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Report No: {ReportNo}

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF
US$ 41 MILLION EQUIVALENT

WITH PROPOSED CO-FINANCING FROM CLIMATE INVESTMENT FUNDS
IN THE AMOUNT OF
STRATEGIC CLIMATE FUND GRANT **US$12 MILLION** EQUIVALENT
AND
STRATEGIC CLIMATE FUND CREDIT **US$15 MILLION** EQUIVALENT

TO
SAINT LUCIA

FOR A

DISASTER VULNERABILITY REDUCTION PROJECT

{RVP/CD CLEARANCE DATE - SAME AS ON MOP}

CURRENCY EQUIVALENTS

(Exchange Rate Effective Date)

Currency Unit = XCD
XCD 0.37 = US$1
US$ XX = SDR 1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CAFF	Climate Adaptation Financing Facility
CARICOM	Caribbean Community
CARPHA	Caribbean Public Health Authority
CCCCC	Caribbean Community Climate Change Center
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDB	Caribbean Development Bank
CDM	Comprehensive Disaster Management
CIF	Climate Investment Fund
CRW	Crisis Response Window
DMP II	Second Disaster Management Project
DRM	Disaster Risk Management
DVRP	Disaster Vulnerability Reduction Project
ECCB	Eastern Caribbean Central Bank
ECLAC	United Nation's Economic Commission for Latin America and the Caribbean
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environment Management Plan
ERDMP	Emergency Recovery Disaster Management Project
ERL	Emergency Recovery Loan
ESSAF	Environmental and Social Screening and Assessment Framework
EU	European Union
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery
GIS	Geographic Information System
GoSL	Government of Saint Lucia
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
ICR	Implementation Completion Report
IDA	International Development Association
IFRS	International Financial Reporting Standards
LCS	Least Cost Selection

MIPS&T	Ministry of Infrastructure, Port Services, and Transport
MoE	Ministry of Education, Human Resource Development and Labour
MoF	Ministry of Finance, Economic Affairs, Planning and Social Security
MoH	Ministry of Health, Wellness, Human Services and Gender Relations
MoPP	Ministry of Physical Planning, Housing and Urban Renewal
MoSDEST	Ministry of Public Service, Sustainable Development, Energy, Science and Technology
MoSSaiC	Management of Slope Stability in Communities
NCB	National Competitive Bidding
NCCPAP	National Climate Change Policy and Plan
NEMAC	National Emergency Management Advisory Committee
NEMO	National Emergency Management Organization
OECS	Organization of Eastern Caribbean States
OM	Operations Manual
OP	Operation Policy
ORAF	Operational Risk Assessment Framework
PCC	Project Coordination Committee
PCU	Project Coordination Unit
PDO	Project Development Objective
PPCR	Pilot Program for Climate Resilience
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
RPS	Regional Partnership Strategy
SCF	Strategic Climate Fund
SDED	Sustainable Development and Environment Department
SLASPA	Saint Lucia Air and Sea Ports Authority
SLDB	Saint Lucia Development Bank
SPCR	Strategic Program for Climate Resilience
SoE	Statement of Expenditure
ToR	Terms of Reference
UWI	University of the West Indies
WASCO	Water and Sewerage Company
WRMA	Water Resources Management Agency

Regional Vice President:	Hasan A. Tuluy
Country Director:	Sophie Sirtaine
Sector Director:	Ede Jorge Ijjasz-Vasquez
Sector Manager:	Anna Wellenstein
Task Team Leader:	Tiguist Fisseha

SAINT LUCIA
Disaster Vulnerability Reduction Project

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PAD DATA SHEET

OECS Countries

Disaster Vulnerability Reduction Project for Saint Lucia (P127226)

PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND CARIBBEAN

LCSDU

Report No.: PAD391

Basic Information			
Project ID	Lending Instrument	EA Category	Team Leader
P127226	Investment Project Financing	B - Partial Assessment	Tiguist Fisseha
Project Implementation Start Date		Project Implementation End Date	
01-July-2014		30-June-2019	
Expected Effectiveness Date		Expected Closing Date	
01-July-2014		31-Dec-2019	
Joint IFC			
No			
Sector Manager	Sector Director	Country Director	Regional Vice President
Anna Wellenstein	Ede Jorge Ijjasz-Vasquez	Sophie Sirtaine	Hasan A. Tuluy

Borrower: Saint Lucia

Project Financing Data(US$M)					
[ ]	Loan	[X]	Grant	[ ]	Other
[X]	Credit	[ ]	Guarantee		

For Loans/Credits/Others

Total Project Cost (US$M): 68

Total Bank Financing (US$M): 41

Financing Source	**Amount(US$M)**
BORROWER/RECIPIENT	0.00
International Development Association (IDA)	24.00
Strategic Climate Fund (SCF) Grant	12.00
Strategic Climate Fund (SCF) Credit	15.00
Crisis Response Window	17.00
Total	68.00

Expected Disbursements (in USD Million)									
Fiscal Year	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**0000**	**0000**	**0000**
Annual	1.5	6.5	15.00	16.00	19.00	10.00	0.00	0.00	0.00
Cumulative	1.5	8.00	23.00	39.00	58.00	68.00	0.00	0.00	0.00

Expected Disbursements (in USD Million) SCF-PPCR Grant									
Fiscal Year	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**0000**	**0000**	**0000**
Annual	0.5	1.80	2.70	3.50	1.50	2.00	0.00	0.00	0.00
Cumulative	0.5	2.30	5.00	8.50	10.00	12.00	0.00	0.00	0.00

Expected Disbursements (in USD Million) SCF-PPCR Credit									
Fiscal Year	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**0000**	**0000**	**0000**
Annual	0.07	1.23	4.00	3.8	3.40	2.50	0.00	0.00	0.00
Cumulative	0.07	1.30	5.30	9.10	12.50	15.00	0.00	0.00	0.00

Project Development Objective(s)

The proposed Project Development Objective (PDO) is to reduce vulnerability to natural hazards and climate change impacts in Saint Lucia.

Components

Component Name	**Cost (USD Millions)**
Component 1 – Risk Reduction and Adaptation Measures	50.40
Component 2 – Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making	8.60
Component 3 – Climate Adaptation Financing Facility	5.00
Component 4 – Contingent Emergency Response	1.00
Component 5 – Project Management and Implementation Support	3.00

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [X]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**

Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04	**X**	
Forests OP/BP 4.36		**X**
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10		**X**
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

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Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**

Description of Covenant

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Conditions

Name	**Type**
Operations Manual	Effectiveness

Description of Condition

GoSL to adopt operations manual, which is deemed satisfactory to the Bank;

Name	**Type**
Withdrawals for Component 3 (Climate Adaptation Financing Facility)	Disbursement

Description of Condition

No withdrawal shall be made for Climate Adaptation Financing Facility under Component 3until set conditions have been met:

a) SLDB has adopted the Operations Manual specific to the Climate Adaptation Financing Facility, which is deemed satisfactory to the Bank;
b) SLDB compliance with sequenced measures detailed within the institutional development plan in a manner deemed satisfactory by the World Bank

Name	**Type**
Withdrawals for Component 4 (Contingent Emergency Response)	Disbursement

Description of Condition

No withdrawal shall be made for emergency expenditures under Component 4 until set conditions have been met :

a) The Recipient has determined that an eligible emergency has occurred, has furnished to the Association a request to include said activities in the CER component in order to respond to said Eligible Emergency, and the Association has agreed with such determination, accepted said request and notified the Recipient thereof;
b) The Recipient has adopted the CER Operational Manual in form, substance and manner acceptable to the Association and the provisions of the CER Operational Manual.

Team Composition			
Bank Staff			
Name	**Title**	**Specialization**	**Unit**
Tiguist Fisseha	Disaster Risk Management Specialist	Team Lead	LCSDU
Niels B. Holm-Nielsen	Lead Disaster Risk Management Specialist	Lead Disaster Risk Management Specialist	LCSDU
M. Yaa Pokua Afriyie Oppong	Senior Social Development Specialist	Senior Social Development Specialist	LCSSO
Plamen S. Kirov	Senior Procurement Specialist	Senior Procurement Specialist	LCSPT
Leyla V. Castillo	Financial Sector Specialist	Financial Sector Specialist	FFIMS
David I	Senior Financial Management Specialist	Senior Financial Management Specialist	LCSFM
Margaret Patricia Henley Barrett	Operations Officer	Operations Officer	LCSDU
Patricia Acevedo	Language Program Assistant	Language Program Assistant	LCSDU
Christophe Chung	ET Consultant	Operations Analyst	LCSDU
Bishwa Pandey	ET Consultant	Data Management Specialist	LCSDU
Melanie Simone Kappes	ET Consultant	Disaster Risk Assessment Specialist	LCSDU
Sophia Bettencourt	Peer Reviewer	Lead Operations Officer	GFDRR
Emilia Battaglini	Peer Reviewer	Sr. Environmental Specialist	LCSEN
Pierre Bonneau	Peer Reviewer	Sr. Infrastructure Specialist	LCSTR
Fabio Pittaluga	Peer Reviewer	Sr. Senior Social Development Specialist	LCSSO
Andrej Popovic	Reviewer	Sr. Financial Sector Specialist	FFIMS
Non Bank Staff			
Name	**Title**	**Office Phone**	**City**
Daniel Thirion	Civil Engineer		
Luz Gonzales	Economist		
Michael J. Darr	Environmental Specialist		
Beatriz Pozueta	Coastal Engineer		
Kimberly Nicole Burrowes	Operations Analyst		
Monica Vidili	Gender & Microfinance specialist		
Emily Françoise Bove	Gender and M&E specialist		

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Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Saint Lucia					

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Institutional Data

Sector Board

Urban Development

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Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Water, sanitation and flood protection	Flood protection	50	100	
Public Administration, Law, and Justice	Public administration- Water, sanitation and flood protection	20	100	
Transportation	Rural and Inter-Urban Roads and Highways	25	100	
Health and other social services	Other social services	5	100	
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

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Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Social protection and risk management	Natural disaster management	50
Environment and natural resources management	Climate change	50
Total		100

I. STRATEGIC CONTEXT

A. Country Context

1. With a gross national income per capita of US$9,190,[1] Saint Lucia (SLU) is an upper-middle-income small island state, with an estimated population of 169,000 (2012). After growing 4.5 percent annually on average during 2003–2006, Saint Lucia's economic activity slowed sharply in recent years as the country was hit by multiple exogenous shocks: Hurricane Dean in August 2007, an earthquake in November 2007, the global food and energy price hikes in 2007–2008, and severe droughts in 2009 and 2010. Between 2008 and 2009, the growth rate fell by 5.2 percentage points, a decrease of 98 percent, largely resulting from the 2008 global financial crisis. The construction, manufacturing and agriculture sectors were significantly affected as a result, along with the tourism sector which accounts for 65 percent of Saint Lucia's GDP and represents the main source of foreign exchange earnings and the second largest employer after the public sector (CIA 2013). Nevertheless, Saint Lucia's economy is beginning to recover, with a growth rate of 1.3 percent in 2011 driven by minor growth in the tourism and construction sectors, and supported by developments in the distributive trade services and real estate sectors.

2. Despite relatively strong social indicators — the 2013 United Nations Development Program Human Development Index ranked Saint Lucia as 88th of 187 countries — poverty and inequality remain high in Saint Lucia. According to the latest Country Poverty Assessment (2005/6), 28.8 percent of the population is estimated to live below the locally defined poverty line (2005/06), an increase from 25.1 percent in 1995, while 6 percent of the population is considered to be indigent[2] and 40.3 percent is estimated to be consuming at a level under the vulnerability line.[3] In addition, approximately 20.5 percent of the population is unemployed (2010), an increase of 11 percent since 2005. In 2006, the Gini coefficient of Saint Lucia was 0.42, with sharp regional differences evident in rates of poverty, ranging from a high of 44.9 percent and 42.4 percent in the Anse-La-Raye and Soufriere Districts, respectively, compared to 13.1 percent in the capital city, Castries. Recent disaster trends also demonstrated that areas with the highest rates of poverty also tend to suffer the most from flooding and landslide.

3. While Saint Lucia aims to improve its citizens' social conditions through investments in infrastructure, economic diversification and employment generation, its population, economy and national assets remain highly exposed to natural catastrophic risk, which jeopardizes efforts at ending extreme poverty and boosting shared prosperity. Over the years, disasters stemming from weather-related natural hazards, such as winds, floods, landslides (often related to hurricane events) as well as droughts, have increasingly impacted livelihoods, destroyed infrastructure, and disrupted provision of essential services – committing a growing share of the national budget for recovery and reconstruction efforts, thereby imposing large costs on the country's fragile economy and setting back hard won development gains.[4]

[1] OECS Regional Partnership Strategy. World Bank 2010.

[2] Indigence is defined as "persons whose daily average consumption is too low to guarantee adequate nutrition to maintain good bodily health" (Saint Lucia CPA 2005/6, p. xvi).

[3] A vulnerability line is defined as 125% of the poverty line; it measures the number of persons who are susceptible to becoming poor due to an unanticipated event such as a natural catastrophe or other economic shock.

[4] In recent years, a range of adverse natural events has impacted Saint Lucia. Since Hurricane Allen in1980, Saint Lucia has been affected by at least six hurricanes and tropical storms, three of which occurred between 2002 and

4. Tropical Storm Debbie in 1994 and the Tropical Wave in 1996, for example, resulted in cumulative damages of US$93.1 million to property and infrastructure across the island. Hurricane Tomas in 2010 affected major sectors of the economy and diminished growth, with the total impact estimated at US$336 million or roughly 34 percent of Saint Lucia's GDP.[5] Most recently, the passage of a tropical weather trough in December 2013 resulted in combined damage and losses of US$99.8 million, equivalent to 8.3 percent of the island's GDP. In addition to devastating large-scale disasters, small-scale flooding is endemic in low-lying areas and coastal villages already suffering from socio-economic vulnerabilities. As global climate change continues to increase the frequency and intensity of climactic events, many of Saint Lucia's most vulnerable – particularly the rural poor and agriculturalists – are expected to be impacted disproportionately.[6]

B. Situation of Urgent Need of Assistance or Capacity Constraints

5. On December 24, 2013, a tropical weather trough passed over Saint Lucia producing extraordinarily intense rainfall at a time well outside of the traditional hurricane season. Over a 3-hour period, Saint Lucia received 224 millimeters of rain. The ensuing flash floods and landslides resulted in severe damages and six confirmed deaths. The GoSL activated its National Disaster Plan on December 26, 2013, and mobilized a national team to carry out a damage and needs assessment. The GoSL formally requested financial and technical assistance from the World Bank on January 7, 2014. A rapid Damage and Needs Assessment (DaNA) was subsequently prepared from January 21 – 31, 2014, which estimated that the combined physical damage and economic losses were approximately US$99.8 million. The impact was concentrated largely concentrated in areas with poverty rates higher than the national average (Anse-la-Raye, Canaries, Marc-Bexon, Vieux Fort and Soufriere).[7]

C. Sectoral and Institutional Context

6. Despite the evident risks posed by catastrophe events, Saint Lucia lacks a comprehensive disaster risk management (DRM) framework for planning and investment decision-making. Development decisions often do not take into account disaster risks and expected climate change impacts. Such deficiencies largely derive from a lack of sufficient information on hazards, risks, and climate change impacts as well as limited capacity and weak data sharing among agencies.

2007; roughly eight major landslides, which have resulted in the destruction of homes, dislocation of communities and significant loss of biodiversity; as well as a series of earthquakes in 1990 and in 2007, which includes a magnitude 7.3 earthquake.

[5] ECLAC/UNDP, *Saint Lucia: Macro Socio-Economic and Environmental Assessment Report: Towards Resilience Following the Passage of Hurricane Tomas*, December 2010.

[6] While the agriculture sector represents 3.9% of GDP (World Bank, 2012), it nevertheless employs roughly 11% of Saint Lucia's workforce. (Saint Lucia Statistical Digest, 2011). As a result of the recent Christmas Trough in 2013, the agriculture sector incurred an estimated US$ 12.5 million in damages and losses – equivalent to approximately 1% of GDP. (Saint Lucia Damage and Loss Assessment, Working Draft, January 2014)

[7] The impact of the December 2013 disaster event was concentrated in geographical areas with the highest levels of poverty, including Anse La Raye and Soufriere with 44.9 percent and 42.4 percent of the population living in poverty, compared to the national average of 28.8 percent (SLU CPA, 2005/6). Significant damages were also experienced in Vieux Fort, which retains one of the highest levels of extreme poverty (4.8 percent), compared to the national average of 1.6 percent (SLU CPA, 2005/6).

Additionally, underdeveloped and dilapidated infrastructure challenge disaster vulnerability reduction efforts. Critical public infrastructure such as roads, bridges and water supply systems as well as health and education facilities remain vulnerable to climate change related impacts, including flooding and landslides. Oftentimes, designs and construction were carried out without due consideration to disaster hazard and risk, and maintenance has been deferred over multiple years. Nevertheless, significant sectoral and institutional developments in the fields of DRM and climate change adaptation have been achieved as summarized below.

7. ***Disaster Risk Management.*** Demonstrating its commitment to improve national DRM capacity, Saint Lucia has made considerable efforts to reduce its climate vulnerability by: (i) strengthening risk monitoring and early warning systems; (ii) improving emergency preparedness and planning; and (iii) increasing public awareness and capacity of public officials. Since 1998, Saint Lucia has implemented disaster response and emergency rehabilitation programs, in partnership with the World Bank. The Emergency Recovery and Disaster Management Program (ERDMP) supported physical and institutional efforts for disaster recovery and emergency preparedness and management.[8] Following successful implementation of the ERDMP, Saint Lucia launched a follow-up project in 2004, the Second Disaster Management Project (DMP II - P086469), which instituted structural and nonstructural risk mitigation measures, including retrofits of public facilities doubling as emergency shelters; construction of coastal protection works, an emergency operation center and community-level mitigation projects; and institutional strengthening activities.

8. From a policy perspective, Saint Lucia has advanced significantly by introducing the National Hazard Mitigation Policy (2003), establishing the National Emergency Management Organization (NEMO) (2006),[9] and enacting the National Disaster Management Plan (2007)[10] to better guide assessment, prevention and post-disaster response activities. Together, these policies represent a shift from reaction to a more proactive and comprehensive DRM framework. Part of this framework includes the use of financial instruments to safeguard against fiscal shocks associated with disaster. In 2007, Saint Lucia, along with 16 other Caribbean Community (CARICOM) countries, established the Caribbean Catastrophe Risk Insurance Facility (CCRIF) – the world's first regional catastrophe risk pooling mechanism which allows countries to pool their hurricane and earthquake risk and collectively approach the international reinsurance market to purchase cheaper coverage. Payouts are immediate and better ensure governments can continue public and social service delivery in the wake of a disaster.[11]

[8] The ERDMP, an IBRD/IDA blend project totaling US$6.04 million, was designed as part of an Adaptable Program Loan that included 5 stand-alone projects in five member countries of the Organization of Eastern Caribbean States (OECS). The Saint Lucia PAD Report No is 18655 - Loan 44190 SLU/Credit 31510 SLU.

[9] Established following the enactment of the Disaster Management Act (2006), NEMO operates under the direction of the Prime Minister, who chairs the National Emergency Management Advisory Committee (NEMAC), composed of the permanent secretaries of key line ministries, as well as chairs of the national committees and heads of key agencies such as police, fire, Red Cross, port authorities, and others.

[10] This Plan is currently being reviewed in an attempt to incorporate further lessons learned from the Hurricane Tomas, including response and ongoing recovery.

[11] The CCRIF utilizes parametric insurance which is not meant to cover actual damages incurred, but meant to offer immediate liquidity in a disaster's aftermath. For Saint Lucia, the Facility paid roughly US$1 million within two weeks of the November 2007 earthquake and US$3.2 million following Hurricane Tomas in 2010.

9. ***Climate Change Adaptation.*** Given its full awareness of imminent climate change related threats, Saint Lucia has undertaken a number of initiatives at the national and community levels over the last two decades. A full summary of actions taken by Saint Lucia towards greater nationwide climate resilience is included in Box 1 of Annex 2. In recent years, Saint Lucia (along with five other Caribbean countries) have participated in the regional Pilot Program for Climate Resilience (PPCR) for the Caribbean, one of the targeted programs of the Climate Investment Funds (CIF). As a participant, Saint Lucia developed its national Strategic Program for Climate Resilience (SPCR),[12] a five year strategy to build the country's resilience to climate change impacts, through the following priority areas: (i) human welfare and livelihood protection; (ii) integrated natural resource protection, conservation, and management to promote sustainable development; (iii) building of resilience through business development, innovation, and productivity enhancement; (iv) capacity building and institutional strengthening; and (v) reduction of risk to climate-related disasters.

D. Higher-Level Objectives to Which the Project Contributes

10. ***Consistency with the Regional Partnership Strategy.*** The proposed Project is consistent with the World Bank Group's Regional Partnership Strategy (RPS) for the Organization of Eastern Caribbean States (OECS) 2010–2014 (Report No. 53762-LAC), which identifies natural catastrophes as a key challenge facing the sub-region and includes as a core objective the building of resilience to adverse natural events and climate change.[13] In line with this objective, the Project includes activities that reduce risk and increase resilience through a combination of civil works, capacity building and institutional development activities. The Project would also contribute to the RPS's goal of strengthening the country's fiscal sustainability by including a contingent component meant to better enable the GoSL to withstand the macroeconomic shocks and budget volatility commonly faced in the aftermaths of a disaster.

11. The proposed Project is also fully aligned with the upcoming World Bank Group RPS for the OECS (2015-2019), currently under preparation and scheduled to be discussed by the Executive Directors on May 22, 2014. The RPS aims to address poverty and shared prosperity through a dual focus of (i) supporting inclusive sustainable growth and (ii) strengthening resilience. The proposed Project would largely contribute to achieving the latter goal through risk reduction and adaptation measures, such as infrastructure retrofits, capacity building, training and in risk reduction and climate change adaptation.

