schedule; (iii) the Coordinating Authority has adequate staff and resources, in accordance with the provisions of Section I.C(b) of this Schedule, for the purposes of said activities; and (iv) the Recipient has adopted the Emergency Response Operations Manual in form, substance and manner acceptable to the Association and the provisions of the Emergency Response Operations Manual are fully current in accordance with the provisions of Section I.C of this Schedule, so as to be appropriate for the inclusion and implementation Part 4 of the Project.

HAITI
HAITI RURAL ACCESSIBILITY & RESILIENCE PROJECT

TABLE OF CONTENTS

I. STRATEGIC CONTEXT

A. Country Context

1. **Haiti is the third largest Caribbean nation by area and population (10.4 million) and shares the island of Hispaniola with the Dominican Republic**. Haiti benefits from proximity and access to major markets with favorable trade agreements, a young labor force, a dynamic diaspora, and substantial geographic, historical, and cultural assets. The country possesses untapped markets and untapped potential for the private sector to explore, including agribusiness, light manufacturing, and tourism.

2. **However, Haiti is also the poorest country in the Western hemisphere, with a GDP per capita of only US$739.60 in 2016[1], and a Human Development Index ranking 163rd out of 188 countries in 2016[2]**. The 2012 Household Survey and Poverty Assessment (ECVMAS) shows that the percentage of extremely poor Haitians fell from 31 percent to 24 percent between 2000 and 2012[3]. However, poverty gains have disproportionally benefited the urban population, with the greatest gains observed in the capital, Port-au-Prince. Inequality remains very high, with a Gini coefficient of 0.6[4] (highest in the Americas).

3. **Poverty and extreme poverty are significantly higher in rural and remote areas than in urban centers**. In rural areas, 75 percent of Haitians are poor and 38 percent extremely poor. In comparison, 12 and 5 percent of Haitians are extremely poor in urban areas and in Port-au-Prince, respectively. About 67 percent of the nation's poor and 83 percent of its extremely poor live in rural areas.[5] More than half of rural households use unimproved sources of water for home consumption, compared to 13 percent and 10 percent in urban and in Port-au-Prince, respectively.

4. **Haiti is one of the countries with the highest exposure to multiple natural hazards in the World, and climate change exacerbates these risks.** Ninety-six percent of the Haitian population live in areas considered at risk.[6] The most significant natural hazards are seismic (earthquakes and landslides) and hydro-meteorological (hurricanes and flooding). While climate projections predict that temperatures in the Caribbean could increase by 1.2-2.3 °C, by 2100,[7] the arrival of the rainy season has already been delayed by "*El Niño/El Niño-Southern Oscillation*" episodes, bringing drought and increasing the number and intensity of cyclones. Secondary hazards include landslides, torrential debris flows, soil liquefaction, and tsunamis.

5. **The combined effects of exposure to natural hazards, vulnerability of infrastructure, high levels of environmental degradation, institutional fragility, and the lack of adequate investment in resilience have often resulted in catastrophic impacts of natural hazards**. Between 1971 and 2016, Haiti's economy has been subject to nearly annual natural disasters with adverse effects on growth (see Annex 5). Recent disasters confirm increased vulnerability. In 2016, Hurricane Matthew hit the southern peninsula causing damages and losses equivalent to 32 percent of GDP.[8]

[1] World Bank national accounts data, and OECD National Accounts data files 2016.
[2] Human Development Reports, 2016.
[3] Household Survey and Poverty Assessment (ECVMAS), World Bank, 2012.
[4] Human Development Reports, 2016.
[5] *Ibid.*
[6] Country Risk Profile, World Bank, 2018.
[7] Dilley et al, Global Hotspot Study, World Bank, 2005
[8] Haiti, Hurricane Matthew Crisis Response Window Paper, January 26, 2017.

6. **In this context, the Haitian government has underlined climate-resilience, including climate resilient all-weather roads, as a priority for all development policies (PSDH 2013)** and prioritized sustainable mobility and transport as essential to reach the SDGs linked to food security, health, energy, and infrastructure. The incoming Government has emphasized Transport; Agriculture and irrigation; Education; Environment; and Energy Access as key priorities to drive more equitable development enabling rural areas to reach their potential, and reducing poverty traps resulting from lack of connectivity and poor access to job opportunities and basic services.

B. Sectoral and Institutional Context

7. **The Government of Haiti has prioritized road investments and set an ambitious target to build 4000 km of roads to (i) achieve intercity connectivity and (ii) develop the rural road network by 2021.**[9] The Government's new policy commitments and the ongoing investments program across the country provide new opportunities for strengthening road asset management and the development of a sustainable mobility agenda, including a national policy on urban transport.

8. **The transport network is limited and in poor condition.** Up to 80 percent of the transportation of people and goods takes place on roads.[10] However, 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 km^2. In addition to a small road network, mobility of goods and people is constrained by the poor condition and maintenance of the network. Financial needs of the sector are high, with close to US$86 million alone needed to repair damage to road infrastructure resulting from Hurricane Matthew.[11] Further, less than 20 percent of the financing needs for maintenance are covered by the dedicated maintenance fund or the budget set aside for periodical maintenance.

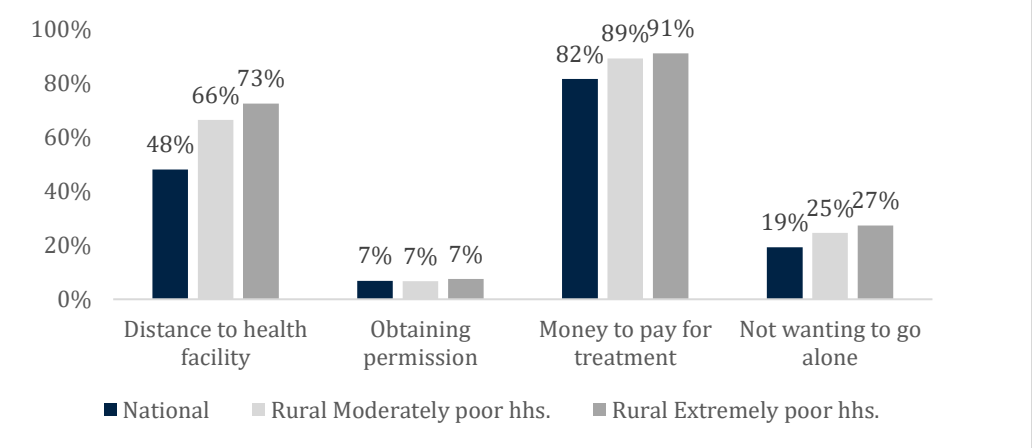
9. **Significant investments have been made within the past decade, but were concentrated on national roads (primary road network). While this increased intercity connectivity, 50 percent of the national territory remains poorly connected and entire regions totally isolated for days at a time during the rainy season and following major storms and hurricanes.** In 2015, only 39 percent of the population was living within 2km of an all-weather road with most of tertiary and rural networks in very poor condition and barely trafficable.[12] Additionally, while there is still insufficient knowledge and data on road safety issues, anecdotal evidence suggests that connectivity improvements between cities have resulted in an increase in fatalities and serious injuries associated with increased speeds, improper designs, and/or inadequate road maintenance.

10. **The poor conditions of the Haitian tertiary and rural road networks create substantial logistical and financial challenges impeding rural households' access to agricultural markets and engagement in more lucrative agricultural value-chains.** Trucking operations in Haiti are expensive and fragmented with multiple small operators. The price per ton-km transported is US$0.43 for freight, the highest in the Caribbean region and about 3.9 times the average for Central America.[13] Road conditions are a significant contributor to this high cost of transport, pushing the price per ton-km up by 25 percent according to the Trucking Survey in Haiti. Up to 30 percent of agricultural production, like mangoes or avocados, is lost due to a lack of access to markets.

[9] Feuille de Route 2017-2021, Gouvernement Jovenel-Lafontant.
[10] National Transport Plan, MTPTC, 2008.
[11] Evaluation Rapide des Dommages et des Pertes Occasionnés par l'ouragan Matthew en Haïti, MEF, Octobre 2016
[12] Rural Access Index, MTPTC, 2015.
[13] DTIS, Truck Industry Survey, World Bank, 2014.

11. **Limited access to basic services (health, education, administrative centers) and to economic opportunities is a key constraint to development in rural areas and exacerbates vulnerabilities associated with disaster incidents.** For example, while lack of money is the most common reason for 15 to 49-year-old women to not seek medical care, distance to a health facility is the second most cited reason, particularly by poor rural households (Figure 1). In rural areas, this increases to 62 percent of households and up to 73 percent for extremely poor rural households.

Figure 1: Challenges to Accessing Health Care by Women in Haiti



Source: WBG 2017 Perge & Touray estimates using EMMUS 2012. Note: poverty estimated using survey-to-survey imputation and the national poverty line.[14]

12. **The vulnerability of Haiti's transport infrastructure to disaster and climate events is extremely high.** Climate projections foresee a steady increase in extreme weather events, and the GoH recognizes the critical importance of developing a climate resilient transportation network. About of the 32 percent of GDP in damages and losses caused by Matthew, 18 percent were in the transport sector due to the destruction of bridges and roads. Because of Hurricane Matthew, 1.2 million people were cut off from emergency help,[15] supplies and services with the collapse of the main bridge linking the South to the rest of the country.

13. **Crises following adverse natural events have revealed important shortfalls in Haiti's infrastructure policies and its national disaster risk management system**. Solutions include: (i) an integrated approach to disaster prevention (including urban planning, efficient water control, and stopping erosion caused by environmental degradation); (ii) appropriate technical standards for design, construction and road safety; (iii) infrastructure maintenance; and (iv) capacity and institutional arrangements to properly handle investment planning, crisis management and reconstruction. The proposed Project's activities would respond directly to each of these challenges, outlined below.

C. Higher Level Objectives to which the Project Contributes

14. **Promoting Shared Prosperity and Ending Extreme Poverty**. The proposed Project would contribute to the Bank's twin goals of ending extreme poverty and promoting shared prosperity. Poverty in Haiti is place-based (i.e.,

[14] Transport and Poverty in rural Haiti Existing Evidence from Household Surveys. December 2017: Note prepared by Sering Touray (Consultant, GPV04), and Emilie Perge (Economist, GPV04) from Poverty and Equity GP. December 2017.
[15] Haiti – Hurricane Matthew, Crisis Response Window Paper, January 26, 2017.

urban or rural) and linked to mobility. By seeking to improve all-weather physical access to markets and services for the households in selected rural areas, the proposed Project would promote inclusive growth and improve the livelihoods of populations and their resilience to shocks. The proposed Project would also contribute to lowering transport costs and reducing waste. Better connectivity would also facilitate access to health facilities in the provincial towns where emergency obstetrics and newborn services are of critical importance for women.[16]

15. The proposed Project's activities would be coordinated with activities financed under other Bank-financed projects in Haiti including: Relaunching Agriculture: Strengthening Agriculture Public Services II Project (P126744); Improving Maternal and Child Health Project (P123706); Center and Artibonite Regional Development Project (P133352); Disaster Risk Management and Reconstruction Project (P126346); Business Development and Investment Project (P123974); Strengthening Hydro-Met Services Project (P148259); Resilient Productive Landscapes in Haiti Project (P162908); Haiti - Education for All Project - Phase II Project (P124134); and Haiti Sustainable Rural and Small Towns Water and Sanitation Project (P148970).

16. **Relationship to SCD and CPF**. The proposed Project is fully aligned with the World Bank Group's Haiti: Opportunities for All – Systematic Country Diagnostic (SCD – Report No. 99566) for Haiti and the World Bank Group's Haiti Country Partnership Framework (CPF – Report No.98132) for FY2016-2019.[17] The SCD identified: (a) poor connectivity and access to markets and services; (b) extreme vulnerability; and (c) poor quality of transport and logistics services in Haiti as binding constraints contributing to poverty, low productive capacity of poor farmers and inequitable delivery of basic services. The proposed Project would contribute to the CPF Area of Focus 2 "Human Capital" and the CPF Area of Focus 3 "Resilience" by: (a) enhancing farmers' access to markets; (b) improving physical access to schools; (c) improving physical access to available health services for mothers and children; and (d) improving climate resilience and practicability of the road network in the project areas.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

17. The Project Development Objectives are to: (i) increase all-weather road access in selected sub-regions; and (ii) improve the resilience of selected segments of the road network.

B. Project Beneficiaries

18. *Selection of Areas of Intervention*. The overall scope of the proposed Project is national. However, investments under Component 1 would focus on and primarily benefit the following rural sub-regions: (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradère-Aquin located in the departments of the South-East, the South and the Nippes (Figure 2). The multi-criteria methodology used to identify priority sub-regions for investment under Component 1 considered factors such as: (a) Accessibility Index Rural Access Index (RAI) and General Accessibility Indexes); (b) Climate Change index (Precipitation and Climate Multi-Risk Index); (c) Services Accessibility Index (SONU-

[16] Basic Emergency Obstetrics and Newborn Service Facilities (SONU B) and Complete Emergency Obstetrics and Newborn Services (includes SONU B services, and Blood Transfusion and C-Section – SONU C) (e.g., surgery table for C-Section)
[17] The Haiti Country Partnership Strategy (Report no. 98132-HT) was discussed by the Board of Executive Directors on September 29, 2015

B, SONU-C, Primary Care Centers, Market); (d) Poverty Index; and (e) Rural Population Index. (Detailed methodology can be found in Annex 2).

19. **The direct beneficiary population in the prioritized sub-regions, has been estimated to be about 350,000.** By improving rural and tertiary road segments servicing markets and clinics that provide prenatal and obstetric care, the proposed Project would benefit women through improved and safer connectivity, transportation and logistics. Finally, the proposed Project would strengthen the capacity the Ministry of Public Works, Transport and Communication (MTPTC), to plan, manage road and bridge assets and regulate transport services.

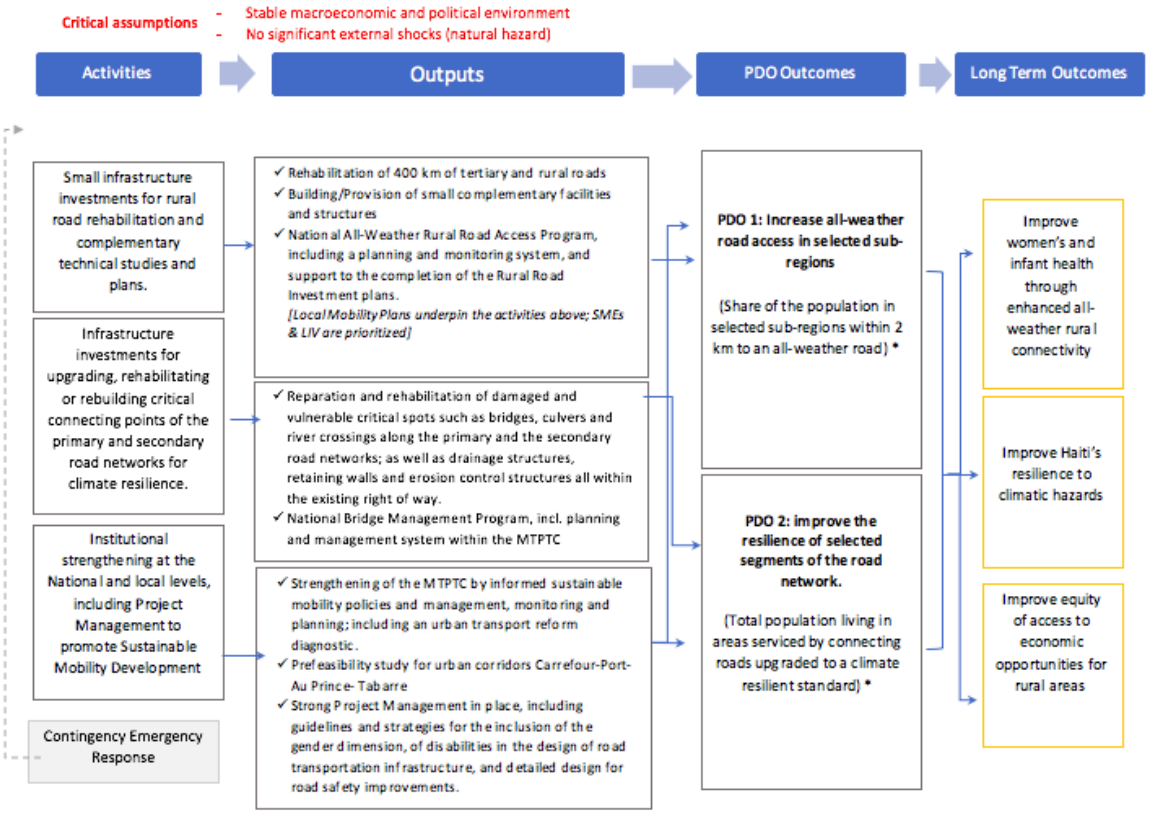
C. PDO-Level Results Indicators

20. The achievement of the PDO would be monitored through the following PDO-level indicators (the detailed description of which can be found in Section VII):

- Share of rural population in selected sub-regions with access within 2 km of an all-weather road.
- Total population living in areas serviced by connecting roads upgraded to a climate resilient standard.

21. The proposed Project would also track increases in physical access to markets and to essential services (i.e. obstetrical health facilities) for populations in the project area. The Theory of Change figure below illustrates the links between the proposed interventions and their expected contribution to specific outcomes and impacts.

Figure 2: Theory of Change



III. PROJECT DESCRIPTION

A. Project Components

22. The proposed Project would build on lessons learned and results from previous Bank-financed transport projects including previous experience tackling climate change challenges, and engaging citizens in a fragile environment. It will include five Components: (i) Enhancing Rural Connectivity; (ii) Improving Resilience of Transport Connecting Infrastructure; (iii) Promoting Sustainable Mobility Development; (iv) Contingency Emergency Response; and (v) Project Management.

