Project Identification Form (PIF) entry ? Medium Sized Project ? GEF - 7

Introducing systemic climate resilience methodologies in infrastructure investment planning

Part I: Project Information

GEF ID
10935

Project Type
MSP

Type of Trust Fund
MTF

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Introducing systemic climate resilience methodologies in infrastructure investment planning

Countries
Global, Antigua and Barbuda

Agency(ies)
UNIDO,

Other Executing Partner(s)
World Resources Institute (WRI) as the leader of the Coalition of Climate Resilient Investment (CCRI)

Executing Partner Type
Donor Agency

GEF Focal Area
Climate Change

Taxonomy
Biodiversity, Focal Areas, Mainstreaming, Infrastructure, Climate Change, Climate Change Adaptation, Disaster risk management, Climate resilience, Climate information, Livelihoods, Private sector, National Adaptation Plan, Ecosystem-based Adaptation, Sea-level rise, National Adaptation Programme of Action, Complementarity, Innovation, Least Developed Countries, Climate finance, Mainstreaming adaptation, Influencing models, Transform policy and regulatory environments, Deploy innovative financial instruments,

Strengthen institutional capacity and decision-making, Private Sector, Stakeholders, Civil Society, Academia, Type of Engagement, Participation, Consultation, Communications, Beneficiaries, Capacity, Knowledge and Research, Knowledge Generation, Professional Development, Training, Capacity Development, Gender Equality, Integrated Programs

Sector
Mixed & Others

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 0

Climate Change Adaptation
Climate Change Adaptation 2

Duration
60 In Months

Agency Fee($)
108,035.00

Submission Date
3/15/2022

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCA-1	SCCF-A	841,538.00	6,048,375.00
CCA-1	LDCF	295,676.00	2,285,000.00
	Total Project Cost ($)	**1,137,214.00**	**8,333,375.00**

B. Indicative Project description summary

Project Objective

Systemic climate resilience methodologies, metrics and guidelines in infrastructure investment planning lead to increased resilience of economic infrastructure projects preventing future human and financial disasters.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
1a. Adopting long-term climate resilient policies in investment plans for infrastructure.	Technical Assistance	Outcome 1a: Selected national and subnational authorities adopt a Physical Climate Risks (PCR)-informed policy and regulatory environment in line with best practices.	Output 1.1a: Metrics and strengthened policy frameworks for systemic climate resilience methodologies developed. Output 1.2a: Infrastructure investment planning analyses via the Systemic Risk Assessment and Investment Prioritization Tool (SRAT) prepared. Output 1.3a: Establishment of systemic climate resilience Methodologies in selected national and municipal planning institutes Output 1.4a: Improved stakeholder awareness, including training on CCRI's Guidelines to incorporate systemic climate resilience methodologies (including gender dimensions)	SCCF-A	97,500.00	151,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
1b. Adopting long-term climate resilient policies in infrastructure investment planning.	Technical Assistance	Outcome 1: Selected national and subnational authorities adopt a Physical Climate Risks (PCR)-informed policy and regulatory environment in line with best practices.	Output 1.1b: Metrics and strengthened policy frameworks for systemic climate resilience methodologies developed. Output 1.2b: Infrastructure investment planning analyses via the Systemic Risk Assessment and Investment Prioritization Tool (SRAT) prepared. Output 1.3b: Establishment of systemic climate resilience Methodologies in selected national and municipal planning institutes Output 1.4b: Improved stakeholder awareness, including training on CCRI's Guidelines to incorporate systemic climate resilience methodologies (including gender dimensions)	LDCF	32,500.00	51,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
2.a Demonstration of systemic climate resilience methodologies and metrics through selected pilots.	Investment	Outcome 2a: National and subnational governments gain sufficient evidence and experience in introducing and demonstrating systemic climate resilience methodologies and metrics for infrastructure investments plans.	Output 2.1: Implementation of climate-resilient infrastructure planning in two national pilots, demonstrating the SRAT ability to identify future risks to infrastructure networks and prioritize critical investments based on exposure and economic/social value at risk Output 2.2: Implementation of climate-resilient infrastructure planning in a subnational pilot, using outputs from the Systemic Risk Assessment and Investment Prioritization Tool (SRAT). Output 2.3: Deliver report on lessons learned from the climate-resilient infrastructure planning pilots (national and subnational). Output 2.4: Knowledge shared and capacity built for local and global	SCCF-A	528,877.00	5,109,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
2b. Demonstration of systemic climate resilience methodologies and metrics through selected pilots.	Investment	Outcome 2b: National and subnational governments gain sufficient evidence and experience in introducing and demonstrating systemic climate resilience methodologies and metrics for infrastructure investments plans.	Output 2.1b: Implementation of climate-resilient infrastructure planning in two national pilots, demonstrating the SRAT ability to identify future risks to infrastructure networks and prioritize critical investments based on exposure and economic/social value at risk Output 2.2b: Implementation of climate-resilient infrastructure planning in a subnational pilot, using outputs from the Systemic Risk Assessment and Investment Prioritization Tool (SRAT). Output 2.3b: Deliver report on lessons learned from the climate-resilient infrastructure planning pilots (national and subnational). Output 2.4b: Knowledge shared and capacity built for local and global	LDCF	189,939.00	1,970,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
3a. Replication of systemic climate resilience methodologies in government infrastructure investments and structuring an investment environment.	Technical Assistance	Outcome 3a: Relevant capacity is built for national, municipal and financial stakeholders to enhance the Systemic Risk Assessment and Investment Prioritization Tool (SRAT), Metrics and investment vehicles for upscaling.	Output 3.1a: Prepare strategy for upscaling and structuring the CCRI's capital phase denominated League of Investment Funds for Resilience (LIFR). Output 3.2a: Establishment of the LIFR modalities to set up technical assistance supporting participating funds to deploy capital to replicate systemic climate resilience methodologies and metrics piloting of solutions. Output 3.3a: Case studies distilling learnings from implementing CCRI and UNIDO solutions in selected pilots to validate and strengthen CCRI?s guidelines and systemic climate resilience methodologies and metrics approaches prepared.	SCCF-A	97,500.00	151,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
3b. Replication of systemic climate resilience methodologies in government infrastructure investments and structuring an investment environment.	Technical Assistance	Outcome 3b: Relevant capacity is built for national, municipal and financial stakeholders to enhance the Systemic Risk Assessment and Investment Prioritization Tool (SRAT), Metrics and investment vehicles for upscaling.	Output 3.1b: Prepare strategy for upscaling and structuring the CCRI's capital phase denominated League of Investment Funds for Resilience (LIFR). Output 3.2b: Establishment of the LIFR modalities to set up technical assistance supporting participating funds to deploy capital to replicate systemic climate resilience methodologies and metrics piloting of solutions. Output 3.3b: Case studies distilling learnings from implementing CCRI and UNIDO solutions in selected pilots to validate and strengthen CCRI?s guidelines and systemic climate resilience methodologies and metrics approaches prepared.	LDCF	32,500.00	51,000.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
4a. Monitoring and evaluation.	Technical Assistance	Outcome 4a: Project achieves objective through effective monitoring and evaluation.	Output 4.1a: Mid-term review. Output 4.2a: Gender analysis and regular monitoring of the gender mainstreaming action plan. Output 4.3a: Implementation and monitoring of Environmental and Social Management Framework (ESMF). Output 4.4a: Final evaluation.	SCCF-A	40,073.00	69,375.00

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
4b. Monitoring and evaluation.	Technical Assistance	Outcome 4b: Project achieves objective through effective monitoring and evaluation.	Output 4.1b: Mid-term review. Output 4.2b: Gender analysis and regular monitoring of the gender mainstreaming action plan. Output 4.3b: Implementation and monitoring of Environmental and Social Management Output 4.4b: Final evaluation.	LDCF	14,992.00	24,000.00
				Sub Total ($)	**1,033,881.00**	**7,576,375.00**

Project Management Cost (PMC)

SCCF-A	77,588.00	568,000.00
LDCF	25,745.00	189,000.00
Sub Total($)	**103,333.00**	**757,000.00**
Total Project Cost($)	**1,137,214.00**	**8,333,375.00**

Please provide justification

The project's Components, Outputs and Outcomes are consistent across each country. SCCF funds will be used in Antigua and Barbuda and a second country to be confirmed during PPG. LDCF will be used for a country to be confirmed during PPG.

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
GEF Agency	UNIDO	Grant	Investment mobilized	50,000.00
GEF Agency	UNIDO	In-kind	Recurrent expenditures	100,000.00
Other	Foreign Commonwealth and Development Office (FCDO)	In-kind	Recurrent expenditures	1,132,900.00
Other	Green Climate Fund	In-kind	Recurrent expenditures	1,960,000.00
Recipient Country Government	Planning Institute of Jamaica	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Ministry of Planning of SCCF Country 2 (TBD)	In-kind	Recurrent expenditures	300,000.00
Recipient Country Government	Ministry of Planning of SCCF Country 2 (TBD)	Grant	Investment mobilized	1,800,000.00
Recipient Country Government	Ministry of Planning of LDCF Country (TBD)	In-kind	Recurrent expenditures	110,475.00
Recipient Country Government	Ministry of Planning of LDCF Country (TBD)	Grant	Investment mobilized	380,000.00
Recipient Country Government	Ministry of Health, Wellness and the Environment, Antigua & Barbuda	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Ministry of Finance, Corporate Governance, and Public Private Partnerships, Antigua & Barbuda	Grant	Investment mobilized	1,500,000.00

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Private Sector	Coalition for Climate Resilient Investment partners	Grant	Investment mobilized	600,000.00
			Total Project Cost($)	**8,333,375.00**

Describe how any "Investment Mobilized" was identified

The project team identified co-financing contributions through initial discussions with anchor ministries and implementing partners. Consultations focused on the potential ways of how these systemic climate resilience methodologies, metrics and guidelines for infrastructure investment planning would be integrated into current planning and investment processes. Then, we identified where the design of upcoming investments could be potentially influenced to take on systemic climate resilience attributes. The identified contributions are initial estimations: the project team, in conjunction with country governments and our partners, will continue to refine the scale of investment mobilized as we more fully flush out the scope of the project. The indicted Green Climate Fund?s is for an initiative in Jamaica running in partnership with the Government of Jamaica, the UK Government, Oxford University and the Coalition for Climate Resilient Investment. The initiative will pilot the Systemic Risk Assessment and Investment Prioritization tool applied in this project. For the purpose of validating the methodology, the GCF grant has been mobilized for Jamaica and under this project, lessons learned will be applied and knowledge exchanged. Green Climate Fund will directly procure services in support of implementing the project therefore this relates to the in-kind category for GEF co-financing. Co-financing will come from entities that have joined CCRI. As CCRI is not a legal entity, the co-financing will be committed by entities contributing resources under the CCRI towards project coordination and delivery, research and development and knowledge management.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNIDO	SCCF-A	Antigua and Barbuda	Climate Change	NA	341,164	32,411	373,575.00
UNIDO	SCCF-A	Global	Climate Change	NA	500,374	47,535	547,909.00
UNIDO	LDCF	Global	Climate Change	NA	295,676	28,089	323,765.00
			Total GEF Resources($)		**1,137,214.00**	**108,035.00**	**1,245,249.00**

E. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

50,000

PPG Agency Fee ($)

4,750

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNIDO	SCCF-A	Antigua and Barbuda	Climate Change	NA	15,000	1,425	**16,425.00**
UNIDO	SCCF-A	Global	Climate Change	NA	22,000	2,090	**24,090.00**
UNIDO	LDCF	Global	Climate Change	NA	13,000	1,235	**14,235.00**
				Total Project Costs($)	**50,000.00**	**4,750.00**	**54,750.00**

Meta Information - LDCF

LDCF true

SCCF-B (Window B) on technology transfer false

SCCF-A (Window-A) on climate Change adaptation false

Is this project LDCF SCCF challenge program?

true

This Project involves at least one small island developing State(SIDS). false

This Project involves at least one fragile and conflict affected state. false

This Project will provide direct adaptation benefits to the private sector. true

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). true

This Project has an urban focus. false

This Project covers the following sector(s)[the total should be 100%]:*

Agriculture	**0.00%**
Natural resources management	**10.00%**
Climate information Services	**0.00%**
Costal zone management	**0.00%**
Water resources Management	**10.00%**
Disaster risk Management	**0.00%**
Other infrastructure	**80.00%**
Health	**0.00%**
Other (Please specify:)	**0.00%**
Total	**100%**

This Project targets the following Climate change Exacerbated/introduced challenges:*
Sea level rise false
Change in mean temperature false
Increased Climatic Variability false
Natural hazards true
Land degradation true
Costal and/or Coral reef degradation false
GroundWater quality/quantity true

Core Indicators - LDCF

CORE INDICATOR 1	Total	Male	Female	% for Women
Total number of direct beneficiaries	2,000	1,000	1,000	50.00%

CORE INDICATOR 2	
Area of land managed for climate resilience (ha)	9,449.00

CORE INDICATOR 3	
Total no. of policies/plans that will mainstream climate resilience	3

CORE INDICATOR 4		Male	Female	% for Women
Total number of people trained	200	125	75	37.50%

Meta Information - SCCF

LDCF false

SCCF-B (Window B) on technology transfer false

SCCF-A (Window-A) on climate Change adaptation true

Is this project LDCF SCCF challenge program?

true

This Project involves at least one small island developing State(SIDS). true

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This Project involves at least one fragile and conflict affected state. false

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This Project will provide direct adaptation benefits to the private sector. true

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This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). false

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This Project has an urban focus. false

This Project covers the following sector(s)[the total should be 100%]:*

Agriculture	**0.00%**
Natural resources management	**10.00%**
Climate information Services	**0.00%**
Costal zone management	**0.00%**
Water resources Management	**10.00%**
Disaster risk Management	**0.00%**
Other infrastructure	**80.00%**
Health	**0.00%**
Other (Please specify:)	**0.00%**
Total	**100%**

This Project targets the following Climate change Exacerbated/introduced challenges:*
Sea level rise false
Change in mean temperature false
Increased Climatic Variability false
Natural hazards true
Land degradation true
Costal and/or Coral reef degradation false
GroundWater quality/quantity true

Core Indicators - SCCF

CORE INDICATOR 1	Total	Male	Female	% for Women
Total number of direct beneficiaries	4,000	2,000	2,000	50.00%

CORE INDICATOR 2	
Area of land managed for climate resilience (ha)	60,000.00

CORE INDICATOR 3	
Total no. of policies/plans that will mainstream climate resilience	10

CORE INDICATOR 4		Male	Female	% for Women
Total number of people trained	950	550	400	42.11%

Part II. Project Justification

1a. Project Description

a) Environmental problem and current situation

1. Climate change is one of the greatest threats facing the world currently, with increasingly clear and far-reaching impacts on people, economies, and the environment. The 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) unequivocally states that human induced climate change is already affecting many weather and climate extremes in many regions across the globe, including resulting in observed changes such as heatwaves, heavy precipitation, droughts, and tropical cyclones (IPCC 2021).