12. ***Links to Poverty Reduction and Shared Prosperity Goals.*** The proposed Project would contribute to the Bank's dual objectives of ending extreme poverty and promoting shared prosperity. By investing in resilience-building activities, the Project would contribute to the overall reduction of both physical and socio-economic vulnerabilities of individuals, businesses and households to climate change related disasters. Investment in works such as road rehabilitation and safe bridge construction would ensure continued access to markets, schools

[12] The Saint Lucia SPCR was developed under the leadership of the GoSL through a highly consultative process and endorsed by the PPCR sub-committee on June 29, 2011. See the CIF website for more details on the SPCR: https://www.climateinvestmentfunds.org/cifnet/?q=country/saint-lucia

[13] Historical data indicates that the sub regional probability of a hurricane in any given year is approximately 18 percent, and it is widely acknowledged that natural adverse events like hurricanes can cause major economic damage, resulting in significant public expenditures.

and hospitals in the aftermaths of an adverse natural event, such as a hurricane or high rainfall event. Within the proposed Project, provision of concessional climate adaptation loans to businesses and households will not only (i) reduce physical vulnerability to disasters, but aim to (ii) promote climate resilient livelihoods; (iii) contribute to the socio-economic well-being of the most vulnerable; and (iv) advance greater agency across gender lines.

13. ***Reducing Vulnerability to Climate Change***. The proposed Project would directly address goals established in the Saint Lucia SPCR, as a direct application of the SPCR program and its aim to achieve transformative impact by improving national resilience to adverse natural events and longer-term impacts resulting from climate change. Furthermore, the Project also responds to the directives established in the 2002 National Climate Change Policy and Plan, which sought to guide a national process of addressing the short, medium and long term effects of climate change across various development sectors.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

14. The proposed Project Development Objective (PDO) is to reduce vulnerability to natural hazards and climate change impacts in Saint Lucia.

B. Project Beneficiaries

15. Generally, the proposed Project would benefit the country's 169,000 inhabitants by reducing the risk of failure of key infrastructure, improving overall national understanding of risk for informed decision-making, and increasing national capacity to quickly rehabilitate damaged public infrastructure following an adverse natural event.

16. *Direct Beneficiaries:* Individuals, including women and vulnerable groups, living in the areas[14] of project interventions or using public infrastructure that would have a reduced risk of failure from natural catastrophe will directly benefit from the proposed Project. Specifically, these would include users of rehabilitated roads and bridges as well as communities benefiting from riverbank protection, slope stabilization and structurally-sound health and education facilities doubling as emergency shelters. The bulk of investments are targeted in areas where some of the highest levels of disaster vulnerability and poverty overlap, including Anse-la-Raye (with Saint Lucia's highest level of indigence at 5.3 percent), Soufriere (with a poverty rate of 42.4 percent, as compared to the national average of 28.8 percent), and Vieux Fort (with one of the highest levels of extreme poverty of 4.8 percent, compared to the national average of 1.6%). (CPA, 2005/6)

17. The proposed Project would also directly benefit households and businesses accessing concessional loans through the Climate Adaptation Financing Facility (CAFF), which aims to integrate climate resilience into assets and livelihoods. Particular attention would be paid to ensuring that CAFF finance is used to promote greater resilience and agency across socio-economic and gendered lines.

[14] These areas include the districts of Dennery, Soufriere, Anse-la-Raye, Choiseul, Vieux Fort and greater Castries.

18. *Indirect Beneficiaries:* Other OECS countries would indirectly benefit from the proposed Project. By advancing national open data infrastructure and cross-regional knowledge and information sharing, the proposed Project would facilitate increased regional collaboration on understanding risk and developing risk reduction solutions. Saint Lucia would continue to participate in ongoing regional collaboration efforts under the Regional Disaster Vulnerability Reduction Project (RDVRP - P117871) and the Regional Caribbean PPCR.

C. PDO Level Results Indicators

19. The achievement of the Project Development Objective would be measured using the following key results/PDO level indicators:

a) Number of direct Project beneficiaries (male/female)[15];
b) Number of days of interrupted traffic due to landslips, flooding and other climate-related events in project areas;
c) Percentage of schools/emergency shelters with reduced vulnerability to landslips, flooding and other climate-related events;
d) Climate risk analysis reflected in transport and drainage infrastructure design[16].

III. PROJECT DESCRIPTION

20. The proposed Project aims to reduce immediate disaster vulnerability and increase long-term climate resilience by addressing the multi-faceted risks associated with hydro-meteorological events. In addition, the project would finance emergency recovery and reconstruction activities following the December 2013 flooding event.

21. IDA credit (national, regional and Crisis Response Window (CRW) financing) would be used toward urgent disaster vulnerability reduction and post-disaster reconstruction needs, while CIF/PPCR finance will leverage funds to effect transformational change meant to establish long-term climate resilience. New and innovative approaches would be piloted to realize such change and draw lessons learned for future replicability within Saint Lucia and internationally.

A. Project Components

22. The proposed Project comprises the following five components, which are described in greater detail in Annexes 2 and 3:

23. **Component 1– Risk Reduction and Adaptation Measures(US$50.4 million). .** This component would support structural and non-structural flood and landslide risk reduction interventions and climate adaptation measures to improve Saint Lucia's resilience against current and future climatic shocks. Additionally, the component would finance the reconstruction of critical infrastructure damaged during the December 2013 flooding, using the 'build back better' approach. Activities under this component will also account for other potential risks (e.g.

[15] Aligned with PPCR Core Indicator 5: Numbers of people supported by the PPCR to cope with effects of climate change
[16] Aligned with PPCR Core Indicator 2: Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience

seismic) to ensure financed works are generally disaster resilient. Sub-projects include the following: (i) reinforcement of flood control infrastructure, including at the international airport; (ii) climate resilient rehabilitation of road sections along the national highway through drainage improvements, slope stabilization works and retrofit of select bridges; (iii) retrofits and climate resilient rehabilitation of priority emergency shelters; (iv) climate-resilient rehabilitation of deteriorating water supply infrastructure; and (v) retrofit and rehabilitation of existing schools and health centers. Additionally, relevant national plans, policies and strategies to support risk reduction and climate resilience efforts would be developed, including, *inter alia*: a national watershed management framework, a rainwater harvesting pilot program, and a climate change public awareness and education strategy.

24. Importantly, technical assistance and capacity building are embedded within sub-activities and include: (i) development of operation and maintenance plans, including a bridge maintenance plan, (ii) risk assessments to support engineering design options and final detailed design solutions, and (iii) integrated hazard and climate analyses to inform project designs.

25. **Component 2– Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making(US$8.6 million).** This component would support capacity building for open systems and platforms to create, share, analyze and use disaster risk and climate change data and information for improved decision making and engineering design for risk reduction and climate change adaptation. Specifically, the component would finance, *inter alia*: (i) the creation of a high resolution digital topographic and bathymetric model for Saint Lucia, (ii) sea level rise modelling and coastal flood and erosion risk mapping; (iii) design and deployment of meteorological, hydrological, and sea level rise monitoring networks to provide high resolution hydrologic data; and (vi) deployment of an environmental health surveillance system.

26. Data collected under this component would be used to inform investments under Component 1 (when suitable) as well as to identify and prioritize future risk reduction and adaptation investments. Data outputs would also inform the development of appropriate land use plans and provide a basis for more future flood and landslide risk management schemes.

27. **Component 3– Climate Adaptation Financing Facility (CAFF)(US$5.0 million).** This component is designed to pilot a financing mechanism meant to incentivize pre-emptive climate adaptation amongst Saint Lucian households and businesses. Loans would be offered to finance works and activities which build the resilience of assets and livelihoods to adverse hydro-meteorological events. Saint Lucia Development Bank (SLDB) [17] would serve as retail bank and would on-lend to final beneficiaries – with a concerted aim of building an affordable and self-sustaining loan portfolio in climate adaptation. Based upon the initial success of the component and local demand for climate adaptation loans, consideration will be given to include other commercial banks as participating retail banks.

[17] SLDB's eligibility as participating financial institution was determined based on comprehensive institutional assessment and due diligence that was conducted during preparation. While the participation of private commercial banks was also considered, at the time of the assessment, there was either no commercial interest for providing loans to conduct risk mitigation measures or banks were not financially fit to carry out this business.

28. SLDB would receive technical assistance to address identified gaps in its current operation and risk management structure and practices. A standalone OM would be generated for the CAFF, while SLDB would receive systematic support in implementing an institutional development plan to overcome existing gaps, and would monitor progress to this end. A detailed description of the component is included in Annex 6.

29. **Component 4–Contingent Emergency Response (US$1.0 million).** This provisional component would allow rapid re-categorization and reallocation of project financing from other project components to partially cover emergency response and recovery costs associated with a natural catastrophe. The component would only be triggered upon formal declaration of an emergency by GoSL, in accordance with the Saint Lucia Constitution Order 1978,[18] following the occurrence of a disaster. This component could also be used to channel additional disaster response funds, should they become available. A specific OM would apply to this component, detailing financial management, procurement, safeguards and any other necessary implementation arrangements.

30. **Component 5–Project Management and Implementation Support (US$3.0 million).** This component would finance activities required for efficient project management and implementation through the provision of technical advisory services, staffing, training, operating costs and acquisition of goods. The component would also cover incremental operating costs, including those related to operating the Project Coordination Unit (PCU) under the Ministry of Finance, Economic Affairs, Planning and Social Security (MoF) and the Sustainable Development and Environment Division (SDED) of the Ministry of Public Service, Sustainable Development, Energy, Science and Technology (MoSDEST). Incremental operating costs incurred by implementing agencies would also be covered as well as those required for outside consultancies to prepare and supervise specific activities, technical audits, and M&E.[19]

B. Project Financing

Lending Instrument

31. The proposed lending instrument would be Investment Project Financing (IPF) and represents one project (of a series of projects) being prepared and implemented in parallel in Dominica, Grenada and Saint Vincent and the Grenadines.[20] The implementation period for the proposed Project in Saint Lucia would be five years.

Project Cost and Financing

42. The Project would be financed by a US$24 million in IDA Credit (including US$19

[18] Section 17 (1) of the Constitution provides that the Governor General may, by proclamation published in the Official Gazette, declare that a state of emergency exists. Further, Section 17 sets out the procedures for revocation, extension and lapse of such a declaration.

[19] Given the large size of this Project, adequate allocation of resources would be required to increase PCU staffing and provide support for effective management of the Project.

[20] The first phase of the program, the RDVRP is well underway in Saint Vincent and the Grenadines and Grenada, where credit, grant, and loan agreements have been effective since October 2011. Dominica makes the forth country to join the program. Project preparation is currently ongoing, with expected Board delivery in late April 2014.

million in National IDA and US$5 million in Regional IDA), US$17 million in IDA Credit from the CRW, with co-financing from the Climate Investment Funds (CIF) in the amount of a US$12 million SCF Grant, and a US$15 million SCF Credit. Table 1 summarizes the project cost and financing by component

Table 1: Project Cost and Financing (in US$ million)

Project Components	Project cost	IDA Financing	CIF Financing Grant	CIF Financing Credit	CRW Financing
Component 1: Risk Reduction and Adaptation Measures	50.4	22.1	5.1	10.0	13.2
Component 2: Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making	8.6	0.9	5.5	0.0	2.2
Component 3: Climate Adaptation Financing Facility	5.0	0.0	0.0	5.0	0.0
Component 4: Contingent Emergency Response	1.0	1.0	0.0	0.0	0.0
Component 5: Project Management and Implementation Support	3.0	0.0	1.4	0.0	1.6
Total	**68.0**	**24.0**	**12.0**	**15.0**	**17.0**

C. Lessons Learned and Reflected in the Project Design

32. The Project design takes into account lessons learned from the Saint Lucia and OECS DRM portfolios, the Bank's global experience with DRM and other multi-sector operations as well as ongoing regional and global PPCR programs.

33. *Significant legwork during project preparation can equate to implementation benefits by the time of project effectiveness*: Experience from implementing comprehensive, multi-sectoral projects has shown the benefit of dedicating substantial time during preparation towards: (i) drawing consensus amongst IAs regarding project activities and coordination; (ii) building local fiduciary and M&E capacities; and (iii) providing the PCU with as-needed training/technical assistance. The Saint Lucia Hurricane Tomas Emergency Recovery Project (HTERP-P125205) further demonstrated the importance of project readiness by the time of effectiveness – to avoid disbursement lags in the first years of implementation. A Project Preparation Advance (PPA) has therefore been secured to begin early preparation of designs and studies of works, while early cost-estimating can help reduce the risk of overruns and/or budget shortfalls. All civil works planned have further included contingencies for potential increases in project scope.

34. *Climate-resilient retrofitting is inherently multi-faceted, entails comprehensive interventions, and should be accounted for in the initial design of project works.* Experience from DMP II (P086469) has shown that climate-resilient retrofitting (e.g. hurricane retrofits of structures) entails a more comprehensive set of activities than simply installing a hurricane-proof roof and windows, for example; other items to consider could include drainage infrastructure, slope stabilization and water storage systems to ensure resilience to other associated disaster impacts. Such consideration is critical in the early design phase as broader interventions pose budget and time implications. The proposed Project therefore includes technical trainings to

develop this multi-faceted awareness as well as to introduce climate-resilient retrofitting standards in project design, costing and associated bill of quantities. Doing so could reduce risks of inadequate designs, project implementation delays and potential budget shortfalls.

35. *Effective DRM entails systematic behavioral change.* The Implementation Completion Report for DMP II highlights the importance of establishing a culture of prevention, while noting disaster risk reduction is a process which requires behavior change spawning from education, awareness raising and empirical learning from implementing actual works. Part of the required behavioral change entails accounting for disaster risk when designing projects. However, Saint Lucia lacks sufficient capacity to fully interpret hazard and risk information as well as integrate such understanding into territorial and project planning and decision making.[21] Components 2 and 5 therefore include hazard and risk data collection activities as well as corresponding technical assistance to increase local capacity on the interpretation and use of such information.

36. *Investing in infrastructure maintenance is cost-effective DRM.* A damage assessment carried out in Saint Lucia post-Hurricane Tomas (November 2010) concluded that Bank-financed risk reduction investments adequately served their purpose when faced with a 1-in-500 year rainfall event.[22] While the retrofitting, rehabilitation, and new construction of works in themselves proved effective, regular maintenance over the past decade is what ensured the resilience of such investments. Component 1 therefore requires individualized maintenance plans be generated for each retrofitting, rehabilitation and mitigation work financed by the Project. Both national and regional capacity building programs are also included, with an objective of training public servants on bridge and transport infrastructure maintenance.

37. *Meeting a government's immediate liquidity needs is critical in ensuring timely post-disaster response.* Recent history has revealed that most governments in the region experience difficulty raising emergency funds in the three to four months following a catastrophe. Consequently, governments have often been forced to source money from other line ministry budgets, thereby setting back development programs. While parametric insurance payouts have been critical in a disaster's immediate aftermaths (e.g. CCRIF), such payments may not suffice. The Project therefore includes an emergency contingency component to finance emergency response and recovery needs based upon a positive list of goods and activities.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

38. The Ministry of Finance, Economic Affairs, Planning and Social Security (MoF) will be the primary GoSL counterpart and serve as the overarching institution responsible for project execution. The MoF is experienced in executing Bank-financed projects as well as coordinating various line ministries and technical implementing agencies (IAs) – a critical ability given the DVRP's cross-sectoral nature and broad range of stakeholders involved in implementation. The existing Project Coordination Unit (PCU) within the MoF Department of Planning and National

[21] Experience drawn from the Central American Probabilistic Risk Assessment (P101639) demonstrate that accessing relevant, accurate and sufficient amounts of data represents significant limiting factors when aiming to successfully integrate risk assessment into project design and decision-making.
[22] See World Bank, Saint Lucia Hurricane Tomas Rapid Damage Assessment (2010).

Development would be responsible for overall project management, coordinate project implementation for all components and serve as the intermediary between the Bank and IAs. The PCU would be singularly responsible for fiduciary and safeguards compliance as well as reporting to the Bank on procurement, financial management, safeguards, audit and disbursement aspects, and on overall project progress with inputs from the IAs.

39. Relevant line ministries would be the IAs responsible for the overall design and implementation of their respective activities. Refer to Annex 3, where specific activities and responsibilities of the IAs are detailed. Generally, the MIPS&T would be the technical IA responsible for coordinating and managing all civil works activities. The MoSDEST, through its Sustainable Development and Environment Division (SDED), would be the technical IA responsible for ensuring project activities remain aligned with the SPCR goals. As the country's focal point on climate change issues, SDED[23] would also be responsible for reporting on PPCR activities within the Project and on the overall Program. SLDB would be the intermediating financial institution that would manage financing activities under Component 3. A Subsidiary Agreement between MoF and SLDB (through which SLDB will access funds for the CAFF) will be considered a condition of effectiveness.

40. To foster communication and coordination between concerned stakeholder agencies, the MoF will convene a Project Coordination Committee (PCC), chaired by its Permanent Secretary (or a designate) and with membership from the National Development Unit, Economic Affairs Unit, PCU, SDED as well as representatives from the relevant IAs. The Committee would be responsible for ensuring that the Project is in line with national development priorities. The Terms of Reference (TORs) for the Committee, including the membership and meeting frequency, would be included in the OM, to be adopted prior to Project Effectiveness.

41. Based on implementation needs, the Project would also engage relevant regional agencies, such as the University of the West Indies (UWI) and the Caribbean Community Climate Change Center (CCCCC), for regional capacity-building and knowledge sharing.

B. Results Monitoring and Evaluation

42. The PCU will be responsible for overall M&E of the proposed Project, by consolidating all reports generated by the IAs and reporting to the World Bank on project performance indicators and progress achieved.

43. The Project would finance the gathering of baseline data at the start of Project implementation to establish both qualitative and quantitative baselines for the indicators. Evaluation of project activities (including at mid-term) will assess social, environmental, and economic impacts of key activities, with special attention paid to gender-differentiated impacts. An M&E specialist would be hired at the PCU at project start to collect baseline data and establish an M&E framework. Importantly, the specialist would also be tasked with designing the most appropriate beneficiary feedback mechanism which better enables citizen accountability and integration of stakeholder concerns throughout the project lifespan.

[23] The Climate Change Coordinator would report to the Bank on PPCR activities, with inputs from the relevant executing agencies.

44. For PPCR-specific activities within the Project, the Climate Change Coordinator within MoSDEST/SDED would be tasked with monitoring and reporting according to the CIF M&E guidelines. Thematic areas to be supervised and monitored include the following: (i) social and environmental monitoring; (ii) regular quality supervision and independent monitoring; (iii) periodic physical and financial progress monitoring; and (iv) PPCR-specific M&E.[24] For Component 3, SLDB would submit semiannual reports to evaluate progress achieved against select indicators as well as semiannual financial management reports. SLDB's financial performance would be monitored through independent auditors' reports and separate management letters confirming adherence to prudential norms.

45. The Project's OM – as well as the OM specific to Component 3 – would provide specific details regarding monitoring and evaluation responsibilities, including data collection requirements, timing, and use of the information.

C. Sustainability

46. The sustainability of activities to be financed by the DVRP must be assessed within the overall context of Saint Lucia, noting the country's extreme vulnerability to natural hazards and expected adverse impacts of climate change.

47. ***Physical Sustainability:*** For structural investments (including reinforcement of flood control infrastructure, roads and bridges as well as slope stabilization), international best practices for preparation, design, construction, supervision and technical audits would be referenced and followed. In addition, designs would account for demographic, topographic, hydrologic, seismic, and land use/cover changes. Appropriate maintenance plans for the investments would be prepared through technical assistance under the Project to better ensure continued and effective use. A maintenance strategy would also be developed under the Project which details an appropriate maintenance management system (with corresponding funding streams detailed).

48. ***Financial Sustainability:*** Global experience has shown that investments in prevention are more cost-effective than ex-poste reconstruction and/or retroactive interventions meant to achieve climate resilience. Following these lessons, the proposed Project invests in proactive interventions meant to demonstrate long-term financial benefits – especially in the event of a catastrophe – as well as offers capacity building to the GoSL to account for disaster vulnerability reduction and climate resilience in their public investment decision-making processes.

49. Regarding Component 3, to prevent market distortions and to ensure that the sub-borrowers gain appropriate returns from investments made under the Project, SLDB would follow its pricing policy according to its cost of capital and associated risks within the particular type of projects to be financed. A detailed demand assessment would further be conducted prior

[24] This includes the monitoring of two PPCR Core Indicators which are as follows: "Degree of Integration of Climate Change into National Planning" and "Evidence of Strengthened Government Capacity and Coordination Mechanism to mainstream Climate Resilience."

to disbursement of CAFF-specific funds to determine eligibility criteria, interest rates as well as marketing strategy.

50. ***Institutional Sustainability:*** A key project outcome would be improved capacity of line ministries to account for disaster and climate risk in public investments, infrastructure maintenance and general long-term planning. Of particular emphasis is analytical and technical support to MIPS&T to enhance its approach to flood control and slope stabilization – from a retroactive process of ad hoc rehabilitations to a data-driven decision making approach that enables strategic long-term planning, operations and maintenance.

V. KEY RISKS AND MITIGATION MEASURES

51. Potential risks to achieving objectives, along with corresponding mitigation measures, are detailed in Annex 4: Operational Risk Assessment Framework (ORAF). The ORAF will be used to monitor and reassess risks and review mitigation measures during project implementation.

A. Risk Ratings

52. Risk ratings are summarized in Table 2.

Table 2: **Summary of Risks and Risk Ratings**

Risk Category	**Rating**
Stakeholder Risk	**Low**
Implementing Agency Risk	
- Capacity	Substantial
- Governance	Low
Project Risk	
- Design	Substantial
- Social and Environmental	Moderate
- Program and Donor	Low
- Delivery Monitoring and Sustainability	Moderate
Overall Implementation Risk	**Substantial**

B. Overall Risk Rating Explanation

53. The GoSL has demonstrated clear commitment to the Project, with significant preparatory work carried out under the ongoing HTERP and use of the PPA. The current administration, elected in November 2011 for a five-year term, has endorsed the Project.

54. Overall Implementation Risk remains **Substantial** as a result of the complex, mulit-sectoral nature of the proposed Project, limited in-country human capital and relative inexperience of certain ministries and staff, weak technical capacity in specific sectors, the novelty and limited capacity of SLDB to administer the credit line component as well as limited data to inform decisions.

VI. APPRAISAL SUMMARY

A. Economic Analysis

55. An economic analysis was conducted with a focus on select works under Component 1 and demonstrated the project to be economically viable, with net benefits of US$9.4 million and rate of economic returns of 21 percent. Table 3 below summarizes analysis results by subproject. The full economic analysis can be found in Annex 7.