Component 1 – Enhancing Rural Connectivity (US$45.0 million)

23. Component 1 would improve all-weather road access to essential services (i.e. obstetrical and emergency health facilities) and markets for the targeted population and build resilience to climate events, primarily in the South, South-East and Nippes departments, where the following pre-selected sub-regions have been identified: (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradere-Aquin.

24. This component would finance *inter alia*: (a) rehabilitation works of tertiary and rural road network (400 km), including: (i) correcting the surfaces with limited re-graveling or paving to provide durable running surface over poor soils; (ii) building drainage structures (culverts, small bridges, and on steep gradients, removing landslides); and (iii) building retaining walls and erosion control structures and including their associated studies; (b) the building of small complementary facilities and structures, including lighting, bus stops, and other safety structures, in inhabited areas, near schools and around water kiosks and health centers; (c) technical assistance, training, and developing technical guidelines for Haiti's national all-weather rural road access program; (d) the preparation and financing of local mobility plans; and (e) coastal protection and slope stabilization works. This component would also finance detailed design studies, including relevant social and environmental safeguards instruments for selected investments.

25. Local mobility plans would be designed and implemented through consultation with the local MTPTC directorate, local authorities and the communities. They would prioritize interventions for local access (to schools and health centers for instance) and define the complementary facilities needed to enhance the benefits of improved connectivity. The proposed Project would pay close attention to the priorities, safety and needs of women and girls particularly for women and their security in this process. The use of local small and medium-sized enterprises (SMEs) and labor-intensive works (LIW) would be prioritized whenever possible and the recruitment of female staff promoted.

Component 2 – Improving Resilience of Transport Connecting Infrastructure (US$ 22.0 million)

26. This component would strengthen resilience to climate change and extreme weather events on the primary and secondary road network, by protecting essential/critical points and preventing interruptions in the flow of individuals and goods.

27. This component would finance: (i) the rehabilitation and repair of damaged and vulnerable critical spots/segments such as bridges, culverts, and river crossings along the primary and the secondary road networks; and (ii) drainage structures, retaining walls and erosion control structures all within the existing right of way; (iii) detailed design studies, including relevant social and environmental safeguards instruments for selected investments, and

technical assistance for community monitoring of rehabilitation works; and (iv) corresponding supervision activities and associated technical studies or technical assistance, as needed. Proposed investments include, *inter alia*: (a) protection and rehabilitation of existing bridges situated on selected segments; (b) reinforcement of coastal protection, hydraulic protection for bridges, and slope stabilization works; (c) a vulnerability study of the national primary and secondary road network and the identification of critical points (which would be used to identify and prioritize works to be financed under the component), a National Bridge Management Program, a Roadmap to improve the resilience of the primary network by 2030, and a Planning and Bridge Assessment and Management System. Technical assistance would be engaged to design guidelines for construction, rehabilitation and maintenance of transport infrastructure works, as well as training activities and materials.

Component 3 – Promoting Sustainable Mobility Development (US$ 3.0 million)

28. This component aims to strengthen the institutional capacity of the MTPTC, through technical assistance, training, and the provision of goods. It has been designed to enhance: (a) informed sustainable mobility policies; (b) institutional sustainability, through continued assistance to the MTPTC on resilient transport and road asset management; and (c) sustainable urban transport policies and management, through improved investment strategy and planning.

Component 4: Contingent Emergency Response Component (US$1.0 million)

29. Due to the high risk of a catastrophic events in Haiti, the proposed Project would include a contingent component for rapid response in the event of an eligible emergency, subject to the request of the GoH. This component would provide immediate response to an eligible emergency, as needed. Such components, which include triggers and conditions for the use of funds, are included in most investment projects in Haiti, in keeping with the recommendations of the 2011 World Development Report (WDR) on Conflict, Security and Development, and with Bank's operational experience in Haiti when responding to natural catastrophic events.

Component 5: Project Management (U$4.0 million)

30. This component would support the MTPTC and its Central Execution Unit (*Unité de Centrale d'Execution* – UCE) in the coordination, implementation, management and supervision (including, fiduciary aspects and monitoring and evaluation, and reporting of Project activities and results), through the provision of goods, consultants' services, Training and Operating Costs, including the carrying out of Project audits. It would finance key project staff, operation costs, and equipment for the project implementation unit, ensure strong local presence for close supervision and oversight in the targeted areas, and provide support for social and environmental safeguards, identification and mitigation of gender disparities, and citizens engagement (CE).

B. Project Cost and Financing

31. The proposed lending instrument is an Investment Project Financing (IPF) consisting of a SDR 51.6 million (US$75 million equivalent) IDA grant over a five-year implementation period.

Project Components	Project Cost in US$	IDA Financing	% Financing
Component 1: Enhancing Rural Connectivity	45.00	45.00	100%

Component 2: Improving Resilience of Transport Connecting Infrastructure	22.00	22.00	100%
Component 3: Promoting Sustainable Mobility Development	3.00	3.00	100%
Component 4: Contingent Emergency Response Component	1.00	1.00	100%
Component 5: Project Management	4.00	4.00	100%
Total Project Costs	75.00	75.00	100%
Front End Fees	0	0	
Total Financing Required	**75.00**	**75.00**	**100%**

C. Lessons Learned and Reflected in the Project Design

32. The proposed Project builds on the Bank's worldwide experience with all-weather access to rural areas (WDR 2009), as well as lessons from closed and ongoing transport projects financed by the World Bank in Haiti.

33. **Strong fragility analysis and diagnostics,** as well as tailored business processes and implementation arrangements, and close monitoring and supervision are needed to ensure efficiency, responsiveness, and the achievement of concrete results in a Haiti's volatile environment.

34. **Simplified objectives and limited scope improve efficiency.** While needs are significant, complex multi-sector operations are difficult to implement in fragile, conflict, and violence (FCV) settings. In countries with weak capacity, it is critical to begin with a limited number of geographical areas of intervention and only scale up once the project activities are deemed effective and tangible results are achieved.

35. **A flexible project design with adapted implementation mechanisms, including provisions to respond to emergencies is recommended in fragile and disaster-prone countries**. 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, including through third parties. This approach will be used under the proposed Project.

36. **Informing and sensitizing beneficiaries, and explaining the project execution strategy is necessary to achieve project ownership by local populations. Strong information and accountability mechanisms mitigate the risk of capture of resources and promote their equitable use.** Consultations and participatory workshops in the communities would ensure the engagement and inclusion of all beneficiaries from design through implementation, limiting the risk of capture of the decision-making process by individual interests. The development of Local mobility plans sensitive to the needs of women and the elderly under the proposed Project would limit this risk. These participatory processes are in line with the broader Citizen Engagement approach of the proposed Project.

37. **Disaster risk management and resilience. The Bank has gained extensive knowledge regarding understanding disaster and climate-risk, exposure and vulnerability, climate change projections, dynamics of environmental degradation, associated change 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 demonstrate: (i) regular maintenance is critical to sustainability of transport investments, and is the most cost-effective investment in the transport sector; and (ii) appropriate design, construction and rehabilitation standards are essential to reduce future maintenance liability.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

38. The proposed Project would be implemented by the Ministry of Public Works, Transport and Communications (MTPTC) through its Project Implementation Unit (PIU), the UCE-MTPTC and its technical and local directorates. This PIU is familiar with the Bank's fiduciary and safeguard procedures, has implemented the Transport and Territorial Development Project (PTDT – P095523), Emergency Bridge Reconstruction and Vulnerability Reduction Project (PROReV – P114292), and the ongoing Institutions and Infrastructure Emergency Recovery Project (PRUII – P120895), Disaster Risk Management and Reconstruction Project (PRGRD – P126346) and the Municipal Development and Urban Resilience Project (MDUR – P155201). The proposed Project would be implemented using the institutional framework, procurement, financial management and disbursement arrangements in place under the previous Bank-financed projects, all of which have demonstrated results and have the capacity to absorb additional funds.

B. Results Monitoring and Evaluation

39. Joint supervision missions by the GoH and the Bank would monitor the status of project outcomes, safeguards and legal covenant compliance. A dedicated monitoring and evaluation (M&E) staff of UCE-MTPTC, would monitor all indicators through a dedicated M&E system including communications and awareness raising activities, climate and disaster resilience impacts, environmental and social safeguards activities, and the activities of the Grievance Redress Mechanism (GRM). Simple surveys will also be carried out before the rehabilitation works, during the works (mid-point) and right after the conclusion of the works. PDO-level results indicators and intermediate outcome indicators, the reports would include information on disbursements, FM, procurement, and social and environmental policies and guidelines, as well as an updated annual plan of works and activities, and include specific assessments of the impact of women's participation in project design and implementation. A Mid-Term Review (MTR) will be conducted no later than three years after the first disbursement. A final independent evaluation will be also conducted at the end of project implementation to assess the project's overall achievement.

C. Sustainability

40. The key sustainability elements considered include: (i) institutional strengthening to support the development of sustainable mobility and transport policies; and (ii) the improvement and support to road maintenance practices and funding.

41. **Institutional strengthening.** Institutional-strengthening activities would support the sustainability of proposed Project outcomes and enhance: (a) sustainable mobility policies; (b) assistance to the MTPTC on resilient transport and road asset management; and (c) sustainable urban transport policies and management through improved Investments strategy and planning. In addition to robust designs, regular and periodic maintenance is critical to ensure sustainability of the investments on the road network and its climate resilience.

42. **Road Maintenance.** The proposed Project would also benefit from a new momentum in the policy dialogue on road maintenance, which started in the early 2000s and produced a Second-Generation Road Fund, as well as a National Road Maintenance Strategy and a Road Maintenance Directorate before the 2010 earthquake interrupted further progress. A new draft law to increase road maintenance fund resources (possibly from 20 percent of needs to

100 percent) and high level technical assistance by MTPTC's partners may resume. The works financed directly by the proposed Project require low level routine maintenance and would contribute to lowering overall maintenance needs. The recent commissioning of heavy and maintenance equipment by the MTPTC will also improve the GoH's ability to maintain roads and foster the implementation of road maintenance plans

D. Role of partners

43. The proposed Project would coordinate closely with Haiti's key partners in the road sector to ensure geographic and sectoral complementarity. The proposed Project's pre-selection methodology took the investments by the national budget and by other partners into account, including investments of the European Union (EU); and the Inter-American Development Bank (IDB), whose invest in the primary road network (RN1; RN3; RN5; RN7). Because of the policy dialogue around rural access, the IDB is investing in improving rural connectivity in the north west and the south of the country, and in a program for the construction of major bridges.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

44. **Overall.** The overall risk of the proposed Project is assessed as Substantial.

45. **Political and Governance risk is Substantial**. Political uncertainty and potential instability are key risks and could affect operational conditions due to limited control over work areas. To mitigate these risks, project preparation has relied on broad-based consultations in addition to MTPTC's extensive data collection work on the road network and levels of connectivity. The small complementary facility investments planned in targeted areas are expected to help build trust with communities. Finally, the procurement strategy would make extensive use of local SMEs and of LIWs to further engage stakeholders.

46. **Institutional Capacity for Implementation and Sustainability risk is Substantial**. While Project appraisal found the current conditions to be suitable, and the implementing entity has gained enough experience implementing Bank-financed operations and can absorb additional funds, local technical capacity remains weak and gaps subsist. To mitigate this risk, this proposed Project has allocated substantial resources for technical assistance (TA) to enhance MTPTC's central and local directorates capacity in project management, planning, asset management. Nonetheless, some residual risks, related to staff and political turnover and their impact on sustainable capacity transfers remain and cannot be mitigated within the proposed Project.

47. **Fiduciary risk is Substantial**. Despite UCE-MTPTC having demonstrated appropriate financial management capacity for past Bank-financed projects, the proposed Project is not yet fully staffed due to UCE-MTPTC's continued implementation of ongoing Bank-financed operations and a planned expansion to new operations next year. This change in scale calls for the strengthening of UCE-MTPTC's financial management team by one additional financial management specialist and one additional procurement specialist as well as additional training.

VI. APPRAISAL SUMMARY

A. Economic and Financial (if applicable) Analysis

48. **Given that the proposed Project has been prepared using the "Framework Approach," the economic analysis (Annex 7) carried out is preliminary**; it is based on the analysis of similar roads and complementary investments in Haiti. Under the "Framework Approach" the selection of the final road segments for intervention would only be finalized during project implementation. The final selection would follow a robust multi-criteria methodology that ensures the highest social and economic impact of investments selected (see Annexes 1 & 7). The expected quantifiable benefits include reduced vehicle operating costs; travel time savings measured through increased accessibility to markets, economic opportunities, and health centers; and a reduction in traffic accidents. Non-quantifiable benefits are also expected from improved access to health, such as increased productivity; from direct employment generation during construction and maintenance phases; as well as from productivity increases in the agricultural sector. Because the proposed Project has a strong focus on increasing women's economic and social accessibility, multiplier effects are also expected: women typically invest a higher proportion of their earnings in their families and communities than men.

49. **The analysis of similar projects suggests Component 1 and 2 will be economically viable.** With under maintained assumptions of traffic growth rates of at least 6 percent annually, average costs per km at or below US$200,000 and discount rates ranging between 10 and 12 percent, investments under Component 1 are expected to be economically viable. Previous interventions seeking to improve rural roads for all-weather access, and including supplemental facilities, yielded an Economic Internal Rate of Return (EIRR) within the range 10-11 percent. Estimated costs of the rehabilitation of tertiary roads in the aftermath of Hurricane Matthew[18] in the areas of intervention suggests that investments should be up to US$150,000/km for very damaged roads, but could be as low as US$5,000/km. These costs are consistent with the analysis of the cost/km of four individual road segments of the Centre Artibonite Regional Development Project (BCA – P133352);[19] investments in these segments are estimated generate a positive Net Present Value (NPV) and EIRR (US$ 0.35 million NPV with 10-11 percent EIRR), while achieving travel time savings of at least 20 minutes. Investments under Component 2 are expected to be prioritized based on the highest estimated economic impact when considering the vulnerability of the asset and the cost of possible losses due to non-intervention. As such, physical works in critical points would be chosen in cases where their financial impact would be far in excess of the cost.

50. Main risks for achieving economic sustainability include cost overrun, construction delays and an external shock. These risks were taken into consideration during project preparation by the inclusion of an institutional strengthening component for climate-change readiness and a contingency fund; specific mitigating measures would be incorporated during implementation.

B. Technical

51. The design of the works to be financed by the proposed Project would apply international engineering standards and build on lessons learned under past and ongoing Bank-financed operations in Haiti supporting: (i) road

[18] Evaluation of damages and losses in the aftermath of Hurricane Matthew carried out in October 2016 by MTPTC.
[19] That is 4 segments of 24, 23, 18 and 40 km each that composed the entire 105km interventions.

construction and rehabilitation; and (ii) bridge rehabilitation. The proposed Project would also support the development of specific guidelines for rural pathways based on low-cost design.

52. **Technical specifications for rural roads improvement works.** These specifications would focus on all-weather practicability rather than full-scale rehabilitation. The improvements would be localized on priority sections along the selected roads, which are often cut off during rainy season, dangerous and 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 in the improvement works. Finally, the critical spot/segment improvement approach is appropriate for rural roads in Haiti as traffic count studies show that most of traffic on these rural roads is composed of intermediate means of transport (pedestrian, animal, bicycles, motorcycles) rather than more sophisticated motor vehicles (cars, buses).

53. **Regarding road safety,** the proposed spot improvement investments and rehabilitation approach would likely have limited impact (Component 1) or likely no impact (Component 2) on current road speed limits. However, considering the high incidence of accidents on Haitian roads, a road safety assessment is planned on the selected segments to identify high risk road sections (*black spots)* and possible improvements. Based on previous experience in Haiti, the proposed Project would also include in its design critical spots or sections where road safety can be increased by: (i) limiting speed when crossing community areas; and (ii) enhancing road shoulders where pedestrian traffic and mixed use of the road exist. The proposed Project would finance physical improvements such as speed bumps and/or reducing width of lanes at entrance of cities, shoulders or separate lanes and, where possible, solar streets lights especially for crossroads.

54. **Small complementary facilities along project roads**, developed as part of the rural road investments, significantly enhance the living and travel conditions of the local population, especially women. Past Bank-financed projects demonstrate that significant improvement of transport conditions (reduction of travel times and travel costs, greater availability and reliability of transport services) follow the rehabilitation of the transport infrastructure.

55. **Climate Change Adaptation Co-Benefits.** The adaptation co-benefit is the ratio of the resilience associated commitment for project components per the total amount of IDA financing for these components. The overall adaptation co-benefit assessed for the proposed Project activities is 55 percent. Resilience is a central feature of design solutions identified for the investments and technical studies under Component 1, Component 2 (use of climate resilient and environmentally optimized road designs, as well as green technologies) and for the technical assistance activities designed under Component 3. Specific adaptation co-benefits per component include:

- Component 1: 35 percent of the costs of Component 1 are associated with climate resilience building and mitigation measures, such as slope management, drainage works, erosion control.
- Component 2: 100 percent adaptation co-benefits are assigned for mainstreaming adaptation measures in infrastructure design and through improving the resilience of selected vulnerable points of the road network to climate change impacts.
- Component 3: 30 percent of the costs of Component 3 are associated with climate resilience building such as activities designed to: (i) develop guidelines for resilient infrastructure and climate change adaptation measures; and (ii) strengthen the capacity of the GoH for road asset management and an improved M&E system.

56. **Green House Gas (GHG) emissions.** While it is not possible to carry out a detailed Green House Gas (GHG) accounting as per the "Framework Approach," the exercise carried out for similar projects suggest that the proposed Project is expected to yield either very limited increases in emissions due to the increase in vehicular speeds and the newly generated traffic due to proposed works,[20] or produce small reductions in vehicle emissions as a result of increased fuel efficiency on improved rural road sections.[21] Any impact on emissions either positive or negative is thus expected to be marginal.