2. People who did the least to cause the problem ? especially those in developing and least developed countries - are experiencing the brunt of impacts. Even if emissions are drastically reduced in the near-term, there are already unavoidable changes underway that are locked in ? threatening development gains, jeopardizing the Sustainable Development Goals, and ?threatening the existence and livelihoods of many communities and societies? (Global Commission on Adaptation 2019).

3. Antigua and Barbuda is one country where the impacts of climate change are being felt acutely. In Antigua and Barbuda, the country is exposed economically, environmentally and socially to projected climate change impacts which will result in a greater intensity of hurricanes, more frequent droughts, high temperatures and sea-level rise. Downscaled climate projections to inform detailed risk modelling for Antigua and Barbuda indicate that Antigua stands to lose approximately 26.6 to 35.3 square kilometers of low-lying coastal land to sea level rise by 2080. The estimated value of assets on this land is USD196 to USD 293 million.

4. Analysis of climate change for the islands projects accelerated coastal erosion and inundation, lower average annual rainfall, increased rainfall intensity causing flooding, prolonged periods of drought, and an increase in tropical cyclones frequency and intensity. Under a high emissions (RCP8.5) scenario, the mean annual temperature is projected to rise by about 2.8?C on average while annual precipitation is projected to decrease by about 20% on average by the end-of-century (i.e. 2071?2100). If emissions decrease rapidly (RCP2.6), the temperature rise is limited to about 0.9?C, with little projected change on average for annual precipitation.

5. Tropical cyclones have made landfall in Antigua and Barbuda on multiple occasions and on average, there is a 33% chance of at least one hurricane affecting (passing within 120 miles) of Antigua and Barbuda in any given year. (Antigua and Barbuda Meterological Services) It is anticipated that the total number of tropical cyclones may decrease towards the end of the century. However, it is likely that human-induced warming will make cyclones more intense; an increase in wind speed of 2?11% for a mid-range (RCP4.5) scenario or about 5% for 2?C global warming.

6. Economic and natural disaster shocks put an estimated 80.4% of the country?s GDP at risk. The country is still recovering from the economic and social fallout caused by the devastating Hurricane Irma in 2017. The country suffered damage and loss of USD155.1 million (10% of GDP) impacting houses, public buildings, hotels, firms engaged in tourism sector and safety nets of vulnerable households. In Barbuda, 95% of the housing stock was damaged or destroyed and the entire population of 1,600 persons were evacuated to Antigua following the devastation.

7. The 2019 *Adapt Now* report makes the case for three revolutions to systematically address the challenge, requiring fundamental changes in the way that all decision makers ? whether public or private, global, national, or subnational - understand, plan, and finance their programs and investments, to protect economies, people, and the environment (Global Commission on Adaptation 2019).

8 The Commission?s report estimated that investing US$1.8 trillion globally between 2020 and 2030 could generate US$7.1 trillion in total net benefits, with an average benefit cost ratio of 4 ? i.e., for every $1 invested, there is an average benefit of $4. This includes investments in climate-resilient infrastructure (Global Commission on Adaptation 2019). Investments in infrastructure assets and networks ? water and sanitation, energy, transport, housing ? are critical, as they form the backbone of economies and societies, and the growing impacts of climate change are further challenging the integrity of existing and new infrastructure systems. It is estimated that over US$60 trillion of investment in infrastructure is needed globally over the 2020 ? 2030 period to propel economic growth and recovery.

9. Tackling the infrastructure needs of countries ? as well as the climate crisis ? will require significant amounts of capital and investment. These challenges, however, also present a significant opportunity to embed and integrate resilience in future infrastructure investments.

10. Currently, the **impacts of physical climate risks (PCRs) are inadequately integrated into infrastructure investments. This translates into an inefficient pricing of PCRs and an inadequate appreciation of the benefits of investing resiliently, including in the cost of capital, credit ratings, or other risk ratings**.

11. As investors increasingly recognize the impact of physical climate risks (PCRs) - from intense rainfall events, floods, droughts, increased temperatures - on all asset classes, they seek solutions to address such risks proactively. It is becoming even clearer how acutely investments misprice these climate-related risks. This constitutes a form of market failure.

12. This proposal addresses this market failure: an inadequate integration of PCRs into investments, alongside mobilizing the needed constellation of public and private institutions and investors to (a) advance the use of practical tools and methodologies that systemically assess and manage PCRs at national and subnational levels, (b) prioritize infrastructure investments based on an understanding of maximizing the resilience benefits of every $1 invested, and (c) mobilize capital for investments identified and designed through the use of these tools.

13. This project will focus on Antigua and Barbuda and two other countries to be selected during the Project Preparation Grant Phase with one country to be a least developed country. The project will

select countries in which the project can deliver the most impactful results and provide scalable solutions, using the following criteria:

1. **Vulnerability to climate change**

Country vulnerability to climate change may be assessed in many ways. To simplify the selection criteria, the ND-GAIN Index and ND-GAIN Index adjusted for GDP. Both values are used to identify countries which have high vulnerability and low readiness with additional negative values for the GDP adjusted index, which reflects the country's poorer performance compared to others with similar GDP. Countries with highest ND-GAIN Index and lowest adjusted index values (negative values) are preferred. Additional preference will be given to countries of the Vulnerable Twenty (V20) Group of Ministers of Finance of the Climate Vulnerable Forum.

2. **Country classification in the World Bank country classification by income level**

Country classification by income level is important in the context of the project. To provide a diverse set of economies, one country from the Least Developed Countries list and one from lower middle-income will be selected.

3. **GDP growth**

GDP growth is important in the context of country's infrastructure development and investment planning capacity. Therefore, preference will be given to countries showing high rate of GDP growth over last 3 years.

4. **Ratification of the Paris Agreement**

The project will work the countries which have ratified the Paris Agreement and submitted their INDC. Additional preference will be given to the countries which have not updated their NDC before the COP26 or have not increased their ambition in NDC. This project will work towards increasing countries' ambition.

5. **Previous experience in infrastructure investment planning**

The project will build on the experience of the World Bank's PIAF?s Sub-National Technical Assistance (SNTA) program. Therefore, additional preference will be given to the countries which have previous experience in infrastructure investment planning or improving creditworthiness.

6. **Political support**

Preference will be given to countries showing high political commitment co climate agenda, which may provide additional visibility to the project.

14. This approach builds on the project team?s existing work in Jamaica, where the team is advancing the first ever pilot deploying systemic climate resilience methodologies, metrics and guidelines in infrastructure investment planning. To understand whether these methodologies can be deployed at scale, globally, this project chose these three jurisdictions because of their diversity: they represent different levels of market maturity and economic development, variations in scope (national and subnational, economic and population size, productive sectors), geographic location, climate risks, and are of interest to private investors. These three locations, in addition to the ongoing work in Jamaica, will provide an opportunity to learn from and exchange between diverse experiences, allow for the testing of the approach, and provide private investors with multiple options to mobilize capital. The main target groups include relevant government Ministries and Departments involved in formulating and developing infrastructure investment plans. In the case of Antigua and Barbuda, this includes the Department of Environment (DOE) and the Ministry of Works.

15. The tools and methodologies as described above, pertain to national planning and adaptation appraisal processes. They will lead to a portfolio of proposed investments, however, the scope of this project does not extend to piloting on actual infrastructure. The tools and methodologies will focus on prioritizing infrastructure investment based on protecting and enhancing the maximum amount of value at risk. This will encompass investment in both existing as well as new infrastructure. An adaptation appraisal will be conducted as part of each pilot project to ensure both green and grey solutions are considered as part of the invest prioritization. Cost benefit analyses will be undertaken through the adaptation appraisal as well. Planners will be incentivized towards more resilient options through access to the CCRI?s League of Investment Funds (LIFR) which provides catalytic capital and a de-risking facility for infrastructure investments that take specific measures to ?climate proof? as part of the project design. LIFR is not part of the scope of this project but will be an added benefit available to investors and governments that choose to apply CCRI tools and solutions.

b. Root causes and barriers that need to be addressed

16. As discussed in the previous section, climate risks and existing vulnerabilities in countries are resulting in impacts on their infrastructure, including damage and destruction from extreme weather events and slower-onset events.

17. Yet, very few, if any infrastructure investments in these three localities actually integrate physical climate risks into their planning, design and investments. Additionally, these countries struggle to mobilize the needed finance to invest in adaptation at scale. This is due to several reasons, including

the **lack of consistent analytical approaches for the assessment of current and, mainly, future levels of exposure that prevents adequate and accurate information to markets and financial decision-makers - whether public or private**. These localities lack the needed capacity and know-how within central decision making ministries and authorities to be able to consistently integrate PCRs into their approach. Addressing this challenge is critical to mobilizing the public and private financing needed to address adaptation needs, as well as to systemically shift how decisions are made. The GEF?s investment in addressing this challenge will help set standards for how resilient infrastructure can be designed and mainstreamed into country approaches and mobilize the needed finance for adaptation at scale.

18. The Coalition for Climate Resilient Investment, a private sector led initiative with over 100 members and $16 trillion assets under management, aims to design these very solutions that meet the needs of public and private decision-makers. World Resources Institute, the executing agency for this project, is one of the co-founders of the Coalition, and will be implementing CCRI?s solutions on its behalf.

19. There are four main barriers that hinder resilient investments and the participation of public and private investors in advancing this critical agenda, including in policy frameworks, application of approaches, available capacity, and scaling up.

Barrier 1: Current infrastructure investment policies and regulatory framework are insufficient to assess and manage physical climate risks systemically at national and subnational levels

20. Governments ? national and subnational ? are responsible for developing and implementing infrastructure policies and plans, setting priorities based on an understanding of desired economic and social development, and devising a regulatory environment that encourages environmentally and structurally sound investments.

21. Physical climate risks are not yet systemically integrated into these decision-making processes ? either at the planning, prioritizing, or investment stages, nor are they considered within the regulatory process.

Root causes leading to this barrier comprise:?

? Limited acknowledgement of impact of future physical climate risks on infrastructure investments

? Lack of data on PCRs, infrastructure networks, and where social and economic value are concentrated

? Lack of customizable approaches, including methodologies, that can integrate PCRs into infrastructure decision making

? Lack of data on financial, economic, and social benefits from investing in resilient infrastructure

Barrier 2: Insufficient experience in assessing and managing climate risks systemically at national and subnational levels

22. The imperative to integrate PCRs in decision-making has grown more urgent over the last decade, but the needed experience and methods are still being developed. Most countries globally are yet to take on this challenge, and there is collectively little experience and capacity to do so.

Root causes leading to this barrier comprise:

? Lack of experience and pilots/success stories
? Methodologies, metrics, and guidelines not fully standardized/formalized
? Under allocation and misallocation of resources due to short term planning
? Lack of resources to invest in systemic decision-making platforms

Barrier 3: Low capacity and awareness of systemic assessment and management of physical climate risks for infrastructure investment planning at the national and subnational level

23. This barrier is particularly acute in developing and least developed countries, where decision-makers are often constrained by competing priorities, lack of awareness, and limited support to plan, prioritize, and invest as needed to enable resilient infrastructure development.

Root causes leading to this barrier comprise:

? Limited awareness of opportunities and benefits

? Knowledge gap and experiences in systemic resilience methodologies and metrics implementation

? Lack of capacities in implementing methodologies, metrics and guidelines

Barrier 4: Lack of financing due to unclear investment priorities and financial incentives for investing in resilient infrastructure

24. Governments are often in the driving seat of clearly outlining investment priorities to stimulate other financiers ? from public/national development banks, the private sector, and international financial institutions ? to identify opportunities and structure investments accordingly. Governments have yet to fully conceptualize and communicate their changing priorities, given the impacts of PCRs, and thus other financiers are uncertain as to where to invest.

25. Secondly, both governments and private financiers are unaware nor are they equipped to evaluate the full suite of financial and non-monetary rewards that result from investing in resilient infrastructure.

Root causes leading to this barrier comprise:

? Lack of awareness of the impacts of climate change in infrastructure investment planning
? Lack of access to service providers of methodologies that integrate PCRs into decision-making
? Lack of financial vehicles that provide returns to investing in resilient infrastructure

? Lack of methodologies to evaluate financial and non-monetary returns from integrating physical climate risks into investments

The subsequent figure illustrates a simplified **problem tree** for the project.