Table 3: Cost-Benefit Analysis for Four Subprojects

Subproject	Present Value of Flows (Thousand US$)			
	Costs	Benefit	Net Benefit	Internal Rate of Return
Choc Bridge	1,589	7,051	5,462	23.8%
Marchand Riverbank	1,639	2,788	1,149	19.1%
Community Centers	503	588	85	13.0%
National Highway	2,034	4,699	2,665	21.5%
Total Sample	5,764	15,125	9,361	21%

56. The other project activities, namely institutional strengthening and investments in hazard risk assessment capacity, would support the avoidance of further indirect losses by encouraging citizens to improve preparedness and enhancing government response capacity following major events. Overall, the Project would have an important impact on development as the value of the stream of benefits is three times its corresponding costs.

57. *Rationale for public sector financing*. Public sector financing is the appropriate funding vehicle as proposed activities will protect critical public infrastructure from disaster risks, improve national DRM capacity, and support the improved integration of climate and disaster risk into national development planning. Importantly, project activities tie into a national priority of enhancing climate resilience in all sectors, an aim which can only be achieved by the GoSL.

58. *World Bank Value Added*. The World Bank offers extensive experience and expertise in supporting the design and implementation of disaster risk reduction and climate resilience programs in Saint Lucia, other OECS countries and globally. Lessons learned from implementing previous multi-sectoral DRM projects will inform the Project. In addition, the Bank's convening power, ability to leverage donor partnerships, and mobilize additional funds to support scaled up vulnerability reduction and climate resilience activities in Saint Lucia further highlights the value of World Bank involvement.

B. Technical

59. Proposed works and institutional strengthening activities have been evaluated for each component to ensure consistency with the short and long-term objectives of the proposed Project. Specific activities have been included based on a no-regrets approach and on GOSL identified priorities. During project preparation, all proposed activities were reviewed, and a detailed assessment was conducted with each respective ministry or agency to refine the proposed activity. In all cases, clear relationships between proposed activities and the project objective

were identified, and supporting engineering and safeguard activities have been accounted for in the proposed budget. While activities have been evaluated based upon climate-related disaster risks, seismic risk will also be accounted for in the design and evaluation of all financed works.

C. Financial Management

60. The PCU has considerable experience in implementing Bank-financed projects and would therefore be responsible for the Project's overall financial management (FM), including ensuring project funds are used for the purpose intended by the various IAs. The Bank has conducted an FM capacity assessment, while actions to strengthen the PCU's FM capacity have been agreed to. The assessment further concluded that the proposed FM arrangements would satisfy the Bank's minimum requirements under OP/BP 10.00.

61. SLDB would serve as the CAFF retail bank of the financial intermediary loan. The SLDB Board of Directors includes an Audit Committee and oversees overall financial operationsA recent Bank assessment concluded SLDB had adequate checks and balances, staffing and accounting systems in place. The SLDB follows the International Financial Reporting Standards (IFRS), while SLDB accounts independently audited regularly.

D. Procurement

62. The PCU would be responsible for the procurement under the proposed Project. As established under HTERP, the proposed Project would use the additional flexibility granted within Bank procurement guidelines for Small Island Development States and use of individual contractors, when necessary and cleared by the Bank. The Bank conducted a capacity assessment of the PCU to ensure that the relevant systems satisfy the Bank's minimum fiduciary requirements under OP/BP10.00. The PCU's capacity was found to be Satisfactory. In the case of SLDB, local commercial practices, steps and responsibilities applied under the project will be defined in the operations manual.

E. Social (including safeguards)

93. The Social Assessment conducted during project preparation confirmed that project beneficiaries welcome the project and anticipate positive social impacts. Perceived impacts include a greater sense of safety and security as a result of improved infrastructure and facilities as well as increased community participation as a result of renovated community centres. A beneficiary feedback mechanism would be devised at project start to tie into the Project's M&E framework, which would be implemented throughout the project lifespan. A Grievance Redress Mechanism, as articulated in the Resettlement Policy Framework (RPF), will be implemented to address potential concerns of project beneficiaries.

63. The *Involuntary Resettlement* Safeguard Policy (OP/BP 4.12) is triggered as planned works (e.g. road and bridge rehabilitation, drainage systems), could lead to public acquisition of land and subsequently impact beneficiary assets or access to assets. As such, an RPF has been developed, disclosed in country and via the World Bank's InfoShop, and will be publically consulted in Saint Lucia.

F. Environment (including safeguards)

64. The Project has been classified as Category B in accordance with World Bank Environmental Assessments Policy (OP/BP 4.01), as proposed activities under Component 1 primarily involve rehabilitation works with potential environmental impacts that are short-term, not significant, and that can be readily prevented or mitigated with standard measures. With regards Component 3, the relevant policies and procedures of SLDB were reviewed and it was agreed that any sub-projects of Category A nature and those potentially involving land acquisition would be excluded under the CAFF.

65. The GoSL has prepared a project-level Environmental Assessment (EA) combined with an Environmental Management Framework (EMF) – both of which have been disclosed in-country and through the Bank's Infoshop and would be publicly consulted prior to Appraisal.

66. The Environmental safeguards policies for *Natural Habitats (OP/BP 4.04)* and *Physical Cultural Resources (OP/BP 4.11)* have been triggered as a precaution to ensure the development and inclusion of clear screening criteria related to natural habitats and physical cultural resources. Such screening procedures are included in the EA-EMF and will be included in the project OM to better ensure (a) potential subprojects would not involve significant impacts to natural habitats or physical and cultural resources as well as (b) appropriate policies and mitigation measures are properly applied. Any impacts to natural habitat would be ameliorated by development of a stand-alone EIAs as required by project screening.

Annex 1: Results Framework and Monitoring

SAINT LUCIA: Disaster Vulnerability Reduction Project

Results Framework

Project Development Objective: The proposed Project Development Objective (PDO) is to reduce vulnerability to natural hazards and climate change impacts in Saint Lucia.												
PDO Level Results Indicators*	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values****					**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**	**Description (indicator definition etc.)**
				YR 1	**YR 2**	**YR3**	**YR 4**	**YR 5**				
Indicator One: Number of direct project beneficiaries (male/female)	☒	Number	0	TBD	TBD	TBD	TBD	TBD	Semi-Annual	Semi-annual Project Progress Reports	PCU, SDED	This PDO level indicator aligns with PPCR Core Indicator 5: "*Numbers of people supported by the PPCR to cope with effects of climate change."*
Indicator Two: Number of days of interrupted traffic due to landslips, flooding and other climate-related events in project areas	☐	Number		TBD	TBD	TBD	TBD	TBD	Semi-Annual	Semi-annual Project Progress Reports; MIPS&T Supervision Reports	PCU; MIPS&T	Measure of decrease in road vulnerability due to climate hazards, landslips, flooding and other natural disaster events
Indicator Three: Percentage of schools/emergency shelters with reduced vulnerability to landslips, flooding and other climate-related events;	☐	Percentage		TBD	TBD	TBD	TBD	TBD	Semi-Annual	Semi-annual Project Progress Reports; MIPS&T Supervision Reports	PCU; MIPS&T, Ministries of Health, Education and Social Transformation	Measure of decrease in vulnerability of school facilities and shelters due to climate hazards, landslips, flooding and other natural disaster events. Confirmation upon independent external technical audit by a licensed engineer

Indicator Four: Climate risk analysis reflected in transport and drainage infrastructure design	☐	Yes/No	No	No	No	Yes	Yes	Yes	Semi-annually	Semi-Annual Project Progress Reports	PCU, MIPS&T, WASCO	Measurements of increased Government/agency capacity to understand, capture, and manage climate data as well as utilize hazard information for improved decision making and engineering analysis. Agencies will include MIPS&T, NEMO, MoPP, WRMA This indicator aligns with PPCR Core Indicator 2: "Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience"
INTERMEDIATE RESULTS												
Intermediate Result (Component One): Risk Reduction and Adaptation Measures												
***Intermediate Result indicator One*:** Roads rehabilitated, Non-rural	☒	Kilometers	0	0	0	TBD	TBD	TBD	Semi-annual	Semi-annual Project Progress Reports; MIPS&T Supervision Reports	PCU; MIPS&T	Kilometers of all non-rural roads reopened to motorized traffic, rehabilitated, or upgraded under the project. Non-rural roads are roads functionally classified in various countries as Trunk or Primary, Secondary or Link roads, or sometimes Tertiary roads. Typically, non-rural roads connect urban centers/towns/settlements of
Intermediate Result indicator Two: Storm drains constructed under the project	☐	Meters	0	0	0	TBD	TBD	TBD	Semi-annual	Semi-annual Project Progress Reports; MIPS&T Supervision Reports	PCU; MIPS&T	Measurement of the length of drains constructed with improved design standards in the island's most vulnerable areas This is aligned with PPCR Core Indicator 3: Quality and extent to which climate responsive instruments/
Intermediate Result (Component Two) – Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making												

***Intermediate Result indicator One*:** Increased capacity of public sectors workers to identify and monitor climate and disaster risk and associated impacts. [4(a)] Total number of official policies produced by public sector workers which reference climate change-related DRM studies, technical assessments, standards and guidelines generated from the Project	☐	Number	0	0	1	1	3	3	Semi-Annual	Semi-annual Project Progress Reports;	PCU; SDED, MoPP	Measurement of increased national capacity to understand, capture, and manage climate data as well as utilize hazard information for improved decision making. This indicator aligns with PPCR Core Indicator: "Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience." 2(c) in particular, aligns with PPCR Core Indicator 1: "Degree of integration of climate change in national, including sector planning."
***Intermediate Result indicator Two*:** Number of Government ministries/agencies connected to a spatial data sharing platform	☐	Number	**0**	3	4	6	6	8	Semi-annual	Semi-annual Project Progress Reports	PCU; Ministry of Physical Planning; ICT	Measurement of increased national capacity to capture and manage hazard and climate risk data This indicator aligns with PPCR Core Indicator 2: "Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience" This indicator could also be counted under PPCR Core Indicator 4: *"Extent to which vulnerable households, communities, businesses, and public sector services use improved PPCR supported tools, instruments, strategies, and activities to respond to climate variability or climate change."*

***Intermediate Result indicator Three*:** Number of Government officials trained in spatial data management and data analysis under the Project	☐	Number	0	10	20	40	50	50	Semi-annual	Semi-annual Project Progress Reports Inventory report of instrumentation/software installed	PCU; Ministry of Physical Planning	Measurement of increased national capacity to capture, manage and analyze hazard and climate risk data This indicator aligns with PPCR Core Indicators 2: "*Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience"*
***Intermediate Result indicator Four*:** Meteorological, hydrological, and sea level rise monitoring networks installed and active	☐	Yes/No	No	No	No	Yes	Yes	Yes	Annually	Semi-annual Project Progress Reports	PCU; Met Services, SDED, and WRMA	This indicator aligns with the PPCR core Indicator 3: *"Quality and extent to which climate responsive instruments/ investment models are developed and tested."*
***Intermediate Result indicator Five*:** LiDAR mapping of the entire country completed	☐	Yes/No	No	No	No	Yes	Yes	Yes	Annually	Semi-annual Project Progress Reports	PCU; Ministry of Physical Planning	Measure of the successful completion of a high resolution topographic and bathymetric LiDAR model to support data management and analysis systems under the project. This indicator aligns with the PPCR core Indicator 3: *"Quality and extent to which climate responsive instruments/ investment models are developed and tested."*
Intermediate Result (Component Three): Climate Adaptation Financing Facility												
***Intermediate Result indicator One*:** CAFF portfolio is fully disbursed in the form of climate adaptation loans	☒	Percentage	TBD	TBD	TBD	TBD	TBD	TBD	Semi-annually	Semi-annual Project Progress Reports; SLDB report	PCU; SLDB, SDED	This indicator aligns with core MSME indicators and is meant to measure the outreach efficiency of the CAFF.

***Intermediate Result indicator Two*:** Number of active and fully repaid adaptation loan accounts [3.2.a] Total number of approved borrowers [3.2.b] Female borrowers	☐	Number Percentage	TBD TBD	TBD TBD	TBD TBD	TBD TBD	TBD TBD	TBD TBD	Semi-annually	Semi-annual Project Progress Reports; SLDB report	PCU; SLDB, SDED	
***Intermediate Result indicator Three*:** Average volume of adaptation loans	☐	Dollar amount	TBD	TBD	TBD	TBD	TBD	TBD	Semi-annually	Semi-annual Project Progress Reports; SLDB reports	PCU; SLDB, SDED	
Intermediate Result (Component Four): Contingent Emergency Response												
Intermediate Result indicator One: Operations Manual for this component prepared to facilitate disbursement in the event of an emergency	☐	Yes/No	No	No	Yes	Yes	Yes	Yes	Semi-annually	Semi-annual Project Progress Reports	PCU; Ministry of Finance; NEMO	Measure of the Government's preparation plan in the event of an emergency including a list of vetted contractors, critical imports and priced supplies
***Intermediate Result indicator Two*:** Time taken to disburse funds in the event of an eligible emergency.		Weeks	4	4	4	4	4	4	In the event of an emergency		PCU	

***Please indicate whether the indicator is a Core Sector Indicator (see further http://coreindicators)**

Annex 2: Detailed Project Description

SAINT LUCIA: Disaster Vulnerability Reduction Project

1. The Project forms the second phase of a series of projects under the Regional Disaster Vulnerability Program that covers four OECS member countries: Grenada, Saint Vincent and the Grenadines, Saint Lucia and Dominica.

2. Developed under a comprehensive, multi-sector framework, the Project would finance urgent structural disaster risk mitigation and adaptation interventions in different sectors, as identified and prioritized by the Government. In addition, the proposed Project falls in line with the country efforts to move forward towards a more climate resilient future. (Refer to Box 1) In addition, significant institutional strengthening and capacity building efforts would complement investments in physical infrastructure. The Project would also integrate an emergency recovery and rehabilitation mechanism component, Contingent Emergency Response, that would complement existing post-disaster financing options, and would help manage this residual risk. This mechanism could be triggered in the event of an adverse natural event, following a declaration of national emergency.

Box 1: Saint Lucia Advances towards greater Climate Resilience

Saint Lucia is fully cognizant of its imminent climate change related threats, and has subsequently undertaken a number of initiatives at the national and community levels over the last two decades. In 1993, Saint Lucia ratified the UN Framework Convention on Climate Change (UNFCCC). The Cabinet-appointed National Climate Change Committee has been functioning since 1998, comprises key governmental and nongovernmental organizations, and aims to support the mainstreaming of climate change considerations into relevant national policies, strategies, and plans. Importantly, Saint Lucia was among three countries in the region to adopt a comprehensive adaptation framework, which led to the piloting of a three-phased adaptation program funded by the Global Environment Facility (GEF), from 1998 to 2007. An important outcome of this engagement was the development of the National Climate Change Policy and Plan, adopted by the Cabinet in 2002.

In addition, Saint Lucia (along with five other Caribbean countries) was invited to participate in the regional Pilot Program for Climate Resilience (PPCR) for the Caribbean, one of the targeted programs of the Climate Investment Funds (CIF). As a participant, Saint Lucia developed its national Strategic Program for Climate Resilience (SPCR),[25] a five year strategy to build the country's resilience to climate change impacts, through the following priority areas: (i) human welfare and livelihood protection; (ii) integrated natural resource protection, conservation, and management to promote sustainable development; (iii) building of resilience through business development, innovation, and productivity enhancement; (iv) capacity building and institutional strengthening; and (v) reduction of risk to climate-related disasters.

Notwithstanding Saint Lucia's achievements in nationwide disaster vulnerability reduction and climate change adaptation, the island continues to face challenges in adequately managing natural hazard risk, particularly in the context of a changing climate which threatens to reverse hard won development gains and poverty reduction efforts.

[25] The Saint Lucia SPCR was developed under the leadership of the GoSL through a highly consultative process and endorsed by the PPCR sub-committee on June 29, 2011. See the CIF website for more details on the SPCR: https://www.climateinvestmentfunds.org/cifnet/?q=country/saint-lucia

Despite the evident risks posed by hydro-meteorological events, Saint Lucia lacks a clear understanding on current and future levels of disaster risk as well as a comprehensive disaster risk assessment framework for planning and investment decision-making. Development decisions often do not take into account disaster risks and expected climate change impacts. Such deficiencies largely derive from a lack of sufficient information on hazards, risks, and climate change impacts as well as limited capacity and weak data sharing among agencies.

3. The proposed Project will follow a "no-regrets" approach where investments are chosen based on a high risk of structural failure during a 10-year event (Category 1 hurricane, or M7.0 earthquake) in the case of buildings and bridges, or where annual flooding occurs in the case of flood management and urban drainage.

Project Development Objective

4. The proposed Project Development Objective (PDO) is to reduce vulnerability to natural hazards and climate change impacts in Saint Lucia.

Project Components

5. The PDO would be achieved through the following five mutually reinforcing components: (1) Risk Reduction and Adaptation Measures; (2) Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making; (3) Climate Adaptation Financing Facility; (4) Contingent Emergency Response; and (5) Project Management and Implementation Support.

COMPONENT 1: Risk Reduction and Adaptation Measures (US$50.4 million: US$22.1 million IDA; US$5.1 million SCF Grant; US$10.0 million SCF Credit; US$13.2 million CRW).

6. This component would be designed to implement urgent climate risk mitigation investments that have been identified and prioritized by the GoSL. Subprojects would include the following:

(i) Reinforcement of flood control infrastructure (rehabilitation or reconstruction of riverbank protection structures);
(ii) Climate resilient rehabilitation of vulnerable road sections along the national highway through the improvement of drainage conditions, slope stabilization interventions at specific areas and retrofitting of one road bridge;
(iii) Retrofitting of select priority emergency shelters;
(iv) Climate resilient rehabilitation or retrofitting of water supply systems;
(v) Reconstruction of education and health facilities;
(vi) National plans, policies and strategies to support risk reduction and climate resilience efforts.

Subcomponent 1.1 – Rehabilitation of Marchand Riverbank Protection (US$2.6 million):

7. The Marchand River flows through a highly urbanized area in Castries. Investments

would involve critical reinforcement to the existing structures, approximately 700 meters of riverbank stabilization, and 300 meters of new riverbank construction to withstand future floods. The current construction of some of the walls along the riverbanks is not continuous, with no protection or reinforcement. The works along the riverbanks would be done in a continuous manner, to prevent the occurrence of scouring in the sections of the river where isolated walls have been built, and ensure the overall stability of the structures. General lack of maintenance is noticeable on the current structure, with much vegetation growth on the walls, and sedimentation occurring along the riverbeds. A maintenance plan would be subsequently developed to ensure the stability and sustainability of the rehabilitated structure.

Sub-Component 1.2 - Road and Bridge Rehabilitation, Slope Stabilization and Drainage (US$23.85 million):

8. Unstable, high-risk road stretches would be made safe, particularly through slope stabilization and drainage improvement works. In particular, interventions would focus on highly vulnerable segments of road along the national highway, which would be stabilized against landslides where road embankments were cut off due to past landslides. Given that the national highway is the primary road network, the proposed road rehabilitation works are a priority for the GoSL. Specific interventions include the following:

(i) *Slope stabilization and road rehabilitation along the Western Road (Sections between La Croix Manigot and Anse Le Raye, and between Anse Le Raye and Canaries), and Bagatelle and Old Victoria Roads (US$5.45 million)*: Works proposed on these sections of the road focus on replacing existing retaining walls with new structures; an in-depth technical assessment would be carried out to assess of the stability of the inner slopes to ensure implementation of appropriate slope stabilization works on so as to reduce the risk of landslides and ensure the sustainability of the proposed retaining walls;

(ii) *Road Rehabilitation along the East-Coast Highway (Sections between Vieux-Fort and Micoud) (US$10 million);*

(iii) *Improved Drainage Systems along select roads in Flood Prone Areas (US$2.2 million);* and

(iv) *Rehabilitation of Choc Bridge (US$6.2 million):* Choc bridge is the primary link between the capital Castries and Gros-Islet, Saint Lucia's major commercial and tourist center in the North. The bridge was constructed of multiple large diameter corrugated pipes. Damages of the bridge caused by flooding are due to several factors: (a) the fill over the pipes is eroded due to the corrosive power of the floodwaters. The water has undermined the fill after breaching spaces between headwall and pipe or scoured the fill through the roof of the pipe, which had previously collapsed; (b) the bridge was constructed 35 years ago and has received poor maintenance along these years, making its structure even more vulnerable. During the passage of Hurricane Tomas, Choc Bridge collapsed when the back-fill material above the culverts was washed away. Subsequently, a temporary structure consisting of a concrete slab was put in place on top of the culverts to resume traffic between Gros-Islet and Castries. Some settlement of the slab is occurring, suggesting that the structure may not be completely stable. Until rehabilitation works begins, the structure is being closely monitored to supervise the settlement of the bridge and prevent a sudden collapse, and periodic cleaning and dredging of the riverbed would be carried out (as large amounts of debris and siltation accumulate upstream from the

bridge) to ensure the stability and sustainability of the existing structure. The GoSL is currently finalizing the preliminary design for the rehabilitation works of the bridge, which could be financed under the Project.

Sub-component 1.3 – Integrated Slopes, Landslides and Riverbank Stabilization at various locations (Forestry) (US$1.7 million)

Sub-component 1.4 – Retrofitting of Select Priority Emergency Shelters (US$1.5 million)

9. This proposed sub-component would involve the retrofitting of select community centers which serve as priority emergency shelters in the event of an adverse natural event or emergency, reducing vulnerability of the people in the project locations. These shelters may include community centers at Piaye, Bobonneau, Marchand or La Fargue. Preliminary assessments of these shelters indicated that all would require seismic and hurricane which is likely to intensify in the future)[26] resilient rehabilitation. The design process would involve community consultation to ensure that local needs are identified and captured at the design stage.

Sub-Component 1.5 – Rehabilitation or retrofitting of Water Supply Systems (US$2.0 million).