C. Financial Management

57. **The financial responsibilities of the Project would be managed using existing capacity at UCE-MTPTC, established under the ongoing Bank-financed projects.** An assessment was carried out to evaluate the adequacy of UCE capacities to implement all financial management roles under the proposed Project. The team is well established and experienced in carrying out all financial management, in compliance with World Bank policies and procedures. Considering the volume of work currently handled by the financial management specialist, the team would need to be reinforced by one additional financial management specialist to help manage the upcoming workload.

58. Disbursements would be made in accordance with procedures outlined in the Disbursement Handbook for World Bank Clients and would allow for use of advances, reimbursement, direct payment, and issuance of Special Commitment.

D. Procurement

59. Experience to date under past and ongoing Bank-financed projects confirms the solid procurement capacity of the UCE-MTPTC, both with Bank-financed project and projects financed by other donors, including the IDB. The procurement capacity assessment was carried out in March 2018. UCE is well-qualified to manage procurement, but will be reinforced by one additional procurement specialist to help manage the upcoming workload. UCE's Procurement staff would receive intensive training under the Bank's new Procurement Framework for policy, regulations and guidance.

60. Procurement would 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 Project Implementation Manual. The procurement audit report would be furnished to the World Bank, along with other information concerning procurement records, and documentation and reviews.

61. In accordance with new procurement practices, a Project Procurement Strategy for Development (PPSD) identifies the appropriate selection methods, market approach, and type of review by the World Bank (see Annex 6). A Procurement Plan, acceptable to the World Bank, has also been prepared. For International Competition, in addition to World Bank Standard and Sample Bidding Documents, the UCE would use standard bidding documents (SBDs) agreed with the National Commission of Public Contracts (CNMP).

62. The main procurement risks are related to: (i) low quality of complex biddings documents and technical specifications; (ii) lack of familiarity with application of the Bank's New Procurement Framework and Bank's Standard Bidding Documents; (iii) insufficient checks and balances because procurement decision makers not well empowered;

[20] For example, China's Anhui Rural Road Improvement and Upgrading Program for Results rural road project (P158733).
[21] See similar Bank-financed rural road projects in Nicaragua (Rural and Urban Access Improvement Project – P160359).

(iv) quality procurement and outcomes must be improved by reinforcement of agency administration capacity; and (v) delays in project or increase in claims due to slow contract implementation. These risks would be mitigated through the detailed actions outlined in the PPSD (see Annex 6).

E. Environment (including Safeguards)

63. **The proposed Project is classified as Category B per OP 4.01 Environmental Assessment** due to proposed activities focused on rehabilitation of existing infrastructure (roads, culverts, small bridges) and small related works (lighting, bus stops, safety crossings, water kiosks). The works are small to medium scale and the physical footprint of the proposed Project would be small. There are no identified cumulative impacts. Proposed activities are not expected to produce any large-scale, significant and/or irreversible impacts. Annex 3 provides a detailed analysis of the social and environmental safeguards policies triggered by the proposed Project. These include OP/BP 4.01 Environmental Assessment, OP/BP 4.04 Natural Habitats, OP/BP 4.11 Physical Cultural Resources and OP/BP 4.12 Involuntary Resettlement. Natural Habitat OP/BP 4.04 is only triggered on a precautionary basis because the proposed Project sites are not yet known. Generally, however, the envisioned activities would not degrade or convert critical habitat. OP/BP 4.36 Forests has not been triggered as the proposed Project is not envisioned to operate in any forested area. Appropriate screening would also take place to ensure this provision is enforced throughout the proposed Project.

64. UCE-MTPTC has the capacity to manage the environmental safeguards aspects of the proposed Project. UCE has concurrently managed many Bank-financed projects with social and environmental safeguard challenges. Considerable resources have gone into building capacity of the environmental and social team and this effort would continue, as needed.

65. An Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) were prepared and disclosed on April 1, 2018 (MTPTC website)[22] and on April 2, 2018 (World Bank website).[23] As part of its preparation, stakeholder consultations occurred with associated Ministries at the departmental level and with local communities between January and March 2018. However, more detailed consultations would occur with local authorities and affected communities once the sites are known and these discussions would be incorporated into the Environmental and Social Management Plans (ESMPs). The ESMF outlines the potential impacts and mitigation measures. All activities would be screened and ESMPs would be developed as needed. The ESMPs would be approved by the Bank prior to the commencement of any associated works. To be approved, all ESMPs must show that adequate consultations were done with implicated project affected peoples at the known project sites.

F. Social (including Safeguards)

66. **The proposed Project would fund critical segment interventions in secondary, tertiary and rural roads, as well as small community identified works.** The proposed Project design is focused on generating benefits for all those living/working in the affected area who would benefit from a higher quality of basic access/access in face of climate events. However, these activities may lead to some land acquisition, or loss of economic assets, such as crops and fruit trees. As such, the proposed Project has triggered the policy on Involuntary Resettlement (OP 4.12). Given that the exact interventions are unknown, the GoH prepared the above mentioned RPF. Upon the identification of cases of involuntary resettlement, land acquisition, or loss of income due to the rehabilitation works, Resettlement Action Plans

[22] http://www.mtptc.gouv.ht/media/upload/doc/publications/CGES_PARR_27_03_2018_Version_Finale_Revisée%20(2).pdf
[23] *http://documents.worldbank.org/curated/en/789531522705365807/pdf/CGES-PARR-27-03-2018-Version-Finale-Revis-e-2.pdf* and http://documents.worldbank.org/curated/en/365051522346048334/pdf/Rural-Accessibility-and-Resilience-Project-Haiti-Resettlement-Policy-Framework-FINAL-March-26-2018.pdf

(RAPs) or Abbreviated Resettlement Action Plans (ARAPs) would be prepared, consulted and disclosed in accordance with the policy.

67. Land acquisition and impacts on livelihoods would be screened upfront as part of a joint environmental and social screening form. The proposed Project would avoid or minimize land acquisition as much as possible based on the lessons learned on other projects in Haiti. UCE´s safeguards team would be involved from an early stage in the selection of sites and engineering/design studies, in close supervision of contractor's performance by field engineers, and through constant dialogue and feedback with communities during rehabilitation works. A potential risk (as observed in other projects in Haiti) may be delays in recognizing land acquisition and payment of compensation due to complicated national procedures.

68. The potential risks to the communities derived from contracting non-local labor force for road construction works is low. For works under Components 1 and 2, most of the labor is expected to be local, with only a few high skilled/technical workers required from outside the community. The proposed Project would incorporate various measures to mitigate potential negative impacts of labor influx, such as requiring that ESMPs include: (i) labor influx management measures, such as monitoring housing arrangements for non-local workers; and (ii) clauses requiring the presence of social and environmental specialists on site during implementation. Furthermore, the proposed Project would enforce the signing of codes of conduct by all workers, and ensure that labor related commitments, including the worker health and safety procedures, are reflected in: (i) the Grant Agreement;[24] and (ii) the contractor bidding documents (and subsequently in the Borrower-contractor contracts).

Gender

69. **The proposed Project seeks to focus on women's accessibility to social and economic facilities as an avenue to improving overall household wellbeing, by facilitating all-weather road access that would prioritize connectivity to health services and economic opportunities, and by addressing some of the mobility barriers that women face, such as personal security.** Existing studies show that improving women's economic participation and their productive assets can have positive impacts on entire households, as women typically invest a higher proportion of their earnings in their families and communities than men.

70. Haiti still faces several challenges regarding gender equality. According to the SCD (2015), maternal mortality is still higher than the regional average (380 deaths per 100, 000 life deaths),[25] partly due to the large number of deliveries occurring outside health facilities (65 percent). Poor road conditions represent one of the main barriers for women to access basic services. For instance, 48 percent of households in Haiti have at least one woman between 15 and 49 years old unable to seek medical care because of distance to the 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. Furthermore, 66 percent of moderately poor households and 73 percent of extremely poor households in rural Haiti have at least one women for whom distance to health facility affect her decision to obtain medical care. By improving road conditions and contributing to all-weather resilience of selected road sections, the proposed Project seeks to mitigate one of the constraints that women face in using health facilities.

[24] See Schedule 2, Section I, B(g) of the Grant Agreement.
[25] Singh, Raju Jan and Mary A. Barton-Dock. 2015. Haiti - Toward a New Narrative: Systematic Country Diagnostic (English). Washington, D.C. : World Bank Group, p. 35.

71. In terms of employment, the SCD signals that women are also disadvantaged in the labor market. 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 harms female traders in Haiti, known as "Madan Sara" (MS), who travel extensively for the livelihoods of their families. MS represent 80 percent of the Haitian informal labor market comprising the main source of income for most of the Haitian society. Female traders move around more times during a day compared to male counterparts to carry out economic activities in addition to their household/childcare tasks. While walking or waiting for shared transport vehicles in isolated areas or after dark, these women are often exposed to theft or sexual violence more than their male counterparts. Female traders face particularly dangerous conditions during the rainy season when tertiary roads and bridge points are inaccessible. They are more dependent on shared vans than men. As the conditions of the roads do not allow for shared vans to reach plantations, female traders are obliged to pay multiple transport means to reach plantations, increasing costs and travel risks. Personal security, absence of access to all-weather roads and low affordability all contribute to barriers for women to access plantations and markets. Gender Based Violence is a chronic problem in Haiti as, "according to the MSPP, IHE, and ICF International (2013), 13 percent of Haitian women have experienced sexual violence."[27]

72. The activities under the proposed Project that would contribute to closing said gaps include the following:

- In the investment identification formula, the proposed Project would prioritize: (i) the road sections women use for their economic activities (access to markets or trade routes); (ii) road sections that facilitate easier access to basic and prenatal health facilities and specialized services in the provincial towns;[28] and (iii) road sections that facilitate access to existing schools in the project areas.
- Under Component 1, the proposed Project would prioritize investments that would particularly respond to women's road access and personal security needs. Investments would be identified based on local mobility plans that would be elaborated through a participatory scheme during project implementation, which would ensure women's concerns are incorporated to enable improved mobility.[29] Improving public infrastructure such as lighting and appearance of sidewalks, as well as increasing visibility within stations and amplifying surveillance help women to feel safer, and can reduce the probability of all forms of crime, including violence against women.[30]
- In terms of gender based violence, the proposed Project would follow the recommendations of the Global GBV Task Force Report by: (a) enhancing contractual obligations by requiring contractors to have sexual harassment policies and Codes of Conducts for workers; (b) developing Sexual Exploitation and Abuse (SEA) awareness by building capacity with the Client, contractor and supervision consultants on prevention, response and monitoring of SEA; (c) engaging with the community and mapping services for SEA survivors around the intervention areas; and (d) enhancing the GRM in collaboration with local authorities and communities, including with women and community organizations.[31]

[26] *Ibid.*
[27] *Ibid.*
[28] Such as those provided at Basic Emergency Obstetrics and Newborn Services (SONU B) and Complete Emergency Obstetrics and Newborn Services (includes SONU B services, and Blood Transfusion and C-Section – SONU C) (e.g., surgery table for C-Section)
[29] These small investments may include the financing of street lamps 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 the road sections, particularly targeting those female commuters who tend to travel with children or elder family members.
[30] Taylor, A. (2011). Women and the City: Examining the Gender Impact of Violence and Urbanization. ActionAid.
[31] World Bank, Working together to prevent sexual exploitation and abuse: recommendations for World Bank investment projects (English) (Report no. 117972)

73. The specific anticipated outcomes for women in the proposed Project areas include: (i) improvements in accessibility for women and their children to social, education and medical facilities; including pre- and post-natal health care and attention for women; (ii) reduction in the time that women spend transporting product to market; and (iii) increasing opportunities for employment in small-scale, road-side commercial operations.

Citizen Engagement

74. **The proposed Project would make use of, and further deepen, earlier initiatives undertaken in Haiti under IDA funded projects for enhancing project monitoring, transparency, and social accountability. The proposed Project would deploy three main citizen engagement (CE) mechanisms: (i) Consultations; (ii) Community Monitoring; and (iii) Grievance Redress Mechanisms.** The proposed Project would use an "Outreach Strategy" to ensure that communities, and women, attend consultations on roads and markets selection, and women's views are heard during the consultation process. This would ensure that the local communities are fully informed about the project activities as well as the CE mechanisms, thereby, allowing for an effective and informed beneficiary feedback throughout project implementation.

(i) **Consultations** in the form of town-hall meetings and small group discussions (disaggregated by gender) would be conducted to inform the community stakeholders about the proposed Project. The targeted roads and segment interventions (Component 1) would be selected with direct input from the beneficiary communities during these consultation meetings. The selection process would include the preparatory work of: (i) identification and development of the right instruments and vehicles for inclusive consultations to take place (for instance through the CASECs); and (ii) completion of assessments *ex-ante* in adequate locations for the consultations respectively with women and men. The subsequent consultations during project implementation would focus on information on the road improvement works and their duration, the small complementary facilities requested by the communities, the grievance redress mechanism in place, as well as other project-related issues as they arise. [32]

(ii) A **Community Monitoring Mechanism** would be in place to enhance citizen voices and increase transparency and accountability regarding the road rehabilitation process and contractor performance. This would allow the communities to ensure that: (i) the needs that they expressed in the mobility plans are indeed implemented; and (ii) any shortcomings that may surface during the rehabilitation works could be quickly detected, reported, and addressed. A focal point at the community level would be identified to help the project team implement a short and simple survey with selected members of beneficiary communities at critical points of the rehabilitation work. The feasibility and details for community monitoring would be elaborated in further discussions with relevant stakeholders and spelled out in the Project Implementation Manual.

(iii) **Grievance Redress Mechanism (GRM)** would be in place to allow beneficiaries to submit complaints and ensure timely feedback and resolution. The GRM scope would go beyond safeguards matters and include issues such as safety, contractor performance, and potential violations of code of conduct that the workers would be required to sign, which would include clauses on gender based violence. The existing GRM that is

[32] Under Component 1, local level investments would be identified based on local mobility plans that would be developed through a participatory approach during project implementation. An Operator would be hired by UCE-MTPTC to facilitate the social engagement and the participation of women organizations, community-based organizations (CBOs), local farmer groups, users, traders and other relevant representative bodies in project areas.

being used under the ongoing Bank-financed transport project (PRUII – P120895) would be taken as a basis. The existing system under PRUII project relies on local level GRM focal points (CASEC) to uptake and register complaints, complemented by consultations led by the project social specialist. The social specialist also keeps a GRM registry. The GRM procedure would be disseminated in affected communities to create awareness and enable project-affected people to file complaints in a manner that suits the environment; one with little exposure to formalized redress mechanisms and procedures. This system would be improved under the proposed project by: (i) putting more emphasis on communication and closing the feedback loop among the project team, contractor and the project beneficiaries; (ii) requiring that all contractors assign community focal points for addressing grievances; (iii) ensuring better and more frequent reporting and monitoring by UCE-MTPTC on grievances received and resolution steps; and (iv) ensuring UCE-MTPTC has the capacity to manage information related to potential cases of sexual exploitation and abuse with confidentiality, and that its staff are properly trained in such areas. An indicator has been added to the Results Framework to track the resolution of grievances throughout project implementation.

G. World Bank Grievance Redress

75. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, because of WB non-compliance 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 Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (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 *www.inspectionpanel.org*.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

Project Development Objective(s)

The Project Development Objectives are to: (i) increase all-weather road access in selected sub-regions; and (ii) improve the resilience of selected segments of the road network.