Table1: Simplified Problem Tree

Problem Tree				
	Policy framework	Application	Capacity-building	Funds/Scaling-up
Barriers	Barrier 1: Infrastructure investment policies and regulatory framework insufficiently assess and manage climate risks systemically at national and subnational level	Barrier 2: Insufficient experience in assessing and managing climate risks systemically at national and subnational levels	Barrier 3: Low capacity and awareness of systemic assessment and management of physical climate risks for infrastructure investment planning at the national and subnational level	Barrier 4: Lack of financing due to unclear investment priorities and financial incentives for investing in resilient infrastructure
Problem	**The absence of and lack of (market) appreciation for resilient infrastructure investment planning leads to human and economic losses.**			

Causes	? Limited acknowledgement of impact of future physical climate risks on infrastructure investments ? Lack of data on physical climate risks, infrastructure networks, and where social and economic value are concentrated	? Lack of experience and pilots/success stories ? Methodologies, metrics and guidelines not fully standardized/formalized ? Under allocation and misallocation of resources due to short term planning	? Limited awareness of opportunities and benefits ? Knowledge gap and experiences in systemic resilience methodologies and metrics implementation ? Lack of capacities in implementing methodologies, metrics and guidelines	? Lack of awareness of the impacts of climate change in infrastructure investment planning ? Lack of access to service providers of methodologies that integrate PCRs into decision making ? Lack of financial vehicles that provide returns to investing in resilient infrastructure ? Lack of methodologies to evaluate financial and non-monetary returns from integrating physical climate risks into investments

Source: Authors

b. The baseline scenario and any associated baseline projects

26. Currently, there are very few, if any, approaches that consistently (a) integrate future physical climate risks into infrastructure planning, (b) leverage a network modeling approach, (c) allow for a modeling of adaptation options, (d) integrate economic and social value, and (e) enable decision makers to prioritize based on these factors.

27. The Systemic Resilience Assessment and Investment Prioritization Tool, developed in partnership with the Coalition for Climate Resilient Investment (CCRI), Oxford University?s Environmental

Change Institute (OU), FCDO, and with inputs from the Green Climate Fund (GCF), is one such approach that brings together these five integral pieces into a single dynamic and visual decision support platform. To scale up understanding of this approach, gather and disseminate best practice, and mobilize finance, CCRI?s Systemic Resilience Forum (SRF) brings together over 50 public and private organizations that are actively building on advancing this decision platform.

28. This tool models infrastructure networks (e.g., transport, energy, water), overlaying with climate impacts like floods, droughts, landslides, and identifies points of multi-modal network failures, service disruptions, and the resulting macroeconomic losses. Through this exercise, it also identifies where adaptation options could be useful to shore up responses to climate risks, and the associated costs and benefits of these options.

29. This approach is currently being pioneered in **Jamaica** and points to some early lessons. With the leadership of the Planning Institute of Jamaica (PIOJ), the country?s ultimate planning agency of the government that initiates and coordinates the development of policies, plans, and programmers, this team has customized the dynamic visual platform ? the Systemic Resilience Assessment Tool - mapping the exposure of the country?s energy, water, and transport infrastructure networks to current and future PCRs (to a 20 year timeframe), and supported the identification of investment priorities based on this exposure and on a mapping of where social and economic value are concentrated.

30. One of the key contributions of this tool is its inclusion of the infrastructure *network* rather than just geolocations of specific infrastructure *assets*. Thus, the value of each specific investment is not just based on the services it provides to the economy and society in that particular location, but also the role it plays within the wider infrastructure network.

31. The next stage of methodology and tool development includes adaptation options analysis for each of the priority investments, the integration of nature-based solutions (NbS) options such that ?hard? infrastructure are not the only options provided, and a project pipeline development component that can help build a portfolio of viable and investable resilient infrastructure projects.

32. Jamaica?s SRAT was showcased at COP26 in Glasgow, with the Prime Minister and the Minister for Housing, Urban Renewal, Environment, and Climate Change being the tool?s key spokespeople. While the tool and approach are still being innovated upon, the PIOJ is already in the process of integrating the first version of the SRAT into its annual and mid-term planning and prioritization cycle, to inform the Ministry of Finance?s next annual budget proposal to the Parliament.

33. The team is also working with PIOJ, development partners, and Jamaican and international private financiers (including members of the Coalition for Climate Resilient Investment) to develop and finance viable projects identified by the SRAT.

34. These early experiences and lessons indicate that with committed government leadership and participation in the tool conceptualization and development process, including to customize the design, outputs, and operability of the methodology to their needs, governments are able to derive decision-useful information on the needs of their infrastructure networks, identify priority investments that will maximize the resilience return of every $1 invested, and provide public and private actors with the necessary signals to best target their investments.

35. While Jamaica presents a unique case as a Small Island Developing State (SIDS), with its unique set of physical, fiscal, and social challenges ? there is a need to expand this to other countries and localities ? of varying levels of economic and financial market maturity, size of economies and infrastructure networks, climate risks faced, geographic spread, as well as lower levels of decision making.

36. This proposal thus expands the systemic climate resilience approach to Antigua and Barbuda and two countries to be selected during PPG, one of which will be a least developed country. Each of these cases provides variation in economic and financial market maturity, size of economies and infrastructure networks, climate risks faced, geographic spread, as well as the level of decision making, allowing for innovation and testing of this approach.

37. As an example, Antigua and Barbuda are in the process of developing its NAP, where it has so far collected the necessary data, stakeholder consultations, development of sector plans, and support efforts to further build capacity within the country. Their priority sectors include finance, managed/protected areas, infrastructure and housing, tourism, food security and wholesale and retail.[1] For example, an Adaptation Fund supported project is supporting concrete adaptation actions that are improving natural and physical drainage systems along semi-urban and urban waterways to reduce flooding and disease incidence. The project also directly distributes resources through a revolving fund to vulnerable households and businesses to shore up their infrastructure to meet new guidelines for built infrastructure. This would provide a basis for more systemic decision making within the national government.[2]

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[1] NAP Global Network 2021.https://napglobalnetwork.org/wp-content/uploads/2021/06/napgn_en_2021_TORs_Antigua_Barbuda.pdf

[2] Adaptation Fund 2017.https://www.adaptation-fund.org/project/integrated-approach-physical-adaptation-community-resilience-antigua-barbudas-northwest-mckinnons-watershed/

COVID-19 recovery efforts by the Governments

38. The pandemic has hit countries hard, with differing levels of economic response from their respective governments. In Antigua and Barbuda, a tourism dependent nation, was hard hit by the pandemic and consequent closed borders. The country implemented several measures, including reductions in electricity and fuel costs for the public, investment incentives for home renovation and construction, suspension of tariffs on food imports to improve food security, and expansion of social safety net programs.[1] Its exposure to climate related risks and disasters remains a concern, as noted in the country?s latest Article IV consultations with the IMF.[2] COVID-19 recovery efforts by Governments in countries selected during PPG will be included in CEO approval document.

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[1] International Monetary Fund 2021. *Policy Responses to COVID-19.*https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19

[2] International Monetary Fund 2021. *IMF Executive Board Concludes 2021 Article IV Consultation with Antigua and Barbuda.*https://www.imf.org/en/News/Articles/2021/08/12/pr21246-antigua-and-barbuda-imf-executive-board-concludes-2021-article-iv-consultation

c. The proposed alternative scenario with a brief description of expected outcomes and components of the project

39. To address the causes and barriers for integrating PCRs into infrastructure investment decision making and mobilizing the necessary public and private capital for adaptation, this project proposes a multi-faceted approach that does the following:

a. *Addresses the policy framework for infrastructure investment*

b. *Supports application of cutting-edge methodologies for assessing and managing PCRs*

c. *Builds capacity within critical stakeholders and decision-makers to use these methodologies*

d. *Scales up financing for investing in resilient infrastructure*

40. These are translated into four components. The respective outcomes and outputs for each of these are summarized below. These components apply equally across all three locations.

Component 1: Adopting long-term climate resilient policies in investment plans for infrastructure

41. This component addresses the upstream policies and practice around infrastructure investment planning and prioritization. It targets national and subnational authorities involved in these decision

making processes. It focuses on improving these actors? knowledge and awareness of the latest approaches, their benefits, and empowers them to customize these methodologies for their use.

Outcome 1: ***Selected national and subnational authorities adopt a PCR-informed policy and regulatory environment in line with best practice.***

Output 1.1: Metrics and strengthened policy frameworks for systemic climate resilience methodologies developed.

42. Building off the initial scoping work, the next step would be to understand how the 3 selected jurisdictions move from planning to financing their infrastructure needs. This step is critical to understand when/how systemic risk assessment and investment prioritization and plans can/should be integrated into current approaches. It would also identify which decision makers need to be supported in this endeavor. It will also harness the existing knowledge within the SRF?s members on these practices.

Deliverables Output 1.1:

? Proposal for integration of these methodologies for the selected jurisdictions

Output 1.2: Infrastructure investment planning analyses via the Systemic Risk Assessment and Investment Prioritization Tool (SRAT) prepared.

43. The Project will support the introduction of systemic climate resilience methodologies and metrics into regular planning processes of the pilot locations. The first step is to scope the opportunities to integrate assessment and management of PCRs into existing policies and regulatory environment for infrastructure planning and investment.

44. A detailed gender analysis will take place and based on that a gender mainstreaming action plan will be developed. This will inform the project annual work plan to promote women's engagement and gender equality in the project execution and be adhered throughout the project execution and considered for regular monitoring of the progress. A specific gender analysis of the existing policy frameworks will also take place. The findings will inform the inclusion of a gender component in the introduction/strengthening of the policy framework.

45. A detailed Environmental Social Management Framework (ESMF) will be developed during PPG to guide the E&S risk screening and assessment of the pilot and subsequent infrastructure investment projects.

Deliverables for Output 1.2:

? Analysis of how systemic climate resilience methodologies can improve current planning approaches for 3 selected jurisdictions, including a specific gender analysis of existing policy frameworks

? Gender analysis and gender mainstreaming action plan

Output 1.3: Establishment of systemic climate resilience methodologies in selected national and municipal planning institutes.

46. Alongside the planning institutes and other key stakeholders in the 3 locations, the project will identify the main sectors to be studied, the data needed to advance the tool development, consult stakeholders on their needs, and overall policy priorities.

Deliverables Output 1.3:

? Schematics of tool including sectors and climate risks to be studied, stakeholders? needs, and data requirements for tool development

Output 1.4: Improved stakeholder awareness, including training on CCRI's Guidelines to incorporate Systemic climate resilience Methodologies (including gender dimensions)

47 This will include raising awareness of what systemic resilience methodologies and metrics mean for current planning processes, how these can be improved to include PCRs consistently, and how best to move towards a system wide view of infrastructure networks and prioritize investments accordingly.

48. Also, knowledge products and information will be prepared and disseminated based on the findings of the gender analysis, lessons learnt from the gender mainstreaming action plan and policy frameworks amongst stakeholders and beneficiaries.

49. A detailed Environmental Social Management Framework (ESMF) will be developed during PPG to guide the E&S risk screening and assessment of the pilot and subsequent infrastructure investment projects.

Deliverables Output 1.4:

? Gender Equality and Empowerment of Women knowledge products and information are prepared and disseminated amongst stakeholders.

? Good practice guidelines on integrating PCRs into infrastructure planning, value of systemic approaches, and how to prioritize investments based on a holistic understanding of exposure to climate risks, network benefits of a particular investment, and its economic and social value will be developed and disseminated.

Component 2: Demonstration of systemic climate resilience methodologies and metrics through selected pilots.

50. Through this component, the team aims to further demonstrate the feasibility, value, and attractiveness of using systemic climate resilience methodologies in the infrastructure planning and investment cycles. It includes the operationalization of systemic climate resilience assessments, investment prioritization and planning tools, and contributing to the development of appropriate metrics to signal the adoption of these methodologies within infrastructure planning and investment cycles.

Outcome 2: National and subnational governments gain sufficient evidence and experience in introducing and demonstrating Systemic Risk Assessment and Investment Prioritization Tool (SRAT) and Metrics for infrastructure investments plans.

Output 2.1: Implementation of climate-resilient infrastructure planning in two national pilots, demonstrating the SRAT ability to identify future risks to infrastructure networks and prioritize critical investments based on exposure and economic/social value at risk.

51. In the selected countries, the team will identify, alongside the planning institutes, the key stakeholders that will be interacting with or audience of the methodology?s outputs. Then the team will co-develop the customized dynamic mapping platform for each location, showcasing the future climate risks, their impact on different parts of the infrastructure network, where critical assets are based, and the potential for adaptation at those critical junctures. The tool and methodology will also showcase the economic and social value at risk from this exposure, showcasing the value of adaptation.

Deliverables Output 2.1:

? Customized dynamic mapping platform that brings together physical climate risks, infrastructure networks, economic and social value, adaptation options, and nature-based solutions, with economic modeling to identify investment priorities.

Output 2.2: Implementation of climate-resilient infrastructure planning in a subnational pilot, using outputs from the Systemic Risk Assessment and Investment Prioritization Tool (SRAT).

52. In selected countries, the team will identify the key stakeholders that will be interacting with the methodology?s outputs. Then the team will co-develop the customized dynamic mapping platform, showcasing the future climate risks, their impact on different parts of the infrastructure network, where critical assets are based, and the potential for adaptation at those critical junctures. The tool and methodology will measure the economic and social value at risk from this exposure, demonstrating the value of adaptation.

Deliverables Output 2.2:

? Customized dynamic mapping platform that brings together physical climate risks, infrastructure networks, economic and social value, adaptation options, and nature-based solutions, with economic modeling to identify investment priorities.

Output 2.3: Deliver report on lessons learned from the climate-resilient infrastructure planning pilots (national and subnational).

53. One of the major outputs from these pilots are the lessons learned from implementing these approaches: from understanding how the systemic climate resilience approach impacts the investment priorities of these jurisdictions, challenges in adopting and implementing these approaches, and where there may be room for innovation going forward. This will also be disseminated through the Systemic Resilience Forum and other platforms.

54. The project will include a dedicated focus on gender equality considerations and goals in the long term that will also be specifically monitored for lessons learned from the pilots at national and subnational levels.