10. This proposed sub-component may include, *inter alia*:

(i) *Climate resilient rehabilitation of water supply infrastructure in Dennery, Castries, Louisy and Gros-Islet (US$1.2 million);*
(ii) *Construction of a storage facility for securing stock from floods and deterioration caused by exposure to direct sunlight (US$400,000);*
(iii) *Redesign and Supervision of construction of Vanard Intake (US$100,000);* and
(iv) *Procurement and Installation of Meters for Non-Revenue Water (NRW) Programme (US$300,000)*

Sub-Component 1.6 – Re/construction or Rehabilitation of Schools and Health Centers (US$11.5 million)

11. This sub-component would include, *inter alia*:

(i) *Reconstruction of Dennery Infant School (US$2.18 million);*
(ii) *Rehabilitation of Dennery Primary School (US$600,000);*
(iii) *Support to the MoE through procurement of furniture & equipment (US$1.5 million);*
(iv) *Re/construction of Dennery Polyclinic (US$4.8 million);* and
(v) *Rehabilitation of Soufriere Hospital (US$2.42 million)*

12. These reconstruction and rehabilitation activities will be informed by disaster and climate risk information.

Sub-Component *1.7 – Flood Mitigation works at the Hewannora International Airport (US$4.3 million)*

[26] Strategic Program for Climate Resilience for Saint Lucia

Sub-Component 1.8 – Support to MIPS&T (US$1.55 million)

13. This sub-component would include, *inter alia*:

(i) *Capacity Building and Institutional Strengthening for MIPS&T (US$750,000);*
(ii) *Development of Bridge Maintenance Management System (US$400,000);* and
(iii) *Equipment for Institutional Strengthening of Materials Laboratory at MIPS&T (US$400,000)*

Sub-Component 1.9 – National plans, policies and strategies to support risk reduction and climate resilience efforts (US$1.4 million)

14. This proposed sub-component may include, *inter alia*:

(i) *Development of a climate resilient Watershed Management framework and Plan for specific watersheds prone to flooding (US$200,000);*
(ii) *Development of National Wastewater Management Strategic Plan (US$200,000);*
(iii) *Rain Water Harvesting Pilot Program (US$100,000);* and
(iv) *Climate Change Public and Education Awareness Strategy (US$890,000).*

COMPONENT 2: Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making (US$8.6 million: US$0.9 million IDA; US$5.5 million SCF Grant; US$2.2 million CRW).

15. This component would support the development of plans, maintenance policy and strategies, collation and collection of relevant spatial data and creating of data sharing systems to permit improved decision-making and, carrying out engineering design aimed at risk reduction and climate change adaptation for future investments. It would also seek to develop national capacity by supporting an institutional strengthening program designed to provide training, strengthen maintenance management and build institutional capacity for risk analysis, data collection and data management for improved understanding of climate risk.

16. Activities include, *inter alia*:

(i) *Sea Level Rise Modelling and Flood and Erosion Risk Mapping (US$1.5 million);*
(ii) *Capacity Building for Meteorological Services, including design and deployment of a meteorological, hydrological, and monitoring network, training and procurement of equipment (US$1.9 million)*
(iii) *Design and deployment of a sea level rise monitoring networks to provide high resolution hydrologic data (US$100,000);*
(iv) *Evaluation of the health of coral reef systems and rapid monitoring methods for water quality and coral reef (US$500,000);*
(v) *Collection of high resolution LiDAR data and creation of a high resolution digital topographic and bathymetric model for Saint Lucia (US$775,000);*
(vi) *Management of the GeoNode (US$600,000);*
(vii) *Strengthening of the country's GIS analysis capacity to maintain risk and spatial data*

management system, through technical assistance, training and procurement of equipment (US$500,000);

(viii) *Development of Landslide Hazard Maps (US$600,000);*

(ix) *Environmental Health Surveillance System with a focus on Climate Change (US$125,000);*

(x) *Support to NEMO, including review of operations and allied services (US$350,000);*

(xi) *Enhancing the capacity of the Fire Department (US$600,000);*

(xii) *Building stock of emergency Bailey-type bridges (US$1 million);*

(xiii) *Development of maintenance policy and strategy (US$200,000).*

17. The data collected under this component would be used for identifying and prioritizing future mitigation investments and informing development of appropriate land use plans, and could serve as a basis for planning and designing more comprehensive and sustainable flood and landslide risk management schemes in the future.

17. To ensure the sustainability of investments, MIPS&T is in the process of developing a maintenance policy and strategy in consultation with the MoF for all infrastructure including, roads, bridges, slope stabilization, drainage structure and public buildings. Currently, the GoSL does not have a strategic maintenance policy and, as such, the funds allocated for the maintenance of infrastructure by the MoF meets less than 50 percent of required maintenance funding. The lack of maintenance adversely affects the design life of infrastructure and risks infrastructure sustainability. The proposed Project would support MIPS&T to finance a consultancy designed to carry out a preliminary needs assessment, preparing budget estimates, establishing priorities and strengthening the overall maintenance management system. The consultancy would include: (a) options regarding resource generation to ensure a stable and adequate flow of the required maintenance funding through road user charges, licensing fees and/or other revenues; (b) establishment of a maintenance management system; (c) strengthening institutional capacity of the public sector and implementation capacity of the private sector to implement maintenance programs in quantity and quality; and (d) introduce new techniques of procuring maintenance contracts using performance based procedures. Based on the consultancy's findings, a short term, medium term and long term action plan would be developed and implemented under the Project.

COMPONENT 3: Climate Adaptation Financing Facility (US$5.0 million SCF Credit)

18. This component would assist in the creation of an Climate Adaptation Financing Facility (CAFF) to provide affordable loans to individuals, households and private enterprises for investments and/or livelihood activities that support vulnerability reduction and adaptation to catastrophic hydro-meteorological events. Consultations conducted during the preparatory phase of the PPCR with private sector and civil society highlighted the need/demand for financing options for private businesses and individuals to build resilience to climate change. The Saint Lucia Development Bank (SLDB)[27] will serve as a retail bank and on-lend to final beneficiaries. This will allow SLDB to offer concessional loans, which would incentivize pre-emptive climate

[27] SLDB's eligibility as a participating financial institution was determined based on comprehensive institutional assessment that was conducted during preparation. SLDB was selected given its willingness as well as government mandate to provide concessionary finance for climate adaptation.

adaptation by private entities. Based upon the initial success of the component and local demand for climate adaptation loans, consideration will be given to include other commercial banks as participating retail banks.

19. The GoSL conducted a feasibility study of the CAFF during the SPCR process, including community-level consultations. The assessment highlighted the need/demand for financing options for private businesses, community groups and individuals to build resilience to climate change. The Bank also conducted a preliminary assessment which informed the design of the component. A comprehensive nationwide survey of 1500 households and a business survey are further scheduled to be launched in FY14. This survey is designed to generate much needed data related to the physical, socio-economic and gendered vulnerabilities to disaster at the household level. A business assessment will be carried out in parallel, to understand potential demand of small, medium and large businesses to take on climate adaptation loans. Quantitative and qualitative data generated from the surveys and assessment will help ensure climate adaptation loans are designed to account for on-the-ground realities related to access to credit and the local financial landscape. Gender is a critical theme which is tied into these analyses and gender-related findings will serve as a cornerstone of loan design, while also contributing towards the physical resilience of individuals, households and businesses to disasters and climate change. Details on the operations of the facility would be set out in the OM that would be developed specifically for the credit line, and which will be a condition of disbursement for the component.

20. A standalone Operations Manual (OM) would be generated for the CAFF, while SLDB would receive systematic support in implementing an institutional development plan to overcome existing gaps, and would monitor progress to this end.

21. This component would consist of two sub-components:

Sub-component 3.1 – Adaptation Loan Facility (US$4.5 million)

22. This sub-component would consist of a loan facility within the SLDB for on-lending to individuals, households and private businesses for climate adaptation investments. Agriculture, Housing, Industry, Tourism and Services have been identified as the sectors with highest demand for adaptation loans – as demonstrated in the aftermaths of Hurricane Tomas and the recent December 2013 floods.

23. Eligible investments under the CAFF would be determined upon completion of a comprehensive analysis of household and business need and demand for such investments. A positive list of eligible investments (to be approved by the Bank) would be set out as a disbursement condition of CAFF finance to ensure concessional loans are used towards climate adaptation and to safeguard against market distortions. Table 4 below provides a sample list of potential eligible investments that could be financed by the CAFF.

Table 4: Examples of potential Investments under the CAFF

Agriculture	**Housing**	**Manufacturing/Tourism/Services**
Drought resistant crops	Guttering and fittings	Energy efficient equipment
Rain water harvesting	Retaining walls	Rain water harvesting

Water holding facilities	Drainage	Water holding facilities
Drainage	Rain water harvesting	Alternative technologies
Soil stabilization	Water holding facilities	Retrofitting of Facilities
Retrofitting of Greenhouses	Retrofitting of roofs	
Retrofitting of Storage Facilities	Retrofitting of houses, Structural re-enforcement	

Selection Criteria of the IFI/SLBD:

24. The SLDB was selected as the intermediating financial institution (PFI) based on a due diligence assessment which was conducted during Project preparation. Participation of private commercial banks for the facility was also considered during project preparation. However, there was either no commercial interest or capacity of private banks to provide loans for implementing disaster risk mitigation measures and intermediate the World Bank credit line.

25. Given that SLDB is a fairly new organization (started operations in 2009 and today has 24 staff members) and does not yet have a proven track record, its participation as a financial intermediary would be conditioned to the strict compliance and execution of an institutional development plan. This commitment is also important as were significant management changes after the elected government appointed a new Board on July 2012 and a new CEO on January 2013, after the project was initially proposed. SLDB board election is currently tied to the election cycle.

26. Within three years since its launch, SLDB has put in place critical policies and sound operational processes, notably in credit and risk management elevating its eligibility as financial intermediary. SLDB's mandate and the distinctive roles and responsibilities of its Board and senior management are clearly stipulated in its Act. SLDB has adopted a framework for managing interest rate and liquidly risk through which an Asset Liability Committee (ALCo) is responsible for management of such risks.

27. One of SLDB biggest challenges is turning a profit with the current cumulative loss of XCD$11 million. As a result of this loss, as of end FY 2012, 33 percent of the initial paid-up capital had been wiped out. Therefore, SLDB's sustainability would depend on the GoSL's ability and willingness to continue to inject fresh capital and underwrite its external borrowing in the medium term. Since it has not yet attained financial self-sustainability, a government guarantee for the repayment of the credit facility is a necessary component of the project structure.

28. SLDB`s eligibility as a PFI has been confirmed subject to its agreement to implement an institutional development plan, including a set of time-bound monitorable performance indicators and regular review of progress, to address weaknesses in the following areas: (i) risk management and internal audit; (ii) loaning process; and (iii) governance structure. Specific measures include:

(i) Adopting a loan pricing mechanism that properly reflects its level of risk and ensures full cost recovery in order to attain financial sustainability in the near term;
(ii) Tightening provisioning rules to better reflect the level of risk in each class, including

disregarding or at least discounting the value of the collateral in the determination of required provisions;

(iii) Minimizing reliance on collateral given the lengthy foreclosure process and a legal framework which tends to be unfavorable to banks in case of default;

(iv) Creating a mechanism for calling government guarantee when student loans become non-performing;

(v) Strengthening the monitoring and loan recovery system in order to minimize the risk of loans migrating to higher risk classes;

(vi) Putting in place and adequately staffing Internal Audit Department, Legal and Loan Recovery Department and ensure that they effectively function;

(vii) Delinking board election to the political election cycle. In addition, terms of board members should be staggered to better ensure continuity.

On-lending Terms

29. *PPCR/SCF Loan to GoSL:* Through the CAFF, the GoSL would receive US$5.0 million of concessionary financing from the Bank. The funds would be made available at an interest rate of 0.25 percent and would be intermediated by SLDB for on-lending to the private sector, including households and enterprise to carry out disaster risk mitigation investments. Lending to the final beneficiaries would be denominated in East Caribbean Dollars. The foreign exchange risk on the PPCR/SCF Loan would be borne by the GoSL.

30. *On-lending term from GoSL to SLDB:* The GoSL would receive an administrative fee for the cost associated with transferring the funds received from the Bank to SLDB which is the final administrative agent.

31. *On-lending term from SLDB to final beneficiaries:* The interest rate charged to the final beneficiaries would vary during the implementation of the project according to SLDB pricing policy, and would depend on the sector in which the investment would take place in order to account for the different risks profiles of each sector. The cost of lending to the final borrowers would include, at a minimum, the cost of the funds to SLDB, plus an on-lending margin reflecting (a) SLDB administrative costs, and (b) a credit risk margin. Safeguards would be put in place to ensure interest rates are not below the inflation rate. The details will be finalised following the results of the feasibility study and will be included within the OM.

32. The final interest rates will be defined in line with the above defined criteria and depending on an assessment of market conditions and general financial landscape prior to disbursement for this the component. Throughout the life of the CAFF, interest rates will be periodically benchmarked against private market interest rates to ensure loans do not disproportionately distort the financial landscape.

33. SLDB would bear the full risk of the loans to the final borrowers. Loan sizes would be determined on an individual basis, considering market conditions and the final beneficiary's repayment capacity, and would range from XCD$1,000 to a maximum of XCD$300,000 (USD$373.00 – USD$111,940.000) for any of the target sectors. Loans would be granted with a maturity of up to 10 years.

34. Lending would be guided by the SLDB's Lending and Risk Policies. Where there is need for amendment to these policies to achieve the overall goal of the program, the relevant Board approvals would be sought.

Monitoring:

35. In addition to indicators already included in the project's result framework, a more detailed list of indicators to be monitored for this component would be included in the OM that would be developed for SLDB to implement the credit line. Such monitoring would feed into future reporting which capture lessons learned throughout the life of the CAFF. The list of indicators would include, among others:

(i) Number of final borrowers in total and per sector (disaggregated by vulnerability and gender);
(ii) Number of individuals and businesses introducing new and feasible climate change adaptation mechanisms;
(iii) Number of individuals and businesses that have not received any type of commercial funding in the past;
(iv) Average loan amount, total and per sector;
(v) Average maturity, total and per sector;
(vi) Collection rate through a report on portfolio aging;
(vii) Non-performing portfolio; and
(viii) Profitability of SLDB (return on assets, return on equity).

36. SLDB would also ensure that:

(i) Annual financial reports would be prepared according to the Generally Accepted Accounting Standards without major breaches, unless otherwise required by relevant local authorities;
(ix) The reports would be audited within a year after the closure of the accounts and the original audited reports would be sent to the World Bank;
(x) SLDB would comply with current regulations in general and loan classification and provisioning in particular;
(xi) SLDB would be required to provide an on-going proof of compliance with the listed compliance criteria – every quarter by its management, and annually by auditor's certification;
(xii) The Climate Change Coordinator based at SDED would play an active role, in terms of assisting in determining the suitability of projects regarding building climate resilience and reducing risk to disasters;
(xiii) SLDB's continued participation in the project would be subject to satisfactory implementation of agreed institutional development plan.

Sub-Component 3.2 – Technical Assistance (US$ 0.5 million)

37. This sub-component would finance technical assistance to SLDB to address the identified gaps in its current operation and risk management practices, through an institutional development plan, and various technical and financial audits, and supervision of sub-lending activities. The effective implementation of the institutional development plan is a disbursement pre-requisite for the credit line component. Thus, it is envisaged that TA will be intensive during the first 6-12 months of the project to kick start lending. The credit line disbursement will be subject to compliance with sequenced measures as outlined in the institutional development plan.

38. The TA would be developed and implemented in coordination with SLDB and the Ministry of Finance. Technical engineering assistance would also be included under this TA to provide quality assurance and review of proposed adaptation loans.

39. The CAFF would be implemented in accordance with the World Bank's Financial Intermediary Financing (OP/BP 10.00).

COMPONENT 4: Contingent Emergency Response (US$1 million IDA)

40. Due to the high risk of a catastrophic event in Saint Lucia, a provisional component would be added under this Project to facilitate rapid response upon occurrence of an adverse natural event, allowing for rapid reallocation of the loan during an emergency, under streamlined procurement and disbursement procedures. The emergency mechanism component would be triggered, following an adverse natural event and a subsequent declaration of a national emergency by the GoSL. Following this declaration, the GoSL could officially request reconstruction/rehabilitation financing under this component through a letter to the World Bank Country Director. In addition, the GoSL would be required to submit a recovery action plan indicating reconstruction/rehabilitation needs. The recovery action plan would outline the requested re-categorized financing or additional financing to cover early recovery and rehabilitation costs.

41. The emergency mechanism component would be implemented following the rapid response procedures governed by OP/BP 10.00. Once triggered, OP/BP 10.00 facilitates rapid utilization of loan proceeds by minimizing the number of processing steps and modifying fiduciary and safeguard requirements so as to support rapid implementation. Disbursements are expected to be in the form of two types of expenditures, namely critical imports and rehabilitation or reconstruction activities - including civil works and related goods and services. In addition to reallocation of funds from other components in this Project, the contingent component may also serve as a conduit for additional financing from IDA in the event of an emergency. The final arrangements would be part of the written agreement between the recipient and the Bank that is a condition for disbursement of this component.

42. Below is a list of critical imports eligible under the component:

(i) Construction materials;
(ii) Water, land, and air transport equipment, including spare parts;
(iii) Agricultural equipment and inputs (excluding pesticides);
(iv) School supplies and equipment;

(v) Medical supplies and equipment;
(vi) Petroleum and fuel products;
(vii) Construction equipment and industrial machinery;
(viii) Communications equipment;
(ix) Seeds and fertilizer;
(x) Food and water containers and any other items which may be acceptable to the Bank and agreed to by the Borrower and the Bank

43. A specific OM would apply to this component, detailing financial management, procurement, safeguards and any other arrangements to ensure that funds are disbursed in a rapid and efficient manner following an eligible emergency.

44. If an adverse natural event does not occur during the lifetime of the Project and/or the component is not disbursed 12 months before its closing date, the Component would not be activated, and the amount of US$1 million would be reallocated to finance activities under the other proposed components.

45. This mechanism would serve as a complement to Saint Lucia's participation in the Caribbean Catastrophic Risk Insurance Facility (CCRIF), since the trigger would be a declaration of emergency following an adverse natural event, rather than CCRIF's standard parametric trigger. Additionally, this mechanism would complement the new Livelihoods Protection Project for Farmers, which provides a safety net for those whose incomes are affected by adverse weather events, particularly rain and wind events.

COMPONENT 5: Project Management and Implementation Support (US$3.0 million: US$1.4 million SCF Grant; US$1.6 million CRW)

46. This component would finance the provision of support to the Project Coordination Unit (PCU) under the Ministry of Finance, Economic Affairs, Planning and Social Security's (MoF) Department of Planning and National Development to strengthen and develop their institutional capacity to conduct overall project management and coordination, implementation monitoring and evaluation, and supervision. This support would include, *inter alia*: (i) the strengthening of the PCU's capacity to comply with its responsibilities as would be set forth in the project's OM, including the hiring of specialized staff, as needed such as such as a financial sector specialist, on an as needed basis, and an M&E specialist at project start to collect baseline data and establish a framework for M&E[28]; (ii) the hiring of a Civil Works Coordinator to be based at MIPS&T to provide project implementation support; and (iii) the carrying out of project audits (technical audits would be carried out by consultants for activities under Component 1 every two years to ensure technical compliance and quality control) and project studies, including performance reviews and impact evaluations. Environmental and Social Safeguard consultants would be hired as required to develop and implement the necessary plans, as needed. This component would also finance costs associated with supporting the implementing agencies comply with the mitigation measures identified in the Operational Risk Assessment Framework (ORAF).

[28] A process is underway at the program level to align the project-level M&E with the PPCR results framework with the support from the CIF.

47. In addition, staffing within the Sustainable Development and Environmental Department (SDED), which would serve as the focal point for PPCR-specific activities within the Ministry of Public Service, Sustainable Development, Science, Energy and Technology (MoSDEST) would also be financed under this component, including the hiring of, *inter alia*, a Climate Change Coordinator, a Communications Office, a Civil Society Officer, and an Administrative Assistant. Finally, this component would support PPCR project and program-level activities (e.g. M&E, coordination, stakeholder consultation and knowledge management), including capturing/sharing lessons from operationalization of CAFF—an innovative approach to adaptation finance.

Annex 3: Implementation Arrangements

SAINT LUCIA: Disaster Vulnerability Reduction Project

Project Institutional and Implementation Arrangements

1. The Ministry of Finance, Economic Affairs, Planning and Social Security (MoF) would be the main GoSL counterpart. The MoF would be the overarching institution in charge of executing the project. The MoF has experience executing Bank-financed projects as well as coordinating with various government line ministries and agencies, which is a critical asset due to the cross-sectoral nature of the DVRP and wide range of stakeholders who would be involved in the implementation.

2. The existing Project Coordination unit (PCU) within the MoF's Department of Planning and National Development would be responsible for project management including for all fiduciary aspects and safeguards compliance. The PCU would also coordinate project implementation for all components and would be primarily responsible for coordinating with the Bank and technical implementing agencies (IAs) in both the preparation and implementation phases. Specific tasks of the PCU would include, *inter alia*: (i) procurement control, including the approval of bidding documents, contracts, and recommendations; (ii) financial management, including payments to contractors and consultants; (iii) appointment and management of technical consultants to assist with project activities, as needed; (iv) administration of third party audits ensuring quality of project activities; (v) administration of financial audits and requisite reporting to the Bank; (vi) management of environment and social safeguards aspects of the Project; (vii) quarterly reporting on project progress; and (viii) ensuring that the Project is implemented in compliance with agreed implementation procedures and other Bank guidelines (Procurement, Financial, Environment, Social). The PCU would be singularly responsible for reporting to the Bank on procurement, financial management, safeguards, audit and disbursement aspects, and on overall project progress, with inputs from the IAs.

3. The MIPS&T would be the technical agency responsible for implementing, coordinating and managing all civil works activities. A Civil Works Coordinator would be hired to be based at MIPS&T to support with the implementation of the works.

4. MoSDEST, through its Sustainable Development and Environment Division (SDED), would be the agency responsible for ensuring that project activities remain aligned with the SPCR goals. As the country's focal point on climate change issues, SDED[29] would also be responsible for reporting on PPCR activities within the Project and on the overall Program.

5. The relevant technical line ministries would be the implementing agencies responsible for the overall design and implementation of their respective. These include: MIPS&T; MoE; Ministry of Health, Wellness, Human Services and Gender Relations (MoH); Caribbean Public Health Authority (CARPHA); Ministry of Physical Planning, Housing and Urban Renewal (MoPP); Saint Lucia Air and Sea Ports Authority (SLASPA); Ministry of Social Transformation

[29] The Climate Change coordinator would report to the Bank on PPCR activities, with inputs from the relevant executing agencies.

(MoST); Department of Fisheries and Department of Forestry, both within Ministry of Agriculture, Food Production, Fisheries and Rural Development; Water Resources Management Agency (WRMA), Water and Sewerage Company (WASCO), NEMO and MoSDEST (SDED). The specific tasks of the IAs include, *inter alia*: (i) design and planning of project activities, including preparation of cost estimates and technical inputs to bidding documents; (ii) procurement duties in collaboration with the PCU, including review of bids, assistance with preparation of bid evaluation reports, and final decision; (iii) management and supervision of contracts; (iv) provision of third party quality assurance checks for each contract; and (v) provision of necessary payment-related documentation to the PCU for final contract payments. Each of the IAs would have staff members specifically tasked to implement the Project.