PDO Indicators by Objectives / Outcomes	DLI	CRI	Unit of Measure	Baseline	End Target
Increase all-weather road access in selected sub-regions					
Share of rural population in selected sub-regions with access within 2 km to an all-weather road			Percentage	36.00	55.00
Improve the resilience of selected segments of the road network.					
Total population living in areas serviced by connecting roads upgraded to a climate resilient standard			Number	0.00	700,000.00

Intermediate Results Indicators by Components	DLI	CRI	Unit of Measure	Baseline	End Target
Component 1: Enhancing Rural Connectivity					
Number of people who can access regional size markets within 120 minutes in select project areas			Number	525,000.00	660,000.00

Percentage change in the number of women who can access health services with obstetrical facilities within 60 minutes in select project areas			Percentage	0.00	25.00
Number of women who can access health services with obstetrical facilities within 60 minutes in select project areas			Number	255,500.00	320,000.00
Number of territorial mobility plans developed			Number	0.00	3.00
Number of which are climate informed and incorporate women's security needs			Number	0.00	3.00
Share of citizens who consider that design of investments subjected to consultation is responsive to their needs/views (%)			Percentage	0.00	70.00
Of which women, to reflect the focus of consultations on gender			Percentage	0.00	90.00
Grievances registered related to delivery of project benefits that are addressed (%)			Percentage	0.00	80.00
Component 2: Improving Resilience of Transport Connecting Infrastructure					
Roads rehablitated		Yes	Kilometers	0.00	400.00
Roads rehabilitated - rural		Yes	Kilometers	0.00	390.00
Roads rehabilitated - non-rural		Yes	Kilometers	0.00	10.00
Number of critical bridges rehabilitated or protected			Number	0.00	10.00
Number of critical spot/segments built or rehabilitated			Number	0.00	150.00
Component 3: Promoting Sustainable Mobility Development					
Climate Resilient and Sustainable Mobility Roadmap prepared and associated monitoring tool developed			Yes/No	N	Y
Establishment of a road traffic database and monitoring tool			Yes/No	N	Y
Bridge Management System within MTPTC developed and			Yes/No	N	Y

functional					
Road safety assesments/measures included as part of all technical design and feasability studies			Yes/No	N	Y

Indicators to be mapped	DLI	CRI	Unit of Measure	Baseline	End Target
PDO Indicators					

Monitoring & Evaluation Plan: PDO Indicators	
Indicator Name	Share of rural population in selected sub-regions with access within 2 km to an all-weather road
Definition/Description	This indicator measures PDO (i). Selected sub-regions include: (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradere-Aquin. Percentage of rural people in the project area who live within 2 kilometers (typically equivalent to a 20-minute walk) of an all-weather road. This indicator is also known as Rural Access Index (RAI). An all-weather road is motorable all year by the prevailing means of rural transport (often a pick-up or a truck which does not have four-wheel drive). Predictable interruptions of short duration during inclement weather (e.g. heavy rainfall) are acceptable, particularly on low volume roads. Please note that this indicator requires supplemental information.
Frequency	Annual
Data Source	Spatial analyses and Road Management System (RMS)
Methodology for Data Collection	Spatial analyses and Road Management System (RMS)
Responsibility for Data Collection	UCE-MTPTC and Departemental Directorate

Indicator Name	Total population living in areas serviced by connecting roads upgraded to a climate resilient standard
Definition/Description	Absolute total population living in areas serviced by connecting roads upgraded to climate resilient standard. This indicator aims to calculate the population serviced by a resilient road. The GoH identified a list of roads requiring upgrading; the top 20 road segments were ranked and a list was created (Annex 2). Based on this list and the available budget, precise roads and spots/segments will be determined. Preliminary assessments estimate a target population of 700,000 to be serviced.
Frequency	Annual
Data Source	Spatial analyses and Road Management System (RMS)
Methodology for Data Collection	Spatial analyses and Road Management System (RMS)
Responsibility for Data Collection	UCE-MTPTC and Departmental Directorate

Monitoring & Evaluation Plan: Intermediate Results Indicators	
Indicator Name	Number of people who can access regional size markets within 120 minutes in select project areas
Definition/Description	This indicator measures results from C1 interventions in selected subregions (see PDO indicator 1). Absolute number of people that can access regional size markets (as defined by CNIGS) within 120 minutes.
Frequency	Annual
Data Source	Spatial analyses and Road Management System (RMS); UTSI (Statistical Unit)
Methodology for Data Collection	The data will be provided by the UTSI statistical office for the location of the regional size markets and spatial analysis will be carried out using the time travel distance to markets.
Responsibility for Data Collection	UCE-MTPTC & UTSI/MTPTC

Indicator Name	Percentage change in the number of women who can access health services with obstetrical facilities within 60 minutes in select project areas
Definition/Description	% change in the number of women in the area of intervention that can access obstetrical health services within 60 minutes. Obstetrical facilities are defined as SONU B and SONU C clinics.This indicator measures results from C1 interventions in subregions: (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradere-Aquin, identified as priority areas.
Frequency	Annual
Data Source	Spatial analyses and Road Management System (RMS)
Methodology for Data Collection	The data will be provided by the UTSI statistical office for the location of the health clinics and spatial analysis will be carried out using the time travel distance to clinics.
Responsibility for Data Collection	UCE-MTPTC and Departmental Directorate

Indicator Name	Number of women who can access health services with obstetrical facilities within 60 minutes in select project areas
Definition/Description	The Supplemental Value is the total number of women in the area of intervention that can access obstetrical health services within 60 minutes. Obstetrical facilities are defined as SONU B and SONU C clinics.
Frequency	Annual
Data Source	Same as the main indicator.
Methodology for Data Collection	Same as main indicator.
Responsibility for Data Collection	UCE-MTPTC and Departmental Directorate

Indicator Name	Number of territorial mobility plans developed
Definition/Description	A prioritization exercise for local access improvement and complementary facilities under C1 will be managed at the community level through gender- and climate-informed local mobility plans. The mobility plans will incorporate ecological and community-based approaches for risk and hazards mapping, and will inform on: (i) access to basic services; (ii) transport time required; and (iii) accessibility during the rainy season considering disaster resilience, engineering assessments, and budget constraints. A particular emphasis will be put on women's personal security concerns related to infrastructure (which constitute a barrier to their mobility) and other concerns derived from the participatory process.
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Number of which are climate informed and incorporate women's security needs
Definition/Description	A particular emphasis will be put on women’s personal security concerns related to infrastructure (which constitute a barrier to their mobility) and other concerns derived from the participatory process including information related to climate risks.
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Same as main indicator.
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Share of citizens who consider that design of investments subjected to consultation is responsive to their needs/views (%)
Definition/Description	The survey will be carried out in the area of intervention for C1 to measure satisfaction with complementary investments and road rehabilitation activities under C1. The Project will additionally deploy 3 main Citizen Engagement (CE) mechanisms: (i) Consultations; (ii) Community Monitoring; and (iii) Grievance Redress Mechanisms. Communication and outreach is intertwined with Citizen Engagement and will be integrated in each phase of the project implementation as a building block for these CE interventions. This will ensure that the local communities are fully informed about the project activities as well as the CE mechanisms, thereby, allowing for an effective and informed beneficiary feedback throughout project implementation.
Frequency	3 times (at baseline before beginning of works; at mid-point; and at endline after the conclusion of works).
Data Source	Survey to be collected.
Methodology for Data Collection	Simple surveys will be carried out before the rehabilitation works, during the works (mid-point) and right after the conclusion of the works. The end survey will be timed in such a way that the contractor still has an active contract to correct any legitimate shortcomings that citizens may raise.
Responsibility for Data Collection	UCE-MTPTC and Departmental Directorate

Indicator Name	Of which women, to reflect the focus of consultations on gender
Definition/Description	The Project would use an “Outreach Strategy” to ensure that women, attend consultations on roads and small facilities selection, and women’s views are heard during the consultation process.
Frequency	Same as main indicator.
Data Source	Same as main indicator.
Methodology for Data Collection	Same as main indicator. Consultations in the form of town-hall meetings and small group discussions (disaggregated by gender) would be conducted to inform the community stakeholders about the proposed project.
Responsibility for Data Collection	Same as main indicator.

Indicator Name	Grievances registered related to delivery of project benefits that are addressed (%)
Definition/Description	A Grievance Redress Mechanism (GRM) will be in place to allow beneficiaries to submit complaints and ensure timely feedback and resolution. The GRM scope will go beyond safeguards matters and include issues such as safety, contractor performance, and potential violations of code of conduct that the workers will be required to sign, which will include clauses on gender based violence. The existing GRM that is being used under the ongoing Bank-financed transport projects (IIERP, PRGRD) will be taken as a starting point and further developed.
Frequency	Annual
Data Source	GRM reports and minutes (from consultations)
Methodology for Data Collection	A focal point at the community level would be identified to help the project team implement a short and simple survey with selected members of beneficiary communities at critical points of the rehabilitation work. The results would be shared with the contractors and the UCE-MTPTC staff.
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Roads rehablitated
Definition/Description	
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Roads rehabilitated - rural
Definition/Description	
Frequency	Annual
Data Source	RMS, MTPTC
Methodology for Data Collection	
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Roads rehabilitated - non-rural
Definition/Description	
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Number of critical bridges rehabilitated or protected
Definition/Description	Bridges are deemed to be “critical” depending on the function of the bridge against the backdrop of the broader road network in terms of the linkages it provides between economic poles, ports and agro-economic corridors, population hubs, important regional facilities (e.g., hospital or universities), trade border points and transnational linkages, etc. These will be specifically identified during implementation.
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Number of critical spot/segments built or rehabilitated
Definition/Description	Spot interventions to enhance all-weather accessibility of roads.
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Climate Resilient and Sustainable Mobility Roadmap prepared and associated monitoring tool developed
Definition/Description	Roadmap report and monitoring tool to be developed by MTPTC under the Project.
Frequency	By end of Project
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Establishment of a road traffic database and monitoring tool
Definition/Description	Road traffic database that will be installed at MTPTC and its monitoring tool, developed under the Project.
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Bridge Management System within MTPTC developed and functional
Definition/Description	Bridge Management System within MTPTC should be developed, and be functional.
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

Indicator Name	Road safety assesments/measures included as part of all technical design and feasability studies
Definition/Description	Road safety measures and assessment included in technical designs and feasibility studies financed under the project (C1-C2-C3).
Frequency	Annual
Data Source	Project monitoring by UCE-MTPTC
Methodology for Data Collection	Project monitoring by UCE-MTPTC
Responsibility for Data Collection	UCE-MTPTC

ANNEX 1: DETAILED PROJECT DESCRIPTION

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

Project Context

1. The proposed Project has been designed based on the experience attained and lessons learned from previous and current Bank-financed Projects in Haiti including transportation operations such as: PTDT (P095523), PROReV (P114292), PRGRD (P126346), PRUII (P120895) and BCA (P133352). The approach taken centered on vulnerability reduction, improved resilience and enhanced connectivity in a context of limited resources and lack of coordination and planning, through a combination of spot improvement, assets management, and technical assistance.

2. The Bank has been supporting the transport sector since 2006, with a particular focus on: (i) strengthening maintenance with the creation of a Road Maintenance Fund; (ii) improving resilience and protection of assets; and (iii) supporting the GoH's capacity to engage in preventative measures and respond (and ultimately recover) to the adverse effects of natural hazards. In particular, the Bank has contributed to enhanced resilience on a critical corridor (RN2), stabilizing access to the four departments in the south with the reconstruction of four bridges (Dolin; Chalon; Fauche; and La Digue) and the protection/rehabilitation of 20 additional bridges. The Bank has strengthened the GoH's capacity to respond to disasters and to reduce the vulnerability of the road network through the creation of a Crisis Management Unit and a Bridge Management Unit. The Bank has also supported MTPTC with the completion of the RAI Survey (2015), road conditions assessment, and identification of critical spots/segments to enhance all-weather connectivity in all ten departments (2016), the first National Bridge Inventory (2016), and technical guidance for better quality of hydraulic studies in transport operations (2017). All this information has informed the design of the proposed Project and specific activities.

3. The Project Development Objectives are to: (i) increase all-weather road access in selected sub-regions; and (ii) improve the resilience of selected segments of the road network.

4. The objectives are to be achieved through a combination of investments, studies, technical assistance and capacity building. The GoH would improve vulnerable infrastructure and segments of the road network to be stabilized, retrofitted or rebuilt to ensure universal safe and effective mobility through a combination of all-weather access standards, better designs and enhanced asset management.

5. The proposed Project would be implemented over a 5-year period.

Project Components

Component 1: Enhancing Rural Connectivity (US$45.0 million)

6. Component 1 focuses on resilient and all-weather access, and the financing of rehabilitation and upgrades on the tertiary and rural road network, in order to contribute to increased physical access of the South, South-East and Nippes Departments and particularly the sub regions (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradere-Aquin, respectively, identified as priority areas.

7. The Departmental Directorates of MTPTC (DDTP) of the proposed Project's targeted departments have identified a long-list of 300+ critical points/segments to be rehabilitated (lists exist for Haiti's 10 departments). For project implementation, the central GoH, local Governments, and the MTPTC's regional offices would establish a short list of priority investments. The physical condition of each road being considered would be assessed to verify that the road is impassable during part of the year. Socio-economic data would be collected for each segment and a multi-criteria analysis conducted, considering factors such as: (i) impact of rehabilitation on access to essential services; (ii) transport time required today; (iii) accessibility during the rainy season; (iv) hazard and climate vulnerability; (v) engineering complexity; and (v) cost. To maximize value for money and ensure cost efficiency, segments would be assessed also on the ratio of cost/km versus population connected.

8. The proposed Project would finance the rehabilitation of approximately 400 km of the tertiary and rural road network to improve accessibility and help reduce the overall deterioration of that network. This is expected to be achieved through a combination of (i) tertiary roads rehabilitation investments, (ii) small complementary facilities and structures to enhance the impact of the improved road network; and (iii) technical assistance, training and technical guidelines for the National All-Weather Rural Road Access Program.

9. Critical spot/segment rehabilitation access, in terms of transport time required and accessibility during the rainy season, could be substantially improved at a low cost. These solutions would focus on addressing the multifaceted nature of vulnerability as well as hazards and exposure to climate change and other socio-economic factors. The type of interventions includes, *inter alia:* (a) correcting the surfaces with limited re-graveling or limited paving to provide a more durable running surface over poor soils; (b) constructing drainage structures (culverts, small bridges, and on steep gradients, removing landslides); and (c) constructing retaining walls and erosion control structures within the existing right of way. This component would finance detailed design studies including relevant social and environmental safeguard instruments for selected investments.

10. The proposed Project design used a multi-criteria analysis to identify the 3 sub-regions (Annex 2 provides a description of the selection and prioritization methodology). Specific Investments would be identified during project implementation in coordination with representatives of the Central Government, local governments, in addition to MTPTC's regional offices. An extensive list of 300+ critical points/segments to be rehabilitated (lists exist for Haiti's 10 departments) has been developed by the Departmental Directorates of MTPTC (DDTP) under PROReV and PRGRD and has been proposed for the Project. From this list, a short-list would be developed and the physical condition assessment of each candidate road would verify that the road is impassable during part of the year due to interruption points.

11. The selection of the investments would also take into consideration the ongoing road investments program *(Caravane du Changement)* (currently ongoing on a force account basis) by the MTPTC to maximize synergies wherever possible, and would seek to complement ongoing GoH investments with drainage, small bridge construction, or upgrading of roads to an all-weather standard. The final selection of the investments would be identified based on rural investments plans developed Ministries and the selection of investments would completed through the development of local mobility plans. The cost/km would be also an important factor determining the segment chosen, so as to maximize travel time savings for a larger number of beneficiaries in the area of influence while ensuring positive economic returns (See Section II of the detailed economic analysis).

12. A prioritization exercise for local access improvement and complementary facilities would be managed at the community level through gender- and climate-informed local mobility plans. The mobility plans would incorporate ecological and community-based approaches for risk and hazards mapping, and would inform on: (i) access to basic

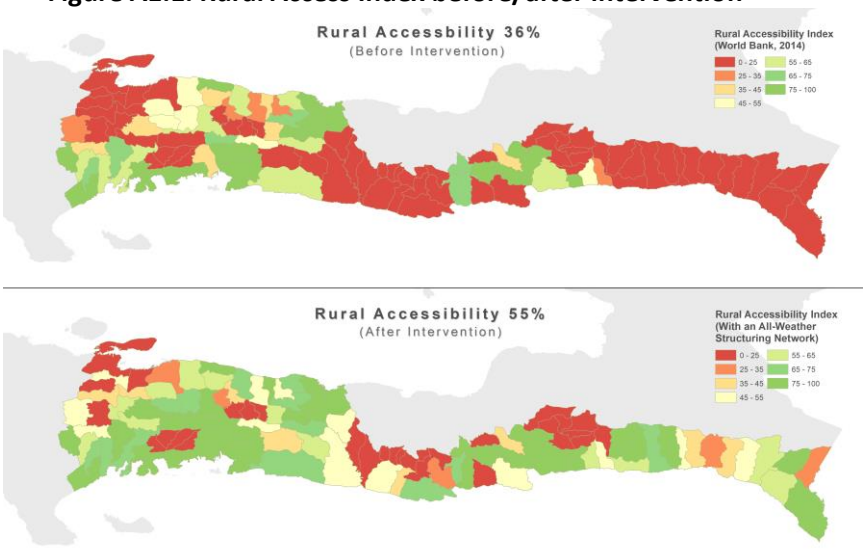
services; (ii) transport time required; and (iii) accessibility during the rainy season considering disaster resilience, engineering assessments, and budget constraints.

13. 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 proposed communal facilities are designed to foster greater women's empowerment, while maximizing the positive impact of the proposed Project on selected communities along project roads. Similar types of infrastructure were financed under the recent Bank-financed transport projects in Haiti (PTDT, PROReV, PRUII and PRGRD) and produced positive effects. The proposed facilities would be of different kinds, such as lighting, bus stops, safety measures across inhabited areas, schools, water kiosk and health services, improved access for existing schools and health centers (Eligible investments represent around 3 to 5 percent of the component).

14. The proposed Project would ensure that participatory activities and consultative processes are held in formats that are suitable and possible for women to attend. The proposed Project would pay close attention to women's and girls' priorities in the identification and funding of small-scale community investments, and promote the recruitment of female staff in work mobilization. The possibility to link road maintenance and the provisions of the small-scale socioeconomic community investments would be explored. The use of local small and medium-sized enterprises (SMEs) and labor-intensive works (LIW) approach would be prioritized whenever possible to build on successful experiences in recent transport operations. Similarly, the proposed Project would pay close attention to women's and girls' priorities in the identification and funding of small-scale community investments, and promote the recruitment of female staff in work mobilization.

15. Finally, this component would also finance the development of a National All-Weather Rural Road Access Program, a roadmap to achieve universal coverage by 2030, a planning and monitoring system within the MTPTC Directorate of Transport, and support the completion of the Rural Road Investments plans under preparation at the departmental level and to support the local directorate of MTPTC in charge of road maintenance.

Figure A1.1. Rural Access Index before/after intervention



Source: World Bank Production, Sample Maps, expected impact Component 1 using RAI Survey Data 2015

Component 2: Improving Resilience of Transport Connecting Infrastructure (US$22.0 million)

16. This component seeks to improve the resilience of primary and secondary roads, the road network that sustains the country's economic activities and the population's access to markets, social services and intercity connectivity. The focus is on achieving the resilient flow of goods and individual mobility. The proposed transport infrastructure improvements would include upgrading, rehabilitating, and eventually reconstructing existing infrastructures to a higher standard, in order to strengthen their resilience to climate change and extreme weather events. The focus would be on protecting existing essential/critical connecting points of the system and flows of individuals and goods. The component would be achieved through: (i) critical spots/segments investments; and (ii) technical assistance, trainings and the development of technical guidelines for the development of a National Bridge Management Program.

17. Activities to be financed include: (a) technical engineering studies; (b) civil works; (c) supervision of civil works; (d) delegated contract management fees; (e) third-party technical audits; and (f) third-party monitoring.