Deliverables Output 2.3:

? 3 short 2-3 page document targeted at decision-makers on lessons learned from immediate implementation of systemic climate resilience methodologies and metrics. This would include and explain expected impacts in the long run on gender equality and empowerment of women.

Output 2.4: Knowledge shared and capacity built for local and global stakeholders about best practice for climate-resilient infrastructure planning in selected countries and municipalities, through CCRI's Systemic climate resilience Forum and other avenues.

55. These national and subnational experiences need to be disseminated widely as they are critical to advancing resilience at scale and help make the case for investing in resilient infrastructure. CCRI?s Systemic Resilience Forum (SRF) ? a group of over 50 public and private institutions ? including 6 countries, MDBs, private investors, engineering and technical experts, is one medium through which best practice can be exchanged.

56. Additionally, the SRF is facilitating links with the G20, the Global Infrastructure Hub, and the IMF and World Bank?s climate diagnostic processes. It will also leverage UNIDO platforms to disseminate lessons. Lessons from these jurisdictions? efforts to proactively integrate climate risks and increase their resilience will be shared through these platforms to help advance the state of practice globally.

57. In addition to the best practice examples, stakeholders and beneficiaries of the project will benefit from the piloting of a UNIDO Training on Impact Gender Lens Investing (GLI). UNIDO?s ITPO Germany, the Energy Department and Gender Office developed the training in cooperation with experts from existing Programmes of the Energy Department such as the Global Cleantech Innovation Programme (GCIP) and the Private Financing Advisory Network (PFAN). The training has a modular approach, particular emphasis will be focused on delivering module six on Financing climate change

mitigation and adaptation with a gender lens. Participants will be encouraged to take all the training's modules for a more comprehensive approach.

Deliverables Output 2.4

? 2 moderated exchange events between the three pilots that allow for cross-fertilization of lessons

? 3 webinars/moderated discussions with SRF members showcasing innovations and experiences

? Capacity of stakeholders and beneficiaries on Impact Gender Lens Investing built.

Component 3: Replication of systemic climate resilience methodologies in government infrastructure investments and structure an investment environment for upscaling pilots.

58. This component focuses on building the needed capacity within the relevant stakeholder institutions to continuously update and use the systemic climate resilience approaches in their decision-making process.

59. Additionally, it will focus on developing and structuring an investment vehicle, alongside other public and private financiers, that will deploy capital based on the use of these systemic climate resilience approaches.

Outcome 3: Relevant capacity is built for national, municipal, and financial stakeholders to enhance the Systemic Risk Assessment and Investment Prioritization Tool (SRAT), Metrics and structure investment vehicles for upscaling.

Output 3.1: Strategy for upscaling and structuring the CCRI's capital phase denominated League of Investment Funds for Resilience (LIFR).

60. The team will work with public and private financial institutions to develop an investment vehicle that is dedicated to financing projects that are identified through adoption of these systemic climate resilience methodologies. This will also include development of guidelines for how other countries/jurisdictions could access funds from this investment vehicle through their adoption of systemic climate resilience methodologies.

Deliverables Output 3.1:

? Design investment vehicle strategy, including eligibility criteria (e.g., use of systemic climate resilience assessments), access modalities, and development of an investment pipeline from these three pilots

Output 3.2: Establishment of the LIFR modalities to set up technical assistance supporting participating funds to deploy capital to replicate Systemic climate resilience Methodologies and Metrics piloting of solutions.

61. Building on the investment vehicle design, the team will help mobilize the capital needed from private and public financial institutions to launch the vehicle and finance projects in the pipeline.

Deliverables Output 3.2:

? Establishment of investment vehicle, including different financing windows and technical assistance modalities, with the necessary funds to deploy.

Output 3.3: Case studies distilling learnings from implementing CCRI and UNIDO solutions in selected pilots to validate and strengthen CCRI?s Guidelines and Systemic climate resilience Methodologies and Metrics approaches prepared.

62. The project will bring together the lessons learned from implementing systemic climate resilience methodologies (building on Output 2.3 and 2.4) to devise and validate overall guidance on how to implement systemic climate resilience assessment methodologies, investment prioritization approaches, and metrics. This will include gender equality considerations, as established in Outcomes 1 and 2.

Deliverables Output 3.3:

? CCRI/UNIDO guidelines on best practice/gold standard for adopting systemic climate resilience methodologies, investment prioritization processes, and use of metrics, including gender considerations

Component 4: Monitoring and Evaluation:

63. Component 4 will focus on the effective monitoring and evaluation (M&E) of the project during implementation and after completion. All monitoring and evaluation tools and documents, such as the monitoring plan, progress reports, final evaluation report, and thematic evaluations (e.g., training needs assessment), will include gender dimensions, and report with respect to an established baseline for gender related targets. When data collection or assessments are conducted, gender dimensions will be considered. This will include in particular collection of sex-disaggregated data.

Outcome 4: Project achieves objective through effective monitoring and evaluation

Output 4.1: Mid-term review

64. At the mid-point of the project, UNIDO will coordinate an independent mid-term review to identify the achievements to date, make suggestions as needed to revisions of the project, and identify lessons learned to be disseminated within UNIDO.

Output 4.2: Gender analysis and regular monitoring of the gender mainstreaming action plan

65. UNIDO will routinely monitor implementation of the gender mainstreaming action plan.

Output 4.3: Implementation and monitoring of Environmental and Social Management Framework
66. UNIDO will implement and monitor an Environmental and Social Management Framework (ESMF) for the project. This will be developed during the project?s PPG phase.

Output 4.4: Final evaluation

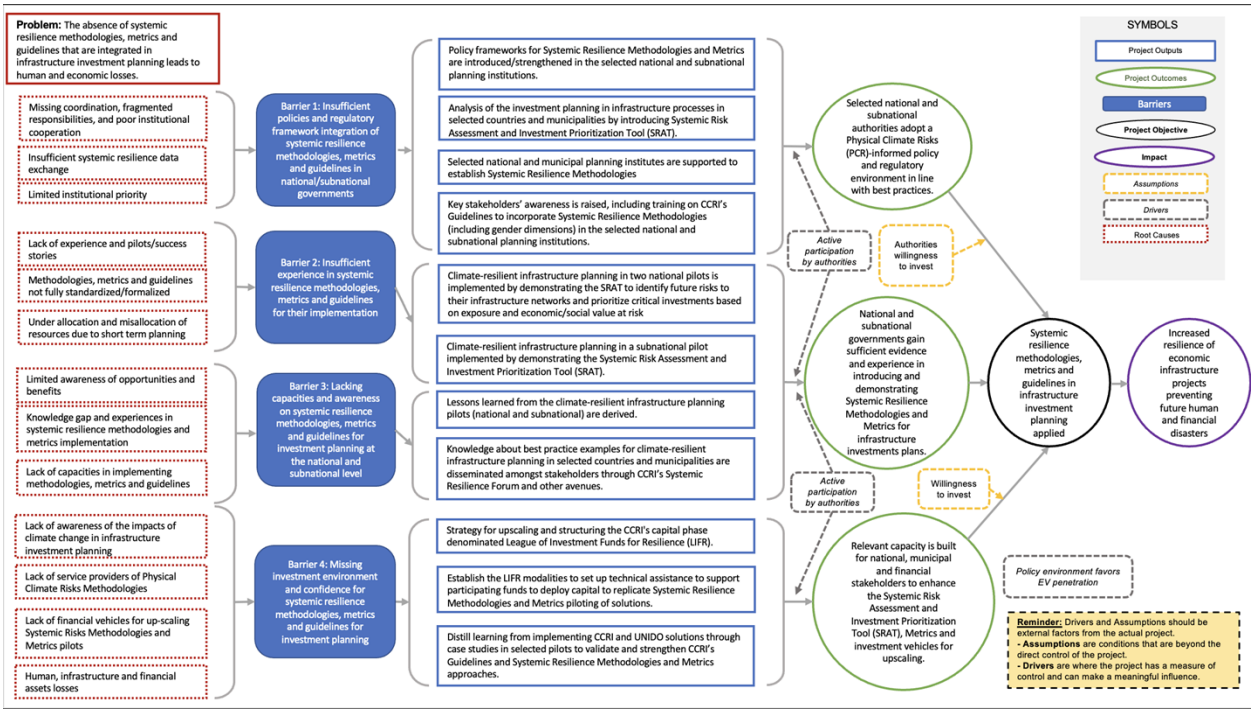
67. UNIDO will facilitate a final evaluation by an independent evaluator within 6 months of project closure to verify achievements to date, make any final suggestions for the closing period of the project, and identify lessons learned.

Theory of change

68. The Project aims to improve national and subnational capacities to manage and assess physical climate risks, prioritize critical investments that maximize the resilience benefits of every $1 invested, and send the right signals to public and private investors. The project will support the enacting of supportive policy frameworks, the development of systemic climate resilience assessment methodologies and metrics that can communicate the macroeconomic value at risk from PCRs, build capacity within the relevant institutions to routinely assess and manage their PCRs, facilitate exchanges with interested private investors, and structure an investment vehicle that will base access on how efficiently national and subnational governments have managed their PCRs. These assessment methodologies will enable decision makers to base their investment decisions on evidence of not just current, but future PCRs? impacts, and direct resources towards the areas that need it the most. This will also allow for larger resilience benefits to the infrastructure network at large to be recouped, enabling private investors to receive returns from investing in resilience.

69. The theory of change graph below illustrates the impact, objectives, and outcomes of the project along the three components described (excluding monitoring and evaluation).

Figure 1: Simplified theory of change of project impact, objectives and outcomes



Source: Authors

d. Alignment with GEF focal area and/or Impact Program strategies;

70. The Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) finance the GEF's Climate Change Adaptation Strategy. The project aligns with the GEF Climate Change Adaptation Focal Area, specifically Objective CCA-1:

Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation.

71. The project aims at supporting government planning institutes with technical assistance to adopt systemic climate resilience methods to integrate physical climate risks (PCRs) in infrastructure investments (water, transport, electricity). Hence, reducing exposure to immediate and future dangers posed by climate change by moving to a climate-resilient development pathway. The project supports efforts to demonstrate the methodologies, metrics and guidelines in planning exercises, thereby reducing the vulnerability of people, livelihoods, natural systems and financial assets.

72. A principal goal of the GEF Challenge Programme for Adaptation Innovation is to mobilize private investments in climate resilience through innovative ways. By scaling up and creating a business environment for climate-resilient investments, communities, private sector, national and

subnational governments will benefit through increased resilience in infrastructure, generating an added value when climate change events may risk their functionality.

e. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

73. The incremental cost reasoning of the project are further summarized in the table below:

Table 2: Incremental cost reasoning of the project

Components	Business as usual	Incremental cost reasoning	Main outcomes expected
1. Adopting long-term climate-resilient policies in investment plans for infrastructure.	National and subnational responsible institutions such as planning institutes, ministries and municipalities have limited awareness of and access to potential systemic climate resilience solutions such as dynamic mapping platforms, standardized metrics and data in pricing PCRs and their long term impact on the benefits of investing resiliently. Missing vertical coordination between national and sub-national levels and horizontal coordination across ministries/departments leads to insufficient integration of systemic climate resilience methodologies and guidelines on climate resilience investment strategies, policies and regulations for infrastructure investments at the national and subnational government level.	A systemic climate resilient policy framework and coordinative capacity are built at the national levels to incorporate Physical Climate Risks considerations and methodologies in infrastructure investments planning. Key stakeholders are aware and trained on systemic climate resilience methodologies, metrics and guidelines to better guide public decision-makers.	Systemic climate resilience assessment methodologies that incorporate PCRs into investment planning, associated metrics, and guidelines are adopted, thus enhancing the policy and regulatory environment.

2. Demonstration of systemic climate resilience methodologies and metrics through selected pilots.	National and subnational practical experiences of systemic climate resilience methodologies will remain stagnant in the short term, Limited prioritization of infrastructure investments that incorporate resilience benefits, due to lack of methodologies, guidelines, or metrics. Infrastructure projects overlook physical climate risks triggering future human and financial disasters. There are insufficient data and metrics in systemic climate resilience solutions leading to under allocation and misallocation of resources in the short and long planning horizons.	Governments gain sufficient evidence and experience in introducing the Systemic Risk Assessment and Investment Prioritization Tool (SRAT) and Metrics. The project will demonstrate the application of systemic climate resilience methodologies, metrics and guidelines. Lessons learned from the climate-resilient infrastructure planning pilots (national and subnational), CCRI's Guidelines and best practice examples for climate-resilient infrastructure planning in selected countries and municipalities are disseminated through a Community of Practice, like the SRF.	Stakeholders gain sufficient evidence and experience in applying systemic climate resilience guidelines, Methodologies (SRAT) and metrics for infrastructure investments plans.

3. Replication of Systemic Resilience Methodologies in government infrastructure investments and structuring of an investment vehicle for upscaling pilots.	Currently, governments lack awareness of how to manage the impacts of climate change in infrastructure investment planning. Simultaneously other public and private organizations do not systematically integrate physical climate risks into their financial decision-making resulting in potential human and financial losses. These institutions and the government are not financially rewarded for investing in resilient infrastructure: lack of appropriate methodologies continue to perpetuate the knowledge and practice gap on how to design/structure financial vehicles and investments that reward integration of physical climate risks.	Governments will plan more resilient infrastructure investments by integrating physical climate risks in financial decision-making. The structuring of financial vehicles such as the League of Investment Funds for Resilience (LIFR) will mobilize public and private capital for investing resiliently, and will help accelerate uptake of the SRAT and associated metrics in developing and developed countries. The visibility of climate resilience investment plans will provide signals to private and public investors on where they may best be able to reap benefits of investing resiliently.	The structuring and launching of the LIFR will scale-up use of systemic resilience methodologies in national and subnational governments as well as the private sector. Relevant capacity is built for national, subnational and private stakeholders to utilize Systemic Resilience Methodologies (SRAT), metrics and and appropriate investment vehicles for upscaling.
4. Monitoring and evaluation	Lessons from implementation are not captured and project risks not meeting its objectives	Effective monitoring and evaluation of project is completed	Project achieves objectives with lessons learned for improving future projects

f. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF):

74. National and subnational governments set investment and budget priorities, including for long-term investments like infrastructure. Private investors also rely on these signals to understand where they might invest. With physical climate risks already severely impacting current and future infrastructure stock, public and private investors need to adopt practical approaches that (a) systematically integrate physical climate risk considerations into their portfolio planning process and (b) structure investment vehicles such that they are rewarded financially for investing resiliently.