6. SLDB would be the implementing entity for Component 3. A subsidiary agreement between MoF and SLDB (through which SLDB will access funds for the CAFF) will be considered a condition of effectiveness.

7. The MoF, would convene a Project Coordination Committee (PCC) to foster communication and coordination between concerned agencies, chaired by its permanent secretary or a designate, and with membership from the National Development Unit, Economic Affairs Unit, PCU, SDED as well as representative from the relevant IAs. The Committee would be responsible for ensuring that the Project is in line with national development priorities. The Terms of Reference (TORs) for the Committee, including the membership and meeting frequency, would be included in the OM, to be adopted prior to disbursement of project financing.

8. Based on implementation needs, the Project would also engage relevant regional agencies, such as the University of the West Indies (UWI) and the Caribbean Community Climate Change Center (CCCCC), for the regional capacity-building and knowledge sharing activities.

PCU Capacity Analysis and Staffing Recommendations

9. The PCU's staffing is described above. Its current organizational structure includes three departments managed by the project coordinator: Procurement, Financial (two officers and an assistant), and Administration (with one officer and two supporting staff). Procurement is headed by a procurement specialist assisted by two officers. The procurement specialist, who is also an M&E officer, is in charge of coordinating and supervising the project's procurement. The PCU is currently in charge of implementing Bank-financed projects, including the HTERP, and several trust fund grants. The PCU's procurement staff has significant experience, which it gained through on-the-job training in implementation of the above projects and other projects now closed, and through attendance at several regional trainings on Bank procurement policies. Its overall procurement capacity is rated Satisfactory. Given the additional activities and expected additional procurement workload, delays in implementation are a risk, and additional procurement staff would need to be hired to assist the procurement specialist in project activities and sub-loans to be managed by the SLDB. Specific staff needs would be discussed after determining activities to be financed under the sub-loans and proposed cost estimates.

Project costs and financing

Table 5: Project Cost and Financing (US$ million)

Project Components	Project cost	IDA Financing (Credit)	CIF Financing (Grant)	CIF Financing (Credit)	CRW Financing (IDA Credit)	% Financing
1. Risk Reduction and Adaption Measure	**50.4**	**22.1**	**5.1**	**10.0**	**13.2**	**100**
1.1 Rehabilitation of Marchand River bank Protection	2.6	2.0	0.0	0.6	0.0	100
1.2 Road and Bridge Rehabilitation, Slope Stabilization and Drainage	23.85	13.85	0.0	0.0	10.0	100
1.3 Integrated Slopes, Landslides and Riverbank Stabilization at various locations	1.7	0.0	0.0	0.0	1.7	100
1.4 Retrofitting of Select Priority Emergency Shelters	1.5	0.0	1.5	0.0	0.0	100
1.5 Rehabilitation or retrofitting of Water Supply Systems	2.0	0.0	2.0	0.0	0.0	100
1.6 Re/construction or Rehabilitation of Schools and Health Centers	11.5	0.0	0.6	9.4	1.5	100
1.7 7 Flood Mitigation works at the Hewannora International Airport	4.3	4.3	0.0	0.0	0.0	100
1.8 Technical Assistance to MIPS&T	1.55	1.55	0.0	0.0	0.0	100
1.9 National plans, policies and strategies to support risk reduction and climate resilience efforts	1.4	0.4	1.0	0.0	0.0	100
2. Technical Assistance for Improved Assessment and Application of Disaster and Climate Risk Information in Decision-Making	**8.6**	**0.9**	**5.5**	**0.0**	**2.2**	**100**
3. Climate Adaptation Financing Facility	**5.0**	**0.0**	**0.0**	**5.0**	**0.0**	**100**
3.1 Climate Adaptation Financing Facility	4.5	0.0	0.0	4.5	0.0	100
3.2 Technical Assistance	0.5	0.0	0.0	0.5	0.0	100
4. Contingent Emergency Response Component	**1.0**	**1.0**	**0.0**	**0.0**	**0.0**	**100**
5. Project Management and Implementation Support	**3.0**	**0.0**	**1.4**	**0.0**	**1.6**	**100**
Total Project Costs	**68.0**	**24.0**	**12.0**	**15.0**	**17.0**	**100**
Total Financing Required	**68.0**	**24.0**	**12.0**	**15.0**	**17.0**	**100**

Financial Management, Disbursements and Procurement

10. Financial management, disbursement, and procurement of the Project would be undertaken by the PCU, which has considerable experience in implementing Bank-financed

projects. Financial management and procurement capacity assessments of the PCU were carried out during project preparation to ensure that the relevant systems satisfy the Bank's minimum fiduciary requirements under OP/BP10.00.

Financial Management

11. Currently, the PCU has two financial management staff, which would be adequate to handle this new project. As multiple ministries and agencies would be involved with the project implementation, technical and fiduciary aspects of project management would be divided between the implementing ministries and the PCU. However, overall project financial management would remain the responsibility of the PCU and to ensure that the project funds are used for the purpose intended by the various participating line ministries/agencies. Since the physical activities of the project would be implemented by multiple ministries/agencies with differing control environments, and since the project is complex in nature, overall financial management risk is assessed as significant though it could be mitigated by strengthening the FM capacity of the PCU as well as those of the related implementing agencies. To further strengthen project internal control environment, the internal auditors of the GoSL may be requested to conduct internal audits of selected project expenditures, and a summary of the findings would be made available to the Bank. Saint Lucia uses SmartStream as its Government Financial Management Information System (GFMIS). As such, Saint Lucia has the potential to use its existing country system to also handle the projects accounting and reporting functions. After one year of project implementation, an assessment would be made to integrate the project accounts into SmartStream. The annual audit of the project accounts would be conducted by the Director of Audit.

Use of the country systems

12. The GoSL has been working to strengthen their public financial management system. Currently, the GoSL is using SmartStream to preparing government accounts. However, the PCU uses a separate accounting system (QuickBooks), which should be integrated with the SmartStream. The PCU has viewer access to SmartStream, which allows for the reconciliation of the accounts. The PCU is working alongside the Accountant General to achieve full access to SmartStream, which would allow direct posting of project expenditures and generation of project expenditure statements from SmartStream. The overall control environment in the GoSL is reasonably good as there are adequate financial rules, regulations and also checks and balances. All expenditures are audited by the internal auditors based in the Office of the Accountant General prior to the issuance of payments and disbursements. Once project accounts are fully integrated with SmartStream, the system would be able to track the expenditures made by the Project and would be able to prepare quarterly Interim Financial Reports (IFRs) and annual financial statements. The project accounts would be audited by the Director of Audit (DOA) to meet the requirements of Loan/Credit/Grant Agreements. Although the DOA has adequate capacity, the audit of public accounts is overdue since 2006. The Accountant General confirmed that public accounts would be updated by June, 2014. As such, the Project accounts cannot be integrated with the public accounts unless timeliness both in the preparation and audit of public accounts is significantly improved. The PCU would prepare the project financial statements, which would be audited by the DOA.

13. The project accounts would be integrated with SmartStream in a phased manner as capacity is built in the Project Financial Management systems. Through a multidonor Trust Fund to Support Economic Management in the Caribbean – (SEMCAR, TF012374), the Bank is providing US$200,000 to the GoSL to help in the development of the Regional SmartStream Enterprise Agreement on behalf of the participating countries, including Saint Lucia. This grant would introduce more SmartStream modules by the GoSL, which could facilitate the increased use of SmartStream by the PCU. The PCU would continue to maintain the accounts in QuickBooks until the full Project accounts is integrated with the SmartStream.

14. A designated account would be opened in the Central Bank of Saint Lucia and the funds would be transferred to the local currency account during the initial years of the proposed project, and finally to a Treasury Single Account (TSA). The project expenditures would be made from this TSA after the project transitions into SmartStream. However, all project expenditures would continue to be initiated by the centralized PCU, and would be adequately documented. For incremental use of the country systems, the following steps have been agreed upon with the GoSL:

i. PCU would be granted full access to SmartStream by the project effectiveness by the accountant general;
ii. The Government chart of accounts and budget classification would be adjusted to include project information and integrated in the SmartStream;
iii. Detailed project records would be kept in QuickBooks using a project-specific chart of accounts. Cumulative project expenditures would be transferred to the SmartStream by the PCU project accountant on a monthly basis during the initial years of the project implementation;
iv. Provided that Treasury management of the separate designated bank account is successful (as is being piloted under the ongoing Caribbean Regional Communications Infrastructure Program project), project funds would be transferred to the consolidated fund from the designated account as and when needed. However, actual expenditures would be tracked to facilitate the balance lying with the treasury.

Financial Management Arrangements

15. The following represents the detailed financial management arrangements:

16. **Budgeting**. The PCU prepares the project budget, which is integrated with the national budget of Saint Lucia. The implementation of the budget is monitored by the PCU and the MoF. The budget year for the GoSL is from April 1 to March 31. The Project's accounting year would accordingly follow the same fiscal year as that of the GoSL. Project annual budgeting would be based on the cost tables, and would be updated according to the latest information during project implementation. The annual budgets would be prepared by the PCU in collaboration with the concerned implementing ministries/agencies, and submitted to the GoSL for the final approval. The approved annual budget would be included in the budget estimates, entered into the accounting system, and used for periodic comparison with actual results as part of the interim reporting. The approved budget would be shared with the World Bank and would be entered in the GFMIS as well as QuickBooks to monitor progress of implementation of the budget.

17. **Staffing.** The PCU currently has two FM staff working on existing projects. They are supervised by the PCU coordinator, who previously acted as the project financial management specialist.

18. **Accounting policies and procedures.** The PCU is using a computerized accounting system (QuickBooks) to maintain existing project accounts. Project's accounting information would be manually transferred into the SmartStream on a monthly basis, until QuickBooks can be integrated into SmartStream, as mentioned above. It is expected that by June 30, 2014, the PCU staff would have more access, allowing it to directly enter project expenditures into the SmartStream. Once this arrangement is put in place, the project's designated account would be linked to or consolidated into the foreign currency funds of the GoSL, and the entire payment process would be transitioned into SmartStream. Project transactions would be recorded as incurred, and all primary supporting documentation would be maintained to facilitate ex post reviews and external annual audits. Such documents should be maintained for a minimum period of five years. The detailed accounting policies and procedures would be set forth in the project OM.

19. **Internal controls and safeguarding of assets.** The Project's OM would reflect the structure of the PCU, administrative arrangements, internal control procedures, including procedures for authorization of expenditures, maintenance of records, safeguarding of assets (including cash), segregation of duties to avoid conflict of interest, regular reconciliation of bank account statements, bank accounts signing mandate (to include at least two signatories), regular reporting to ensure close monitoring of project activities, and the flow of funds to support project activities. The project-specific information such as the chart of accounts, the formats of the reports, etc., would be added as part of the annexes to the manual. The project OM would be a living document and would be updated from time to time. Assets acquired by the project would be in the custody of the respective participating ministries/implementing agencies, which would also keep copies of the supporting documentation. The PCU would maintain all supporting records of the project. Annual physical inspection would be undertaken by the implementing agencies and PCU staff, with the participation of the internal auditors.

20. **Financial reporting.** The PCU would be responsible for producing the Interim Financial Reports (IFRs) on a quarterly basis to be submitted to the Bank. These reports would provide required monitoring information and would be used for disbursement purposes. The IFRs would include a short narrative outlining the major project achievements for the quarter, the Project's sources and uses of funds, bank reconciliation statements, and necessary procurement tables. These reports would be submitted to the Bank no later than 45 days after the end of each reporting period. The annual financial statements would include the project's sources and uses of funds, a detailed analysis of project expenditures, a schedule of withdrawal applications presented during the year, a reconciliation of the designated account, the notes to the financial information, and management representation letter. These reports would be prepared by the PCU and made available to both the internal and external auditors.

21. **Disbursement and flow of funds**. The project fund would be channeled through a designated account denominated in US dollars, which would be opened by the PCU in a

commercial bank. Advances to the designated account would be made based on the forecast of the project's eligible expenditures for a period of at least six months, based on interim financial reports. Supporting documentation for expenditures made from the designated account would also be based on the IFRs. As eligible expenditures ere incurred, the PCU would withdraw the amount to be financed by the Bank from the designated account (US$ or XCD$) in accordance with the financing agreement(s). The PCU would operate a local currency account, to finance project expenditures in local currency, where funds from the US dollar designated account would be periodically transferred. These accounts would be operated in accordance with the procedures and guidelines set forth in the Bank's Disbursement Guidelines. Reimbursement method of disbursement would also be available. The supporting documentation for this method would also be interim financial reports, and the pre-finance expenditures would be clearly identified in the reports if combined with supporting advances made to the designated account in the same interim financial reports. The minimum application size for reimbursement should be US$200,000. The Project's disbursement arrangements would be established in a Disbursement Letter, which would include reimbursements, direct payment, special commitment, and advances.

22. **Annual Audit of Project financial statement.** The project financial statements would be audited annually. The director of audit is responsible for auditing the country's public accounts, including projects funded by international organizations. The Auditor General's Office has performed adequately in the past in terms of the quality of the audit reports provided and the timely delivery of annual audited financial statements for Bank-financed projects. Therefore, annual project financial statements would be audited in accordance with auditing standards issued by the International Organization of Supreme Audit Institutions and/or International Standards on Auditing issued by the International Federation of Accountants. The PCU would prepare the auditors' terms of reference, which would be reviewed by the Bank before the engagement of the auditor. The annual audit reports would include an opinion on the project financial statements, including designated account reconciliation, review of the internal controls, review of the project's compliance with the terms of the financing agreement(s), and a management letter. The project's annual audit report would need to be submitted to the Bank for review no later than six months following the end of the fiscal year. In accordance with the Bank's disclosure of information, the audited financial statement would be made publicly available. In addition to the above mentioned audit of the project accounts, the accounts of SLDB would also be subject to audit and reflect the funds provided by the proposed project. The audited financial statements of SLDB would be provided to the Bank as part of the requirement of the project agreement.

23. **Project implementation support by the Bank.** As part of project implementation, the Bank would conduct risk-based financial management reviews, at appropriate intervals. These would pay particular attention to: (i) project accounting and internal control systems; (ii) budgeting and financial planning arrangements; (iii) review of the interim financial reports; (iv) review of audit reports, including financial statements and remedial actions recommended in the auditor's management letters; (v) disbursement management and financial flows, including counterpart funds, as applicable; and (vi) any incidences of corrupt practices involving project resources. The Bank's review would also cover the on-lending component (Component 3) to be implemented by SLDB.

24. **Proposed Financial Management Action Plan.** Table 6 summarizes the proposed financial management action plan.

Table 6: Financial Management Action Plan

#	Proposed Action	Completion Date	Responsibility
1	Allow PCU staff full access to the SmartStream	December 31, 2014	Accountant general
2	Adjust the government Chart of Accounts and budget classification to include project information and integrate them in the SmartStream	December 31, 2014	PCU/Accountant general
3	Prepare a project financial management manual as part of the Operations Manual.	Negotiations	PCU
4	Design interim financial report formats and agree with the Bank	Negotiations	PCU

Procurement

29. Procurement would be carried out in accordance with the World Bank *Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers, January 2011*; *Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers, January 2011*; and the provisions stipulated in the financing agreement. The various procurement actions under different expenditure categories are described in general below. For each contract financed under the financing agreement, the various procurement or consultant selection methods, the estimated costs, prior/post review requirements, and time frame have been agreed upon between the Borrower and the Bank in the Procurement Plan. The Procurement Plan would be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. As the corresponding bidding documents and requests for proposal become ready and available, a general procurement notice in UNDB and specific procurement notices would be published for all ICB procurement and consulting contracts as required by guidelines.

Procurement Arrangements:

30. **Works.** Works procured under the Project would consist of civil works to improve infrastructure resilience to disaster events and climatic changes, and to promote climate change adaptation measures. Specific works include Slope and Riverbank Stabilization; Road Rehabilitation and Improved Drainage; Retrofitting of Selected Priority Emergency Shelters; Rehabilitation and Retrofitting of Water Supply Systems; and others. Procurement of works would be carried out using International Competitive Bidding (ICB), National Competitive Bidding (NCB), Shopping, and other methods indicated in the financing agreement**.** The procurement would be carried out using the World Bank's Standard Bidding Documents and other sample documents and templates, all agreed upon with the Bank. The procurement methods thresholds and prior review thresholds for Works are indicated in Table 6 below. Domestic preferences in accordance with clause 2.55 and appendix 2 of the guidelines would not apply.

31. **Procurement of goods and non-consulting Services.** Procurement of goods and

services other than consulting services would include water metering equipment for non-revenue water; water quality testing equipment; hydrological and metrological equipment; laboratory equipment for MIPS&T; vehicles; IT and other office equipment, and other goods and services. Procurement of goods would be carried out using ICB, NCB, Shopping, and other methods indicated in the financing agreement. The procurement would be carried out using World Bank's Standard Bidding Documents and other sample documents and templates, all agreed upon with the Bank. The procurement methods thresholds and prior review thresholds for Goods and non-consulting services are indicated in Table 6. Domestic preferences in accordance with clause 2.55 and Appendix 2 of the guidelines would not apply.

32. **Selection of consultants.** Consultants' service contracts procured under this Project would include the following, among others: detailed designs; supervision; technical assistance; feasibility and environmental studies; spatial data management and maps; public education and awareness campaign; and strengthening capacity of the PCU, SLDB, and other ministries. The following selection methods would be used: Quality and Cost Based Selection (QCBS); Least Cost Selection (LCS); Selection Based on Consultants' Qualifications (CQ); Individual Consultants;, and other selection methods indicated in the financing agreement. PCU's staff selected competitively under some previous Bank's projects may be hired on a Single Source Selection basis, subject to the Bank's prior review and approval. The selections would be done using the Bank's standard request for proposal and other sample documents and templates, all agreed upon with the Bank. Short lists of consultants for services estimated to cost less than US$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

33. **Procurement arrangements under Component 3.** The procurement of goods, works, and non-consulting services financed under Component 3 would be carried out in accordance with the well-established local private sector procurement methods or commercial practices, acceptable to the Bank (see Procurement Guidelines, Para 3.13). The procurement procedures would be specified after finalizing the planning of the activities to be financed under Component 3, with estimated costs respectively indicated. The procurement arrangements and procedures under Component 3 would be elaborated in detail in the OM.

34. **Procurement arrangements under Component 4.** In case of urgent need of assistance because of a natural disaster, the simplified procurement procedures outlined in the Bank guidance note *Situations of Urgent Need of Assistance or Capacity Constraints*, *Simplified Procurement Procedures*, may be used. The procurement arrangements and procedures under Component 4 would be elaborated in detail in the OM.

35. **Operating Costs**. "Operating costs" refers to incremental operating costs incurred by the PCU on account of project implementation, management, and monitoring, including dissemination of project-related information and publications; office rent and utilities; office and equipment insurance, maintenance, and repair; vehicle insurance, maintenance, and repair; local travel, communication, translation, and interpretation; bank charges; and other miscellaneous costs directly associated with the project, all based on periodic budgets and procured using the implementing agency's administrative procedures acceptable to the Bank. Operating costs would not include salaries of government officials and civil servants.

36. **Training costs.** The Project would finance trainings (workshops, etc.), as needed. The trainings would be carried out according to training plans, which the PCU would revise semiannually and as needed and submit to the Bank for approval prior to implementation. The expenses would be covered under training category and disbursed based on the statement of expenditure.

37. **Procurement methods thresholds and prior review thresholds.** The procurement methods thresholds and prior review thresholds that would be used are shown in Table 7.

Table 7: Procurement methods thresholds and prior review thresholds

Expenditure Category	Contract Value (Thresholds) US$ thousands	Procurement Method	Contracts Subject to Prior Review
1. Works			
	>1,500	ICB	All
	150 – 1,500	NCB	1st contract and all > US$750,000
	<150	Shopping	None
	Regardless of value	Direct Contracting	All
2. Goods			
	>150	ICB	All
	50-150	NCB	1st two contracts
	<50	Shopping	None
	Regardless of value	Direct Contracting	All
3. Consulting Services			
3.1 Firms	>100	QCBS, QBS, FBS, LCS	All
	<100	QCBS, QBS, FBS, LCS, and CQS	1st two contracts and all TOR's by TTL
	Regardless of value	Single Source	All
3.2 Individuals	Regardless of value	IC	All TORs by TTL), and all > US$50,000

Procurement Plan

38. The PCU prepared an initial detailed Procurement Plan, which provides information on procurement packages, methods, Bank review, and times for procurement and implementation. This plan would be agreed upon between the Borrower and the Bank before or at negotiations, and would be available at the implementing agency's project database and on the Bank's external website. The Procurement Plan would be updated in agreement with the Bank annually or as required to reflect the actual project implementation needs. The initial Procurement Plan was submitted to the Bank by the PCU in July 2013. A Project Preparation Advance was prepared for the Project, and the Summary PPA Procurement Plan and Summary Procurement Plan for the first 18 months of Project implementation can be found in **Error! Reference source not found.** below.

Frequency of Procurement Supervision

39. In addition to the prior review, procurement supervision and post reviews would be carried out by the Bank team. It is expected that a supervision mission in the field would be conducted every six months. As a minimum, one post review report, which would include physical inspection with the Bank technical expert of sample contracts including those subject to prior review, would be prepared each year.

Environmental and Social (including safeguards)

40. The Project has been classified as Category B in accordance with World Bank Environmental Assessments Policy (OP/BP 4.01), as proposed activities under Component 1 involve primarily rehabilitation works with potential environmental or social impacts that are short-term, not significant, and that can be readily prevented or mitigated with standard measures.

41. The GoSL has prepared and disclosed a program-level Environmental Assessment to examine Project activities prior to appraisal. An EMF has also been prepared by the PCU to guide project execution for screening of possible subprojects and identification of complex projects that would require additional studies to comply with safeguards policies. For relatively uncomplicated projects the EMF also includes generic mitigation measures through the development of an EMP to be included in the OM as environmental compliance contracting clauses.

42. With relation to environmental safeguards, Natural Habitats (OP/BP 4.04) and Physical Cultural Resources (OP/BP 4.11) were triggered. While the project does not expect to impact critical natural habitats or physical cultural resources, as no works are currently planned in such areas, the policies are triggered as a precaution. The former is triggered given that some subprojects (e.g. slope stabilization works and waterline replacement) may involve accessing the higher reaches of watersheds which are protected under Saint Lucian law. In addition, select subprojects may affect sensitive riparian areas with unstable soils (e.g. roadwork at Venus – Anse-la-Raye) and / or zones with natural habitat.