18. A list of priority reconstruction activities has been prepared in preliminary consultation with the MTPTC to help maintain access to the primary Haitian road network and prevent isolation in the event of adverse natural events. The initial selection for critical spots/segments was drawn by the GoH using accessibility and access indicators, as well as carrying out the spatial analysis on vulnerability. The GoH identified a list of roads requiring upgrading; the top 20 road segments were ranked as follows: RN2; RN7; RN4; RD111; RD303; RN5; RN3; RN6; RD205; RN1; RN201; RD702; RD402; RD401; RD301; RD502; RC300; RC200, RD204; and RD20 – totaling 1600+ km (Annex 2 provides a description of the selection and prioritization methodology).

19. Precise roads and spots/segments would then be determined based on risk and vulnerability assessments, and in relation to their function or connectivity in the country's road network. This study would be used in a second stage to help identify and prioritize works to be financed under component 2. Technical assistance would be engaged to support the design of construction, rehabilitation and maintenance guidelines for transport infrastructure works, as well as training activities and materials. Segments on primary roads would be selected based on their functionality as links between major economic poles or towards critical basic services' infrastructures (e.g., ports, regional hospitals and schools).

20. To limit project costs and ensure an adequate pace of program output, this component would not include any large paving, widening or realignment of the primary and secondary road network. Rather the proposed Project would finance a series of strengthening activities such as flood mitigation interventions and rehabilitation, reconstruction, upgrading and/or protection of critical bridges all within the existing right of way.

21. To ensure the long-term sustainability of these investments, adaptation measures to climate change impacts such as the increased frequency and magnitude of hurricanes and sea-level rise threatening coastal facilities, which are likely to take place in Haiti, would be mainstreamed into infrastructure design and maintenance. Reinforcement of hydraulic protection for bridges or slope stabilization works would be considered whenever possible.

22. This component would also finance the development of a National Bridge Management Program, a roadmap to improve the resilience of the bridge network by 2030, and a Planning and Bridge Assessment and Management System within the MTPTC Bridge Management Unit complementary to the on-going completion of the bridge inventory. Such activities seek to ensure the long-term sustainability of these investments against the backdrop of adaptation measures to climate change impacts.

Component 3: Promoting Sustainable Mobility Development (US$3.0 million)

23. This component would provide technical assistance and capacity strengthening to support the development of the transport sector. It would further advance the institutional strengthening program developed under previous and on-going Bank-financed projects to continue building resilient transport infrastructure and improve road asset management. While its main objective remains broadly the same, some methodological approaches and contents have been fined-tuned to better reflect road sector governance, respond to challenges by nurturing new approaches, and support on-going prioritized agendas of the GoH including, *inter alia*: (i) climate resilient roads program through (a) improved inter-urban connectivity, (b) enhanced resilience of the road network, and (c) improved rural access connectivity; and (ii) affordable sustainable urban transports.

24. This component would focus on activities supporting the following themes: (i) informing Sustainable Mobility policies and support the establishment of a planning, monitoring and evaluation system to achieve SDGs; (ii) improving the inclusion of gender and safety measures in road planning and design; and (iii) building on the urban mobility diagnostic to launch (a) an urban transport reform diagnostic; and (b) a prefeasibility study for one of the treatment of one of the corridors identified (Carrefour – Port-au-Prince – Tabarre).

25. The proposed Project would also provide technical assistance, trainings, and goods to the GoH to strengthen their capacity to: (i) manage the road network; and (ii) carry out technical studies to assess the needs and set of the urban mobility.

26. Finally, technical assistance would be provided to help the GoH, and MTPTC in particular, to assess and develop guidelines and strategies, covering: (i) inclusion of gender dimension; (ii) introduction of measures to consider disabilities in design of road transportation infrastructure; and (iii) introduction of detailed designs for road safety improvements.

Component 4: Contingent Emergency Response Component (US$1.0 million)

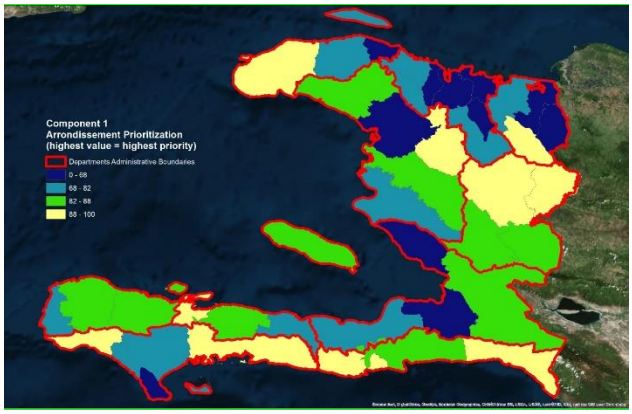
27. Due to the high risk of a catastrophic event in Haiti, and given that Haiti is a country highly vulnerable to natural disasters and climate change phenomena, the proposed Project includes a provisional component, designed as a mechanism for rapid response in the event of an eligible emergency, subject to the request of the GoH. Such components, which include triggers and conditions for the use of funds, are included in most investment projects in Haiti with the aim of keeping with the recommendations of the 2011 World Development Report (WDR) on Conflict, Security and Development, and following the operational experience acquired in Haiti in dealing with response to natural catastrophic events.

Component 5: Project Management (U$4.0 million)

28. This component would finance the overall management, supervision, fiduciary control and M&E of the proposed Project, and the associated staff. It would finance the key personnel, operational costs, and equipment for this function. The principle for this proposed setup is the gradual integration of the project management team within the existing government structure, to allow for long term sustainability for the proposed Project. Support would also be provided to ensure strong local presence, to ensure close supervision and oversight in the targeted areas.

ANNEX 2: INVESTMENTS AREAS SELECTION

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project



Map of the 42 Ranked Arrondissements

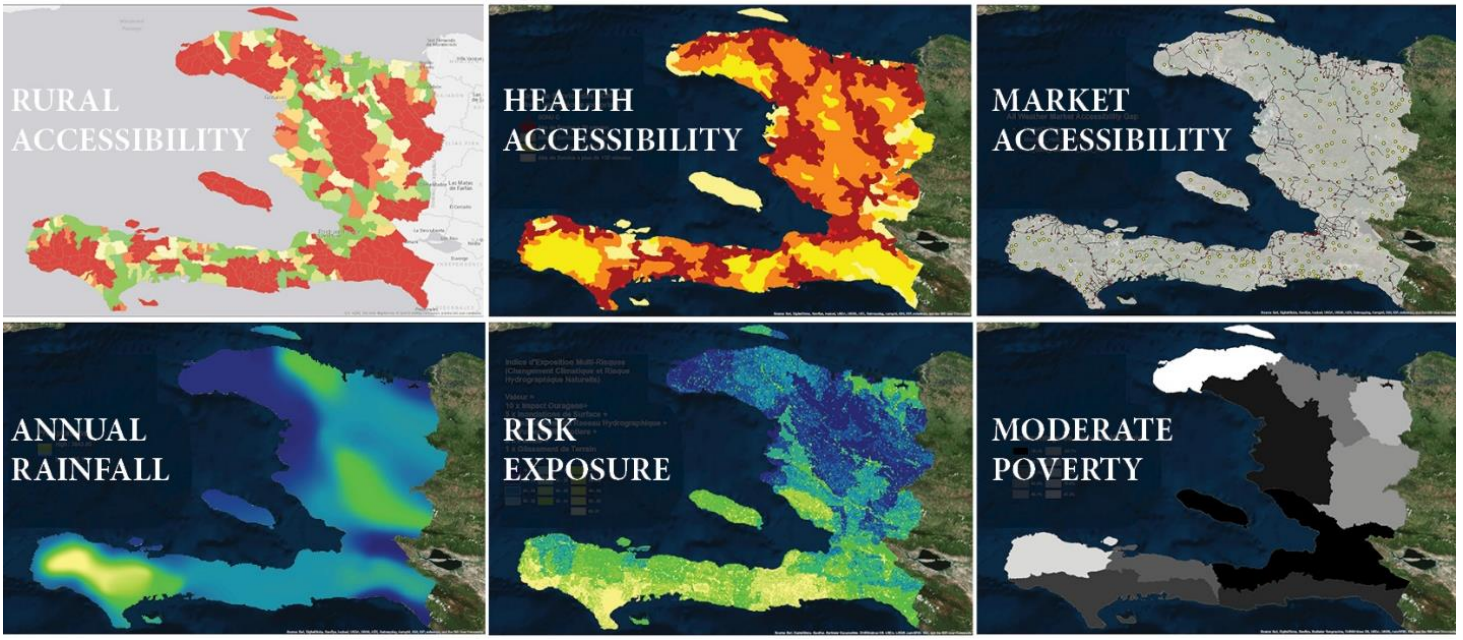
Map of the 50 Ranked Roads Sections

Source: World Bank Production, World Pop Data & Rai Survey 2015

Investment Area Selection Methodology and Criteria – Component 1

1. The prioritization criteria for the selected areas include five indicators: (a) Accessibility Index (RAI and General Accessibility Indexes); (b) Climate Change index (Precipitation and Climate Multi-Risk Index); (d) Services Accessibility Index (SONU-B, SONU-C, Primary Care Centers, Market); (d) Poverty Index; and (e) Rural Population Index.

2. To obtain a final indicator and prioritization list for the Component 1, each of the above indicators were weighted as follow: Accessibility Index (30), Climate Change (25), Services Accessibility (15), Poverty (15) and Rural Population (15). The results of this calculation were then normalized as shown in Table A2.1 below. Ultimately, South, South-East and Nippes were selected as departments, with sub-regions: (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradere-Aquin, respectively, identified as priority areas. While these sub-regions rank in the 10 highest prioritized sub-regions, several higher ranked sub-regions were not chosen following close collaboration and coordination with other ongoing and planned transports projects in the country. The sub-regions of Cerca la Source and Hinche are being addressed under the BCA (P133352), Chardonnieres is being addressed by the IDB and under the Bank-financed PRGRD (P126346), and Mole Saint Nicolas is being addressed by the IDB.



Source: Sample Maps: Methodology for Component 1, World Bank Production. Source *World Pop Data & Rai Survey 2015*

Table A2.1: Ranking – Top 10 Arrondissements to Prioritize

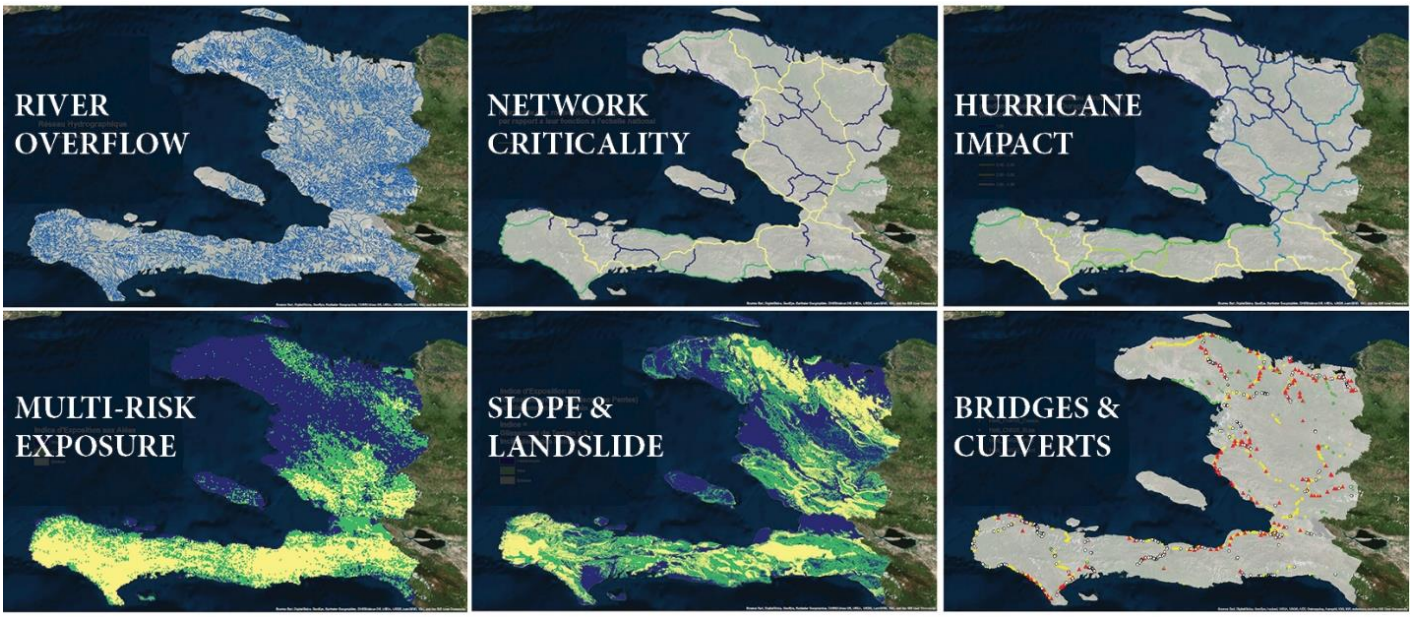
Rank	Department	Arrondissement	Index Component 1
1	Centre	Cerca La Source	100.0
2	Sud-Est	Belle Anse	99.5
3	Sud-Est	Bainet	98.9
4	Nord-Est	Vallieres	96.8
5	Centre	Hinche	95.4
6	Sud	Chardonnieres	93.9
7	Nippes	Baraderes	93.8
8	Artibonite	Marmelade	90.6
9	Nord-Ouest	Mole Saint-Nicolas	89.5
10	Sud	Aquin	89.1

Road Section Selection Methodology and Criteria – Component 2

3. The prioritization criteria for the selected road sections includes three indicators: (a) Network Criticality (i.e., as links in the broader road network)); (b) Infrastructure Vulnerability (density and vulnerability of bridges and culverts); and (c) Natural Hazards Exposure (e.g., Hurricane Impact Risk, Coastal Vulnerability, Surface Flooding Risk, Hydrographic Network Flooding Risk, and Multi-Risk Index).

4. To obtain a final indicator and prioritization list for Component 2, each of the above indicators were weighted as follow: Network Criticality (20), Infrastructure Vulnerability (20), and Natural Hazards Exposure (60). The results of this calculation were then normalized as shown in the Table A2.2 below. From this list, precise roads and sections would be determined based on specific risk and vulnerability and criticality assessments. Primary roads would be selected based

on their function as links between major economic poles or key links to critical basic services' infrastructures (ports, regional hospitals, and schools).



Source: World Bank Production, 2015, *World Pop Data & Rai Survey 2015* Sample Maps, Methodology for Component 2

Table A2.2: Ranking – Top 20 Roads to Prioritize

Rank	Road	Index Component 2	Rank	Road	Index Component 2
1	RN2	100.0	11	RN1	64.7
2	RN7	96.2	12	RD201	52.1
3	RN4	82.6	13	RD702	51.2
4	RD111	80.1	14	RD402	47.4
5	RD303	77.5	15	RN1A	45.6
6	RN5	75.2	16	RD401	45.0
7	RN3	74.3	17	RD301	44.3
8	RN6	73.7	18	RD502	33.8
9	RN2A	73.6	19	RC300B	19.4
10	RD205	69.3	20	RC200	18.9

ANNEX 3: IMPLEMENTATION ARRANGEMENTS

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

Project Institutional and Implementation Arrangements

1. Overall project implementation would be coordinated by the MTPTC's UCE. The UCE has extensive experience supporting the implementation of Bank-financed projects. The unit currently has a Project Coordinator, a Procurement Specialist, and a Financial Management Specialist and an Assistant Project Coordinator / M&E Specialist to implement the project. The unit would be reinforced with an additional FM specialist, Procurement specialist, a Communication specialist and a full-time Monitoring and Evaluation Specialist.

Financial Management

2. UCE-MTPTC would be responsible for the Financial Management (FM) of the proposed Project. In order to maintain adequate FM arrangements to handle the activities generated by the proposed Project, UCE agreed to undertake the following actions: (i) finalize the implementation (installation, training, and maintenance) of the accounting system TOMPRO to allow reporting accordingly to World Bank's format; (ii) recruit a new FM specialist to help manage the additional work load; (iii) train new FM staff in World Bank's FM policies and norms; and (iv) within four months of grant effectiveness, conclude an audit contract for the proposed Project's financial statements based on ToRs acceptable to the Bank.

3. **Supervision Arrangements.** As part of the proposed project implementation support missions, risk based FM supervision would be conducted at least once a year. These missions would pay attention to: (i) Project accounting and internal control systems; (ii) budgeting and financial planning arrangements; (iii) review of Interim Financial Reports (IFRs); (iv) review of audit reports, including financial statements, and remedial actions recommended in the auditor's Management Letter; and (v) disbursement management and financial flows. FM supervision would pay attention to any incidence of corrupt practices involving Project resources for project implementation.

4. The proposed FM arrangements at the UCE-MTPTC for the proposed Project meet the minimum fiduciary requirements under OP/BP10.00. More details on implementation arrangements are detailed below:

5. **Staffing.** The FM functions of the other Bank-financed project managed by UCE-MTPTC (PRUII, PRGRD, MDUR) are under the responsibility of the Project Coordinator. As of February 2018, the Accounting Unit of UCE was composed of one financial management specialist who is in charge of all World Bank and IDB projects, one senior accountant and five junior accountants, of which one of them is working only on World Bank-financed projects. One additional financial management specialist would need to be recruited to reinforce the team.

6. **Budgeting Process.** The budget process would be clearly stipulated in the administrative, financial and accounting procedures manuals. Annual budgets and work plans would be coordinated and prepared by the accounting unit together with the procurement team and submitted to the Bank for its no-objection before the beginning of the fiscal year and any changes in the budget and work plans would also be submitted to the Bank on a no-objection basis.

7. **Accounting Policies and Procedures.** The proposed Project would use Cash Basis Accounting for the preparation of the Project's quarterly interim financial statements and audited annual financial statements, in accordance with the International Public Sector Accounting Standards (IPSAS) and the National Accounting Standards. The Project Implementation Manual would contain a financial management section, which would include appropriate accounting policies and financial reporting procedures. The FM capacities at UCE-MTPTC would continue to review the current policies and procedures and the detailed systems of internal control and determine if any additional control measures need to be implemented for the proposed Project. The Project Implementation Manual has been prepared and found acceptable.