75. CCRI?s SRAT approach and dynamic mapping platform helps prioritize investments such that each $1 invested maximizes climate resilience benefits and protects vital infrastructure investments and people from the worst impacts of climate change. Combined with a to integrate PCRs during the physical and investment design stages of each infrastructure asset, the CCRI approach will provide benefits at both the infrastructure asset and network level.

76. This approach is currently being tested in Jamaica, where the methodology is being applied by the country?s Planning Institute. The process includes the mapping of the exposure of the country?s energy, water, and transport infrastructure networks to physical climate risks, the economic and social value at risk due to this exposure, adaptation options available (including leveraging nature based solutions where possible), and where investments need to be prioritized.

77. While this approach is still being piloted, and the impact on the country?s investments yet to be fully quantified, it is expected that the following environmental, adaptation, and financial benefits will be reaped. First, this approach and methodology will enhance the resilience of infrastructure investments in the three chosen jurisdictions leading to the following: (a) minimized potential disruptions to society due to inadequate infrastructure services, particularly due to climate risks, (b) increased availability of infrastructure services to the economy, (c) lower operation and maintenance costs of the asset due to better quality of built infrastructure, and (d) increased use and protection of nature based solutions vs. hard infrastructure to respond to climate impacts.

78. The project will provide direct adaptation benefits to the private sector as well support the implementation of National Adaptation Plans. A preliminary assessment of the global adaptation benefits has been completed and calculated that the project will contribute to a combined 69,449 ha of land managed for climate resilience. This calculation was completed based on the inhabited land in each country and where infrastructure networks are based with attention to hotspots and areas at risk, with the assumption that the project will support at least 3 infrastructure projects in each country.

79. The total number of people trained has been calculated at 1150 (675 male and 475 female). These figures are based on those in government who are directly trained and benefit from applying the systemic resilience assessment tool, metrics and guidelines. Total beneficiaries for Antigua and Barbuda and two additional countries have been calculated at 6000 (3000 male and 3000 women), assuming at least 3 infrastructure project per jurisdiction of which there will be beneficiaries. This figure will be recalculated during PPG as national and subnational areas for intervention are confirmed.

80. The project will also contribute to the development of a total of 13 policies/plans that will support mainstreaming climate resilience. This calculation is based on the assumption that economic, public and private finance policies, and sectoral infrastructure development plans from the project would target mainstreaming climate resilience.

81. Global adaptation benefits can be attributed to each fund as follows.

Table 3. Global Adaptation Benefits

	Total	Male	Women
Core Indicator 1: Total number of beneficiaries	6000	3000	3000
SCCF	4000	2000	2000
LDCF	2000	1000	1000
Core Indicator 2: Area of land managed for climate resilience (ha)	69,449		
SCCF	60,000		
LDCF	9,449		
Core Indicator 3: Total no. policies/plans that will mainstream climate resilience	13		
SCCF	10		
LDCF	3		
Core Indicator 4: Total number of people trained	1150	675	475
SCCF	950	550	400
LDCF	200	125	75

NOTE: For calculations, Egypt and Uganda have been used as reference countries for the second SCCF country and LDCF country respectively.

g. Innovation, sustainability and potential for scaling up

82. Innovation: The project will allow governments to integrate climate risk analytics in national decision-making and enhance cost-benefit analyses at a macro-economic level. It innovates by uniting existing applicable systemic climate resilience methodologies, metrics and guidelines developed by the Systemic Resilience Forum Members, a workstream of the Coalition for Climate Resilience Investments that gathers Governments, Academia and Technical Agencies, Multilateral Finance Institutions and Credit Companies. Along with UNIDO's technical expertise in deploying climate-resilient finance initiatives, the project will introduce an inter-sectoral approach by combining innovative experiences such as the National Investment Prioritization Tool showed-case at the United Nations Climate Change Conference (COP26), allowing the execution and implementing agencies to bolster governments' capacity to undertake inclusive and climate-informed planning for new and existing infrastructure.

83. Sustainability: After the intervention, the national and subnational beneficiaries take ownership of the introduced systemic climate Resilience methodologies, metrics and guidelines, guaranteeing

further implementation thereby. As described in Components 2 and 3, the WRI in cooperation with UNIDO will ensure that the know-how transference and capacity building activities will enhance the Community of Practice, relevant stakeholders and beneficiaries to promote good practices and facilitate the knowledge required for their further introduction. Even after completion of the GEF-7 project, the beneficiaries will integrate a long-term vision into their investment plans ensuring climate-resilient infrastructure.

84. Potential for scaling up: The policy, coordination, regulatory work and replicability will be achieved under Component 1 and Component 2, leading to scaling-up potential by setting up the national and sub-national coordination structures and rules that allow the standardization and formalization of systemic climate resilience methodologies, metrics and guidelines addressing Physical Climate Risks. The support under Component 3 to structure the League of Investment Funds for Resilience (LIFR) will proceed to further pilot solutions by mobilizing additional investments and building relevant capacity. A series of asset managers, commercial and development banks, will raise capital for funds committed to integrating CCRI?S technical solutions as LIFR's goal. In such a manner, de-risking infrastructure investments will encourage and enable national and subnational authorities and the private sector to unlock investments in sustainable and climate-resilient projects across the countries.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

85. The project interventions will be located throughout Antigua and Barbuda (Coordinates: 17.0608? N, 61.7964? W); as well as two countries identified during PPG. However, the project cannot specify the exact locations of each pilot's activities due to the normative character of the same. An indicative map provides a general illustration of each country of intervention. The PPG phase will determine and confirm the exact location of the pilots.

Figure 2: Map of Antigua and Barbuda

Source: Worldometer

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement

UNIDO is the GEF implementing agency of the project, and is accountable for the GEF grant. The Executing Agency is the World Resource Institute (WRI).

86. Stakeholders will form a comprehensive integrated structure to enhance a synergy among the project partners and serve as the knowledge source of new clean technologies, emerging entrepreneurs, knowledge network, applied research collaboration and additional team members. Furthermore, to promote gender quality and the empowerment of women the guiding principle will be to ensure equal opportunity for women and men to lead, participate in and benefit from the project, e.g. early involvement of women entrepreneurs, associations that promote Gender Equality and Women"s Empowerment (GEEW) and gender focal points. This will be in line with the GEF Policy on Stakeholder Engagement that sets out the core principles and mandatory requirements for stakeholders? involvement.

Table 4: Participation of stakeholders

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project
Government and National Agencies	Ministries of Planning in selected SCCF and LDCF Countries	The Ministries of Planning play lead roles in achieving sustainable development, formulating impact-based policies via effective planning, monitoring & evaluation of government performance. If the selected countries have another ministry that is more relevant to the project, they will be added to the project as a key stakeholder.	The leading national counterpart will be the Ministry of Planning It is responsible for co-ordination with relevant ministries and national agencies in executing the project activities. Among other areas of intervention, the Ministry will consult the project regarding (domestic) public and private sector funding opportunities and technical support in identifying and developing investment projects. Also, the Ministry will support baseline data collection during PPG or the initial project phase. The Ministry will be part of the Project Steering Committee and the Project Management Unit.

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project
	Ministry of Health, Wellness & The Environment, Antigua and Barbuda	The Ministry is inter alia responsible for regulations, administration and protection of the environment. Among other functions, the Ministry provides technical advice and implements projects to protect and enhance the country's environment, as well as seek common solutions to national, regional and global environmental problems.	The Ministry will be a partner in the execution of the project and will assist the project especially for policies targeting adaptation measures. In particular, the Ministry will contribute its expertise and capacity building in integrated environmental planning and management system supported by public participation and interagency collaboration.
	Ministry of Works, Antigua and Barbuda	The Ministry of Works & Housing is responsible for national infrastructure development in Antigua and Barbuda. It covers planning and construction of major infrastructure services.	The Ministry will be a key partner in the adoption of long-term climate-resilient policies in investment plans for infrastructure. It will provide essential inputs for the contextualization of the methodology and the demonstration of its validity and replication potential through the pilots. The Ministry will be part of the PSC.

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project
Implementing Agency	UNIDO	UNIDO is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. UNIDO has in-depth experience of environmental and infrastructure priority areas of: energy, transport, and subnational financing.	UNIDO will serve as the GEF Implementing Agency for the project, through its Department of Energy in Vienna, supported by the UNIDO Regional Offices. UNIDO will take a lead role in managing Component 4: Monitoring and Evaluation. UNIDO will regularly monitor progress on each component to ensure the project is completed on time and to budget, as well as to be responsive and proactive about any potential adjustment or opportunities that arise that can further leverage the GEF grant for achieving additional GEBs. As per GEF and UNIDO guidelines, an independent terminal evaluation will be conducted at the conclusion of the project to glean best practices and lessons learned for future projects. UNIDO will join the PSC.

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project
Project Executing Entity (PEE)	WRI	WRI is a core founder of CCRI, currently leads the Systemic climate resilience Forum workstream, and is part of the implementation team for the Jamaica pilot. The Climate Resilience Practice team has extensive experience in supporting national and subnational adaptation finance planning and investment, particularly in the developing world. The team also co-managed the Global Commission on Adaptation and led the Finance and Investment track.	WRI will serve as the Project Executing Entity for this project. It will lead country engagement, ensuring early, frequent, and consistent consultations with in-country partners, including the government, in shaping the scope of work, monitoring of progress (thus allowing for changes if need be), and in identifying potential investment avenues. It will take the lead in implementing Components 1 - 3, coordinate within and across the various components, in disseminating lessons learned, and leveraging project activities to connect with broader conversations on mobilizing private finance for adaptation purposes. WRI will be part of the PSC, establish and be responsible for the PMU within and across each pilot jurisdiction.

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project
Financial Sector	Development Finance Institutions (DFIs)	DFIs understand the opportunities and challenges of de-risking infrastructure and development project activities. Potential partners comprise the World Bank, the African Development Bank, the Inter-American Development Bank, and the International Finance Corporation (IFC).	DFIs will support the project with technical and financial support for the pilot demonstrations and in contributing to setting up the financial investment environment.
	Private financial institutions/commercial banks	Private financial institutions are interested in developing local investment opportunities, particularly in domestic currency. This includes subnational debt and equity transactions.	Private financial institutions will support project implementation by highlighting bottlenecks and solutions to enhance the investment environment, with particular respect to innovative financing mechanisms such as public-private partnerships, land-based financing, etc.
	Infrastructure asset managers	Infrastructure asset managers require safe and long-term investment opportunities. Creditworthy transactions to finance infrastructure services reflect long-term investments that can attract the global investment industry.	Infrastructure asset managers will support project implementation by providing inputs on the methodology for the development, selection, and prioritization of projects, as well as by financing pilot transactions.

Stakeholder main group	Stakeholder name / Agency	Existing activities with potential to be leveraged	Content engagement, contributions to the project
Project partner	Gender focal points and associations that promote Gender Equality and Empowerment of Women (GEEW) (e.g. gender focal points in ministries, women?s right groups, women business / finance associations).	UNIDO?s mandate to promote inclusive and sustainable industrial development (ISID) relies on the advancement of gender equality and the empowerment of women. UNIDO addresses gender inequalities in industry and harnesses women?s full potential as economic agents of change and leaders thereby transforming economies and generating inclusive growth. One of the guiding principles of the project will be to ensure that both women and men are provided equal opportunities to lead, participate in, and benefit from the project (UNIDO Gender Policy 2019). The project has been developed considering the UNIDO guide on gender mainstreaming in energy and climate change projects.	Gender dimensions will be considered in all decision-making processes. With respect to project management, the Project Steering Committee meetings will aim to be gender balanced and extend invitations to observers that represent gender dimensions, such as organizations / associations promoting gender equality and advocating women?s empowerment. During project activity implementation, effort will be given during stakeholder consultations towards focusing on gender equality and women?s empowerment issues, in particular during policy review and formulation.

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

?87. UNIDO recognizes that gender equality and the empowerment of women (GEEW) have a significant positive impact on sustained economic growth and inclusive and sustainable industrial development, which are key drivers of poverty alleviation and social progress. Commitment of UNIDO towards gender equality and women?s empowerment is demonstrated in its 2019 policy on Gender Equality and the Empowerment of Women which provides overall guidelines for establishing a gender mainstreaming strategy.

88. Environmental factors have gender-differentiated effects, due to men?s and women?s different roles and behaviours in various societies, as well as their different physiological characteristics. Whether one looks at energy, water, transport, urban design, agriculture, or consumption patterns, a gendered lens is key to understanding differences in environmental impacts.[1] According to General Recommendation No. 37 of the Committee on the Elimination of Discrimination against Women (CEDAW)[2], in many contexts, gender inequalities limit the control that women and girls have over decisions governing their lives, as well as their access to resources such as food, water, agricultural input, land, credit, energy, technology, education, health services, adequate housing, social protection and employment. The OECD[3] points out that as a result of these inequalities, women and girls are more likely to be exposed to disaster-related risks and losses to their livelihoods, and are less able to adapt to changes in climatic conditions. This section describes some aspects of how women and girls are affected by physical climate risks and how it affects their socioeconomic development.