43. Supervision for environmental compliance would be managed by the PCU in close coordination with the relevant Ministries and agencies, particularly SDED, who would provide technical support to the PCU as needed, with support from the World Bank Environmental Specialist. In addition to Bank requirements, the PCU would be responsible for ensuring the proper application of any national environmental laws. The PCU would be responsible for ensuring environmental compliance in accordance with procedures detailed in the Project's OM and would be responsible for including these requirements in associated works contracts. As the PCU serves primarily as a fiduciary institution, it would rely on technical assistance for environmental supervision from the SDED, from line ministries, and from qualified selected consultants for environmental assessments, monitoring and supervision.

44. The OM would identify focal points within each of the relevant Ministries/Agencies who would liaise directly with the PCU on these issues. Periodic supervision by Word Bank's Environmental Specialist would be conducted to provide additional support. Component 5 of the Project would also serve to enhance the institutional capacity of the PCU to implement the

provisions of the OM.

45. No issues relating to the Project were identified requiring specific attention that is not addressed under the Bank safeguard policy structure. Finally, no exceptions from Bank safeguard policies are being sought under this Project.

46. The Social Assessment conducted during project preparation confirmed that project beneficiaries welcome the project and anticipate positive social impacts. Perceived impacts include a greater sense of safety and security as a result of improved infrastructure and facilities as well as increased community participation as a result of renovated community centres.

47. With relation to Social safeguards, the Involuntary Resettlement Safeguard Policy (OP/BP 4.12) is triggered as works planned, including roads and bridge rehabilitation and drainage system construction, could potentially lead to the public acquisition of land and subsequently impact beneficiary assets or access to assets. As such, an RPF has been developed to cover acquisition that may emerge during project implementation. The RPF has been disclosed in country and via the World Bank's InfoShop, and would be publically consulted in Saint Lucia. Screening was undertaken to determine the presence of Indigenous Peoples in the project area and it was concluded that OP/4.10 is not triggered and Indigenous Peoples are not present.

48. During project implementation supervision of Social Safeguards Compliance would be managed by the PCU in close coordination with the relevant Ministries and Agencies as needed, with support from the World Bank Social Specialist. A Social Development Specialist would be hired, as needed, to oversee the screening and implementation of any land acquisition under the project to assist in the implementation of the Grievance Redress Mechanism. The social specialist would support the monitoring of the gender dimensions of the project including the implementation of Component 3.

49. A beneficiary feedback mechanism would be devised at project start to tie into the Project's M&E framework, which would be implemented throughout the project lifespan. A Grievance Redress Mechanism, as articulated in the Resettlement Policy Framework (RPF), will be implemented to address potential concerns of project beneficiaries. In addition, a system will be devised to facilitate long term beneficiary participation and engagement and enhance accountability.

50. With relation to Component 3, the relevant policies and procedures of the SLDB were reviewed and it was agreed that any sub-projects of Category A nature and those potentially involving land acquisition would be excluded under the CAFF.

51. *Staffing.* To ensure adequate capacity for compliance with Bank safeguards policies during Project implementation, specialized social and environmental consultants may be contracted by the PCU as required, to support the implementation of specific safeguards policies.

Monitoring & Evaluation

52. The Results Framework has been developed in collaboration with the GoSL. Project monitoring would occur as a periodic function, and would include process reviews, accounting audits, reporting of outputs, and maintenance of records.

53. The Project would finance gathering of baseline data to assess social, environmental, and economic impacts of key activities, including gender-differentiated impacts. A monitoring and evaluation specialist would be hired within the PCU at project start to collect the baseline data and establish a framework for M&E, and would subsequently undertake a mid-term and ex-post evaluations of project activities. This specialist would work alongside the Climate Change Coordinator based at SDED, who also have a monitoring, evaluation and reporting role, especially with regard to PPCR activities.

54. Thematic areas that would be supervised and monitored include the following: i) Social and Environmental monitoring; ii) regular technical quality supervision; iii) periodic physical and financial progress monitoring; and iv) PPCR-specific M&E reporting.

55. *Social and Environmental Monitoring:* This would comprise the following sets of activities: i) monitoring compliance with environmental regulations, social safeguards, and Environment and Social Assessment provisions; and ii) continuous social impact monitoring at the community levels using the Beneficiary Feedback mechanism, and oversight at project level.

56. *Regular Quality Supervision and Independent Quality Monitoring:* This would be carried out by the respective IAs and the PCU, and would also include third party quality monitoring of selected project activities by independent consultants, as needed. Detailed progress reporting guidelines would be evolved by the PCU and adopted by all IAs.

57. *Periodic Physical and Financial Progress Monitoring:* Physical progress monitoring would be carried out by the IAs on a monthly basis and reported to the PCU, which would in turn share the reports on a quarterly basis with the World Bank. Financial progress would be reported by the PCU through the quarterly IFRs.

58. *PPCR-specific M&E:* As every country participating in the PPCR is particular and would face difficulty adhering to a standardized M&E framework across twenty country and regional programs, the results monitoring process has been self-defined and reflects country-specific realities on the ground. The PPCR Monitoring and Reporting Score Card maintains a degree of flexibility, which enables Saint Lucia to define its baselines against two core.30 Importantly, the PPCR M&E framework is not meant to be a point of comparison between participating countries, but considered a tool to monitor Saint Lucia's own progress in meeting its climate resilient goals.

59. Overall responsibility for monitoring and evaluation of the Project would lie with the PCU that would consolidate all reports from the IAs and report to the Bank on performance indicators defined for the Project and on the project's progress and execution. For the PPCR-specific activities, the climate change coordinator that would be hired within SDED would be in charge of monitoring and reporting according to the CIF M&E guidelines.

60. For Component 3, the borrower and SLDB would evaluate progress on the proposed indicators through regular reports. SLDB would prepare semiannual reports including intermediate and additional indicators, and semiannual financial management reports (included in the OM). The data would come from SLDB's internal reports. SLDB would work with the Bank team in the design of the appropriate reporting templates in the OM for this Component. (A separate OM would be prepared for SLDB to implement Component 3.) Capacity would be built within the PCU to ensure adequate provision of the monitoring data. The financial performance of SLDB would be monitored through independent auditors' reports and separate management letters confirming adherence to prudential norms. The Climate Change Coordinator based at SDED would also play an active role in the CAFF, in terms of assisting in determining the suitability of projects regarding building climate resilience and reducing risk to disasters.

61. The Project's OM would provide specific details regarding monitoring and evaluation responsibilities, including data collection requirements, timing, and use of the information.

Annex 4: Operational Risk Assessment Framework (ORAF)

SAINT LUCIA: Disaster Vulnerability Reduction Project
Stage: Appraisal

<table>
<tr><td colspan="2">1. Project Stakeholder Risks</td><td>Rating</td><td colspan="3">Low</td></tr>
<tr><td colspan="2" rowspan="2">Description :
Changes in government after elections (which would occur during the life of the Project) may weaken support for the Project and affect implementation.</td><td colspan="4">Risk Management :
The relationship between the Bank and the GoSL is strong, and the proposed project is directly in line with the GoSL’s priority to reduce its vulnerability to natural hazards, and increase its capacity to adapt to the adverse effects of climate change which remained through the last change in government. Additionally, extensive capacity building and yearly public education awareness efforts (both locally and nationally), beginning in advance of and throughout implementation, would build off this strong interest and aim to cultivate a deep understanding of DRM and climate change adaptation as well as ownership of investments.</td></tr>
<tr><td>Resp: Client, PCU</td><td>Stage: Implementation</td><td>Due Date : Not yet due</td><td>Status: Not yet due</td></tr>
<tr><td colspan="2" rowspan="2">Given the high profile of the Project, and its ambitious aim of comprehensively including multiple sectors in the project’s design, certain groups (government agencies, local communities, citizens of Saint Lucia) may potentially be dissatisfied with Project activities and/or feel negatively affected by, or excluded from the project’s financing scope.</td><td colspan="4">The proposed project emphasizes the need for synergies among ministries and agencies, and at the local level to maximize the impact of proposed investments. The preparation of PPCR Phase 1 included extensive consultations with all relevant stakeholders who expressed strong interest in reducing their vulnerability to natural disasters, and in the retrofitting and redevelopment of infrastructure to ensure adaptability to the risks associated with climate change. Elements to be financed under the project have been selected in consultation with key stakeholders (ministries, agencies, local communities in some instances), so as to ensure local ownership and support of selected works. Furthermore, prior technical reviews of proposed activities would be undertaken to ensure that project activities would not have an adverse impact on local residents. During preparation and implementation, the project implementation agency would disseminate relevant information (in additional to social and environmental assessments) to citizens to further increase awareness of the proposed project and activities.</td></tr>
<tr><td>Resp: SDED, PCU</td><td>Stage: preparation and implementation</td><td>Due Date : During project execution</td><td>Status: Public awareness campaign about project activities is planned for project execution phase</td></tr>
<tr><td colspan="6">2. Implementing Agency Risks (including fiduciary)</td></tr>
<tr><td colspan="2">2.1 Capacity</td><td>Rating:</td><td colspan="3">Substantial</td></tr>
<tr><td colspan="2">Description:
The proposed operation would be the largest Bank-financed operations for the GoSL to date, and is multi-sectoral and complex by nature, involving a wide variety of ministries and agencies. The project would require the PCU to maintain and possibly increase project management capacity. Current capacity could be inadequate (procurement, FM capacity, and number of staff) to handle the large number of contracts, there</td><td colspan="4">Risk Management:
The proposed Project would finance additional project management capacity (Component 5). Under the HTERP, an organizational behavior specialist was hired to conduct an assessment of the staffing capacity at the PCU, and the results of the findings of this report will be used to determine the need for the hiring of additional staff. A Civil Works Coordinator will be hired to be based at MIPS&T to increase current technical capacity. The proposed project would also provide for trainings to improve the PCUs fiduciary capacity, and to improve its capacity for supervision of Bank safeguards. Finally, the proposed project would finance independent technical audits every two years to ensure technical compliance and quality</td></tr>
</table>

may be insufficient technical capacity to adequately review and approve designs, as well as inadequate coordination, quality control and information sharing mechanisms across various agencies and levels.	control. If necessary, additional training would be provided based on the findings of these technical audits.			
	Resp: Client & Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:** In progress
Weakness at the ministry level could result in poor quality control and works inspections.	The proposed project would provide for independent inspections/technical audits through contracts and training for ministries in inspection and quality control practices. It would also establish critical path inspection procedures and integrate these into construction contracts. Additionally, the project would provide TA to the MIPS&T to increase their capacity to manage technical aspects of project activities, particularly vis a vis DRM and climate change adaptation.			
	Resp: Client	**Stage:** Implementation	**Due Date:** During project execution	**Status:** Planned
Weak capacity of SLDB may delay the on-lending activities. The risk in terms of capacity of SLDB to implement the project is rated as "substantial." SLDB is a relatively new institution (created in 2009) that is still on its path towards obtaining financial self-sufficiency.	An Institutional Development Plan for SLDB would be developed under the PPA, based on comprehensive institutional assessment of the Bank, including strengthening the operational and risk management practices. The Plan would be an integral component of the project (Component 3).			
	Resp: Client, PCU, SLDB, Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:** Planned
2.2 Governance	**Rating:**	**Low**		
Description: The GoSL, specifically the PCU and co-executing agency, SDED, have demonstrated strong ownership and commitment to the Project's objective and activities. However, there may be risks associated with delayed decision-making due to bureaucratic processes in place, changes in government (elections expected in November 2016) or due to potential lack of agreement on proposed measures. This could disrupt project implementation.	**Risk Management:** Given the broad consensus around the importance of DRM and extensive consultation processes during project preparation, no major sectoral or project changes should be expected. The OM would include objective annual performance evaluation procedures for all PCU staff. The process of decision-making would be assisted through continuous discussion and engagement with the PCU and SDED, and the Project Coordination Committee on proposed activities and overall project reforms. Furthermore, the Bank team would ensure adequate supervision and DRM policy and strategy dialogue during the electoral cycle. The team would also closely monitor the project to ensure that all fiduciary procedures are implemented according to Bank policies. Project evaluation and supervision would include information technical audits, and a formal independent technical audits every two years, and especially for the Mid-Term review and final evaluation. Finally, project investment decisions have been based on a participatory process during the preparation of the SPCR that involved the civil service, local authorities and communities, including prioritization of risk reduction and pilot adaptation measures.			
	Resp: PCU, SDED, Bank	**Stage:** Implementation	**Due Date:** Not yet due	**Status:** Not yet due
3. Project Risks				
3.1. Design	**Rating:**	**Substantial**		

<table>
<tr><td>Description:
The Project is large, multi-sectoral and complex, involving a wide variety of ministries and agencies. These ministries and agencies may not be accustomed to working cohesively under one implementing agency. This may create confusion and slow project implementation.</td><td colspan="4">Risk Management:
The proposed Project would be designed with components clearly defined by beneficiary ministry/agency, in order to clarify responsibilities and generally reduce complexity. The project would work carefully with the PCU to develop appropriate implementation and oversight arrangements to minimize duplication and promote coherence and dialogue among relevant stakeholders. Additionally, the Project was designed incorporating lessons learned from previous projects and has reduced the number of procurement packages by grouping sub-projects into fewer packages.</td></tr>
<tr><td></td><td>Resp: PCU, Bank</td><td>Stage: Implementation</td><td>Due Date: During project execution</td><td>Status: In progress</td></tr>
<tr><td>Component 3 – CAFF: This Component is an innovative activity, to be implementing with a relatively new entity</td><td colspan="4">The proposed Project will include an Institutional Development Plan for the SLDB and technical assistance to strengthen SLDB’s capacity support implementation of Component 3.</td></tr>
<tr><td></td><td>Resp: PCU</td><td>Stage: Implementation</td><td>Due Date: During project execution</td><td>Status: Not yet due</td></tr>
<tr><td>Physical environmental data may be insufficient for design of climate-resistant infrastructure projects.</td><td colspan="4">The proposed Project would build national capacity for strengthening the understanding of climate change adaptation needs through multidisciplinary physical environmental data collection and management throughout the lifetime of the project. The proposed civil works under the project would retrofit existing infrastructure vulnerable to current climate risks.</td></tr>
<tr><td></td><td>Resp: PCU</td><td>Stage: Implementation</td><td>Due Date: During project execution</td><td>Status: Not yet due</td></tr>
<tr><td>Scope of rehabilitation works could grow with discovery of hidden damages during construction.</td><td colspan="4">The Project team would provide for detailed inspections at the pre-engineering stage to minimize hidden damage impacts. Risk management contingencies would also be included in works planning and execution contracts.</td></tr>
<tr><td></td><td>Resp: PCU, Bank</td><td>Stage: Implementation</td><td>Due Date: During project execution</td><td>Status: not yet due</td></tr>
<tr><td>Continuation of data monopolies (unwillingness to share data) within Saint Lucia, and the OECS more generally, could inhibit the ability to understand national and regional risk.</td><td colspan="4">The proposed Project would seek to build capacity at both the national and regional levels, including institutional strengthening for multiple ministries across a shared data platform to ensure maximum distribution of analytical capacity.</td></tr>
<tr><td></td><td>Resp: PCU, Bank</td><td>Stage: Implementation</td><td>Due Date: During project execution</td><td>Status: Planned</td></tr>
<tr><td>3.2. Social & Environmental</td><td colspan="4">Rating: Moderate</td></tr>
<tr><td>Description:
Purchase of private lands for project works would require the application of resettlement policy as it relates to land acquisition.</td><td colspan="4">Risk Management:
A resettlement policy framework has been developed.. Additionally, the team would ensure adequate Bank supervision and training in safeguard applications. Works requiring the triggering of safeguards would be subject to prior review.</td></tr>
<tr><td></td><td>Resp: PCU</td><td>Stage: Implementation</td><td>Due Date: During project execution</td><td>Status: ToRs ready</td></tr>
<tr><td>Specific civil works may require separate Environmental Impact Assessments (EIAs).</td><td colspan="4">The proposed Project would provide for adequate Bank supervision and training in Safeguard application. All works requiring the triggering of safeguards would be subject to prior review. The proposed Project would also comply with national environmental policies in addition to Bank safeguards. An EMF and an EA have been prepared and include a preliminary program-wide impacts assessment, screening measures for more complex works, and a generic mitigation measures for simple works. Triggers for requiring additional assessments (EIAs) have been included in the scoping and screening mechanisms, and the</td></tr>
</table>

	Bank specialist would provide a no-objection for EIAs and associated ToRs.			
	Resp: PCU & Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:** ToRs ready
3.3. Program & Donor	**Rating:**	**Low**		
Description: The engagement and commitment of donors is not considered a risk, but there are some issues related to the different procedural requirements imposed by each donor on the country and in some cases to the diverging retrofitting/rehabilitation standards requested by the various donors for buildings and bridges during project implementation.	**Risk Management:** There is considerable donor engagement in Saint Lucia, including the World Bank, the Caribbean Development Bank , USAID and CIDA. The on-going and proposed donor projects are well-aligned and are complementary in terms of project objectives and overall goals. During project preparation and implementation, the proposed project would continue to ensure synergies with existing projects and activities and the project team would continue working with donors to harmonize technical standards and requirements, where possible, and safeguards and fiduciary procedures.			
	Resp: PCU, Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:**
3.4. Delivery Monitoring & Sustainability	**Rating:**	**Moderate**		
Description: Quality of works completed may be insufficient to resist future hurricanes, and risks associated with climate change due to poor construction or building materials.	**Risk Management:** An engineer would be engaged by the PCU and based at MIPS&T who would be responsible for approving technical aspects of bidding documents, ensuring appropriate construction best practices. Once construction begins, the engineer would conduct site visits in tandem with engineers from beneficiary ministries to supervise quality of work. This engineer would also be responsible for certifying delivery of final works.			
	Resp: PCU & MIPS&T	**Stage:** Implementation	**Due Date:** During project execution	**Status:** Not yet due
In general, DRM projects have suffered from weak M&E due to lack of baseline risk information and to some extent, reflecting the difficulty in measuring impacts based on probabilistic assumptions	Project design is paying special attention to the results framework and M&E, particularly to ensure alignment with the PPCR Monitoring and Results framework and core indicators. A baseline to assess social and economic impacts would be prepared during the first year of the project.			
	Resp: PCU, SDED & Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:** Not yet due
3.5. Other: *Force Majeure*	**Rating:**	**Substantial**		
Description: Due to its geographic location, Saint Lucia is struck annually by hurricanes and other natural disasters.	**Risk Management:** Mitigation of this risk fall outside the scope of WBG action. However, WBG would continue to monitor developments and would adjust the program if necessary.			
	Resp: Bank, PCU	**Stage:** Implementation	**Due Date:** Not yet due	**Status:** In progress
Storm events during the project execution could damage works and modify construction requirements.	The proposed Project would schedule/prioritize works so that critical stages are completed prior to recurrent storm season. Risk management contingencies would also be included in works planning and execution contracts.			
	Resp: PCU, Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:** Not yet due
Storm events during project implementation could change GoSL priorities and redistribution of project funding from vulnerability reduction and climate change adaptation activities to emergency recovery.	The Contingency component (Component 4) of the proposed Project, in line with Special Considerations under OP 10.00 and the Immediate Response Mechanism, allows the government to reallocate Bank funding for emergency recovery and reconstruction purposes. Existing recovery and reconstruction projects ensure the integration of climate resilience into civil works designs.			

	Resp: PCU, Bank	**Stage:** Implementation	**Due Date:** During project execution	**Status:** OM for the CERC would pre prepared during implementation

5. Project Team Proposed Rating Before Review	
5.1. Preparation Risk Rating: Low	**5.2 Implementation Risk Rating: Substantial**
Comments: The rating of Low for preparation is associated with the strong Government commitment to building national climate change resilience, with substantial preparatory work under the ongoing HTERP, and through the use of the PPA, as well as the fact that Saint Lucia has implemented large numbers of civil works in the past under Bank-funded disaster management projects.	**Comments:** The rating of Moderate for implementation reflects: (i) the limited in-country human capital; (ii) the relatively large size of the project – the largest World Bank engagement in the country - with a complex multi-sectoral approach and related implementation capacity issues; and (iii) the financial intermediary component which is a first to the PCU and SLDB.
6. Overall Risk Following Review	
6.1. Preparation Risk Rating: Low	**6.2 Implementation Risk Rating: Substantial**
Comments: The rating of Low for preparation is associated with the strong Government commitment to building national climate change resilience, with substantial preparatory work under the ongoing HTERP, and through the use of the PPA, as well as the fact that Saint Lucia has implemented large numbers of civil works in the past under Bank-funded disaster management projects.	**Comments:** The rating of Substantial for implementation reflects the large size of the proposed Project, limited in-country human capital and relative inexperience of certain ministries and staff including weak technical capacity in some sectors, the complex multi-sectoral approach and project design, complexity associated with, and limited capacity of, SLDB to administer the credit line component, and limited data to inform decisions.

Note : Include on average no more than 3 Risk Management Measures per Risk Category

Annex 5: Implementation Support Plan

SAINT LUCIA: Disaster Vulnerability Reduction Project

Strategy and Approach for Implementation Support

1. The strategy for the Implementation Support Plan (ISP) draws on the risk profile of the Project (ORAF, Annex 4) and aims to enhance the client's delivery quality of the proposed interventions. As such, the IS focuses on risk mitigation measures defined in the ORAF and standard Bank implementation support, including technical, institutional, safeguards (environment, social) and fiduciary aspects.

2. The Task Team Leader (TTL) of the Project would be based at World Bank headquarters, along with technical specialists supporting the TTL. Initially (at least until mid-term review), the task team would undertake 4 supervision missions per year. The frequency of missions thereafter would be determined based on the implementation progress of the Project. Regular supervision by the TTL and team members from headquarters, to follow up on Project component progress and provide tailored support to the Counterparts to effectively implement the Project, would focus on the following areas:

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

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

(c) **Safeguards** –Bank environmental and social specialists would support the PCU and executing agencies, as needed, in the preparation and consultation process associated with the safeguard instruments needed for the Project, in accordance with the relevant Frameworks prepared for the Project: Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF), Environmental and Social Management Plans (ESMP), and Resettlement Action Plans (RAP), when needed. This support would continue throughout Project implementation, in particular to ensure the application and effectiveness of those instruments. These specialists would: (i) develop the PCU's knowledge and understanding of Bank safeguard instruments and further familiarize PCU staff with their application; (ii) ensure the PCU has the capacity to undertake environmental and social analyses and develop mitigation approaches; and (iii) ensure regular and close supervision of progress and implementation of the plans.