8. **Accounting System.** As of February 2018, UCE-MTPTC was still using a computerized accounting software, ACCPAC which is in the process of been replaced by TOMPRO and the latest is not fully operational. UCE would need to follow up with the supplier to ensure that the system is fully operational and all users trained accordingly to keep track and report on the proposed Project expenditures in accordance with the Bank's financial management requirements.

9. **Internal Controls and Internal audit.** UCE would maintain strong systems of internal controls and procedures that would be documented in the Project Implementation Manual.

10. **Reporting arrangements.** For existing projects implemented by UCE-MTPTC, IFRs are not regularly prepared and transmitted to the World Bank on time. The recruitment of an additional FM specialist would alleviate this problem. Under the proposed Project, UCE would prepare and transmit quarterly IFRs to the World Bank. The IFRs would be submitted to the World Bank no later than forty-five (45) days after the end of each calendar quarter.

11. **Auditing Arrangements.** Annual audited financial statements of the proposed Project would be transmitted to the World Bank not later than six (6) months after the end of each recipient's fiscal year. The external audit would be undertaken by a private firm selected in accordance with independence and competency criteria acceptable to IDA.

Disbursements

12. Disbursements would be made in accordance with the procedures outlined in the Disbursement Handbook for World Bank Clients. The primary disbursement methods would be Advances, Direct Payments, Reimbursements and Special Commitments. To facilitate timely disbursements for the proposed Project's eligible expenditures, the Recipient, through the UCE-MTPTC would open and operate a segregated Designated Accounts (DA) in US Dollars (US$) at the Central Bank (Banque de la République d'Haïti /BRH). Subsequently, UCE would, if needed, open and manage another account denominated in Haitian Gourdes (HTG) at the BRH to process local payments. UCE-MTPTC would be responsible for the appropriate accounting of the funds deposited into the designated account(s), for reporting on the use of these funds and for ensuring that they are included in the audits of the financial statements. Ceiling of the DA and the Minimum Application size for Direct Payment or Special Commitment would be communicated in the Disbursement and Financial Information Letter

13. Summary Sheets with Records and Statements of Expenditures (SOE) would be required for documenting eligible expenditures paid from the DA as well as reimbursements; Direct Payments would be documented by Records. Applications documenting the advances to the Das would be made monthly.

14. Documentation supporting expenditures claimed against SOEs would be retained by the implementing agency

and would be available for review when requested by the World Bank supervision missions and the proposed Project's auditors.

15. The proposed Project would have a Disbursement Deadline Date (final date on which the World Bank would accept applications for withdrawal from the Recipient or documentation on the use of Grant proceeds already advanced by the World Bank) of four months after the Closing Date of the proposed Project. This "Grace Period" is granted to permit orderly Project completion and closure of the Grant account via the submission of applications and supporting documentation for expenditures incurred on or before the Closing Date. Expenditures incurred between the Closing Date and the Disbursement Deadline Date are not eligible for disbursement, except as otherwise agreed with the World Bank. All documentation for expenditures submitted for disbursements would be retained at the UCE-MTPTC during the lifetime of the proposed Project and be made available to the external auditors for their annual audit, and to the World Bank and its representatives if requested. After Project closing, the relevant documentation would be retained for two years, following the Government's regulations on record keeping and archiving. If auditors or the World Bank implementation support missions find that disbursements made were not justified by the supporting documentation, or are ineligible, the World Bank may, at its discretion, require the Recipient to: (i) refund an equivalent amount to the World Bank; or (ii) exceptionally, provide substitute documentation evidencing other eligible expenditures.

16. Before the World Bank closes the Grant account (two months after the Disbursement Deadline Date), the Recipient would need to provide supporting documentation satisfactory to the World Bank showing the expenditures paid out of the DA, or refund any undocumented balance. If the Recipient fails to provide the documentation or refund required by the World Bank by this date (two months after the Disbursement Deadline Date), the World Bank will not permit the use of DAs under new Grants/Credits made to or guaranteed by the Recipient.

Procurement

17. Procurement for the proposed Project would be carried out in accordance with paragraph 5.9 of the "World Bank Procurement Regulations for IPF Borrowers" (July 2016) ("Procurement Regulations") and the Bank's Systematic Tracking and Exchanges in Procurement (STEP) system would be used to prepare, clear and update Procurement Plans and conduct all procurement transactions for the proposed Project.

18. World Bank's Standard Procurement Documents: these shall be used for all contracts subject to international competitive procurement and those contracts as specified in the Procurement Plan tables in STEP.

19. National Procurement Arrangements: In accordance with paragraph 5.3 of the Procurement Regulations, when approaching the national market (as specified in the Procurement Plan tables in STEP), the country's own procurement procedures and standard bidding documents agreed with the CNMP (Commission Nationale des Marchés Publics) may be used. When the Borrower uses its own national open competitive procurement arrangements as set forth in "la loi du 10 Juin 2009 fixant les règles générales aux marchés publics et aux conventions de Concession d'Ouvrages de Service Public," such arrangements shall be subject to paragraph 5.4 of the Procurement Regulations

Environmental and Social (including safeguards)

Summary of Key Safeguard Issues

20. **Environmental Assessment (OP/BP 4.01).** The proposed Project is considered Category "B", and OP 4.01 is triggered. All works would focus on: (i) the rehabilitation and reconstruction of existing roads (secondary, tertiary and rural roads); (ii) damaged or vulnerable infrastructure on primary and secondary roads; and (iii) the rehabilitation or construction of small bridges and culverts on rural roads which are expected to be small and medium scale, generating only minor and localized environmental impacts that can be easily identified, mitigated and managed. No large scale, significant and/or irreversible impacts are expected. Overall, the expected environmental impacts are mostly associated with the construction phase of the rehabilitation works, and include debris management, including disposal, worker safety, noise control, use of hazardous materials, dust, soil erosion etc. The environmental and social impact of the proposed Project is expected to be limited because the works are small in scale and the proposed Project would adequately screen to ensure these works do not occur in environmentally sensitive sites. To ensure that all possible impacts are mitigated, an ESMF has been completed, discussed and disclosed. Any negative impact would be mitigated and the environmental specialist would follow up regularly with reports on the environmental aspects of the proposed Project and implementation of the ESMF. The ESMF details the type of training and capacity building required for environmental specialists as well as mitigation measures, monitoring, reporting and supervision that the environmental specialist and the UCE-MTPTC would undertake to ensure that there is minimal or no negative environmental impact. In addition, the Bank would undertake regular implementation support missions that would include environmental supervision.

21. **Natural Habitats OP/BP 4.04**: Some of the civil works could include rehabilitation or construction of small bridges and culverts that could impact aquatic fauna. Also, special attention should be taken to the practice of quarrying in riverbeds. These risks will be outlined and mitigation measures proposed in the ESMF and any resulting ESMPs for the bridges.

22. **Physical cultural resources (OP/BP 4.11).** Given the proposed Project's focus on rehabilitating existing infrastructure, no impacts to physical cultural resources are anticipated during project implementation. However, the policy on "Physical Cultural Resources" (OP 4.11) has been triggered as a precaution. The ESMF/RPF includes screening mechanisms for physical cultural resources as part of the environmental screening process for subprojects, and "chance find" procedures would be included in all works contracts. The Project Implementation Manual includes a summary of the ESMF and the relevant screening and other checklists.

23. **Involuntary resettlement (OP/BP 4.12).** Works financed under the proposed Project are envisioned to be focused on the repair of existing infrastructure mainly. Moderate impacts may include the need for temporary or permanent minor resettlement along road rights of ways. In addition, land acquisition is a possibility if the road is broadened, extended or results in loss of livelihoods. Because of this, OP 4.12 has been triggered and an RPF has been developed to guide the potential impact mitigation measures. When needed, a RAP would be developed to address the needs of project affected peoples. In cases where the number of individuals and/or families to be resettled is below 200, an ARAP would be prepared prior to construction.

24. The exact location of the specific activities to be financed would be defined during project implementation. The ESMF/RPF illustrates the modalities by which compliance with OP/BP 4.12 will be ensured, and lays out a series of processes for the identification of resettlement impacts and the modalities by which these can be mitigated or avoided

as needed. The ESMF/RPF illustrates a clear and simple procedure to be applied to each project that is easily understood by implementing partners.

Potential indirect and/or long-term impacts due to anticipated future activities in the project area.

25. All works would focus on the rehabilitation and reconstruction of existing roads (primary, secondary, tertiary and rural roads) and damaged and vulnerable existing infrastructure and reconstruction of small bridges and culvert on rural roads within the existing right of way. Works are expected to be small and medium scale, generating only minor and localized environmental impacts that can be easily identified, mitigated and managed. No large scale, significant and/or irreversible impacts are expected. Overall, the expected environmental impacts are mostly associated with the construction phase of the rehabilitation works, and include debris management, including disposal, worker safety, noise control, use of hazardous materials, dust, soil erosion etc.

26. Most of physical investments would be undertaken under Components 1 and 2 of the proposed Project. The implementing agency for Components 1 and 2 is UCE-MTPTC. UCE-MTPTC has a history with Bank-financed projects, most recently with the on-going PRUII, PRGRD and MDUR projects and is experienced in implementing and supervising Bank safeguards of the projects. The proposed Project would benefit from past experiences through training sessions and cross-learning workshops. With further capacity building strengthening, financed by the proposed Project, UCE-MTPTC would have adequate capacity for project implementation. In addition, the Bank would review safeguard activities to assure compliance with Bank requirements.

Monitoring and Evaluation

27. The monitoring and evaluation system would be strengthened and is designed to assess whether the proposed Project is being implemented in line with the proposed objectives and to ensure fulfillment of agreed targets. Detailed progress reports would be prepared by the UCE-MTPTC on a semi-annual basis and submitted to the Bank. The detailed progress reports would be submitted no later than 45 days after the end of the period.

28. These detailed progress reports should indicate the progress made under the different components of the proposed Project and measure performance against the results indicators established in the Results Framework. In addition, the detailed progress reports would include information regarding: (i) disbursement performance over the period and an updated disbursement calendar; (ii) a procurement report for the period in question, and an updated procurement plan for the activities under each component for the subsequent six months; (iii) overall progress in the implementation of the proposed Project identifying, *inter alia*, potential developments that could affect project implementation, which would consist of a review of the main risks and the impact of the mitigation measures envisaged at Appraisal; and (iv) and annual operations plan for the following year presented in the second semi-annual detailed progress report.

29. Collaboration arrangements between the UCE-MTPTC and the participating decentralized ministerial entities (i.e. Departmental Directorates) for monitoring of relevant outcome indicators and intermediate indicators would be included in the Project Implementation Manual. The Project Implementation Manual would provide specific reporting procedures, templates and monitoring and evaluation responsibilities at the decentralized and national levels.

ANNEX 4: COUNTRY RISK PROFILE TO NATURAL HAZARDS AND CLIMATE CHANGE

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

1. Haiti ranks as one of the countries with the highest exposure to multiple natural hazards. With 96 percent of its population living at risk[33] the most intense natural hazards are seismic (for example, earthquakes, landslides) and hydro-meteorological (for example, cyclones, flooding, droughts). Seismic hazards are associated with the interaction of the Caribbean and North American tectonic plates, which converts Haiti into a seismically active zone. Hydro-meteorological hazards are related to the precipitation caused by northern polar fronts, tropical cyclones, and waves, the Inter-Tropical Convergence Zone, and convective-orographic activity. El Niño/El Niño-Southern Oscillation episodes have tended to delay the arrival of the rainy season, create drought conditions, and increase the number and intensity of cyclones. Other secondary hazards impacting Haiti include landslides, torrential debris flows, soil liquefaction, and tsunamis.

2. High levels of poverty together with severe environmental degradation and the presence of settlements in low-lying areas and floodplains are key contributing factors toward the country's vulnerability. According to the 2014 Poverty Assessment, almost 70 percent of the population is either poor or vulnerable to falling into poverty, and nearly 75 percent of households are economically impacted by at least one shock each year.[34] This translates into precarious living conditions for the majority of the population, drastically decreasing their coping abilities and resilience to the impact of adverse natural events, further enhancing the vicious circle of poverty, environmental degradation, rapid urbanization, and vulnerability. Currently, more than 60 percent of Haiti's population live in urban areas. The high population density (average up to 35,400/km^2 in Haiti, and higher in Port-au-Prince) coupled with unregulated construction, weak social and economic public infrastructure, lack of land-use planning, and unstable governance, further aggravates the extensive social vulnerability.

3. Additionally, Haiti suffers from significant governance issues that further increase its vulnerability to natural hazards. Haiti's long history of political instability has greatly weakened its institutions and governance mechanisms which contributes to, among other things, serious fiscal, regulatory, and planning issues. The lack of political stability has a significant impact on the continuity and effectiveness of the National System for Disaster Risk Management (*Système National de Gestion des Risques et des Désastres* – SNGRD), in particular its risk management components. Even though the 2001 National Plan for DRM established the SNGRD, the country still lacks the necessary legal framework and norms to effectively reduce risk and manage disasters at the national and local levels. The National Plan set up the basis for handling emergency and preparedness operations under the Technical Directorate of the Civil Protection. However, no line ministry is officially responsible for managing risks, such as identifying and reducing risks. Finally, this critical lack of norms, responsibility, and understanding of risks triggers inadequate resource allocations; the very limited resources are allocated only at the national level, leaving the regional and local level without any means to prepare for, or respond to, disasters or to reduce and manage risk.

4. The combined effects of exposure to natural hazards, high vulnerability, institutional fragility, and weaknesses and the lack of adequate resources invested in the sector have often resulted in catastrophic impacts of natural hazards in Haiti. Between 1971 and 2013, Haiti's economy has been subjected to natural disasters almost every year with

[33] Dilley et al, Global Hotspot Study, World Bank, 2005.
[34] Investing in people to fight poverty in Haiti: Reflections for evidence-based policy making, World Bank 2014.

adverse effects on growth. The country has a higher number of disasters per square kilometer than the average smaller Caribbean country (see table A5.1).

5. Recent disasters in Haiti confirm an increasing level of vulnerability facing its hard-won development gains. On average, based on the analysis of historical data from 1976–2012, annual losses and damages associated with hydro-meteorological events are estimated at an amount equivalent to 1.95 percent of the GDP. However, as assets are created and concentrated, losses associated with adverse natural events are increasing. This was demonstrated in August and September of 2008 with the passage of Hurricanes Fay, Gustav, Hanna, and Ike (herein referred to as FGHI) during a three-week period, resulting in damage and losses equivalent to 15 percent of the country's GDP. Two years later, the earthquake on January 12, 2010 killed 220,000 people, displaced 1.5 million people, and triggered damages and losses equivalent to 120 percent of GDP. More recently, Hurricane Matthew hit the southern peninsula causing damages and losses equivalent 32 percent of GDP.

Table A4.1. Frequency and Impact of Natural Disasters, 1971–2014 in Selected Countries[35]

Frequency and Impact of Natural Disasters, 1971–2014 Country/Group	Number of Natural Disasters	Disasters/year	Disasters/Land Surface (thousand square km)	Disasters/Population (millions)	Deaths/Population (millions)	Total Damage/GDP
Haiti	137	3.1	5.0	13	23,427	1.78
Haiti (excluding 2010 earthquake)	136	3.1	4.9	13	1,855	0.22
Dominican Republic	60	1.4	1.2	6	311	0.05
Jamaica	34	0.8	3.1	13	102	—
Nicaragua	66	1.5	0.5	11	2,363	0.33
Honduras	70	1.6	0.6	9	3,298	0.40
El Salvador	51	1.2	2.5	8	687	0.34
Guatemala	82	1.9	0.8	5	1,754	0.12
Costa Rica	58	1.3	1.1	12	72	0.04
Panama	46	1.0	0.6	12	80	0.01
Other Caribbean States	129	2.9	0.3	30	86	0.19

6. Climate change is expected to exacerbate the risk of hydro-meteorological hazards by increasing the frequency and/or intensity of extreme events, further increasing Haiti's vulnerability. Climate projections for the Caribbean estimate that temperatures could rise from 1.2ºC to 2.3ºC by 2100, with a median increase of 2.0°C during the 21st century.[36] In addition to claiming human lives, climate-related hazards may also take a heavy toll on all sectors of the Haitian economy and revert hard-won development gains.

[35] Source: EM-DAT: The OFDA/CRED International Disaster Database 2015
[36] Dilley et al, Global Hotspot Study, World Bank, 2005

ANNEX 5: IMPLEMENTATION SUPPORT PLAN

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

Strategy and Approach for Implementation Support

1. The strategy for implementation support draws on the risk profile of the proposed Project and aims to enhance the Client's quality delivery of the proposed interventions. As such, implementation support would focus on risk mitigation measures defined in the SORT and standard Bank implementation support, including technical, institutional, safeguards (environment, social), and fiduciary aspects.

2. The Task Team Leader (TTL) of the proposed Project would be based in the Country Office. The team supporting the TTL, including the co-TTL and the specialists, would be based at World Bank headquarters. Initially (at least until mid-term review), they would undertake implementation support missions 3 to 4 times a year. The frequency of missions thereafter would be determined considering the development of the proposed Project. Regular implementation support by the TTL based in the Country Office and team members from headquarters, to follow up on Project component progress and provide tailored support to the Counterparts to effectively implement the proposed Project, would focus on the following areas:

3. *Strategic:* Implementation support (IS) missions would meet with UCE and the partner institutions to: (i) review Project activities; (ii) re-confirm strategic alignment of proposed Project activities to the PDO; and (iii) ensure the necessary coordination amongst respective stakeholders.