89. According to CEDAW[6], Antigua and Barbuda has achieved steps towards the economic empowerment of women. However, women in the agricultural sector, including unmarried women and women who do not own property, are negatively affected by their lack of representation in the ongoing decision-making processes concerning land use and development planning. The lack of better-informed investment decisions to meet the particular needs of disadvantaged women in sectors such as agriculture, unpaid work, hospitality and the informal economy also represents an opportunity to be addressed by Physical Climate Risks Methodologies.

90. Climate change and natural disasters distinctively affect women in Antigua and Barbuda. Despite adopting a gender-responsive disaster risk reduction plan and gender-responsive early warning systems. The country still faces challenges in the lack of gender-responsive information in decision-making processes on disaster risk reduction strategies. The impact of Hurricane Irma in September 2017 continues to pose challenges to the education, health and livelihood of the affected women and girls.[7]

91. Due to the normative character of the project that seeks to reduce impacts of physical climate risks in infrastructure, women and men are expected to be affected differently by the project (in terms of their rights, needs, roles, opportunities, etc.). Therefore, the project aims to demonstrate good practices in mainstreaming gender aspects into an approach, knowledge products, and guidance for Systemic Risk Assessment and Investment Prioritization Tool (SRAT) Methodology, Metrics and Guidelines wherever possible and avoid negative impacts on women or men due to their gender, ethnicity, social status, or age.

92. Promoting women participation early in the project development phase is essential. Ensuring capacity building and skills transfer is important for women?s inclusion in technical and management roles. In this respect, national and subnational beneficiaries can capitalize on experiences with gender mainstreaming from ongoing projects, including training courses such as:

? UN Women free online training on I Know Gender Modules 1-2-3: Gender Concepts to get Started; International Frameworks for Gender Equality; and Promoting Gender Equality throughout the UN System.

? UNIDO and UN Women free online training Module 15 on Gender and Industrial Development.

? UNIDO's free online training on Impact Gender Lens Investing Module 1: Basics of gender lens investing.

? UNIDO's free online training on Impact Gender Lens Investing Module 6: Financing climate change mitigation and adaptation with a gender lens.

? Gender mainstreaming awareness raising workshops and conferences.

? Technical Skills upskilling/support from gender experts & consultants.

93. Consequently, during the project?s PPG phase, the project will actively seek to further gender-mainstream the whole project cycle. To this end, a gender analysis will be conducted to identify entry points for defining gender mainstreaming action plan and gender-sensitive project outcomes, outputs as well as activities, and the project log-frame will be refined to reflect key gender dimensions of the respective outputs, activities, indicators and targets. Additionally, relevant representation from gender equality and women?s empowerment groups and institutional focal points (e.g. gender focal points in ministries, women?s right groups, women business / finance associations) will be informed and consulted on gender-related activities.

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[1] OECD (2021), Gender and the Environment: Building Evidence and Policies to Achieve the SDGs, OECD Publishing, Paris,https://doi.org/10.1787/3d32ca39-en.

[2] Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) CEDAW/C/GC/37 (2018)

https://tbinternet.ohchr.org/Treaties/CEDAW/Shared Documents/1_Global/CEDAW_C_GC_37_8642_E.pdf

[3] OECD (2021), Gender and the Environment: Building Evidence and Policies to Achieve the SDGs, OECD Publishing, Paris,https://doi.org/10.1787/3d32ca39-en.

[4] UN Women (2021), Gender, Climate and Security, Sustainable Inclusive Peace on the Front Lines of Climate Change

[5] Ibid

[6] Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) CEDAW/C/ATG/CO/4-7 (2019)

https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CEDAW%2fC%2fATG%2fCO%2f4-7&Lang=en

[7] Ibid

94. In recent years, women?s economic empowerment and sustainable energy have emerged as key components of inclusive and sustainable growth, both as goals and, more significantly, as catalysts and strategies to accelerate and promote poverty reduction through productive activities. This welcomed recognition has impacted the international discourse surrounding the global development agenda. Now, gender equality and women?s empowerment (GEEW) have become widely accepted as preconditions for the success and sustainability of any initiative?policy formulation, project design and implementation, capacity building, etc.

95. UNIDO recognizes that gender mainstreaming is a key strategy for achieving gender equality and the empowerment of women (GEEW) which are crucial for achieving a significant positive impact on sustained economic growth and inclusive industrial development, which are key drivers of poverty alleviation and social progress. The project aims to demonstrate good practices in mainstreaming gender aspects through its activities, wherever possible, and avoid negative impacts on people, due to their gender. Consequently, gender dimensions will be considered throughout the whole project cycle. A guiding principle of the project will be to ensure that both women and men are provided equal opportunities to lead, participate in and benefit from the project. Therefore, the outcomes, outputs and activities will be designed to meet the different needs and priorities of women and men.

Gender Mainstreaming approach:

96. The analysis above shows the importance of considering gender dimensions in all project activities to enhance the effectiveness and sustainability of the project intervention. Accordingly, the project logical framework incorporated, wherever possible, the gender dimensions with specific indicators and targets in line with UNIDO and GEF Gender Policies and Strategies. In practical terms, the project will address, among others, the following actions:

? 96.1 A **detailed gender analysis** will take place and based on that a **gender mainstreaming action plan** will be developed during the inception phase. This will inform the project annual work plan to promote women's engagement and gender equality in the project execution and be adhered throughout the project execution and considered for regular monitoring of the progress.

? 96.2 Efforts will be made to promote **the participation** of women and men at parity levels (to the extent possible) in capacity building and awareness-raising activities, at community, managerial and technical levels, as participants (such as entrepreneurs) and trainers. Given that some of the trainings to be provided by this project will be technical, if necessary, the project will also provide bridging training courses so that women who may not have a technical background will have intermediary training.

? **96.3 Gender-responsive recruitment** will be practiced at all levels where possible, especially in the selection of project staff. Gender-responsive TORs will be used to mainstream gender in the activities and tasks of consultants and experts. In cases where the project does not have direct influence, gender-sensitive recruitment will be encouraged. In cases where the project is not expected to affect women and men differently, gender-sensitive recruitment will still be encouraged to ensure diversity in team composition. Furthermore, whenever possible existing staff will be trained, and their awareness raised regarding gender issues. Project staff is required to take the online training I Know Gender Modules 1-2-3: Gender Concepts to get Started; International Frameworks for Gender Equality; and Promoting Gender Equality throughout the UN System. Given the nature of the project, all project staff is required to take all modules of UNIDO?s Impact Gender Lens Investment online training course. When specific gender expertise is required, the project will hire gender experts to fulfil gender-mainstreaming activities.

? 96.4 All **decision-making processes** will consider gender dimensions. At the project management level, Project Steering Committee meetings will invite observers to ensure that gender dimensions are represented, while also the gender-balanced composition in the project committee will be emphasized. For this purpose, women?s groups and associations, gender experts and /or other stakeholders concerned with gender and energy will be consulted.

? 96.5 When **data-collection or assessments** are conducted, especially for monitoring and evaluation gender dimensions will be considered. This can include sex-disaggregated data collection, performing gender analysis, etc.

? 96.6 All **training materials and knowledge management** activities will be gender mainstreamed. This includes integration of gender dimensions into publications, for instance presenting sex-disaggregated data, gender-energy nexus theory, gender-sensitive language in publications, photos showing both women and men, and avoiding presenting stereotypes, as well as assuring that women, men and the youth have access to and benefit from the knowledge created.

97. Gender will be mainstreamed across the activities of the project, below are a few examples of how activities the project envisions to undertake specifically that address Gender Equality and the Empowerment of Women:

? 97.1 A gender analysis and a gender mainstreaming action plan will be carried and developed.
? 97.2 Specific analysis of the existing policy frameworks and inclusion of a gender component for the policy frameworks to be developed under Outcome 1.
? 97.3 The piloting of the Impact Gender Lens Investing Module 6: Financing climate change mitigation and adaptation with a gender lens for the capacity building of stakeholders.
? 97.4 Including a special focus on Gender Equality and the Empowerment of Women in the lessons learnt and knowledge sharing under Outcome 2.
? 97.5 The lesson under Outcome 2 will then inform replication of the systemic reliance methodologies in Component 3

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources;

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project?s results framework or logical framework include gender-sensitive indicators?

No

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

98. The private sector will be engaged in all three pilots as well as in the process of developing the systemic climate resilience metrics and the investment vehicle. They have already been consulted in the formulation of CCRI (over 100 members, with ~75% are private sector), and in the SRF.

99. For the pilots and development of the systemic climate resilience assessment methodologies, private providers of data and analytical services, engineering firms, will be engaged in helping design and execute the dynamic mapping platform. Private investors ? particularly domestic commercial banks, institutional investors, infrastructure asset managers ? will be consulted as part of the extensive stakeholder consultation process to ensure that their needs are taken into account and to bridge the potential gaps between what private investors need to know and what governments are sharing as relevant information.

100. WRI, as the host of the Systemic Resilience Forum and a core founding member of the Coalition for Climate Resilient Investment, has regular touch points with varied private sector actors. The Systemic Resilience Forum will be the main avenue through which WRI will consult with and involve the private sector in shaping the approach within countries and on metrics. The private sector is critical to developing systemic climate resilience metrics. These metrics need to accommodate what private investors would like to know about a country or jurisdiction?s ability to proactively assess and manage climate risks and the exposure of a jurisdiction to PCRs if no action was taken to reduce risk. Consultations will include specific discussions with international and country/locale-specific private sector actors.

101. The structuring of the investment vehicle relies heavily on private investor participation. They will be integral to the design of the vehicle ? the project will consult key members of CCRI who have already expressed interest in investing in the vehicle, as well as other infrastructure and emerging market investors.

102. Under the scope of this project, infrastructure construction/ engineering firms will be involved in the development of methodologies for assessing the resilience of infrastructure systems and adaptations options available to enhance this. As such, the scope down not extend down to individual asset design and structuring.

5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Table 5: Project risks and mitigation strategies

Risk	Impact Severity	Likelihood	Risk Mitigation Strategy	Responsible Party

Risk	Impact Severity	Likelihood	Risk Mitigation Strategy	Responsible Party
National/subnational government stakeholders remove support of project	High	Low	The Project is securing high level buy-in and endorsement from Ministries of Planning in selected countries, such as Antigua and Barbuda. The project will engage Ministry and other key stakeholders on a frequent basis: for example, in Jamaica, we embedded a project liaison within the PIOJ, who interacted daily with the main stakeholders. The project will also engage intra-Ministry committees (E.g., national planning or finance councils) to secure cross-government support. A removal of support would complicate implementation of Components 1 and 2 ? the project will continue to be in dialogue with other potential national/subnational candidates in the unlikely event that our primary pilots fall through.	UNIDO/WRI
Co-finance partners are unable to fulfill responsibilities	High	Low	Liaise frequently with current and potential financial partners. Showcase the value of this work and its potential for mobilizing finance.	UNIDO/WRI
Accessibility of data	High	Medium	The project will begin immediately to work on sourcing data ? often, this is the most complex part of the process due to permissions, purchasing timelines, etc.	UNIDO/WRI

Risk	Impact Severity	Likelihood	Risk Mitigation Strategy	Responsible Party
Pilot projects cannot be implemented due to changing priorities or as planned	Medium	Medium	Based on our experience in Jamaica, a strong project management and central coordinating team is necessary to ensure rapid and early identification of potential issues, changing priorities, and to ensure that tendering/procurement happens in a timely manner.	UNIDO/WRI
Inadequate support from national/local stakeholders to change policies and approaches	High	Low	The project will establish a multi-stakeholder cross government dialogue to bring together relevant parties and to secure their commitment to the project as well as to the necessary changes needed. It will conduct political economy analyses at an early stage of the project to ensure that potential roadblocks are identified early and inform project engagement.	UNIDO/WRI

Risk	Impact Severity	Likelihood	Risk Mitigation Strategy	Responsible Party
Investors are not interested in investment vehicle	Medium	Medium	The project has already begun consulting with public and private investors, with verbal commitments already secured to structure an investment vehicle. The project will continue to consult regularly with potential investors, sharing project updates, conduct prefeasibility studies for investment potential, and facilitate connections between investors and potential project proponents.	UNIDO/WRI
Methodologies do not meet stakeholder expectations	High	Low	The project will co-develop the methodology and requirements for the mapping platform with the planning institutes of each jurisdiction. It will be tailored/customized to the necessary processes and will also take into account other key stakeholders? needs.	UNIDO/WRI
Resistance to or lack of interest to active promotion of gender equality	Low	Medium	This project will pursue thorough and gender responsive integration and ensure stakeholder involvement at all levels, with special regard to involving women and men. Following UNIDO ESSP and gender policy requirements, the gender mainstreaming plan will be applied to mitigate this risk.	UNIDO/WRI

COVID-19 risk analysis[1]

Table 6: Covid-19 risk analysis

Risk	Risk level	Risk mitigation measure
Further project evolution in PPG phase cannot be executed as per expected timelines due to the pandemic, leading to a delay with the CEO endorsement request.	Low/ Medium	Some delays in communications and consultations with counterparts and stakeholders are expected, in case lockdown regulations and directions in selected countries continue to be enforced throughout the year 2022. The PPG work plan will be developed in consideration of such risk factors, and initial communications with the stakeholders will provide extra emphasis on the timelines so that the counterparts and stakeholders are fully aware of the timelines within which the project development must take place. Also, opportunities in the post-recovery measure of COVID-19 will be communicated to increase the level of confidence of stakeholders in how the project can support the selected countries in addressing not only its climate challenges but also in supporting economic growth. In the case that delays are still foreseen, UNIDO will immediately inform the GEF Focal Point of selected countries at the GEF Secretariat to seek support and guidance.