(d) **Procurement and Fiduciary** – The Bank's financial management and procurement specialists would provide timely, targeted training to the PCU and possibly other executing institutions prior to Project effectiveness and through periodic supervision

missions during project implementation. These specialists would: (i) develop the PCU's knowledge and understanding of Bank rules and procedures and further familiarize PCU staff with their application; (ii) provide training to the PCU staff on Bank Procurement Guidelines; (iii) ensure the PCU has the capacity to manage the flow of funds and accounting procedures, in line with Financial Management (FM) guidelines; and (iv) support the PCU in building its overall FM and procurement capacity to improve and facilitate project management (in the context of this Project, and in general). The supervision strategy for this Project is based on its FM risk rating, which would be evaluated on regular basis by the FMS in line with the Financial Management Sector Board's FM Manual and in consultation with relevant task team leader. Procurement supervision would also be carried out semi-annually, preferably jointly with (two of) the regularly-scheduled Bank supervision missions. The support would focus primarily on contract management and on improving proficiency and efficiency in implementation according to Bank guidelines.

(e) **Financial Sector Support for the CAFF:** The FS specialist would provide support with: i) the implementation of the institutional development plan; ii) monitoring the proper implementation of the LoC component, and iii) coordinating technical assistance and training to SLDB to implement the LoC. Supervision of the credit line component would be carried out semi-annually, preferably jointly with (two of) the regularly scheduled Bank supervision missions.

(f) Client-relations – The TTL task team would: (i) coordinate Bank supervision to ensure consistent Project implementation, as specified in the legal documents (i.e. Financing Agreement, OM); and (ii) speak regularly with the client and the PCU to gauge Project progress in achieving the PDO and address implementation roadblocks as they may arise.

Implementation Support Plan

3. Project Oversight and Technical Back-stopping: Day-to-day follow-up and support for the proposed Project would be provided by the Bank's TTL assisted by operational support staff based in Washington. Technical specialists in transport and coastal engineering, risk assessment, GIS and water sector would also support the project in implementing specific activities. A financial sector specialist would provide support related to the implementation of the credit line component (Component 5). The project would be followed on a routine basis by procurement, financial management and safeguards specialists.

4. Fiduciary inputs: Training would be provided by the Bank's procurement and FM specialists before commencement of project activities, and as needed throughout project implementation. Additional training would also occur through regional (hub) level events. The supervision strategy for this project is based on its FM risk rating, which would be evaluated on regular basis by the FMS in line with the Financial Management Sector Board's FM Manual and in consultation with the task team leader.

5. Safeguards: While the Project's social and environmental impacts are projected to be relatively small, to the extent inputs from environmental and social specialists are required, these would be provided by the specialists based in Washington, DC.

Table 8: Skills Mix Required

Skills needed	***# Staff Weeks per FY***	***# Trips per year***	***Comments***
Task Team Leader	12	3	HQ-based
Operations Analyst	4	3	HQ-based
Civil/Transport Engineer	5	3	HQ-based
Coastal Engineer	2	1	HQ-based
Water Sector Specialist	2	1	HQ-based
Procurement Specialist	5	2	HQ-based
Financial Management Specialist	3	2	HQ-based
Environmental Specialist	3	2	HQ-based
Social Specialist	3	2	HQ-based
Risk Assessment Specialist	4	2	HQ-based
GIS/Data Management Specialist	4	3	HQ-based
Financial Sector Specialist	5	2	HQ-based
Gender & Micro-Finance Specialist	1	2	HQ-based
TOTAL	**55**	**28**	

Table 9: Skills Focus and Timing

Time	**Focus**	**Skills Needed**	**Resource Estimate**	**Partner Role**
First 12 months	• Contracting of Tech. Assistance for all components • Procurement of LiDAR • Development of tender docs • Training in FM, Safeguards and Procurement • Team leadership implementation supervision coordination	• Procurement • Financial Management • Technical Guidance/support • Technical support/ engineer • TTL	4 sw 4sw 6 sw 6 sw 6 sw	NA
12-60 months	• Technical design & implementation • Procurement/ contracting • Financial management • M&E	• Technical Guidance/support • Procurement • Financial management • M&E Specialist	18 sw 4 sw 6 sw 2 sw	NA

Table 10: Partners

Name	***Institution/Country***	***Role***
Client	MoF	Project counterpart, overall responsible for Project implementation, in compliance with agreements spelled out in Financing Agreement coordinating the GoSL support for the Project
Project Coordination	PCU	Responsible for Project execution
Key Government Project Partner institution	SDED	Strategic and technical role, responsible for coordinating line Ministries regarding climate change adaptation activities responsible for communicating and disseminating information on climate change in SLU.
Project Partner institutions/agencies (Governmental)	MIPS&T; MPCE; WRMA; WASCO; MoE; MoH; MoSDEST; NEMO; SLASPA; Dept of Forestry; Dept of	Each Ministry and agency would provide technical support to the PCU, and would be responsible for the implementation of specific technical activities, elaboration of terms of reference, guidelines, and supporting documentation relative to their sectors. The PCU would retain fiduciary responsibilities for all project activities.

	Fisheries, Saint Lucia Fire Department;	
Local Institutions	SLDB	The SLDB would be responsible the on-lending and management of the Climate Adaptation Loan Facility.

Annex 6: OP/BP 10 Financial Intermediary Financing

SAINT LUCIA: Disaster Vulnerability Reduction Project

Macro-economic Environment

1. Despite being a relatively small and undiversified economy, Saint Lucia is now the largest economy in the Eastern Caribbean Currency Union. Private consumption accounts for 67 percent of GDP and is the main driver of economic growth, while exports make up 44 percent of GDP. The economy is based on services, which constitute 69 percent of total economic activity and are Saint Lucia's main source of jobs, as well as of foreign exchange earnings. Within this sector, tourism plays a dominant role in terms of income generation, as it employs 10.9 percent of the total workforce.[31] Industrial production makes up 14 percent of the total economy and manufacturing 5 percent. The share of the agricultural sector is only 3 percent and has experienced a very volatile and overall decreasing trend due to strong competition and the adverse effects of natural disasters. Nevertheless, it is of critical importance, as it employs 14.9 percent of the workforce and is the second-biggest employing sector after retail; the agriculture sector is also critical for the country's food security.

2. Saint Lucia is vulnerable to a variety of external shocks, including volatile tourism receipts, natural disasters, and dependence on foreign oil. In 2012, public debt reached 78 percent of GDP because of a debt-financed growth approach during the previous years. The high debt servicing obligations limit the administration's ability to respond to these adverse external shocks.

3. The island experienced an average growth rate of 1.7 percent over the five years from 2007 to 2011. The sectors that saw output most affected by Hurricane Tomas were the agricultural sector and the industrial sector, which shrank by 18 percent and 5.2 percent, respectively. Weak demand from tourism source countries as a result of the financial crisis and a major outbreak of a banana leaf disease also held back growth during this period, leading to a decline in activity. The already high unemployment rate increased sharply during the cyclical downturn.

4. Activity is expected to regain some momentum with a recovery in agriculture, a pick-up in tourism, and a recent fiscal stimulus that may provide some support for economic activity. Agriculture is expected to recover from the three-year downturn resulting from a series of adverse transitory events, including Hurricane Tomas and the outbreak of banana leaf disease. Tourism is expected to recover strength as the world continues to leave the global financial crisis behind and households have more disposable income for vacation and tourism. Finally, the construction stimulus package created in August 2012 would have significant impact in the sector and the economy as a whole. Inflation would remain elevated until the fourth quarter of 2013 following the VAT-related steep increase in prices, but should return to around 3 percent subsequently. A faster near-term recovery would be held back by tight monetary conditions, a weakened financial system, and continued external headwinds.

[31] ILO database, 2004 figures (latest reported by the ILO).

Financial Sector

5. Despite government efforts to revive the economy, low growth and high unemployment remain and are now weighing on financial institutions' credit quality and balance sheets. The financial system has weathered the downturn, but weak economic activity is taking a toll. The precrisis credit boom, which was among the largest in the Eastern Caribbean Currency Union, left financial institutions with notable asset quality problems: nonperforming loans have almost doubled in the past two years, their resolution hampered in part by the inability of banks to foreclose on available collateral due to cumbersome procedures. Reported capital adequacy remains high, but this trend, along with stepped up provisioning, has subdued profitability.

6. There are currently six commercial banks in Saint Lucia, three locally incorporated and three registered as branches of multinational financial institutions. The local banks are 1st National Bank Saint Lucia, Bank of Saint Lucia, and RBTT Bank Caribbean; the foreign-owned banks are Bank of Nova Scotia, CIBC FirstCaribbean International Bank, and Royal Bank of Canada. In addition, there are 55 nonbanking financial institutions, the most of any Eastern Caribbean Currency Union country, which include insurance companies, development banks, credit unions, and offshore banks.

7. Lending to private sector companies comprises 55 percent of commercial banks' total loan portfolio, while lending to local individuals comprises 35 percent. Property acquisition is the economic activity that receives the most funding from commercial banks, making up 20.2 percent of the total loan portfolio. This entails house and land purchase as well as construction and renovation. Professional services and tourism follow this category, with a commercial credit allocation of 18.2 percent and 17.5 percent, respectively. Agriculture is one of the activities that receives the least funding from commercial banks, accounting for only 0.8 percent of the total loan portfolio.

Interest Rates

8. The Eastern Caribbean Central Bank's prime rate has remained very much the same for the past nine years (decreased from 9.5 percent to 9.0 percent in August 2011), and commercial lending rates have declined only marginally, driven in part by the 3 percent interest floor on saving deposits (the only remaining interest rate control imposed by the Eastern Caribbean Central Bank as a monetary instrument). High real lending rates, as inflation is around 0.95 percent, together with weak demand and tightening lending standards have kept private credit flat.

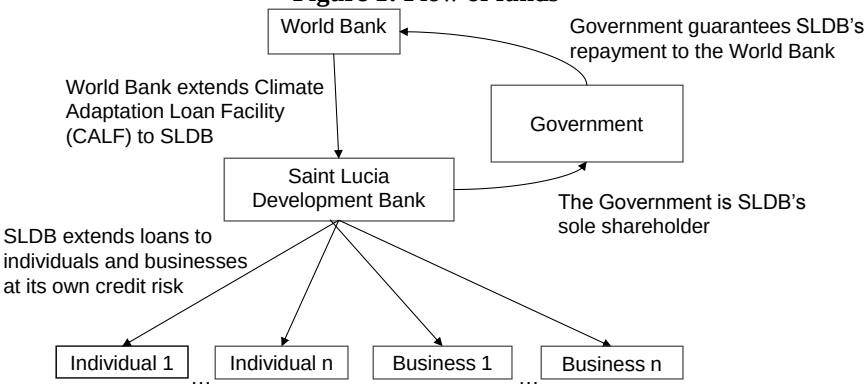
Directed Credit

9. The Project would target three broad sectors that suffer from credit constraints, namely agriculture, housing/infrastructure, and industry/tourism/services. The objective is to provide financing for investments directed towards building resilience to climate change.

Subsidies

10. The project entails implicit subsidies in that the interest rate on the funding provided to the final borrowers would not be strictly determined by the market, as there is no market for this type of lending. There is currently no financing available in the market for this type of investment, so the favorable conditions of the PPCR/SCF loan would be passed from the GoSL to SLDB and partially onwards to final recipients at a reasonable margin to account for SLDB's administrative cost and risk management. The flow of funds is illustrated in Figure 1.

Figure 1: Flow of funds



The three broad sectors that will be targeted are Agriculture, Housing/Infrastructure and Industry/Tourism/Services.

11. The loan facility is guaranteed by the GoSL and would be intermediated by SLDB, which would be the borrower and implementing agency for the Project.

12. SLDB would on-lend the World Bank funds to individuals and businesses in the agriculture, housing/infrastructure, and industry/tourism/services sectors.

13. The final beneficiaries would receive loans for climate change adaptation purposes in the selected sectors.

14. Loan amounts would range from XCD$1,000 to XCD$300,000 (US$373 to US$111,940) and would be granted for a maximum term of 10 years. The cost of lending to the final borrowers would include, at a minimum, the cost of the funds to SLDB, plus an on-lending margin reflecting: (a) SLDB administrative costs; and (b) a credit risk margin. Safeguards would be put in place to ensure interest rates are not below the inflation rate. The details will be finalised following the results of the feasibility study and will be included within the OM.

15. The final interest rates will be defined in line with the above defined criteria and depending on an assessment of market conditions and general financial landscape prior to disbursement for this the component. Throughout the life of the CAFF, interest rates will be periodically benchmarked against private market interest rates to ensure loans do not disproportionately distort the financial landscape.

16. Prior to qualifying to being evaluated for a loan, the proposed sub-project will have to be evaluated for technical merits, to ensure the financed activity in fact falls within climate adaptation. SLDB's loan officers would subsequently review subproject documentation and as

appropriate release LoC resources to the final borrowers. SLDB would also conduct periodic site visits to the projects financed from the LoC to ensure that these are duly implemented and are compliant. SLDB would ensure that its staff is adequately trained to effectively supervise the use of LoC funds. TA envisaged under the project will be used to provide the training to relevant SLDB staff. Additionally, the Climate Change Coordinator based at SDED would also play an active role in terms of assisting in determining the suitability of projects regarding building climate resilience and reducing risk to disasters.

17. The first group of loans granted by SLDB under the LoC facility would be subject to prior review by the Bank in order to ensure sufficient capacity to conduct the appraisal and loaning process in SLDB. The number would be specified in the LoC Operational Manual, but it is estimated that the number of loans would range between 5 to 20 loans.

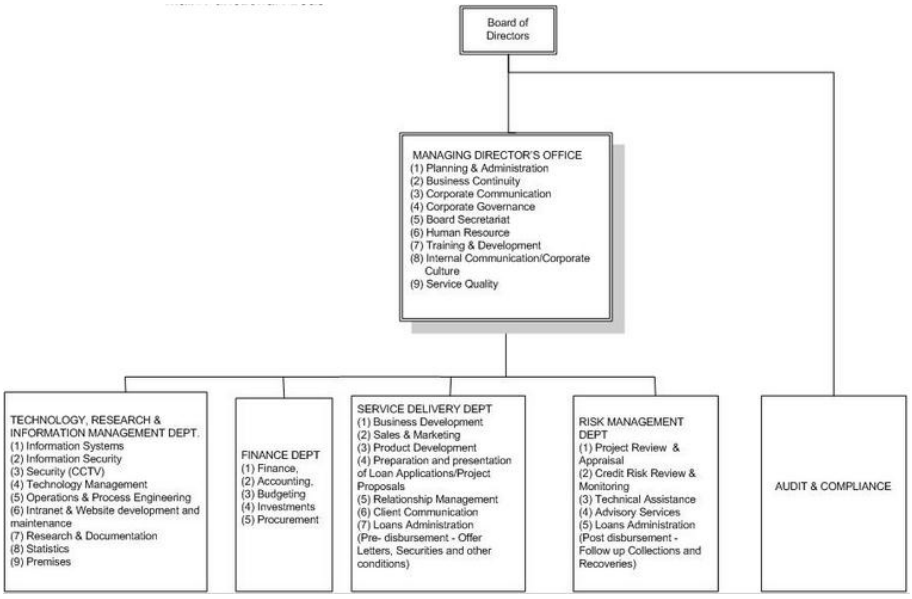
Assessment of SLDB

18. ***Corporate Governance.*** SLDB was established with a defined mandate and clear definition of roles and responsibilities for the board and management. The Board is appointed by the government except for two members who represent the private sector and the National Insurance Corporation. In accordance with the SLDB's establishing act, the CEO is appointed by the minister of finance on the recommendation of the Board. Appointment and determination of the terms of service, including remuneration, of the senior staff in the bank are the responsibility of the board. SLDB gives the board reasonable autonomy, with terms and conditions of appointment and dismissal clearly stipulated by law.

19. Board committees have been formed to provide oversight in the bank's major operational areas, namely: (i) audit; (ii) credit; (iii) investment; budget, and finance; and (iv) human resource and compensation. Since SLDB was launched, the Board has, pursuant to its mandate, adopted and operationalized critical policy documents, namely an operational manual; a new strategic plan for 2011–2016; accounting, finance, and procurement policies; a lending policy; a credit and risk management policy; and the code of conduct for directors, management, and staff of the bank.

20. SLDB has a total of 24 staff members, most them with long experience working in commercial banks in the region or former staff of the previous SLDB. SLDB is organized in four departments; Finance, Service Delivery (client relationship and project initiation), Technology Research and Information Management, and Risk Management. SLDB has already set up an independent Audit and Compliance Unit. Given the size of the bank, loan recovery is part of the Risk Management Department. The role of this department needs to be better streamlined to avoid an inherent conflict of interest arising from its involvement in the credit approval mechanism. In an attempt to attract and retain talent, the SLDB has adopted a remuneration structure that is a hybrid between private sector and public sector pay scale. A consultant has been hired to support the process of implementing and fine-tuning an appropriate staff performance management system. The SLDB's organizational arrangement is shown in Figure 2.

Figure 2: SLDB Organizational chart:



21. ***External Audit.*** The SLDB Act requires the bank to undergo annual audits and stipulates the terms of appointment and qualification of auditors as well as the timing, reporting requirements, and the publication of the audit reports. For the four years it has been in operation, SLDB has been audited by KPMG Eastern Caribbean. The audits were conducted in accordance with International Standards of Auditing, and audit reports are published on the bank's website. According to the audit reports, the bank's financial statements are prepared in compliance with International Financial Reporting Standards.

22. ***Internal Audit.*** The SLDB has not yet set up an internal Audit Department. The Risk Management Department has assumed some of the standard functions of Audit and Compliance." This arrangement remains suboptimal, given that the Risk Management Department itself should be subject to internal audit and given the constraints the arrangement places on staff.

23. ***Supervision.*** SLDB is currently not a regulated entity. However, in 2011, GoSL adopted the Financial Services Regulatory Act, which establishes the Financial Services Regulatory Authority as the statutory body that would be responsible for regulating SLDB, insurance companies, credit unions, international mutual funds, and money services business.

24. ***Risk Management.*** Since its inception, SLDB has adopted a framework for managing credit and operational risk, and is currently in the process of elaborating a new and more comprehensive one that would also encompass interest rate and liquidly risk. While the SLDB Board is responsible for the overall risk of the bank, responsibility for the operational risk management function is shared between the Risk Department and Technology Research and Information Management Department. The Risk Department is currently thinly staffed with three people, but has plans to increase in tandem with portfolio growth.

25. SLDB has adopted a comprehensive business continuity plan as part of its overall risk management framework; the plan provides procedural guidance on how the bank can respond in

case of emergency or disaster. Staff have been trained in disaster preparedness, disaster management teams have been formed, and their explicit responsibilities are well articulated in the manual. The Business Continuity Plan is expected to be reviewed and updated annually. On a day-to-day basis, business continuity with regard to information management is assured in multiple ways: saving all data on local hard drives, archiving on two redundant servers in the bank that automatically mirror all the data on the active servers, and using back-up tapes that are physically transported to a safe location outside the bank.

26. ***Credit risk.*** Credit risk is one of the major risks facing SLDB. The sectors to which the SLDB should lend are clearly stipulated in the SLDB Act, and the Board is authorized to set industry and sector portfolio limits. The Board has put in place credit approval limits per client, per industry for each of the decision making level; Service Delivery $ Risk Departmentt jointly, MD, Credit Committee and full Board.[32] The single borrower limit has been set to 20 percent of authorized share capital and reserves or 10 percent of the loan portfolio, whichever is greater.

27. Lending limits have been set up for each sector, and the SLDB is working on complying with them. The credit policy makes reference to a possible waiver by the Board without being specific on the conditions of the waiver, which creates ambiguity and increases the risk of perpetual noncompliance, especially in the absence of enforcement by a regulatory authority.

28. SLDB key financial figures over the last three year are shown in Table 11 and Table 12.

Table 11: SLDB Balance Sheet - Key Figures

	2012	2011	2010
Total Assets	38,110	23,466	15,903
Loans and advances	23,764	14,499	6,225
Share capital	23,500	20,000	19,000
Shareholders' equity	15,326	15,113	15,351

Table 12: SLDB Financial Soundness Indicators

	2012	2011	2010
Income to capital employed	0.096:1	0.07:1	0.033:1
Loan interest income to total income	0.71:1	0.54:1	0.55:1
Personnel expenses to income	0.8:1	1:1	3.67:1
Personnel expenses to loans and advances	0.08:1	0.11:1	0.30:1
ROE	-14.5%	-15.2%	-23.8%
RCE	-6.2%	-10.3%	-23.6%
ROA	-5.9%	-9.8%	-22.9%

29. The liquidity analysis as of March 31, 2012, is presented in Table 13:

Table 13: SLDB Liquidity Analysis (as of March 31, 2009)

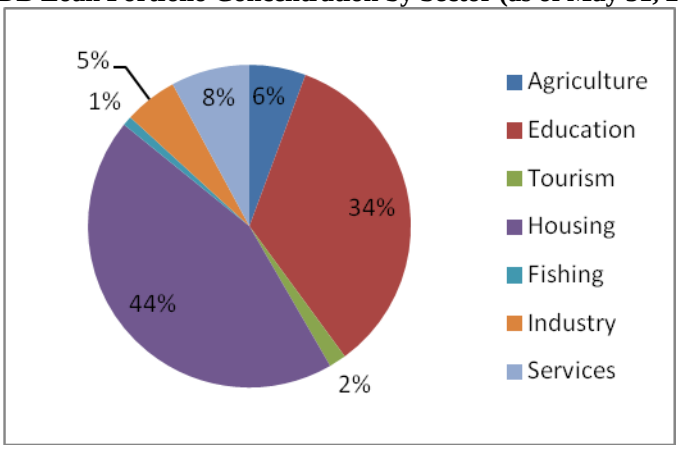
	Due in < 1 Year	Due in 1–5 Years	Due in 5+ Years	Total

[32] For example, the approval limit for the MD is XCD$400,000 for a housing loan and XCD$30,000 for an agriculture/fishing loan, while the joint RM $SD manager limit is up to XCD$250,000 for housing and XCD$20,000 for agriculture/fishing.