4. *Technical:* The IS team for the proposed Project would consist of World Bank technical specialists who would review and supervise the execution of the proposed Project components with partner institutions, ensure the activities remain in-line with the PDO, and make adjustments to the design and procurement plan when necessary. Ongoing support for M&E would continue to strengthen UCE's and the Bank's ability to both monitor Project progress and assess the impact of interventions.

5. *Safeguards:* Bank environmental and social specialists or consultants would support UCE in the preparation and consultation process associated with the safeguard instruments needed for the proposed Project: ESMF and RPF, ESMPs, and RAPs, when needed. This support would continue throughout project implementation, in particular to ensure the application and effectiveness of those instruments. These specialists would: (i) develop CTE's knowledge and understanding of Bank safeguard instruments and further familiarize UCE with those; (ii) ensure UCE has the capacity to undertake environmental and social analyses and develop mitigation approaches; and (iii) ensure regular and close supervision of progress and implementation of the plans.

6. *Procurement and Fiduciary:* The Bank's financial management and procurement specialists would provide timely, targeted training to UCE and possibly other executing institutions through periodic supervision missions during project implementation. These specialists would: (i) develop UCE's knowledge and understanding of Bank rules and procedures and further familiarize UCE with those; (ii) introduce UCE staff to Bank Procurement Guidelines and prepare UCE to use those; (iii) ensure UCE has the capacity to manage the flow of funds and accounting procedures, in line with Financial Management (FM) guidelines; and (iv) support UCE in building its overall FM and procurement capacity to improve and facilitate project management (in the context of this proposed Project, and in general). Supervision of the

proposed Project's FM arrangements would be conducted semi-annually and, as needed, in response to Client's needs. Procurement supervision would also be carried out semi-annually, preferably jointly with (two of) the regularly-scheduled Bank implementation support missions. The support would focus primarily on contract management and on improving proficiency and efficiency in implementation according to Bank guidelines.

7. *Client-relations:* The TTL and/or the co-TTL would: (i) coordinate Bank supervision to ensure consistent project implementation, as specified in the legal documents (i.e. Financing Agreement, Project Implementation Manual); and (ii) meet regularly with the Client and UCE to gauge Project progress in achieving the PDO and address implementation roadblocks as they may arise.

Implementation Support Plan and Resource Requirements

Table A5.1: Skills Mix Required

Skills needed	*# Staff Weeks per Fiscal Year*	*# Trips per year*	*Comments*
Task Team Leader (Supervision) *	8	N/A	Country-based
Team members (Supervision) Transport Specialist *	8	4	HQ-based. Depending on Project development, ***# of staff weeks and trips*** can be adjusted throughout implementation.
Procurement Specialist	4	2	HQ-based and Country-based
Financial Management Specialist	4	2	HQ-based and Country-based
Environmental Specialist	3	2	HQ-based
Senior Social Specialist	3	2	HQ-based
Social Specialist	3	2	HQ-based
Monitoring/Evaluation Specialist	1	1	HQ-based
Operations Officer	3	1	HQ-based
TOTAL	**44**	**18**	

(HQ stands for headquarters)

** Skills needed in the team (to be carried through the same or other arrangements in case there is a change of TTLs throughout project implementation)*

Table A5.2: Project Partners

Name	*Institution/Country*	*Role*
Client	MTPTC	Project Counterpart, overall responsible for project implementation, in compliance with agreements spelled out in Financing Agreement coordinating the GoH's support for the Project.
PIU	UCE (MTPTC)	Responsible for Project execution
Project Partner institutions (Governmental)	MTPTC, *Direction Departementales* of MTPTC	DD to contribute to the selection of rural roads, the elaboration of guidelines and supporting documents.
Local Institutions and Authorities	Local level representation of line-Ministries, local	Local level representation of line Ministries: key actors in the coordination as well as participatory and decision-making mechanisms supported in the proposed Project.

	authorities at the municipal level	Local Authorities: Mayors and CASECs: key actors in promoting and selecting subproject in coordination with the DD, and key actors in the participatory and decision-making mechanisms supported in the proposed Project.
Bank and other donors	IDB, UE	Ensure coordination so that 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 Private Sector Economic Forum, Chambers of Commerce, Associations and industries, Associations of Producers, Women Associations, etc.	Beyond consultation, play a key role in the sustainability of the proposed 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.

ANNEX 6 : PROJECT PROCUREMENT STRATEGY DOCUMENT (PPSD)

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

1. A Project Procurement Strategy Document (PPSD) has been developed and finalized after review by the Bank. Procurement of goods, works, non-consulting and consulting services contracts would be carried out in accordance with World Bank's Procurement Framework 2016 and "Procurement Regulations for Borrowers 2016" would be applicable for procurement under the proposed Project. When approaching the national market, as agreed in the Procurement Plan approved by the Bank, the country's own procurement procedures, such as Local Procurement Law of June 10 of 2009 can be applied. 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.

2. A market analysis has been carried out for different packages of procurement and based on the findings, decisions on procurement approach for goods and non-consulting services are finalized to ensure adequate participation of bidders. Based on PPSD information, it can be concluded that the national environment is generally favorable for the acquisition of goods and services identified for the implementation of the proposed Project. Consulting services' contracts are also framed based on market research and packaging of the same in terms of scope of services and period are decided based on the market experience.

3. Procurement and Selection processes should be subject to Bank's prior review procedures in accordance with thresholds and methods established as following:

Table A6.1: Thresholds for Procurement Methods and Prior Review

Category	Procurement Threshold (USD thousand)	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 Non-Consulting 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 USD 200,000
	≤300	CQS	All contracts above USD >100,000
	Any involved amount	Direct Selection	All contracts
3.B Individual Consultants	Any involved amount	3 CV Comparison and procedures in accordance with Section VII, Items 7.34 to 7.39 of Bank's Procurement Regulations for Borrowers	All contracts above USD >100,000 and some key project's posts

4. **Summary of the Procurement Plan**: Based on the PPSD, the Procurement Plan has been prepared to set out the selection and procurement methods to be followed by the Borrower during project implementation in the procurement of goods, works, non-consulting and consulting services financed by the proposed operation.

Table A6.2: Summary of the Procurement Plan

#	Contract Title / Description	Category	Estimated Cost (USD million)	Bank Oversight	Market Approach and Competition	Selection / Procurement Methods
1	Road segments rehabilitation - Multiple packages (2-3)	Civil Works	6.0	Prior	National - Open	RFQ
2	Sport improvement rural roads executed by local SMES - Multiple packages (15-20)	Civil Works	12.0	Prior	National - Open	RFQ
3	Spots improvements with HIMO mobilization - Multiple packages (1-2)	Civil Works	6.0	Prior	As per Paragraphs 6.47 and 6.48 of the Bank's Procurement Regulations	Direct Selection (UN Agency)
4	Bridge Protection works - Multiple packages (4-8)	Civil Works	12.0	Prior	National - Open	RFQ
5	Office furniture, vehicles, computers, software, generators and IT systems for asset management and MTPTC services	Goods	0.6	Prior	National - Open	RfQ
6	Consulting firm for the selection of the connecting rural road network & elaboration of the mobility Plan (Component 1)	Consulting Services	0.6	Prior	International - Open	QCBS
7	Detailed design study for road rehabilitation/construction studies for selected rural segments	Consulting Services	2.0	Prior	International - Open	QCBS
8	Communities engagement and small common investments in selected areas	Consulting Services	1.0	Prior	International - Open	QCBS
9	Supervision of spot improvement works in selected segments of rural and tertiary road network	Consulting Services	0.5	Prior	International - Open	QCBS
10	Supervision services for the rehabilitation works on connecting segments in rural areas	Consulting Services	1.0	Prior	International - Open	QCBS
11	Vulnerability assessment	Consulting Services	0.5	Prior	International - Open	QCBS
12	Detailed designed study for reparation and rehabilitation of selected bridges	Consulting Services	1	Prior	International - Open	QCBS
13	Bridge management program (MTPTC) Technical assistance	Consulting Services	0.7	Prior	International - Open	QCBS
14	Supervision services for the rehabilitation works and application of climate adaptation measures on selected critical bridges and selected segments of the primary and secondary network	Consulting Services	1.5	Prior	International - Open	QCBS

15	Feasibility study on Carrefour – Port-au-Prince – Tabarre	Consulting Services	0.6	Prior	National - Open	QCBS
16	Urban mobility study Cap-Haitien	Consulting Services	0.3	Prior	National - Open	QCBS
17	Traffic studies (inter urban network)	Consulting Services	0.5	Prior	International - Open	QCBS
18	Technical assistance on sustainable mobility (roadmap)	Consulting Services	0.6	Prior	International - Open	QCBS
19	Audit Services	Consulting Services	0.1	Prior	National	LCS
20	Monitoring and Evaluation tools	Consulting Services	0.3	Prior	National - Open	QCBS
21	Social assessment	Consulting Services	0.5	Prior	National - Open	QCBS
22	Hiring several individual consultants to provide technical assistance to UCE and MTPTC	Consulting Services	1.0	Prior/Post	International / National - Open	SCI

ANNEX 7: ECONOMIC ANALYSIS

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

1. The proposed Project aims to support the development of a climate-resilient road network by increasing all-weather access in selected areas; and improving the resilience of selected key segments of the road network. The structuring investments have an approximate cost of US$67 million. They constitute a major improvement of the rural road network with a focus on all-weather access and resilience to climate change for remote and vulnerable communities. Because physical investments have not been precisely identified, a more detailed economic evaluation would be carried out during implementation as part of the assessment criteria for the selection of interventions.

2. **The analysis of similar projects suggests the** proposed **Project would be economically viable.** The proposed Project uses the "Framework Approach," and as such the selection of the final road segments for intervention would only be finalized during project implementation. Consequently, during project preparation the economic evaluation has focused on outlining expected benefits and costs; the expected Net Present Value (NPV) and Economic Internal Rate of Return (EIRR) based on similar Projects is also discussed for Component 1. With under maintained assumptions of traffic growth rates of at least 6 percent annually during the dry season, average costs per km below US$200,000[37] and discount rates ranging between 10 and 12 percent, investments in rural roads can be economically viable. Previous interventions seeking to improve rural roads for all-weather access, and including supplemental facilities, yielded EIRR within the range 10-11 percent. Estimated costs of the rehabilitation of tertiary roads in the aftermath of Hurricane Matthews[38] in the areas of intervention suggest that investments could be up to US$ 150,000/km for very damaged roads, but as low as US$5,000/km. These costs are consistent with the analysis of the cost/km of four individual road segments of the BCA (P133352);[39] they are within the threshold estimated to generate a positive Net Present Value (NPV) and EIRR. Investments under Component 2 are expected to be prioritized based on the highest estimated economic impact when considering the vulnerability of the asset and the cost of possible losses due to non-intervention.

I. Methodology and Assumptions

3. **The selection of the final road segments and critical spots for intervention is being carried out in various stages as per the Framework Approach.** The methodology for selecting the final segments/spots for intervention is described in detail in Annex 1. Briefly, the project design used a multi-criteria analysis[40] to identify the 3 sub-regions to focus on during the first stage (preparation/appraisal). During the second stage (implementation), specific investments will be identified using alternative methodologies:

[37] This assumption is based on a previous similar project (BCA - P133352) but is not definitive given that cost/km included complementary investments (see Section II of A Annex 7).
[38] Evaluation of damages and losses in the aftermath of Hurricane Matthew carried out in October 2016 by MTPTC.
[39] That is 4 segments of 24, 23, 18 and 40 km each, composing the entire 105km interventions.
[40] The prioritized departments and sub-regions for investments were selected with the Government of Haiti (GoH) based on a weighted index, calculated using the normalized values of the results of the 2015 RAI Survey, a vulnerability spatial analysis, and additional accessibility and access indicators, including: (a) Accessibility Index (RAI and General Accessibility Indexes); (b) Hydromet and Natural Hazards Multi-Risk Index (Precipitation and Multi-Risk Index); (d) Services Accessibility Index (SONU-B, SONU-C, Primary Care Centers, Market); (d) Poverty Index; and (e) Rural Population Index.

a. For Component 1, investments will be identified[41] from a long list of eligible rural roads requiring improved all-weather access, developed by the Departmental Directorates under PROReV and PRGRD. The short list will include an assessment of the physical condition of each candidate road, to verify that the road is impassable during part of the year. Later, a prioritization exercise for local access improvement and community facilities will be carried out at the community level through gender- and climate-informed local mobility plans. The mobility plan will incorporate ecological and community-based approaches, risk and hazards mapping, and will gather information regarding: (i) access to basic services; (ii) transport time required; and (iii) accessibility during the rainy season considering disaster resilience, engineering assessments, and budget constraints. The cost/km will also be a factor for determining segments, so as to maximize travel time savings for a larger number of beneficiaries in the area of influence while ensuring positive economic returns (see section II).

b. For Component 2, the prioritization criteria for the selected road sections is based on a vulnerability spatial analysis;[42] precise roads and sections will be determined based on risk and vulnerability assessments, including participatory approaches and data related to specific needs (e.g. gender and age). Finally, for both primary and secondary roads, economic and social factors, including: (i) the condition of the asset; (ii) the urgency of repair or replacement; and (iii) cost-benefit analysis would be considered. In this sense, investments identified during project implementation would be prioritized based on the highest estimated economic impact. Additional considerations will provide insight to the choice of intervention such as the objective of maintaining community access to the primary and secondary road networks all-year round, and ensuring practicability and access through the least-cost design.

4. Using the Framework Approach here can be compared to a *reverse* economic analysis in that it allows for the proper identification of segments with high economic and human development returns, while ensuring the involvement of communities in a context of low institutional capacity.

5. **Project Beneficiaries.** The proposed Project is expected to benefit rural communities and households living in the most remote and vulnerable areas of the departments of South-Est, South and Nippes. On average, 81.3 percent of the population of these departments are rural (2015).[43] Further, given that poor households are the most penalized by limited accessibility (Box 1), this proposed Project is expected to benefit the poor and bottom 40 percent the most. Specifically, the proposed Project would benefit the sub-regions of: (i) Marigot-Belle-Anse-Thiotte; (ii) Bainet-Cotes de fer; and (iii) Barradere-Aquin, respectively, identified as priority areas; and the direct Project beneficiaries are estimated at 350,000 inhabitants.

6. **Expected Quantifiable Benefits:** The expected or potential quantifiable benefits from the proposed Project include:

(i) Reduced Vehicle Operating Costs: Reduced vehicle operating costs from improved road conditions in tertiary roads, and from interventions on primary and secondary roads. The first are estimated to be low given that in Haiti, traffic count studies show that the majority of traffic on these rural roads

[41] In coordination with representatives of the Central Government, local governments, in addition to MTPTC's regional offices.
[42] See Annex 2 for details.
[43] Institut Haitien de Statistique et d'Informatique (IHSI) 2015.

is composed of intermediate means of transport (pedestrian, animal, bicycles, motorcycles) rather than of more sophisticated motor vehicles (cars, buses). The second, should be larger given similar experience in corridors in Haiti (PTDT – P095523).

(ii) Travel Time Savings: Total travel time savings measured through improved accessibility to markets and economic opportunities, and health centers.

(iii) Traffic Accidents Reduction: Reduced fatalities and serious injuries due to reduced exposure to vulnerable spots along primary/secondary roads, that are exposed to climate hazards.

7. **Expected Quantifiable Costs:** These include financial investments that would depend on preliminary design studies; and annual road maintenance. Average costs in recent Bank-financed transport operations in Haiti have allowed the team to estimate that the cost (US$/km) for the works would be an average of US$300,000 per km inclusive of studies and supervision on secondary level roads, and US$100,000 per km on tertiary roads.

8. **Expected Non-Quantifiable Benefits.** In addition to the expected quantifiable benefits, the proposed project is also expected to generate other economic and social positive externalities that are difficult to quantify. These include:

(i) Improved access to health and other amenities. The proposed Project is particularly focused on improving accessibility by women and their children to social, education and medical facilities (including pre-and post-natal health attention for women. Evidence suggests that poor road conditions significantly reduce the likelihood of receiving timely antenatal care (ANC), and of receiving the recommended number of ANC visits in Haiti (see Annex 8).[44] The time and monetary costs of travel compounded by unhelpful topography, poor road conditions and lack of public transport, explain why distance has been found to be a crucial dimension of the use of these services. Improving accessibility to obstetrical care facilities is likely to have a significant impact on maternal and infant health. One of the main causes for premature birth are inadequate prenatal care.[45] A similar project financed by the Bank (PTDT – P095523) found high satisfaction at closing with improved access to health (81 percent of satisfaction) and education (78 percent) suggesting investments in rural roads rehabilitation, coupled with small complementary facility investments, can play a vital role in improving education and health.[46] Further, improved access to education and health services is bound to improve labor productivity, in turn to be reflected in an increase in agriculture productivity.

(ii) Employment Generation: Direct employment generation during construction phase and labor-intensive road maintenance activities, given that the use of local small and medium-sized enterprises (SMEs) and labor-intensive works (LIW) approach will be prioritized whenever possible.

(iii) Productivity Farms/Sells. Rural households remain engaged in subsistence agriculture, with only 16.7 percent engaged in commerce and 3.6 percent in industry sector.[47] Yet, although the rural economy is characterized by smallholders, most households sell and buy agricultural products, and are part of some form of commercial activity.[48] Investments under the proposed Project should reduce

[44] Gage, A.J. and Guirlène Calixte, M., 2006. Effects of the physical accessibility of maternal health services on their use in rural Haiti. *Population studies*, *60*(3), pp.271-288.
[45] http://www.who.int/maternal_child_adolescent/newborns/prematurity/en/ [last accessed 3/12/2018]
[46] Report No: ICR00002956 for P095523.
[47] Coello et al. 2014 (see main section of this document).
[48] See Project Appraisal Document (PAD) of Project P095523.

transport and transaction costs and improve linkages to markets year-round. Therefore, it is expected that one of the major impacts of the proposed Project will be to raise income of smallholders by increasing farmgate prices, lowering input costs and decreasing post-harvest losses due to poor/and or impassable roads. Further, access to new markets should lead to higher returns and provide incentives for production of higher-value crops and livestock in the longer term. Similar Bank-financed projects have assumed productivity increases of up to 25 percent since the first year, and a doubling of profits earned from associated crops.