Availability of Technical Expertise and Capacity and Changes in Timelines	Low	The project will carefully anticipate and monitor any possible implications of COVID-19 for a project starting in 2023. This includes continued lockdown regulations, their respective implications on planning and working conditions in government agencies (including planning institutes and the related personnel working in these offices), and capacity changes with the executing entity and other project partners. Regarding capacity changes at core partners, this will require the project to identify alternative stakeholders; the foreseen diversity of partners will allow decreasing the risk. Communication within the technical working groups and other committees such as roundtables will allow retaining an open dialogue with the beneficiaries in this respect.
Stakeholder Engagement Process	Low	Hybrid stakeholder engagement processes consisting of both virtual and face-2-face meetings are foreseen throughout the project. In light of experiences made with the pandemic in 2020, the project will ensure that all exchanges foreseen as physical meetings such as conferences, workshops will be planned with a virtual alternative scenario. The increased experience with using virtual conferencing solutions help to decrease this risk.
Enabling Environment	Low	Fostering resilient methodologies and frameworks to tackle climate change is aligned with supporting countries to develop, enhance and/or achieve their Nationally Determined Contributions. For example, the project is aligned with the Updated Nationally Determined Contributions of Antigua and Barbuda[2]. These frameworks highlight the importance of introducing systemic resilient methodologies, cross-cutting data to strengthen climate change adaptation efforts, and interventions in energy security, reindustrialization, and green economy. The project will thus seek to harness opportunities with respective COVID-19 measures.

Financing (National debt crisis, availability of co-financing, price increases in procurement)	Low	As per the foreseen budgeting approach, GEF a diversity in co-financing allows the project t certain resilience against financing risks. A clo monitoring of financing risks and an open dial co-financiers will be done by the executing ag

[1] Refer tohttp://www.thegef.org/sites/default/files/documents/GEF_COVID_Project_Design_Review_Considerations_20200925.pdf

[2]Antigua and Barbuda. First Nationally Determined Contribution (NDC) (Updated submission) 2021

https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Antigua%20and%20Barbuda%20First/ATG%20-%20UNFCCC%20NDC%20-%202021-09-02%20-%20Final.pdf

COVID-19 opportunity analysis

103. For the project, opportunities in the context of measures taken in response to the COVID-19 pandemic exist regarding policy reforms and practices on systemic resilient infrastructure for climate change mitigation and engaging with the private sector, also in line with the Updated Nationally Determined Contributions of Antigua and Barbuda. Additional opportunities will be identified during PPG in selected countries.

Table 7: COVID-19 opportunity analysis

Opportunity	**Opportunity level**	**Opportunity optimization measure**
Promoting policy reforms in line with recovery plans, access to public utilities and financial transparency.	High	Governments guarantee that infrastructure assets and networks continue providing water, electricity and gas to the most vulnerable by prioritizing infrastructure investments based on an understanding of maximizing the resilience benefits.

Addressing macroeconomic instability and physical climate risks mispricing in the context of the pandemic.	High	Governments adequately allocate financial resources to infrastructure projects adopting practical tools and methodologies that systemically assess and manage PCRs.
Enabling private sector development and ensuring adequate credit availability through commercial banks and non-bank financial institutions.	High	The establishment of the investment vehicle mobilizes new capital investments stimulating private sector recovery and the availability of debt payments.
Promote local business development projects which improve resilience to climate change.	High	Fostering systemic resilience methodologies allow governments to become more resilient to the adverse impacts of climate change, e.g. concerning the reliability of public utilities supply.

Preliminary climate risk assessment

104. Climate risk assessments will be completed for all countries selected for the project during PPG. A key criteria for selecting the two additional countries during PPG will be a country's vulnerability to climate change. A preliminary climate risk of assessment for Antigua and Barbuda is now presented.

Antigua and Barbuda?s sensitivity to climate change, and its impacts

105. Antigua and Barbuda is exposed economically, environmentally and socially to projected climate change impacts which will result in a greater intensity of hurricanes, more frequent droughts, high temperatures and sea-level rise. Downscaled climate projections to inform detailed risk modelling for Antigua and Barbuda indicate that Antigua stands to lose approximately 26.6 to 35.3 square kilometres of low-lying coastal land to sea level rise by 2080. The estimated value of assets on this land is USD196 to USD 293 million. Similarly, Barbuda is projected to lose between 24.2 and 29.6 square kilometres of land, as well as assets valued at between USD 68.9 and USD 123.9 million.

106. Analysis of climate change for the islands also projects accelerated coastal erosion and inundation, lower average annual rainfall, increased rainfall intensity causing flooding, prolonged periods of drought, and an increase in tropical cyclones frequency and intensity.

107. Economic and natural disaster shocks put an estimated 80.4% of the country?s GDP at risk. The country is still recovering from the economic and social fallout caused by the devastating Hurricane Irma in 2017. The country suffered damage and loss of USD155.1 million (10% of GDP) impacting houses, public buildings, hotels, firms engaged in tourism sector and safety nets of vulnerable households. In Barbuda, 95% of the housing stock was damaged or destroyed and the entire population of 1,600 persons were evacuated to Antigua following the devastation.

108. Between 2015 and 2020, the combined cost incurred to Antigua and Barbuda from tropical storms and hurricanes was USD232 million. On average, hurricanes account for 8.4% of the annual loss in GDP for Antigua and Barbuda. The combined immediate post-event damages caused by hurricanes Irma and Maria in 2017 ? which equated to USD136 million ? lowered Antigua and Barbuda?s GDP growth rate by 1.1% because of reduced tourism infrastructure and increased spending on relief efforts and repairs.

109. The country?s economy is heavily dependent on natural resources, low-lying coastal zones, and favourable climate conditions to support the tourism sector, which accounts for about 80% of output gross domestic product (GDP), about 70% of direct and indirect employment and 85% of foreign exchange earnings. Despite a high-income ranking, approximately 18% of the total population (which is above 97,000) falls below the national poverty line; 3.7% indigent (food poor); and 10% vulnerable to poverty in the event of a significant socio-economic shock or natural hazard.

110. When considering the proportion of the population that is at risk of falling into poverty if there is a shock to the economy, the percentage rises to 28%. This barrier has placed a strain on the country, limiting its ability to maintain economic growth and requiring the diversion of critical financing away from health and other development sectors to climate change loss and damage response programmes.

Climate risks and mitigation measures by output

111. Climate changes will progressively impact infrastructure assets and networks ? water and sanitation, energy, transport, housing and the ability to invest and prioritize at national and sub-national levels. In addition, rising levels of the oceans, desertification and rapidly growing population in cities increase the expected climate hazards and their consequences in current and future infrastructure, making countries more vulnerable to climate change. However, The character of the project is normative. As it focuses on introducing systemic resilience methodologies that consider Physical Climate Risks (PCRs) in governments investment planning exercises for infrastructure, climate risks represent an opportunity for the project to achieve its objective. Therefore, mid and long term impacts of climate risks will not severely affect the project implementation.

Table 8: Climate risks and mitigation measures by output

Project Objective and Output	**Climate risks over the period 2020 to 2050**	**Resilience practices and mitigation measures**
Outputs under Component 1: Adopting long-term climate-resilient policies in investment plans for infrastructure.	This component will intrinsically integrate the climate risks expected over the next 30 years into its approach.	- Institutional capacity strengthened on addressing climate risks, knowledge of resilience enhancement measures and climate risks are integrated into policy measures to address PCRs.
Outputs under Component 2: Demonstration of systemic climate resilience methodologies and metrics through selected pilots and Component 3: Replication of systemic climate resilience methodologies in government infrastructure investments and structure an investment environment for upscaling pilots.	Climate risks and hazards could affect the project?s objectives or outputs over 2020 to 2050. Due to its geographical location, Antigua and Barbuda may experience a higher impact of environmental hazards linked to climate change to physical, project and institutional infrastructure. These could include risks of flooding due to rising sea levels, blackouts and storms affecting software and hardware and impacts of hurricanes that may halt the normal operations of government institutions and economic activities.	- Comprehensive risk assessment completed during PPG will ensure appropriate locations within national and subnational agencies are selected that have minimal exposure to identified hazards. - Project stakeholders engage with regional and international platforms to facilitate knowledge exchange on best practices for addressing climate risks related to infrastructure investment plans.

Technical and institutional capacity and information needed to address climate risks and resilience enhancement measures

112. The project stakeholders will provide technical and institutional support in the form of personnel and computational equipment where the systemic climate resilience methodologies will support and inform their decision making bodies. Project beneficiaries such as ministries and planning institutes will facilitate data, statistics and any additional inputs that will enhance the adaptation of the Systemic Climate Resilience Assessment and Investment Prioritization Tool for each national and subnational context.

113. The results of the analysis of investment planning as per Output 1.1 will inform the project management if transference of technology such as hardware and software as well as training of technical personnel in using the methodologies is required. Also, project stakeholders will provide the required information to address climate risks such as local data, statistics and liaise with planning institutes to promote the introduction of the adapted methodologies and metrics that address physical climate risks in their country contexts.

6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

114. UNIDO as the GEF Agency will be responsible for the implementation of the project, which entails oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and requirements. The project will be executed by a national Project Executing Entity (PEE), the Coalition for Climate Resilient Investments (CCRI) led by the World Resources Institute (WRI).

115. The proposed institutional structure for the GEF funded project comprises a number of bodies. In general, the project will be managed by a Project Manager at the Project Executing Entity that works in close cooperation with the Planning Institutes of Antigua and Barbuda, and the selected countries. The main project bodies are the following:

116. The **Implementing Agency (IA)** for the project will be United Nations Industrial Development Organization (UNIDO), i.e., UNIDO?s Department of Energy in Vienna supported by the UNIDO Field Offices in Colombia for Antigua and Barbuda and in relevant field offices for the other countries selected. UNIDO supports the project implementation and serving as counterpart towards GEF.

117. The **Project Executing Entity (PEE)** for the project is responsible for the management and administration of the project as well as managing the delivery of project outputs. The PEE for the project is the Coalition for Climate Resilient Investments (CCRI) led by the World Resources Institute (WRI). The envisaged PEE was nominated by the Government. As the PEE, WRI will be responsible for the implementation of Components 1 - 3, with Component 4 on Monitoring and Evaluation being led by UNIDO.

118. WRI will establish the **Project Steering Committee (PSC)**, a high-level cross-sectoral committee composed of representation from each pilot jurisdiction, the IA, PEE, and other partner organizations. Representatives from the following institutions will be included: lead policy makers from each jurisdiction?s planning authority, with observers from their relevant financial authority, UNIDO, the project lead from WRI, co-financing agencies such as FCDO, and partner organizations like the World Bank.

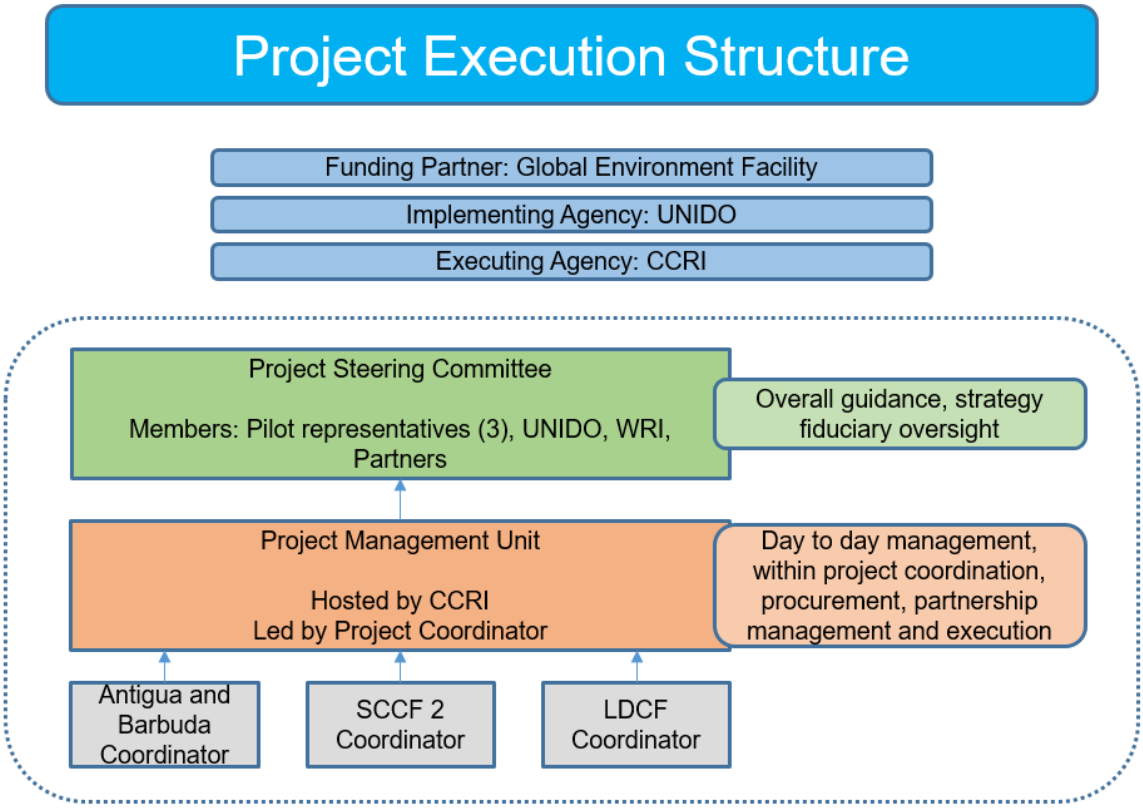
119. The project steering committee will supervise and provide guidance to the project execution. The function of the PSC is to focus mainly on overall progress in meeting project objectives, strategic issues and financial management of the project. It will meet at least twice a year or more frequently, if required.