Assets				
Cash and cash equivalent	7,998	-	-	7,998
Loans	2,293	4,014	17,457	23,766
Other liquid assets	187	-	-	187
Liabilities				
Payables and accruals	1,630	-	-	1,630
Long-term loans	317	5,739	14,533	20,589
Special guarantee	500	-	-	500
Net Liquidity Gap	**8,030**	**(1,725)**	**2,924**	**9,229**

30. Figure 3 shows the loan portfolio concentration by sector as at May 31, 2012.

Figure 3: SLDB Loan Portfolio Concentration by Sector (as of May 31, 2012)



31. Table 14 shows SLDB's institutional development plan.

Table 14: SLDB Institutional Development Plan

Proposed Action	Deadline
Modify loan pricing mechanism	Jan. 2014
Tighten provisioning rules	Jan. 2014
Minimize reliance on collateral	Dec. 2014
Establish mechanism for calling government guarantee	Jan. 2014
Establish board autonomy	Jan. 2014
Establish internal Audit Department, Legal and Loan Recovery Department	Dec. 2014

Annex 7. Economic Analysis

SAINT LUCIA: Disaster Vulnerability Reduction Project

SUMMARY

1. Results of the economic analysis of a sample of subprojects show that the Project is economically feasible with positive results of US$9.4 million and rate of return of 21 percent. This analysis was carried out from a selected sample of subproject representative of the works to be implemented with the project. The evaluation was complemented with sensitivity and risk analyses whose results show the soundness of the project with 95 percent probability of having benefits.

2. The Project would have an important impact on development as the value of the stream of benefits is three times its corresponding costs, as it is shown in detail below.

3. The public sector funding is relevant in this Project as its main objective is to build resilience to natural hazards and longer-term impacts resulting from climate change. The strategy includes a range of activities from civil works to capacity and institutional strengthening at national and regional levels.

4. The Bank has an ample expertise in this type of project and has worked not only in the Caribbean Region but all around the world. This would help the GoSL to design the appropriate strategies to achieve resilience to climate change.

ECONOMIC ANALYSIS OF THE PROJECT

5. *Objective.* The objective of the economic analysis is to assess the project's viability and to identify the variables with the highest risk for the project. This would help on the design of mitigation measures.

6. *Methodology*. The cost benefit analysis was carried out for the works under Component 1. A sample of subprojects was chosen based on priority given by GoSL and availability of information. The selected sample was chosen from five of eight proposed activities, which amount for about 51 percent of the estimated total cost of the project. For each of the activities, one subproject was selected as shown in Table 15.

Table 15: Selected Sample Project Activities for the Economic Analysis

Activities	*Million USD*	*Sample of Subprojects*
Risk Reduction in Bridges	5.4	Choc Bridge
Improved River management for disaster vulnerability reduction (i.e. Riverbank Stabilization)	2.2	Marchand River Bank
Rehabilitation of Community Centers	1.5	Community Center at Babonneau
Land Stabilization and Road Rehabilitation post Tomas	4.2	National Highway
Enhancing Coral Reed Recovery	0.5	Soufriere, Canaries, and Anse-la-Raye
TOTAL	13.8	

7. For each of these subprojects, a cost benefit analysis was carried out from an economic perspective, as it is not a revenue-generating project. Each subproject was evaluated by appraising costs and benefits at market prices, in line with the way service providers would be paying for them. From an economic perspective, each component was evaluated converting financial costs into economic costs eliminating taxes and subsidies, and estimating benefits as the customer surplus and other economic benefits. The results were tested against real world uncertainties through sensitivity and risk analyses.

8. *Scenarios.* "With" and "without" project scenarios were built to identify the incremental costs and incremental benefits associated with each subproject. The "with" project scenario considers the proposed investment is carried out and the hazard protection is on place. The "without" project scenario considers that current situation remain and so current vulnerability of infrastructure. The net benefit of each subproject was estimated as the incremental benefit of the two scenarios.

9. The subprojects were appraised measuring their flow of costs and benefits for the project lifetime, which is estimated at 25 years. Costs and benefits were expressed in constant prices of December 2012.[33] The discount rate corresponding to the opportunity cost of capital for the Caribbean Islands was estimated as 12 percent.

10. *Current Situation at work sites*. The works selected for the project were based on a high risk of structural failure to the 10-year event in the case of buildings and bridges, or when annual flooding occurs in the case of flood management and urban drainage. The infrastructure selected to be either repaired or rebuilt are in critical conditions and some have surpassed their lifetime, and so are more vulnerable to climate hazard conditions. A brief description of the state of the infrastructure of the sample selected is as follows:

11. According to the assessment made by FDL Consult Inc,[34] many of the bridges/crossing that failed during the hurricane Tomas were constructed of corrugated pipes, and most of the pipes were constructed more than 35 years ago and had exhibited earlier signs of structural damage. Moreover, major sections of the primary and secondary road network were rendered impassable due to a combination of factors, including land slippages, severed bridges and roads, mudslides, fallen trees and/or utility poles. As a result some communities were completely isolated or partially accessible for several days.

12. *Choc Bridge*. This bridge is the primary link between Saint Lucia's major commercial and tourist centers Castries and Gros-Islet. There are alternative routes but are limited geometrically to use by good vehicles. Moreover, the bypass routs are not designed to carry the vehicle volumes presently carried by the primary link. When the bridge cannot be used the disruption of traffic is troublesome generating not only delays on arriving to destination, but also damages to the alternate routes that are not designed for this kind of traffic, and some vehicles such as trucks and buses are not recommended to use alternate routes.

[33] Exchange rate ECD 2.68: 1 USD

[34] FDL Consult Inc. Government of Saint Lucia. Ministry of Communications, Works, Transport and Public Utilities. *Hurricane Tomas Damage Assesment.* December 2010

13. The bridge was constructed of multiple large diameter corrugated pipes. Damages of the bridge caused by flooding are due to several factors: (i) the fill over the pipes is eroded due to the corrosive power of the floodwaters. The water has undermined the fill after breaching spaces between headwall and pipe or scoured the fill through the roof of the pipe, which had previously collapsed; (ii) the bridge was constructed 35 years ago and has received poor maintenance along these years, making its structure even more vulnerable. Engineers from the Ministry of Works and Transportation fear that it can collapse at any time; and (iii) the waterway becomes clogged with debris.

14. In 2010, after Hurricane Tomas, the bridge was repaired, however according to FDL Consult Inc., a new structure of a different type of construction should be built in the short term. It is likely that the protective corrosion resisting layer has been damaged which would accelerate corrosion of the pipes resulting in reduced carrying capacity and possible damage of pipe lining by the erosive force of the flowing water.

15. The Choc Bridge is the main link between two important urban centers: Castries and Gros-Islet, Castries the capital and Gros-Islet the most important touristic sites in the island. In case of traffic disruption, there are some alternate routes, mainly secondary roads that are not prepared for handling the heavy traffic. Traffic detour increases the distance from 10 km to about 37 km at much smaller speed, which increases the time spent on the road from 15 minutes to 1.5 hours . FDL Consult Inc. counted the traffic on the bridge during a 24-hour period for a week of September 2011, according to type of vehicle. As Table 16 shows about 22 thousand vehicles cross the bridge every day either way (from Castries to Gros-Islet or from Gros-Islet to Castries).

Table 16: Number of Vehicles Crossing the Choc Bridge per day

	From Castries to Gros-Islet	*From Gros-Islet to Castries*	*Total vehicles*
Motorcycle	62	52	114
Car	6,224	6,945	13,169
Minibus	2,179	2,231	4,410
Pick up trucks	1,622	1,999	3,621
Large Bus	135	141	276
Trucks 2 Axis	511	474	985
Trucks 3 Axis	57	52	109
Total	10,790	11,894	22,684

16. *National Highway.* Some spots along the national highway have been selected for the project due to high vulnerability to landslides, heavy siltation, and deterioration of road material causing potholes and landslides, when storms occur. Frequent traffic disruption comes along with rains with recurrence period as low as 2-year causing inconvenience on the main route that links the capital Castries to the main urban center in the south Vieux Fort where the Hewannorra International airport is located. The outcome can be either delay of traffic when one single lane can be used, or impassability of the route. Alternate routes are secondary roads that not prepared for handling the heavy traffic that crosses the highway. Traffic detour increases the distance from 67 km to about 90 km Table 17 shows the average number of vehicles using the highway, according to FDL Consultant Inc. count.

Table 17: Number of Vehicles Crossing the National Highway per day

	From Castries to Vieux Fort	*From Vieux Fort to Castries*	*Total vehicles*
Motorcycle	96	98	194
Car	8,497	8,663	17,160
Minibus	2,538	3,207	5,745
Pick up trucks	1,826	1,929	3,755
Large Bus	173	332	505
Trucks 2 Axis	574	696	1,270
Trucks 3 Axis	50	94	144
Total	13,754	15,019	28,773

17. *Community Center/Emergency shelters.* The community center at Babonneau was selected as representative of other community centers that are getting deteriorated with rains with recurrence periods as low as two years. The outcomes range from disruption on activities to roof damage that could even cause fatalities. The community center is very important in the life of the community, as it is used as the gathering place for meetings, social activities, academic events, and as a shelter for natural disasters, among others. As a consequence of flood occurrences, all these activities have to be suspended and damages of the facility have to be repaired to keep the center functioning.

18. *Riverbank Stabilization Works*. Flash flooding caused by rains has been causing landslides and instability on riverbank areas, bringing along property damage on buildings located nearby. It is estimated that about 40 residential dwellings are located in the prone areas selected in the sample. Owners have been suffering with house deterioration due to land instability and have done investment for repairing fissures and major structural problems around the houses.

19. *Enhancing Coral Reef Recovery.* The importance of coral reefs can be highlighted in several ways (a) they provide important habitat for fisheries; (b) limestone from dead coral builds white sands beaches; (c) reefs act as a barrier, reducing wave energy, and protecting the shoreline from erosion and storm damage; and (d) they are of cultural significance to many coastal societies, and have pharmaceutical potential, among other things.

20. Despite their importance and the many benefits they provide, coral reefs are threatened. In the Caribbean, an estimated 70 percent of coral reefs are threatened by human activities including overfishing, coastal development, and runoff from land.[35] Climate change is beginning to pose an overarching threat to coral reefs. Gradually warming seas have contributed to widespread coral bleaching across the Caribbean, which accompanied by increasingly intense storms in recent years and other pressure have damage many reefs.[36]

21. *Costs*. The costs used in this evaluation consist of investment and operating costs. The investment costs included project costs and replacement costs of equipment for the lifetime of the project. Projected operating costs were based on the technical evaluation carried out during

[35] Burke, L. and J. Maidens. 2004. "Reefs at Risk in the Caribbean". Washington DC. World Resources Institute

[36] Burke, l. and S. Grrenhalg, D. Prager, and E. Cooper. 2008. "Coastal Capital- Economic Valuation of Coral Reefs in Tobago and Saint Lucia". Washington D.C. World Resources Institute.

the preparation phase, and they were estimated as a percentage of the investment costs. Table 18 shows the investment costs of the sample of subproject selected for this evaluation.

Table 18: Costs of the Subprojects on Sample

Subprojects on Sample	*Million USD*	*Approach to Measure Benefits*
Choc Bridge	8.2	Avoided Costs
Marchand River Bank	2.2	Avoided Costs
Community Center at Babonneau	1.5	Avoided Costs
National Highway	4.2	Avoided Costs
Soufriere, Canaries, and Anse-la-Raye	0.5	Avoided Costs
TOTAL	~~13.8~~	

Benefits

22. *Benefits.* *Financial* benefits were not estimated, as it is not a revenue-generating project. *Economic benefits* were estimated in relation to damage reduction of infrastructure due to risk reduction to natural hazards or climate change. There would be primary benefits obtained by direct users of the infrastructure, and secondary benefits obtained by other stakeholders, such as the GoSL, other economic sectors etc. The private sector and civil society are key beneficiaries. The benefit was estimated only for direct beneficiaries and so results are on the conservative side, as more benefits would be obtained for the whole island and all productive sectors.

23. Economic benefits were estimated using revealed preference technique through avoided costs approach. The benefits obtained with the avoided cost correspond to the savings the beneficiaries would have when coping costs are reduced once the project is implemented. The avoided cost was measured as the net difference of the damage costs obtained for both scenarios: with and without project. Two categories were included: (a) direct damage to infrastructure (capital assets and stock comprised); and (b) direct damages to users of the infrastructure. A third category, which would occur, was not included due to lack of information, that is, the indirect impact to the productive and social sectors.

24. For each scenario the expected damage cost was estimated as the damage cost multiply by its probability of occurrence. The damage cost for each category was estimated based on damages occurred in previous events for different magnitude and storm recurrence period. A curve with total damage costs was built for both scenarios: with and without project, versus the probability of occurrence. The area[37] under the curve corresponds to the *expected damage cost* for each scenario. The difference between the expected damage cost *with* project scenario, and the expected damage cost *without* project scenario corresponds to the *expected avoided damage costs*, or *expected benefits* of the project.

25. The expected damage costs of direct damage on infrastructure include costs of immediate, short and medium term emergency works. According to recurrence period, the immediate works could include minor repair and cleaning, or major debris removal, critical river de-silting, diversions and temporary works. They were aimed primarily at restoring immediate

[37] The area under the curve is calculated as the sum of trapezoids whose areas are equal to the average of the bases times the height. The average of the bases is the average of the damage cost, and the height is the difference between the probabilities.

access to the infrastructure. The short and medium term costs represent completing some of the immediate works and preserving the components of the infrastructure under direct threat of further damage. It is mainly rehabilitation works, and in general costs to reinstall it, further damage to components of the infrastructure, and replacement of damaged infrastructure for improved performance.

26. For damage cost of the infrastructure it was used the information from FDL of the typical costs ratio for bridge structure according to recurrence period taking 1:100 years as the basic case scenario as this is the recurrence period for which the investment is designed. . The cost of cleaning debris and minor repairs is added.

	Typical Cost Ratios for bridges structures	
		1:100 years
Flood return period	1:50 years =100%	=100%
1:5 years	82%	75%
1:10 years	84%	76%
1:20 years	91%	83%
1:50 years	100%	91%
1:100 years	110%	100%
1:200 years	121%	110%
1:500 years	142%	129%
1:1000 years	160%	145%

27. The expected damage cost of direct damages to users of infrastructure include the fuel cost as well as the cost of time spent crossing through the damage infrastructure or alternate infrastructure, compared with the costs crossing when infrastructure is operating well.

28. For the fuel cost an average efficiency was used for each type of vehicle as well as the current price per gallon (EC 15.30). For the cost of the time, an average hourly wage (XCD 15 per hour) for the tourist sector which used, as the tourism is the prevalent activity on Gros-Islet, main point of destination. Table 19 shows results for Choc Bridge.

Table 19: Damage costs for Choc Bridge Fuel and Time costs

	Fuel Costs 000 EC		*Time Costs 000 EC*	
	w/o project	*with project*	*w/o project*	*with project*
Motorcycle	0.9	0.2	2.6	0.4
Car	790.1	210.7	296.3	49.4
Minibus	264.6	70.6	99.2	16.5
Pick-up trucks	217.3	57.9	81.5	13.6
Large Bus	16.6	4.4	6.2	1.0
Trucks 2 Axis	59.1	15.8	22.2	3.7
Trucks 3 Axis	6.5	1.7	2.5	0.4
Total	1,355	361	510	85

29. The same categories of costs were included in the riverbank stabilization subproject, for which the damage cost on houses was included. For community center subproject damage costs consisted of damage on infrastructure and revenue loss for canceling social events when service is disrupted.

30. *Enhancing Coral Reef Recovery.* The marine area of Anse-la-Raye, Soufriere and Canaries are the most extensive reef systems in Saint Lucia. Much of the reef has been declared marine reserves under the Fisheries Act Cap. 7.15 and are managed through the establishment of Marine Management Areas. Coral wellbeing may be influenced largely by events occurring on land rather than the sea. Marine Management Areas have emerged as the most promising management tool to conserve coral reefs, as they provide the most effective protection for activities such as fishing, dredging and runoff that produce sedimentation. The Project would support the Department of Forestry, MIPS&T, and WRMA, on interventions for reducing sediment loading of waterways, and for monitoring water quality in watershed in areas island-wide including Anse-la-Raye, Soufriere and Canaries.

31. These activities by themselves do not bring the health needed for the reefs, yet they are required to guarantee a successful implementation and sustainability of interventions related to the protection and recovery of coral reefs. To understand the magnitude of the benefits associated with coral reefs, the economic valuation of Coral Reefs in Saint Lucia study prepared by the World Research Institute (WRI) was taken as reference.[38] The mentioned study measured the annual benefits on the following sectors associated with coral reef: tourism, fisheries, and shoreline protection services. These sectors were chosen because of their importance in Saint Lucia's economy and because data was available to support estimation of benefits.

32. The estimated benefits by WRI study in each sector for Saint Lucia are: (a) *Tourism and Recreation.* 25 percent of tourists visit Saint Lucia in part due to coral reefs and they bring direct benefits from amount spent on accommodation, reef recreation, and miscellaneous; and indirect benefits from other sectors that need to support these activities. Estimated benefits ranged from US$160 to 194 million in 2006; (b) *Fisheries*. Coral reef-associated fisheries have impact on jobs, cultural value, and social safety net. The economic impact was estimated from US$0.5 to 0.8 million per year; and (c) *Shoreline Protection.* Coral reefs in Saint Lucia protect about 44 percent of shoreline with associated benefits between US$28 to 50 million in 2007. The study also produced rough estimates of the value of local residents' use of reefs and coastline beaches, estimated as US$52-109 million, and indirect impact from the need for boats, fuel, nets, etc estimated at US$0.5 – 0.8 million. Total annual benefits from coral reef protection range from US$243 to US$356.

33. The Coral Reef Recovery activities to be implemented under the project has a cost of US$0.5 million and therefore would need to achieve at least 0.2 percent of coral reef protection benefits to be economically viable.

Results

34. Results show that the Project is economically viable with benefits of US$9 million and returns of 21 percent. Among the sample the returns are similar at around 20 percent, and the community center demonstrates benefits of 13 percent (Table 20).

[38] Burke, l. and S. Grrenhalg, D. Prager, and E. Cooper. 2008 World Research Institute.

Table 20: Economic Results

Economic Results	*Present value of flows (Thousand USD)*			
	COSTS	*BENEFIT*	*NET BENEFIT*	*IRR*
Choc Bridge	1,589	7,051	5,462	23.8%
Marchand River Bank	1,639	2,788	1,149	19.1%
Community Center	503	588	85	13.0%
National Highway	2,034	4,699	2,665	21.5%
Total Sample	5,764	15,125	9,361	21%

35. The *Enhancing Coral Reef Recovery* subproject is economically viable if it contributes at least 0.2 percent of the benefits derived from coral reef recovery and protection.

Sensitivity Analysis

36. The sensitivity analysis allows comparing the base case scenario with more additional scenarios to identify the extreme and most likely project outcomes. The variables identified as the ones with the greatest effect on project's outcome are: (i) investment cost overrun; (ii) operating cost overrun; (iii) project delays; and (iv) reduction on economic benefits.

37. The sensitivity analysis allows identifying the value of the chosen variables that causes the project to exactly break even. The analysis was carried out for the economic outcome and the results show that investment costs and project delay are the most important variables for the community center, as with only one year delay on investment the project would become non viable, with same results for 29 percent increase on investment costs. For the other subprojects the room is wider for changes in selected variables, as changes on investment costs and benefits can be as high as 50 percent and the project would still show benefits. The Project can be delayed as much as five years and still show positive results. Details are shown in Table 21.

Table 21: Results of the Sensitivity Analysis

Sample Subprojects	BREAK-EVEN OF THE PROJECT'S ECONOMIC OUTCOME			
	Costs overrun		Delay (years)	Reduction on benefits
	Investment %	Operating %	#	%
Choc Bridge	56%	500%	6	50%
Marchand River Bank	51%	600%	5	41%
Community Center	29%	380%	1	14%
National Highway	52%	675%	7	52%
Total Sample	*51%*	*663%*	*6*	*47%*

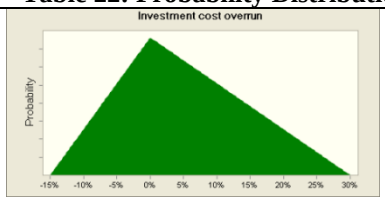
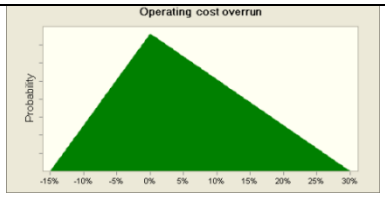
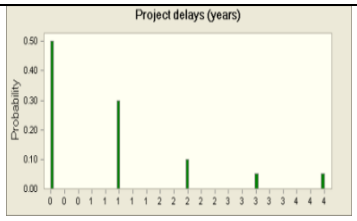
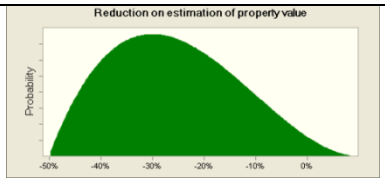
38. Regarding the coral reef enhancement activity, sensitivity analysis shows that 100 percent increase on investment cost, would require benefits of at least 0.3% of those derived from coral reef protection.

Risk Analysis

39. To enhance the accuracy of the economic analysis, a risk analysis was carried out using the Crystal Ball. This software works with Monte Carlo simulation sampling probability

distribution for each of the variables selected and produced hundred or thousand of possible outcomes. The results allow getting the probability of obtaining positive results with the project. The assumed probability distributions and their respective specifications for each variable are presented in Table 22.

Table 22: Probability Distribution selected for each variable

Investment Cost Overrun		Triangular distribution with parameters: Minimum -15% Likeliest 0% Maximum 30%
Operating Cost Overrun		Triangular distribution with parameters: Minimum -15% Likeliest 0% Maximum 30%
Project Delay		Custom distribution with parameters: Value Probability 0 0.50 1 0.30 2 0.10 3 0.05 4 0.05
Reduction on benefits		Beta distribution with parameters: Minimum -50% Maximum 10% Alpha 2 Beta 3

40. The results for the economic analysis show a very sound project with 95 percent probability of having positive results and expected benefit of about US$8 million. Details are shown in Table 23.

Table 23: Financial and Economic Risk Assessment

Sample Subprojects	*Economic Analysis*	
	Probability of Positive NPV	*Expected Mean NPV (000US$)*
Choc Bridge	97%	4,038
Marchand River Bank	95%	1,449
Community Center	70%	97
National Highway	95%	2,650
Total Sample	*95%*	*8,234*