(iv) Gender-specific gains. There is evidence that improving women's economic participation and their productive assets can have positive impacts on entire households, as women typically invest a higher proportion of their earnings in their families and communities than men.[49] By particularly focusing on women's accessibility to social and economic facilities, the Project is likely to improve overall household wellbeing.

9. While some of these non-quantifiable benefits are accounted for in travel time savings, evidence suggests the cost-benefit analysis would still underestimate the impact of the Project, particularly with regards to long-term effects.

10. **Main sensitivity analysis should include scenarios of cost-overrun and construction delays.** Cost overruns are likely, given that road investments in Haiti are characterized by their very high costs. Delays in execution have also been significant in similar projects due to institutional weakness, limited capacity and over commitment of private operators and limited competition. These risks have been taken into consideration during project design.

11. **In general, similar projects of road infrastructure in Haiti have been evaluated using Roads Economic Decision (RED) models with inputs from HDM-4.** Traditionally they rely on traffic growth assumptions that have ranged from 4-6 percent annual growth rates (for similar tertiary-type rural roads) to up to 20-50 percent for more important secondary and primary segments. The average annual national traffic growth rate is 8 percent. Evidence suggests that traffic generation tends to be large in the first years following improvement due to heavily constrained demand for transport given the extremely deteriorated conditions of road infrastructure, particularly in primary and secondary roads.

II. Economic Analyses of Similar Projects

12. **Similar road rehabilitation projects have been found to have positive NPVs and EIRR ranging between 10 to 15.7 percent on average, even in cases of tertiary rural roads with low traffic.** Three projects can be used as antecedent for the proposed Project: (i) The Transport and Territorial Development Project (PTDT – P095523); (ii) the Center Artibonite Regional Development Project (BCA – P133352); and (iii) IDB- financed Carrefour Joffre-Gros Morne – Bassin Bleu – Port de Paix. Cost-Benefit Analysis (CBA) of all of these projects have yielded positive NPVs and EIRR of a range of 10 to 15.7 percent overall (some segments up to 17.4 percent), using discount rates of between 10 and 12 percent (Table A7.1). These results suggest the proposed Project should be economically viable.

Table A7.1 Summary of Economic Analyses of Similar Projects

[49] http://www.oecd.org/dac/gender-development/46041913.pdf [last visited 3/12/2018]

Project	km	Type of road	Average speed (km/h)	average cost (US$/Km)	vpd*	Annual Traffic growth (first 5 yrs)	Discount Rate	NPV (US$ million)	EIRR (%)
1. PTDT, 2006 (P095523)									
North Corridor	38.8		13	175,257	337	20%	12%	**4.7 - 10.58**	na
South Corridor	63	1,2, 3	11	47,619.0	10	50%	12%	**0.58**	na
2. Artibonite, 2014 (P113352)									
All segment	105	2 & 3	na	183,750	na	6% dry & 10% rainy season	10%	**0.35**	10
3. RN5, 2017 (IDB)									
RN5	68.31	1	na	1,248,151	465	20%	12%	**7.01**	15.7

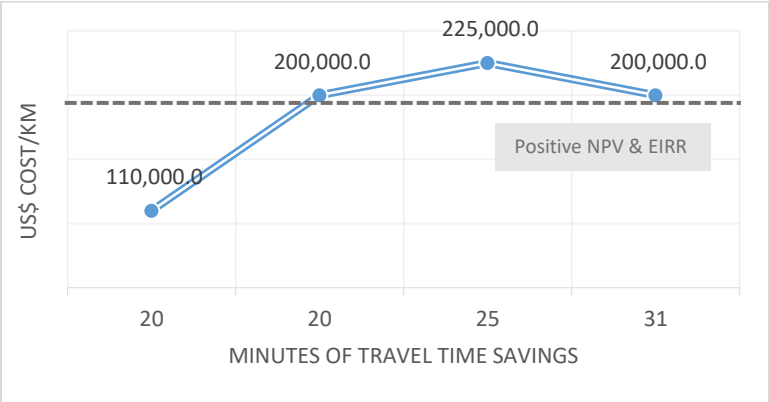
Notes: *vpd = vehicle per day; Type of roads are 1 (primary); 2 (secondary) and 3 (tertiary); the variation in NPV for Project 1 stems from different financing possibilities explored. Costs per km include supervision and complementary investments; na = not available.

13. **The BCA project (P133352) as well as the Southern corridor financed under the PTDT (P095523) project are closer to the type of rural road to be rehabilitated in the** proposed **Project; both show positive NPVs.** The Southern Corridor project under PTDT consisted in the rehabilitation of a very low-traffic road (10 vpd) with an average speed of 11km/h at baseline. Investments consisted in very low-cost improvement technologies with spot interventions. Despite the high annual growth of traffic expected, it implied reaching only 51 vpd during the first 5 years. Yet, even under these conditions, the proposed Project was estimated to be economically viable with a positive NPV of US$ 0.58 million. Similarly, on average, segments of the BCA project were estimated to have a positive NPV (US$ 0.35 million) and EIRR of 10 percent, when assuming relatively conservative traffic growth rates for the first five years. The average cost per kilometer is slightly higher than those estimated for Component 1 (US$ 100,000) because they include infrastructure investments in bridges and drainage systems. Given that average cost per kilometer include supervision and complementary investments planned in the projects, it is difficult to infer the threshold upon which the proposed Project would be economically viable. The analysis of the cost/km and generated travel savings of the four individual road segments of the BCA project[50] suggest the cost/km should be below or at US$ 200,000 to generate a positive NPV and EIRR for secondary and tertiary roads. Figure A7.1, plots the correspondent travel time savings of the four road segments compared to their cost/km; only segments with cost/km below or at US$200,000 had positive NPVs and EIRR; the segment above had a negative NPV but positive EIRR. Estimated costs of the rehabilitation of tertiary roads in the aftermath of Hurricane Matthew suggest investments should be up to US$150,000/km for very damaged roads, but could be as low as US$5,000/km.[51] These estimates are within the range of economic viability.

14. The proposed Project will consider this indicative threshold during the implementation phase. The evidence above suggests that even under conservative assumption of traffic growth (6-10 percent annually), road rehabilitation of secondary and tertiary roads can be economically viable. This assumption seems to hold even for low-traffic segments when unit cost is low (<US$ 50,000).

[50] That is four segments of 24, 23, 18 and 40 km, respectively, that composed the entire 105km interventions.
[51] Evaluation of damages and losses in the aftermath of Hurricane Matthew carried out in October 2016 by MTPTC.

Figure A7.1 Estimated travel time savings and cost/km of segments in Centre Artibonite Regional Development Project.



Source: WB Team calculations

15. **The type of investments to be chosen under Component 2, including the repair and rehabilitation of damaged and vulnerable critical spots/segments such as bridges, culverts and river crossings, also show positive returns in previous analyses.** Investments under this Component would be prioritized based on the highest estimated economic impact when considering the vulnerability of the asset, and the cost of possible losses due to non-intervention. Only assets where the financial impact would be far in excess of the cost of non-intervention would be prioritized. Similar analyses were carried out under the BCA project. For instance, the bridges for intervention were chosen based on the estimation that their failure would cause an increase in vehicular operating costs and travel times far in excess of the costs of construction of a new bridge or its protection. A simulation of the impact of the failure of critical infrastructure in the area of study done in 2015 demonstrated that the failure of several critical points would significantly reduce their Rural Access Index. For instance, the failure of the Grande Anse Bridge would result in the decline of 24 percentage points in access, from 50 percent to 26 percent. The need for this type of interventions has become critical in the aftermath of Hurricane Matthew. An evaluation of damages and losses carried out in October 2016 estimated very high losses to the transport network in the departments of Nippes, Sud and Sud-Est, targeted by this proposed Project where 82. Eighty-two, 76 and 66 percent of their road infrastructure is estimated to have been hit, respectively.

16. **The above evidence suggests the segments of rural roads to be rehabilitated under Component 1 of the proposed Project combined with selected interventions in Component 2 would be economically viable.**

ANNEX 8: ACCESSIBILITY AND MATERNAL HEALTH – A NECESSARY CONDITION

COUNTRY: Haiti
Haiti Rural Accessibility & Resilience Project

1. **Several studies have demonstrated the importance of maternal health on childhood development and outcomes in adulthood.** A large literature has shown the long-lasting effects of poor infant health on cognitive development and outcomes in adulthood (Miguel and Kremer 2004; Heckman and Masterov 2007), emphasizing the need for early interventions. In low-income countries such as Haiti, this type of interventions is even more relevant due to the prevalence of child malnutrition and stunting, poor maternal health and widespread poverty (See Box A8.1). Adequate and timely prenatal care is an essential component of early interventions: it reduces the probability of premature birth, the risk of pregnancy and infant's health complications, and increases the likelihood of timely diagnosis and treatment of congenital diseases (WHO). While many factors on both the supply and demand side contribute to ensuring timely and adequate prenatal controls (e.g. poverty, education, gender roles and agency, medical training, etc.), improving accessibility to health clinics during pregnancy is a necessary condition for these elements to play out. [531]

Box A8.1 Maternal Health and Infant Mortality in Haiti[2]

While since the 1990s, health outcomes of Haitians have improved considerably, measures of equity and coverage of health and water and sanitation services are below many other low-income countries. Maternal and child mortality fell by about half between 1990 and 2015. Yet, Haiti is on track to miss the United Nations' Sustainable Development Goals to reduce the maternal mortality ratio to less than 70 maternal deaths per 100,000 live births, and the under 5 mortality rate to 24 or lower deaths per 1,000 live births by 2030. These two measures of mortality remain respectively five and four times higher than Latin America and Caribbean countries. According to the Systematic Country Diagnostic (SCD), maternal mortality in Haiti is close to 380 deaths per 100, 000 life deaths,[3] partly because a big proportion of deliveries takes places outside of health facilities (65%).

The World Bank "Better Spending, Better Care" (2017) Report, estimated that the proportion of mothers who deliver in health facilities assisted by a skilled birth attendant is almost twice as low in Haiti (37 percent), compared to other low-income countries (70 percent). Further, mothers are far less likely to deliver in a health facility if they are in the lowest household income quintile (9 percent) than if they are in the highest (76 percent). Only 68 percent of children under 24 months received all three diphtheria, tetanus, and pertussis vaccine doses, compared to 80 percent in similar countries.

Lack of service coverage and poor quality of care are among the main barriers to accessing adequate healthcare. Haiti has low physical access to the primary care level. The ratio of dispensaries per inhabitant is well below the target set by Haiti's MSPP, and it is also low relative to other countries. The Report finds that only 62 percent of pregnant women receive physical examinations that meet minimum standards. Only 20 percent of medical

[1] Accessibility is defined here as the number of clinics/relevant health facilities accessible within a given timeframe by different modes of transport.
[2] Most of the box description relies on the findings of the World Bank, 2017 "Better Spending, Better Care".
[3] Singh, Raju Jan; Barton-Dock, Mary A. 2015. Haiti - Toward a new narrative: systematic country diagnostic (English). Washington, D.C.: World Bank Group.

consultations with pregnant women incorporate preventive care, or dispensing essential nutritional interventions, such as folic acid supplementation.

2. **Adequate accessibility to specialized health centers is a necessary condition to improving maternal health and a country's human capital in the long term.** Evidence in the literature suggests many factors contribute to improving timely and adequate prenatal controls, and thus maternal and infant health. On the demand side, in poor rural areas, the literature has found that peers and education play an important role; the role of transportation and distance barriers as key impediments for adequate prenatal controls, delivery assistance by trained medical personnel and institutional delivery has also been emphasized (Ram and Singh 2006; Gage 2007). Overall, while highlighting the complexity of factors behind women's compliance with adequate prenatal healthcare, these papers underline the importance of accessibility, which while not sufficient is a necessary condition to improving maternal and infant health. In that sense, improving a country's transport infrastructure – from public transport in urban areas to rural roads in remote communities - is crucial to improving infant and mothers' wellbeing, and thus increasing a country's human capital in the long term.[4]

3. **In fact, evidence in rural Haiti[5] suggests that poor road conditions significantly reduce the likelihood of receiving timely antenatal care (ANC), and of receiving the recommended number of ANC visits.** Using data of 2001, Gage and Calixte (2006) document that 43 percent of women living in neighborhoods linked to the nearest urban area by an asphalt road completed the recommended number of ANC visits before birth, compared to only 14 percent in areas linked by unpaved roads. The same study estimates that women living in neighborhoods linked to the nearest urban area by unpaved roads in bad conditions are 0.565 times less likely to receive timely ANC and 0.478 less likely to complete all controls, than those linked by asphalt roads.[6] The time and monetary costs of travel compounded by unhelpful topography, poor road conditions and lack of public transport, explain why distance has been found to be a crucial dimension of the use of these services. In 2001, it was estimated that 76 percent of births took place at home.

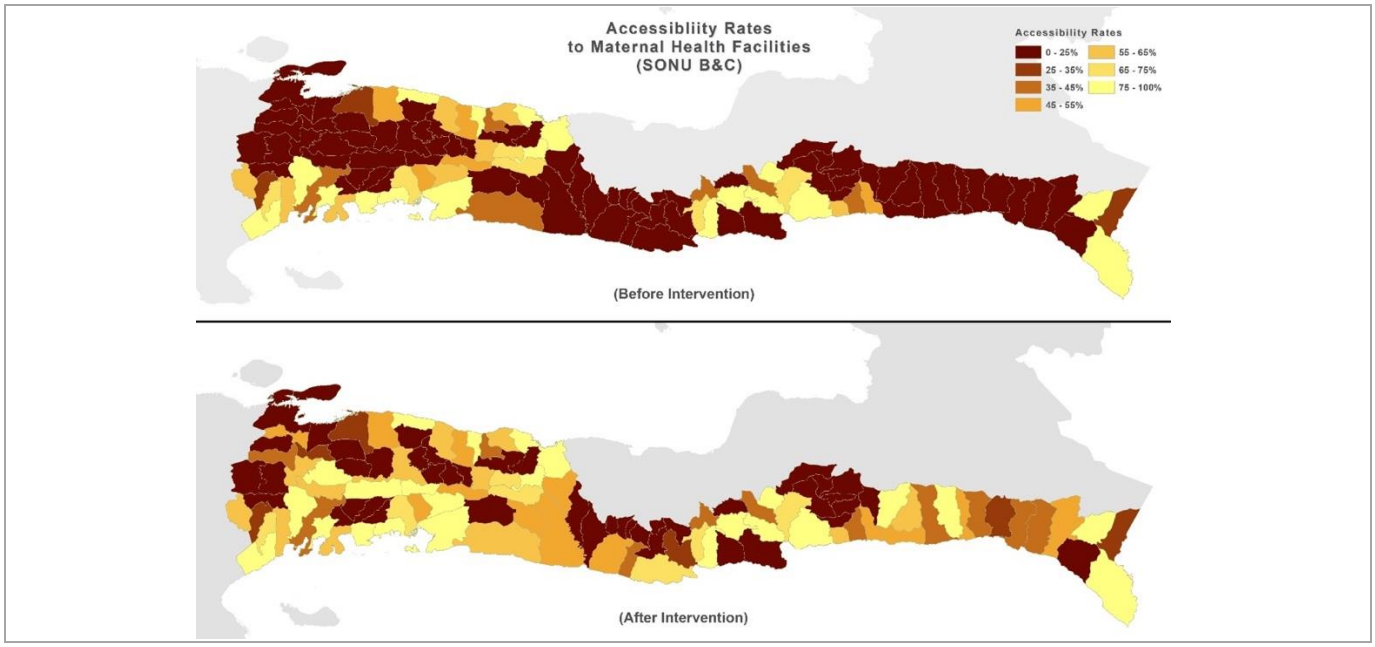
4. **Relatedly, distance to a health facility appears to constrain women from seeking medical care in rural Haiti.** Using household survey data of 2012, a World Bank Note[7] documented that among rural households, 62 percent had at least one woman between 15 and 49 years old whose decision to seek medical care was affected by distance. The number was above national average (48 percent). Further, 66 percent of moderately poor households and 73 percent of extremely poor households in rural Haiti have at least one women for whom distance to a health facility affected their decision to obtain medical care. Distance to a health facility was the second largest challenge to obtaining healthcare, after lack of money to pay for medical treatment.

5. **The** proposed **Project addresses some of these barriers by focusing on increasing accessibility of rural communities to key maternal health centers (SONU B and C clinics)** (Figure A8.1). SONU B and C clinics provide basic emergency obstetrics and newborn services (SONU B), and complete emergency obstetrics and newborn services (includes SONU B services, and Blood Transfusion and C-Section – SONU C) in provincial towns. They are the backbone of prenatal and women healthcare in rural Haiti. The proposed Project aims at contributing to

[4] See Victora et al. (2008) on the link between maternal health and human capital.
[5] Gage and Calixte (2006).
[6] The odds are 0.579 and 0.348 for those linked by unpaved road in good conditions (compared to those linked by asphalt road).
[7] Transport and Poverty in rural Haiti. Existing Evidence from Household Surveys (December 2017); prepared by Emilie Perge and Sering Touray.

improve overall access to maternal health for selected rural communities[8], by investing in all-weather roads access and strengthening the resilience of the primary and secondary road network (Figure A8.1). As described in the literature and the Haitian context, these investments are expected to bring about significant improvements in women's and infant physical access to health facilities, and in the long-run could induce significant productivity gains for affected communities.

Figure A8.1 Health Facilities (SONU B & C) All-Weather Service Areas Before and After interventions



Source: WB Team calculations

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[8] See Annex 2 for selection methodology.