120. The **Project Management Unit (PMU)** will be responsible for day to day management of the project. WRI will appoint a Project Coordinator, who will lead this unit. The PMU will report to the PSC and UNIDO. The PMU will be responsible for procurement of contracting services as is necessary for implementation of the project. Each jurisdiction?s planning institute and/or main counterpart will have decision-making power in selecting service providers for their jurisdiction. The PMU is designed to achieve efficiency and coordination in the execution of components (particularly where there are interdependencies) and in the management of funding from a variety of donors, the government and non-governmental organizations (NGOs). Each jurisdiction will have dedicated coordinators.

121. The project team will work with project stakeholders during the PPG phase to create and strengthen existing linkages with other agencies and actors presently planning or implementing relevant projects that could contribute to the final outcomes of this GEF project. The project team will actively identify relevant partners and engage in multiple stakeholder consultations to ensure related issues and concerns are considered in the implementation and management of the project. A comprehensive stakeholders? involvement plan will also be created to build on best practices and ensure lessons learned are incorporated by the project implementation team. A coordination mechanism will also be established to facilitate proper coordination and monitoring of the baseline project proponents.

122. The anticipated institutional setting is illustrated below:

Figure 3: Institutional Arrangement



Source: Authors

123. The project will coordinate with other relevant project to leverage synergies among different projects. This includes coordinating within UNIDO to build on and compliment two UNIDO GEF-financed projects: 1) ?Using systematic approaches and simulation to scale Nature Based Infrastructure for climate change? (GEF ID: 10632); and 2) the UNIDO GEF-financed project entitled ?Piloting innovative financing for climate adaptation technologies in medium-sized cities (GEF ID: 10433). Knowledge and lessons learned from these project will be integrated into the CEO Endorsement document during the PPGs and opportunities to create additional partnerships and synergies explored and realized.

124. Technology transfer: Full or partial ownership of equipment/assets purchased under the project may be transferred to national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the government counterpart in consultation with the UNIDO Project Manager.

125. Legal context: It is expected that each set of activities to be implemented in the target countries will be governed by the provisions of the Standard Basic Cooperation Agreement concluded between the Government of the recipient country concerned and UNIDO or ? in the absence of such an agreement ? by one of the following: (i) the Standard Basic Assistance Agreement concluded between the recipient country and UNDP, (ii) the Technical Assistance Agreements concluded between the recipient country and the United Nations and specialized agencies, or (iii) the Basic Terms and Conditions Governing UNIDO Projects.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assesments under relevant conventions?

No

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

126. Determining consistency with national priorities of the two additional countries selected will be conducted during PPG. Consistency of national priorities with this project for Antigua and Barbuda are now presented.

127. The Government of Antigua and Barbuda approved the **Sustainable Island Resource Management and Zoning Plan (SIRMZP),** which serves as an additional source to periodically update the **National Physical Development Plan (NPDP) [1]. The SIRMZP** presents a national spatial development framework that addresses current development issues and provides a platform for feasible private and public-sector development initiatives over the next twenty years.

128. Additionally, Antigua and Barbuda will submit its **National Adaptation Plan (NAP)** to the UNFCCC by 2022**.** The NAP aims to contribute to the achievement of the 2015 Paris Agreement?s global goal on adaptation by mainstreaming evidence-based adaptation planning processes and implementation into the day-to-day operations of Antigua and Barbuda?s public and private sectors.

129. The NAP has a hybrid approach, incorporating sector-focused with national assessments to form a comprehensive strategic plan on adaptation planning. Their priority sectors include finance, protected/managed areas, infrastructure, housing, tourism, food security and wholesale and retail.[2] The NAP aims to update the SIRMZP to ensure recent climate information is included and inform actions to accomplish NDC targets.

130. Guided by its NDC, Antigua and Barbuda?s NAP process involves, amongst others, downscaled and GIS-based baseline data collection and climate risk assessment activities for adaptation action; evidence-based and consultative sectoral and local areas planning; and development of a corresponding enabling environment via policies, legislation, and financial incentives necessary for the implementation of the selected adaptation actions.[3][4]

131. The project seeks to support Antigua and Barbuda, and selected countries as signatories to the UNFCCC and the Paris Agreement in achieving their Nationally Determined Contributions. The project targets to support the beneficiary countries in overcoming capacity, methodological, and technology needs as identified in **Intended, Interim** and **Nationally Determined Contributions and National Communications.** These frameworks highlight the importance of introducing systemic resilient methodologies and cross-cutting data to strengthen climate change adaptation efforts. The project also links to other international reporting frameworks and policy documents in enhancing transformational shifts towards a low-emission and resilient development path, including the Agenda 2030 with its SDGs.

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[1] The Government of Antigua and Barbuda. Antigua and Barbuda's First Biennial Update 2020

Report.https://unfccc.int/sites/default/files/resource/Antigua%20and%20Barbuda%20-%20UNFCCC%20Biennial%20Update%20Report%201%20-%20Final.pdf

[2] Antigua and Barbuda. First Nationally Determined Contribution (NDC) (Updated submission) 2021

https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Antigua%20and%20Barbuda%20First/ATG%20-%20UNFCCC%20NDC%20-%202021-09-02%20-%20Final.pdf

[3] Ibid

[4] NAP Global Network 2021

https://napglobalnetwork.org/wp-content/uploads/2021/06/napgn_en_2021_TORs_Antigua_Barbuda.pdf

8. Knowledge Management

Outline the knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

132. Overall KM strategy: the project will apply several instruments for its knowledge management (KM) which are partially integrated into the activities and deliverables of the project components. The KM instruments and products are based on experiences and best-practices approaches of UNIDO and WRII. Internal knowledge management will be undertaken through monthly coordination calls or meetings between the WRI and the Technical Work Groups, annual meetings of the Steering Committee, regular coordination calls between the WRI and the sponsors of the pilot projects etc. The WRI will develop a methodological approach to track activities, knowledge conceptualized, and the impacts of its work.

133. As described under Component 1 and 2, the Systemic Risk Assessment and Investment Prioritization Tool (SRAT) and metrics will be introduced. The SRAT and the Metrics will help map the exposure of the countries? energy, water, and transport infrastructure networks to current and

future PCRs (to a 20-year timeframe). The WRI will develop an internal procedure guidebook for the operationalization of the tool to ensure the definition of necessary processes for current and potential future staff.

134. As described under Component 2, the Impact Gender Lens Investing (GLI) will be piloted. WRI in cooperation with UNIDO will make sure that relevant stakeholders and beneficiaries of the project build capacity through this online training, specifically Module 6, on Financing climate change mitigation and adaptation with a gender lens. The results from the piloting of SRAT, Metrics and GLI will inform material for fact sheets and the lessons learned. The following KM results indicators will be applied (see description below):

Table 9: Knowledge management result indicators

KM objective	KM Indicators	Baseline	Targets	Means of Verification

Results documentation and assessment	**Indicator KM1:** Number of Systemic Risk Assessments per countries **Indicator KM2:** Number of Investment Prioritization Tools introduced **Indicator KM3:** Number of Systemic Climate Resilience Metrics developed per country **Indicator KM4:** Number of national planning institute staff trained with the GLI Online trainings. **Indicator KM5:** Number of country fact sheets	**Baseline KM1:** 0 **Baseline KM2:** 0 **Baseline KM3:** 0 **Baseline KM4:** 0 **Baseline KM5:** 0	**End of project target KM1:** 3 **End of project target KM2:** 3 **End of project target KM3:** 3 **End of project target KM4:** minimum 45 staff **End of project target KM5:** 3	M&E reporting and results

Dissemination and sharing with stakeholders	**Indicator KM6:** Number of guides and guiding documents e.g. case studies **Indicator KM7:** Number of moderated exchange events between the three pilots that allow for cross-fertilization of lessons **Indicator KM8:** Number of webinars/moderated discussions with SRF members showcasing innovations and experiences **Indicator KM9:** Findings of the specific gender analysis in PCR frameworks and gender- mainstreaming achievements disseminated	**Baseline KM6:** 0 **Baseline KM7:** 0 **Baseline KM8:** 0 **Baseline KM9:** 0	**End of project target KM6:** 3 **End of project target KM7:** 2 **End of project target KM8: 3** **End of project target KM9: 3**	M&E reporting and results Publication on webpage Gender Mainstreaming action plan

135. Learning from experiences: As a platform for knowledge transfer, the WRI will establish a help desk enabling the transfer of national and international best practices from partners and existing projects supported by UNIDO to the local stakeholders in Antigua and Barbuda, Egypt and Uganda. UNIDO and partners will support the participation in awareness-raising activities, training sessions, the UNFCCC COP27 and will guide the development of the database and knowledge products.

136. **Results assessment and documentation**: The results of the pilot activities will be captured in knowledge products, e.g., fact sheets (see Deliverables for Output 2.3). The fact sheets will present the lessons learnt and main technical, environmental and economic characteristics. The sheets will be informed by project documentation (e.g. policy framework analyses) and the first performance reports summarizing the results in terms of Physical Climate Risks, GHG mitigation and sustainable development impact, if available in the initial phase already. In addition, sanitized information of the country profiles in regards to PCRs will be published on the WRI webpage.

137. Outreach and dissemination to stakeholders: The knowledge products focus on sharing information and results of the project and on systemic climate resilience methodologies to relevant stakeholders and the public. This will be done as described through training sessions, workshops and multi-stakeholder meetings tailored to the needs of each stakeholder (national and subnational governments, project developers, investors and operators). Additionally, a website on Systemic Climate Resilience Methodologies will be developed on the WRI website following elements could be published subject to the final design and content available and required:

? **Demonstration projects fact** sheets include a summary of the technical, environmental and economic characteristics of all the demonstration projects developed.

? **International case studies and best practices** including international case studies and best practices.

? **Resources** including reports, summaries, recordings and live streams from workshops and webinars, and infographics are available for download.

? Access to the **Impact Gender Lens Investment Online Training.**

? **News / Media and event calendar** including news, updates on events as well as media tool kits with tailored communication.

138. All **training materials and knowledge management** activities will be gender mainstreamed. This includes integration of gender dimensions into publications, for instance, presenting gender-disaggregated data, gender energy nexus theory, gender-sensitive language in publications, photos showing both women and men, and avoiding presenting stereotypes, as well as assuring that women, men and the youth have access to and benefit from the knowledge created.

9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Low			

Measures to address identified risks and impacts

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

139. Based on UNIDO's environmental and social screening and categorization outcome, the proposed project/programme is likely to have minimal or no adverse social and/or environmental impacts. No further specific environmental and/or social assessment is required during Project Formulation or Inception. Additional requirements may, however, still apply. For example, in this project, and environmental and social management framework will be developed to ensure environmental and social consideration are applied across the project's methodologies and tools.

Preliminary climate risk assessment

140. The character of the project is normative. It focuses on introducing systemic resilience methodologies that consider Physical Climate Risks (PCRs) in governments investment planning exercises for infrastructure. Investments in infrastructure assets and networks ? water and sanitation, energy, transport, housing are critical as they form the backbone of economies and societies. The growing impacts of climate change further challenge the integrity of existing and new infrastructure systems. Tackling the infrastructure needs of countries and the climate crisis will require significant amounts of financial resources. These challenges present an opportunity to embed and integrate systemic resilience methodologies in future infrastructure investments. Therefore, the project seeks to strengthen the regulatory framework addressing PCRs, piloting systemic resilience methodologies and building capacity amongst the beneficiaries in Antigua and Barbuda, and selected countries to increase the sensitivity to climate change in their government investments.

141. Climate risks will not affect the implementation of the objective and outputs of the project. Each objective seeks to address the impact of climate risks, more specifically, PCRs in the short and long term. It targets authorities involved in the decision-making processes to upstream policies and practices around infrastructure investment planning and prioritization. It also focuses on demonstrating the feasibility, value, and attractiveness of using systemic resilience methodologies in infrastructure planning and investment cycles. It will build capacity within the relevant stakeholder institutions to continuously update and use the systemic resilience approaches in their decision-making process. In the long term, the project aims to develop and structure an investment vehicle, alongside other public and private financiers, that will deploy capital based on the use of these systemic resilience approaches that address climate risks.

142. The project introduces resilience practices to tackle climate change risks and their impacts. The project's flagship methodology will introduce the Systemic Resilience Assessment and Investment Prioritization Tool. This tool models infrastructure networks (e.g., transport, energy, water), overlaying with climate impacts like floods, droughts, landslides, and identifies points of multi-modal network failures, service disruptions, and the resulting macroeconomic losses. This approach is currently being pioneered in **Jamaica** and points to some early lessons. Through this exercise, the methodology also identifies where adaptation options could be useful to shore up responses to climate risks, and the associated costs and benefits of these options.

143. The project stakeholders will provide technical and institutional support in the form of personnel and computational equipment where the systemic resilience methodologies will support and inform their decision making bodies. Project beneficiaries such as ministries and planning institutes will facilitate data, statistics and any additional inputs that will enhance the adaptation of the Systemic Resilience Assessment and Investment Prioritization Tool for each national and subnational context.

144. The results of the analysis of investment planning as per Output 1.1 will inform the project management if transference of technology and training of technical personnel in using the methodologies is required. Also, project stakeholders will provide the required information to address climate risks such as local data, statistics and liaise with planning institutes to promote the introduction of the adapted methodologies and metrics that address physical climate risks.

145. The Planning Institute of Jamaica (PIOJ) is piloting the Systemic Resilience Assessment and Investment Prioritization Tool. The team has been able to customize the tool, mapping the exposure of the country?s energy, water, and transport infrastructure networks to current and future PCRs (to a 20-year timeframe), and supported the identification of investment priorities based on this exposure and on a mapping of where social and economic value are concentrated.

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
E&S_Screening_SAP_ID_210285_GEF7	

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And GEF Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Diann Black Layne	Operational Focal Point since 2013-09-16 Political Focal Point since 2013-09-16 Ambassador and GEF NOFP	Ministry of Foreign Affairs, Antigua and Barbuda	

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

Figure 6: Map of Antigua and Barbuda

Source: Worldometer

Coordinates: 17.0608? N, 61.7964? W